CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

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

June 27, 2022

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

RE: **Notice of Exempt Modification for AT&T**
Crown Site ID#876325; AT&T Site ID#CTL05152
92 Weston Street, Hartford, Connecticut 06103-1217
Latitude: 41° 47′ 12.30″/ Longitude: -72° 39′ 44.42″

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 90-foot mounts on the existing 110-foot Monopole Tower located at **92 Weston Street, Hartford.** The property is owned by Freeport Realty V LLC and the Tower by Crown Castle. AT&T now intends to replace nine (9) antennas. This modification/proposal includes hardware that is both 4G(LTE) and 5G capable through remote software configuration and either or both services may be turned on or off at various times.

Planned Modifications:

Tower:

REMOVE AND REPLACE

(3) CCI – OPA65R-BU6DA Antennas (**REMOVE**), (3) Ericsson Air6449 N77D Stacked Antennas (**INSTALL**)
(3)Quintel–QS66512-2 Antennas (**REMOVE**), (3) Ericsson Air 6419 N77G Stacked Antennas (**INSTALL**)
(3) Powerwave - 7770 Antennas (**REMOVE**), (3) Quintel-QD6616-7 Antennas (**INSTALL**)

REMOVE

(12) 1-5/8" Coax Cable
(3) Powerwave Tech – LGP21901

RELOCATE

(3) CCI- DMP65R-BU6DA Antennas
(3) Ericsson – RRUS 4478 B14 Remote Radio units
(3) Ericsson – 4449 B5/B12 Remote Radio units
(3) Ericsson – RRUS 32 B66A Remote Radio units
(3) Ericsson – RRUS-E2-B29 Remote Radio units
(3) Ericsson – 4415 B25 Remote Radio units
(3) Ericsson – RRUS-32 B30 Remote Radio units

INSTALL

(1) RAYCAP DC6-48-60-18-8F Junction box
(1) FB-L98B-034-XXX Fiber Cable
(2) PWRT-606-S Power Cable
(3) Y Cables

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GROUND SCOPE OF WORK
Remove (1) 5216, DUS41, XMU & (12) Powerwave LGP21901 Diplexer's
Install (1) 6648 With Xcede Cable

The facility was approved by The City of Hartford on November 26, 1996. This approval was given without conditions.

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 Luke Bronin, City of Hartford Mayor, I. Charles Mathews, City of Hartford Development Services Director, Freeport Realty V LLC, property owner

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

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

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

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

Sincerely,

Ersilia Davis
Crown Castle, Agent for AT&T
edavis@nbcllc.com
(551)804-0667

CROWN CASTLE

1 Cityplace Dr, Suite 490
Creve Coeur, MO 63141

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

cc:

Luke Bronin, Mayor
City of Hartford
Hartford City Hall
550 Main Street, 2nd Floor, Room 200
Hartford, CT 06103
(860) 757-9500
(Via Fedex)

I. Charles Mathews, Development Services Director
City of Hartford
260 Constitution Plaza, 1st Floor
Hartford, CT 06103
(860) 757-9040
(Via Fedex)

Freeport Realty V LLC, Property owner
337 Freeport St.
Boston, MA 02122-3546
(Via Fedex)
(860) 985-5005

(https://www.fedex.com/en-us/home.html)

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Ersilia Davis
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Blue Bell, PA US 19422
5518040667

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NEWBURGH, NY
6/28/2022 19:05

IN TRANSIT
WINDSOR LOCKS, CT
6/29/2022 07:34

OUT FOR DELIVERY
WINDSOR LOCKS, CT
6/29/2022 08:54

DELIVERED
I. Charles Mathews
City of Hartford
260 Constitution Plaza, 1st Floor
HARTFORD, CT US 06103
8607579040

DELIVERED
6/29/2022 at 10:19 AM

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Blue Bell, PA US 19422
5518040667

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6/28/2022 08:38

PACKAGE RECEIVED BY FEDEX
NEWBURGH, NY
6/28/2022 19:05

IN TRANSIT
WINDSOR LOCKS, CT
6/29/2022 07:33

OUT FOR DELIVERY
WINDSOR LOCKS, CT
6/29/2022 08:56

DELIVERED
Luke Bronin, Mayor
City of Hartford
550 Main Street, 2nd Floor, Room 20
HARTFORD, CT US 06103
8607579500

DELIVERED
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Signed for by: L.LIU

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777245833862

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Ersilia Davis
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Blue Bell, PA US 19422
5518040667

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6/28/2022 08:35

PACKAGE RECEIVED BY FEDEX
NEWBURGH, NY
6/28/2022 19:05

IN TRANSIT
SOUTH BOSTON, MA
6/29/2022 07:16

OUT FOR DELIVERY
SOUTH BOSTON, MA
6/29/2022 08:02

DELIVERED
Freeport Realty V LLC
337 Freeport St.
BOSTON, MA US 02122
8609855005

DELIVERED
6/29/2022 at 9:14 AM

Exhibit A

Original Facility Approval

CT03XC064

BUILDING PERMIT

DEPARTMENT OF LICENSES & INSPECTIONS
CITY OF HARTFORD

Appl. Nbr.964013 Permit Nbr. 964785 E

THE APPLICANT NAMED BELOW IS HEREBY GRANTED PERMISSION TO PERFORM WORK AS DESCRIBED HEREIN AT:

0000 0092 WESTON ST

FLOOR: 0 0 0 CONDO:

IN ACCORDANCE WITH THE APPLICATION AND PLANS APPROVED BY THE DEPARTMENT OF LICENSES AND INSPECTIONS.

Joseph Hewes Date 11/26/96
Building Official

OWNER: WESTON SQUARE ASSOCIATES
ADDRESS: ONE HARTFORD SQUARE
NEW BRITAIN, CT 06051

APPLICANT: **MIKE EVANCHICK**
SPRINT SPECTRUM LP
9 BARNES INDUSTRIAL RD
WALLINGFORD, CT 06492

294-5600

ESTIMATED COST: $ 98000.

Application Date: 10/08/96 Fee: 1568.00

DESCRIPTION OF JOB:
INSTALLATION OF 110 FT MONOPOLE WITH 6 ANTENNAS AND ASSOCIATED INFRASTRUCTURE.

PARCEL ID.: NOT FOUND

Exhibit B

Property Card

Unofficial Property Record Card - Hartford, CT

General Property Data

Parcel ID	286-173-007	**Account Number**	
Prior Parcel ID			
Property Owner	FREEPORT REALTY V LLC	**Property Location**	92 WESTON ST
		Property Use	WAREHOUSE
Mailing Address	337 FREEPORT ST	**Most Recent Sale Date**	9/20/2019
		Legal Reference	07527-0278
City	BOSTON	**Grantor**	NEPREO INC
Mailing State	MA Zip 02122	**Sale Price**	0
ParcelZoning	ID-1	**Land Area**	187,334.453 acres

Current Property Assessment

Card 1 Value	Building Value	Xtra Features Value	Land Value	Total Value
	1,034,320	59,780	464,800	1,558,900

Building Description

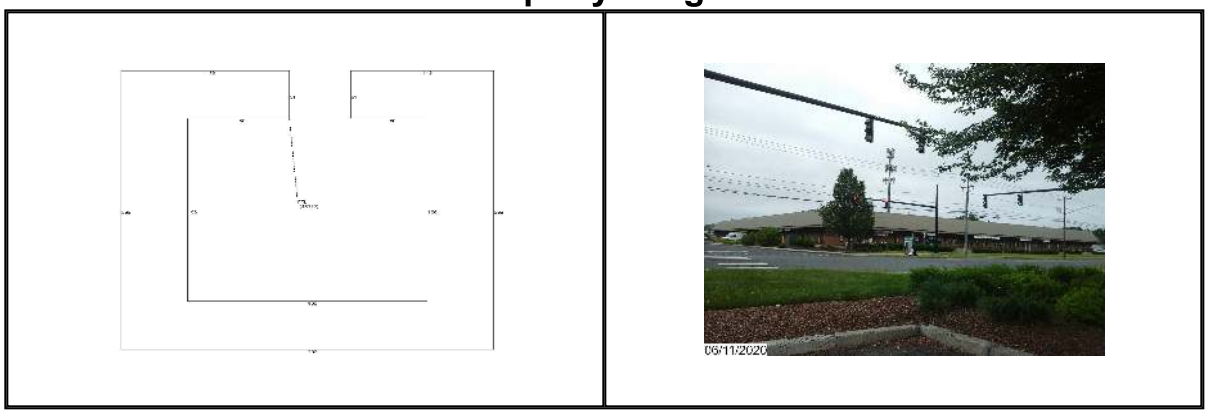
Building Style	OFFICE/WHS	**Foundation Type**	Concrete	**Flooring Type**	COMBINATION
# of Living Units	0	**Frame Type**	Steel	**Basement Floor**	N/A
Year Built	1978	**Roof Structure**	FLAT	**Heating Type**	Warm Air
Building Grade	Average	**Roof Cover**	Metal	**Heating Fuel**	Gas
Building Condition	N/A	**Siding**	Brick	**Air Conditioning**	30%
Finished Area (SF)	N/A	**Interior Walls**	DRYWALL	**# of Bsmt Garages**	0
Number Rooms	0	**# of Bedrooms**	0	**# of Full Baths**	0
# of 3/4 Baths	0	**# of 1/2 Baths**	0	**# of Other Fixtures**	0

Legal Description

Narrative Description of Property

This property contains 187,334.453 acres of land mainly classified as WAREHOUSE with a(n) OFFICE/WHS style building, built about 1978 , having Brick exterior and Metal roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 room(s), 0 bedroom(s), 0 bath(s), 0 half bath(s).

Property Images



Disclaimer: This information is believed to be correct but is subject to change and is not warranteed.

Exhibit C

Construction Drawings

THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER APPLICABLE LAW.
DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

AT&T SITE NUMBER:	**CTL05152**
AT&T SITE NAME:	**HARTFORD NORTH**
AT&T FA CODE:	**10071071**
AT&T PACE NUMBER:	**MRCTB052252, MRCTB051064**
AT&T PROJECT:	**5G NR 1SR CBAND**

BUSINESS UNIT #:	**876325**
SITE ADDRESS:	**92 WESTON STREET HARTFORD, CT 06103**
COUNTY:	**HARTFORD**
SITE TYPE:	**MONOPOLE**
TOWER HEIGHT:	**110'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	WESTON SQUARE
SITE ADDRESS:	92 WESTON STREET HARTFORD, CT 06103
COUNTY:	HARTFORD
MAP/PARCEL #:	286173007
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.7863919
LONGITUDE:	-72.6624989
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	12'
CURRENT ZONING:	ID-1
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	FREEPORT REALTY V LLC. 337 FREEPORT ST. BOSTON, MA 02122
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	EVERSOURCE (800) 286-2000
TELCO PROVIDER:	AT&T (877) 364-0789

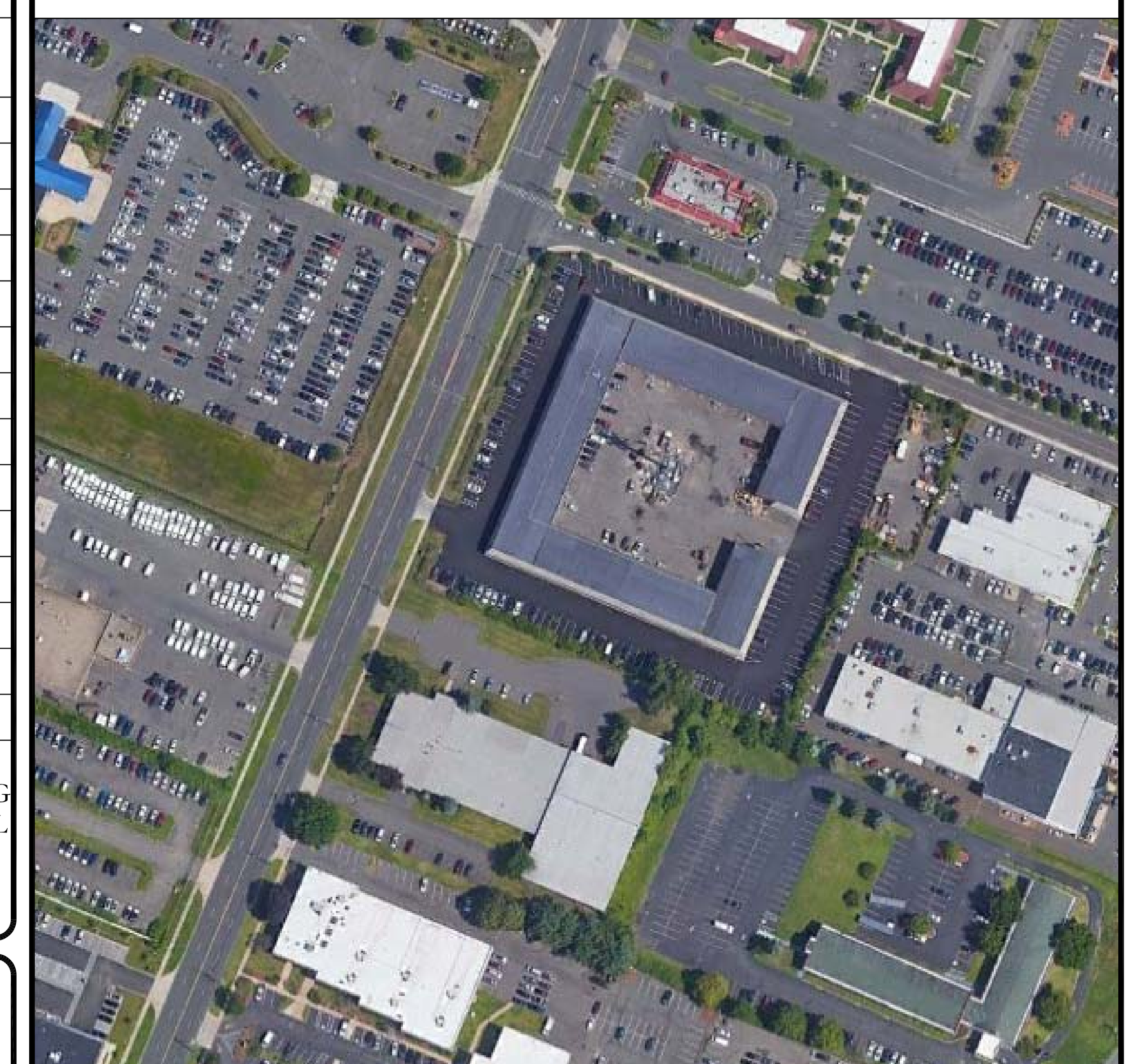
DRAWING INDEX

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.

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

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S BOULDER AVE, SUITE 300 TULSA, OK 74119 JENNY PAUL jpaul@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277 PAUL PEDICONE - PROJECT MANAGER PAUL PEDICONE@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN 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) CCI - OPA65R-BU6DA ANTENNAS
- REMOVE (3) QUINTEL - QS66512-2 ANTENNAS
- REMOVE (3) POWERWAVE - 7770 ANTENNAS
- REMOVE (12) (1-5/8") COAX CABLE
- REMOVE (6) POWERWAVE TECH - LGP21901
- RELOCATE (3) CCI - DMP65R-BU6DA
- RELOCATE (3) ERICSSON - RRUS 4478 B14
- RELOCATE (3) ERICSSON - 4449 B5/B12
- RELOCATE (3) ERICSSON - RRUS-32 B66A
- RELOCATE (3) ERICSSON - RRUS-E2 B29
- RELOCATE (3) ERICSSON - 4415 B25
- RELOCATE (3) ERICSSON - RRUS-32 B30
- INSTALL (3) QUINTEL - QD6616-7 ANTENNAS
- INSTALL (3) ERICSSON - AIR6449 N77D STACKED ANTENNAS
- INSTALL (3) ERICSSON - AIR6419 N77G STACKED ANTENNAS
- INSTALL (1) RAYCAP DC6-48-60-18-8F JUNCTION BOX
- INSTALL (1) FB-L98B-034-XXX FIBER CABLE
- INSTALL (2) PWRT-606-S POWER CABLE
- INSTALL (3) Y CABLES

GROUND SCOPE OF WORK:
- REMOVE (1) 5216, DUS41, XMU & (12) POWERWAVE LGP21901 DIPLEXERS's
- INSTALL (1) 6648 WITH XCEDE CABLE

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	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BLACK & VEATCH CORP
DATED:	9/10/21
MOUNT ANALYSIS:	B+T GROUP
DATED:	9/8/21
AC ELECTRICAL POWER DESIGN:	N/A
DATED:	
RFDS REVISION:	2
DATED:	3/2/21
ORDER ID:	556509
REVISION:	0

575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

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

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

AT&T SITE NUMBER:
CTL05152

BU #: **876325**
WESTON SQUARE

92 WESTON STREET
HARTFORD, CT 06103

EXISTING
110'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/8/21	HN	PRELIMINARY REVIEW	VP
B	10/14/21	CLG	PRELIMINARY REVIEW	CLG
C	1/12/22	JJR	PRELIMINARY REVIEW	YX
C	2/22/22	JCO	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

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

SHEET NUMBER:	REVISION:
T-1	C

136350.009.01_WESTON SQUARE CCI ATT.dwg – Sheet:T-1 – User: mjones – Feb 22, 2022 – 3:45pm

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

APWA UNIFORM COLOR CODE:

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

GREENFIELD GROUNDING NOTES:

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

ABBREVIATIONS:

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

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AT&T SITE NUMBER:
CTL05152

BU #: **876325**
WESTON SQUARE

92 WESTON STREET
HARTFORD, CT 06103

EXISTING
110'-0" MONOPOLE

ISSUED FOR:

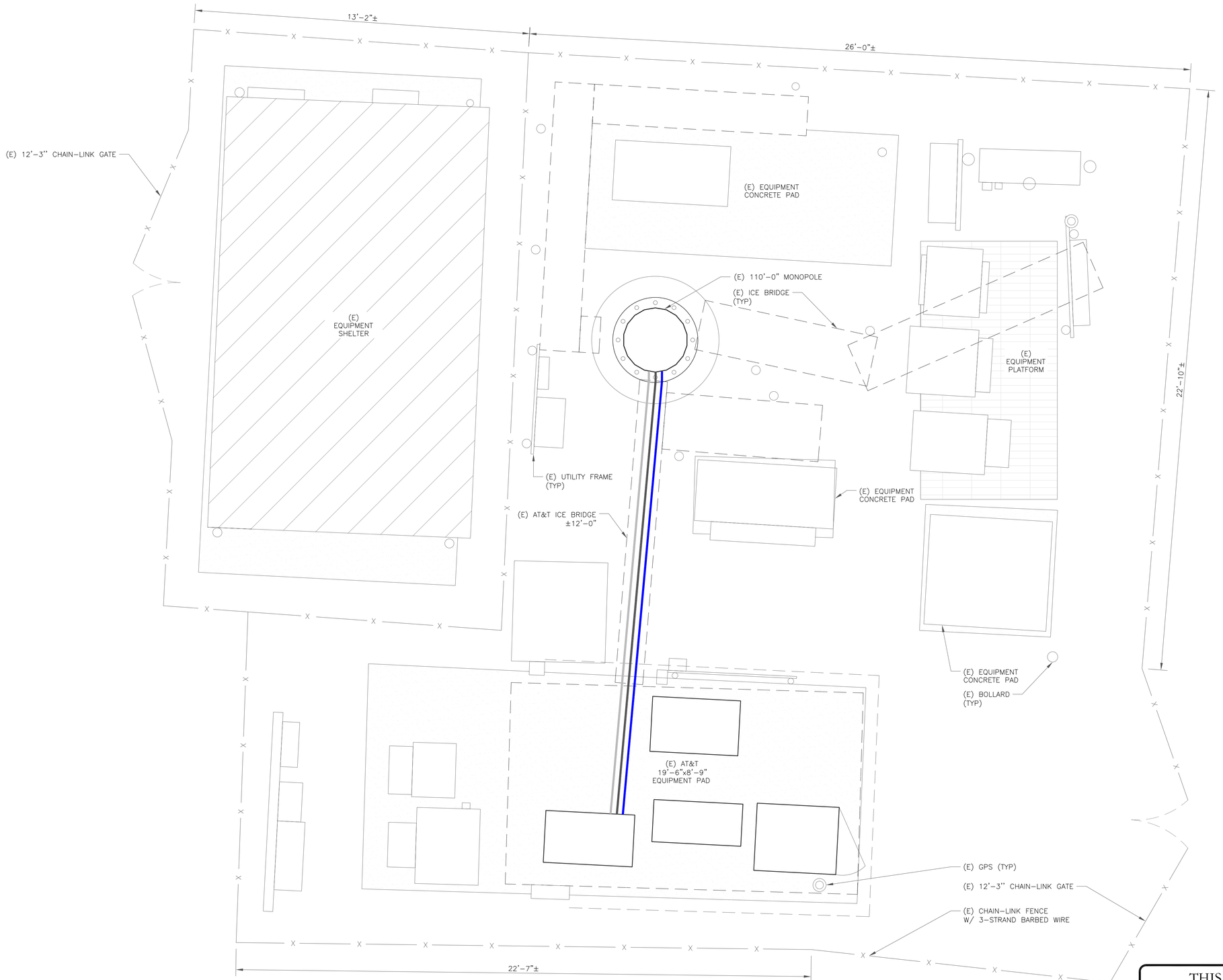
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/8/21	HN	PRELIMINARY REVIEW	VP
B	10/14/21	CLG	PRELIMINARY REVIEW	CLG
C	1/12/22	JJR	PRELIMINARY REVIEW	YX
C	2/22/22	JCO	CONSTRUCTION	MTJ

No. 23924 LICENSED PROFESSIONAL ENGINEER
2/22/22

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

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

SHEET NUMBER: T-2
REVISION: C



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

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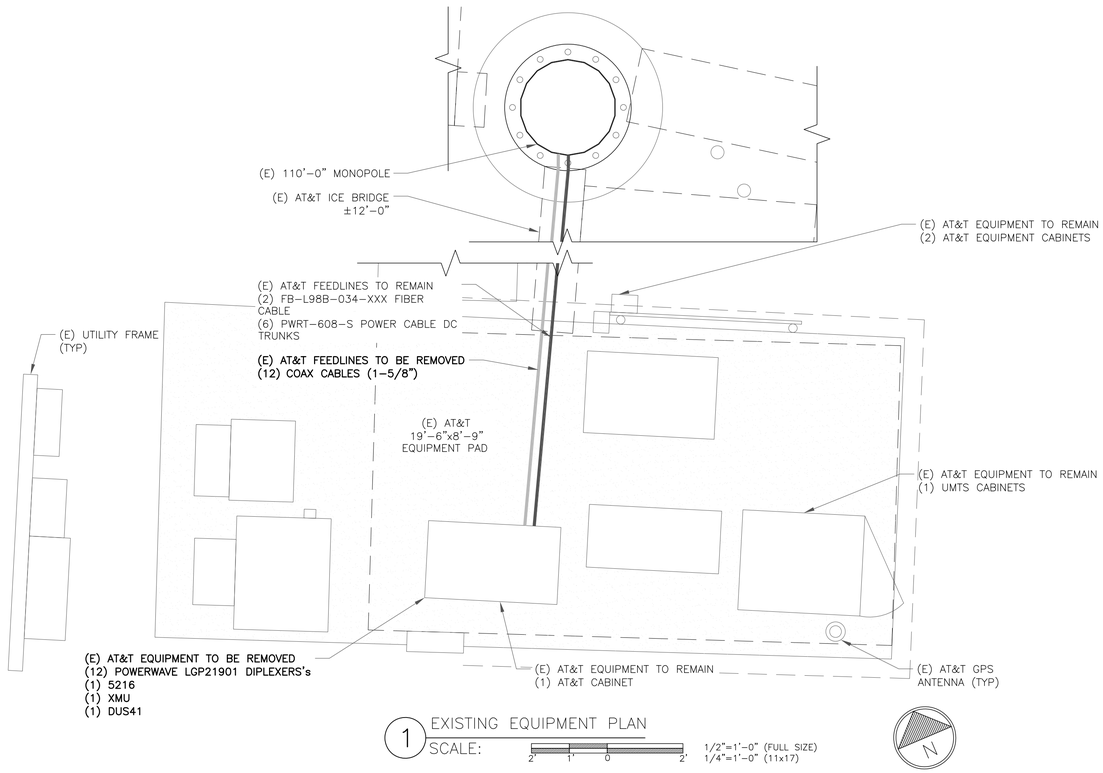
STATE OF CONNECTICUT
CHRISTOPHER L. GOUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
2/22/22

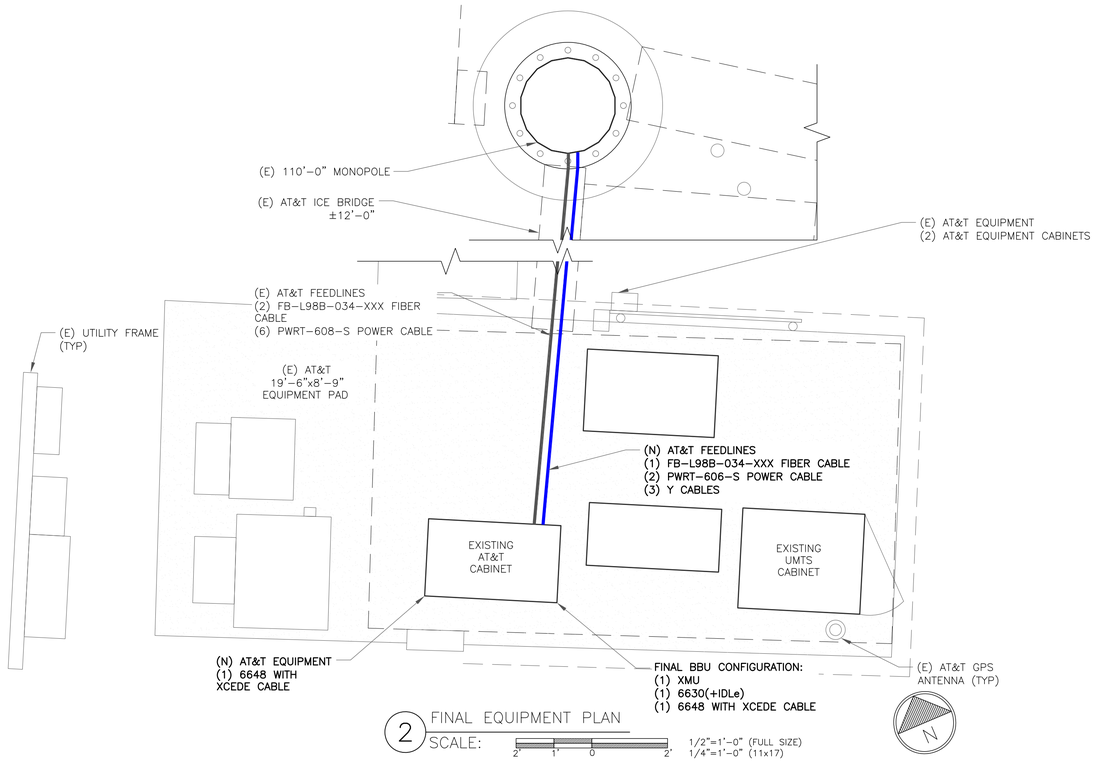
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

SHEET NUMBER: C-1.1
REVISION: C



1 EXISTING EQUIPMENT PLAN

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



2 FINAL EQUIPMENT PLAN

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

GROUND SCOPE OF WORK:

- INSTALL (1) 6673 FHG
- INSTALL (1) 6630 (+IDLe)

NOTE:

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

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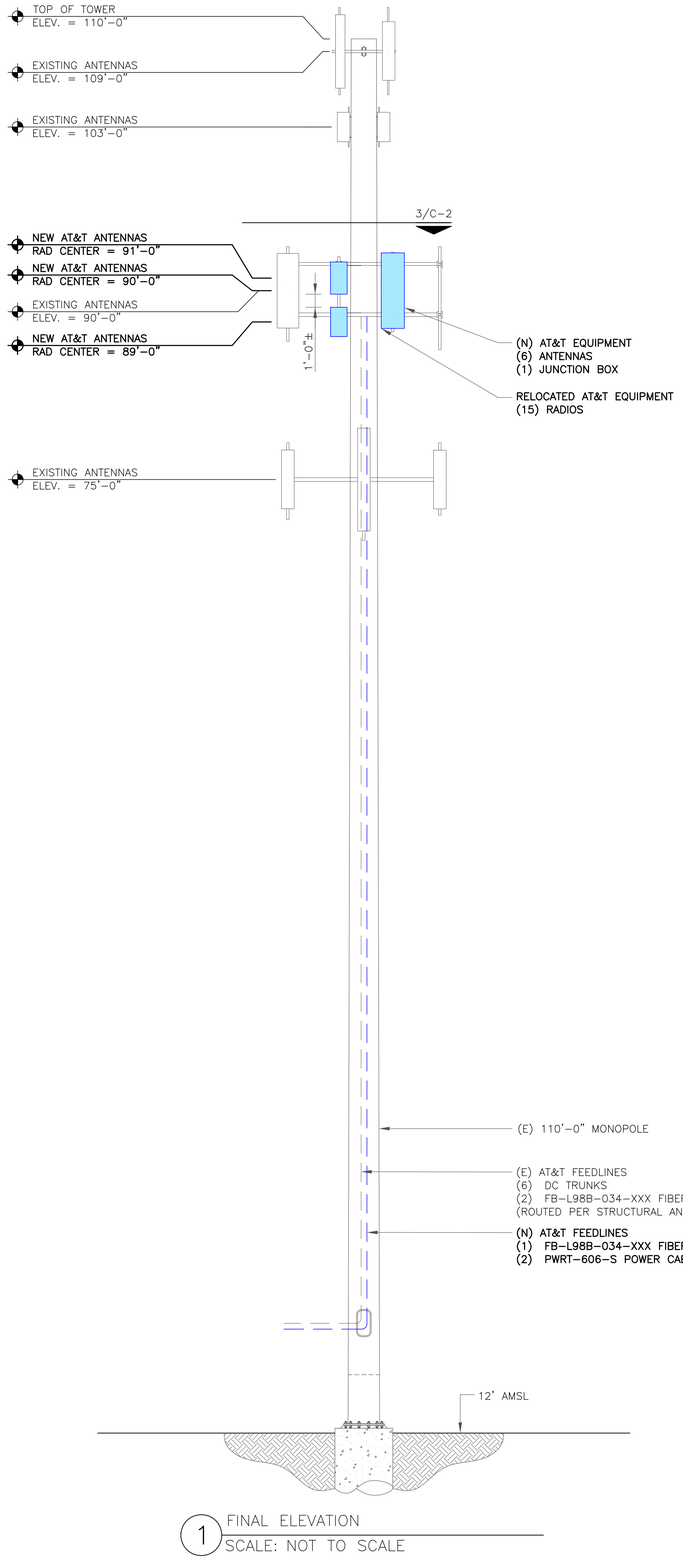
C	1/12/22	JJR	PRELIMINARY REVIEW	YX
C	2/22/22	JCO	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
CHAD L. GAUDET
No. 23924
LICENSED PROFESSIONAL ENGINEER
2/22/22

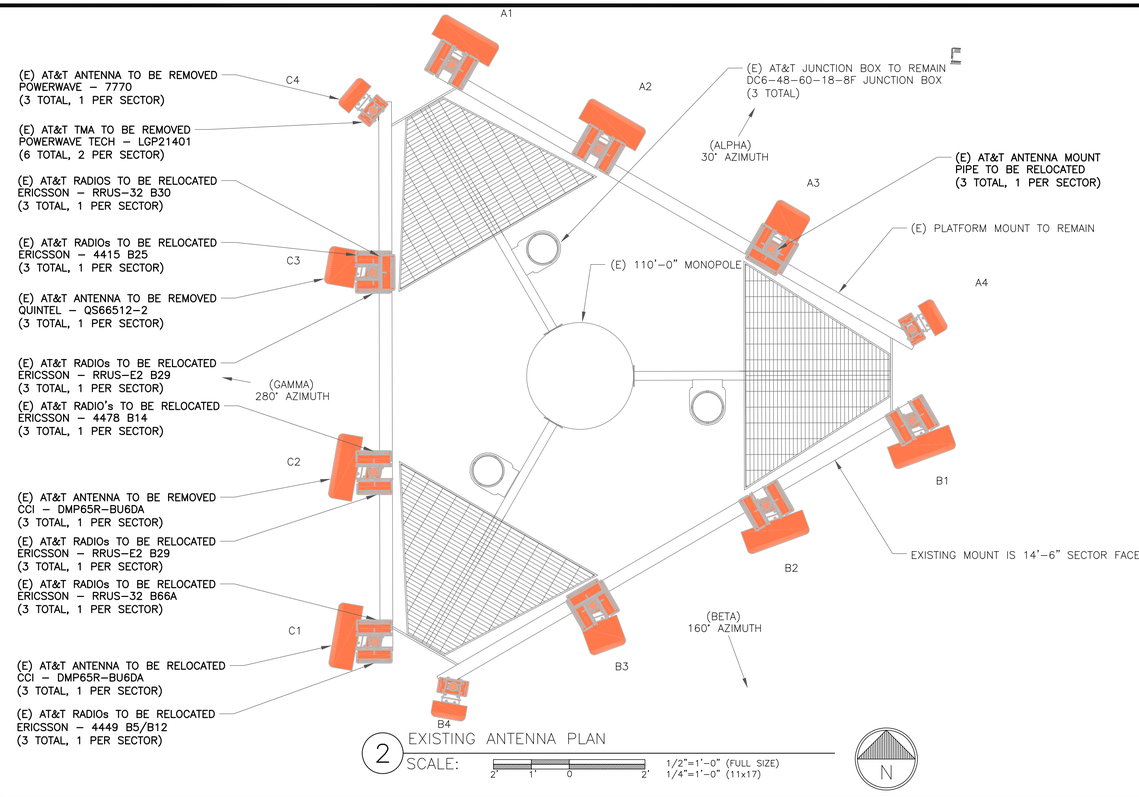
B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

SHEET NUMBER: C-1.2

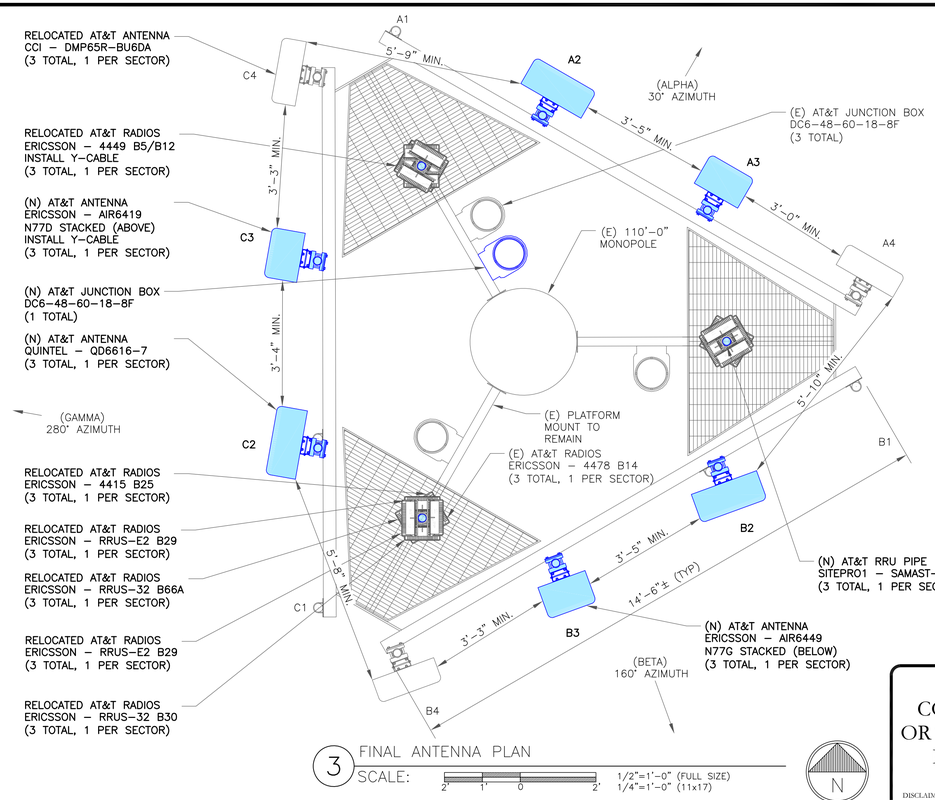
REVISION: C



1 FINAL ELEVATION
SCALE: NOT TO SCALE



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



3 FINAL ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=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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AT&T SITE NUMBER:
CTL05152

BU #: **876325**
WESTON SQUARE

92 WESTON STREET
HARTFORD, CT 06103

EXISTING
110'-0" MONOPOLE

ISSUED FOR:

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SHEET NUMBER: C-2

REVISION: C

FINAL ANTENNA AND FEEDLINE SCHEDULE

POS.	TECH	STATUS	AZIMUTH	ANTENNA TYPE	ANTENNA RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	MAIN COAX SIZE	MAIN COAX LENGTH	COAX QTY	TMA QTY AND MODEL	SURGE PROTECTION	DC/FIBER CABLES	RRHs QTY & MODEL ON TOWER	LOCATION	DIPLEXER ON TOWER	DIPLEXER ON GROUND	RET CABLE
ALPHA SECTOR																		
A1	–	–	–	EMPTY MOUNT PIPE	–	–	–	–	–	–	–	(1) DC6-48-60-18-8F JUNCTION BOX; **(1) DC6-48-60-18-8F JUNCTION BOX**	**(4) PWRT-608-S POWER CABLE**; (1) FB-L98B-034-XXX FIBER CABLE; **(1) FB-L98B-034-XXX FIBER CABLE**	–	TOWER	N	N	N
A2	LTE 700/ LTE 1900/ LTE AWS/ 5G AWS/ 5G 1900	NEW	30°	QUINTEL – QD6616-7	90'-0"	0°	3°/2°/7°/7°/ 7°/8°/7°/7°	–	–	–	–			(1) ERICSSON – 4478 B14 (1) ERICSSON – 4415 B25 (1) ERICSSON – RRUS-32 B66A (1) ERICSSON – RRUS-E2 B29	TOWER	N	N	N
A3	5G CBAND	NEW	30°	ERICSSON – AIR6449 B77D	91'-0"	0°	0°/0°	–	–	–	–			INTEGRATED RADIO WITH ANTENNA	TOWER	N	N	N
				ERICSSON – AIR6419 B77G	89'-0"	0°	0°/0°											
A4	LTE 700/5G 850/LTE WCS	EXISTING	30°	CCI – DMP65R-BU6DA	90'-0"	0°	3°/3°/3°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30	TOWER	N	Y	N
BETA SECTOR																		
B1	–	–	–	EMPTY MOUNT PIPE	–	–	–	–	–	–	–	(1) DC6-48-60-18-8F JUNCTION BOX	**(2) PWRT-608-S POWER CABLE**; (1) FB-L98B-034-XXX FIBER CABLE	–	TOWER	N	N	N
B2	LTE 700/ LTE 1900/ LTE AWS/ 5G AWS/ 5G 1900	NEW	160°	QUINTEL – QD6616-7	90'-0"	0°	3°/2°/7°/7°/ 7°/8°/7°/7°	–	–	–	–			(1) ERICSSON – 4478 B14 (1) ERICSSON – 4415 B25 (1) ERICSSON – RRUS-32 B66A (1) ERICSSON – RRUS-E2 B29	TOWER	N	N	N
B3	5G CBAND	NEW	160°	ERICSSON – AIR6449 B77D	91'-0"	0°	0°/0°	–	–	–	–			INTEGRATED RADIO WITH ANTENNA	TOWER	N	N	N
				ERICSSON – AIR6419 B77G	89'-0"	0°	0°/0°											
B4	LTE 700/5G 850/LTE WCS	EXISTING	160°	CCI – DMP65R-BU6DA	90'-0"	0°	3°/3°/3°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30	TOWER	N	Y	N
GAMMA SECTOR																		
C1	–	–	–	EMPTY MOUNT PIPE	–	–	–	–	–	–	–	(1) DC6-48-60-18-8F JUNCTION BOX	**(2) PWRT-606-S POWER CABLE**	–	TOWER	N	N	N
C2	LTE 700/ LTE 1900/ LTE AWS/ 5G AWS/ 5G 1900	NEW	280°	QUINTEL – QD6616-7	90'-0"	0°	3°/2°/7°/7°/ 7°/8°/7°/7°	–	–	–	–			(1) ERICSSON – 4478 B14 (1) ERICSSON – 4415 B25 (1) ERICSSON – RRUS-32 B66A (1) ERICSSON – RRUS-E2 B29	TOWER	N	N	N
C3	5G CBAND	NEW	280°	ERICSSON – AIR6449 B77D	91'-0"	0°	0°/0°	–	–	–	–			INTEGRATED RADIO WITH ANTENNA	TOWER	N	N	N
				ERICSSON – AIR6419 B77G	89'-0"	0°	0°/0°											
C4	LTE 700/5G 850/LTE WCS	EXISTING	280°	CCI – DMP65R-BU6DA	90'-0"	0°	3°/3°/3°	–	–	–	–			(1) ERICSSON – 4449 B5/B12 (1) ERICSSON – RRUS-32 B30	TOWER	N	Y	N

NOTE: BOLD DENOTES NEW EQUIPMENT

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

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C	2/22/22	JCO	CONSTRUCTION	MTJ

STATE OF CONNECTICUT — CHRISTOPHER L. GOETZ — No. 23924 LICENSED PROFESSIONAL ENGINEER
2/22/22

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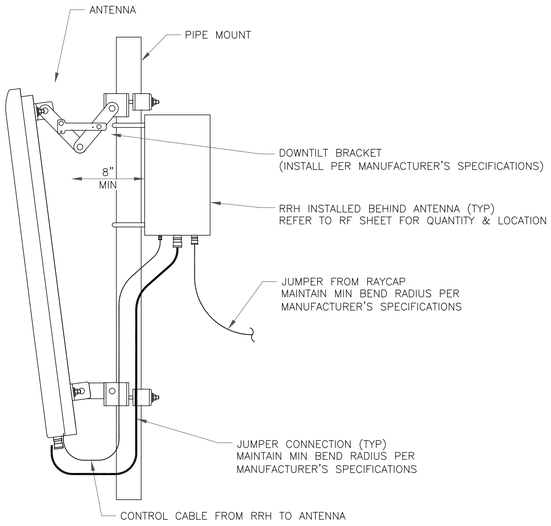
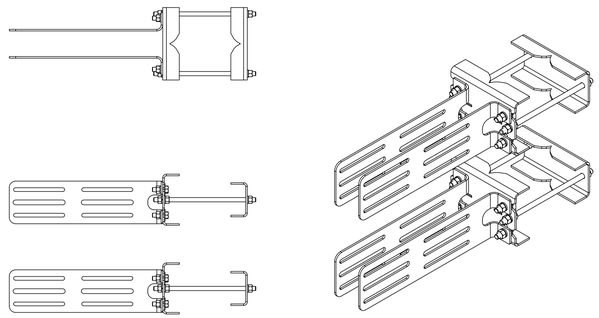
PEC.0001564
Expires 2/1/23

SHEET NUMBER: C-3
REVISION: C

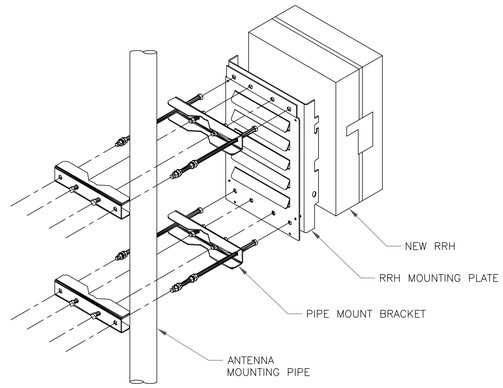


1 GENERIC ANTENNA MOUNTING ELEVATION
SCALE: NOT TO SCALE



COMMSCOPE – RR-FA2
FAST ACCESS DUAL RRH MOUNT

2 COMMSCOPE – RR-FA2
SCALE: NOT TO SCALE



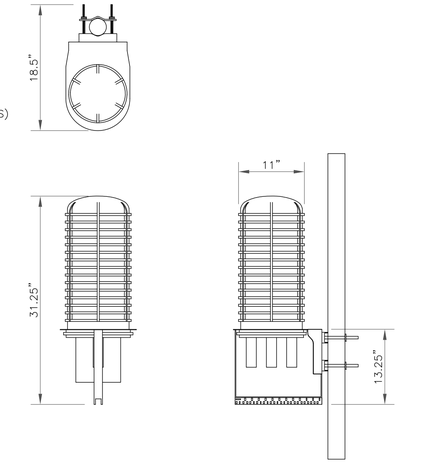
NOTE:
ANTENNA NOT SHOWN FOR CLARITY

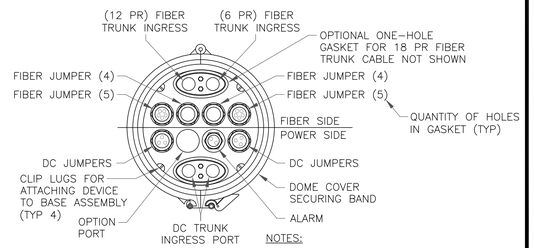
3 SINGLE RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

RAYCAP
DC6-48-60-18-8F

RAYCAP – DC6-48-60-18-8F
SIZE: 11x31.25 IN.
WEIGHT: 32.8 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 400 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

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



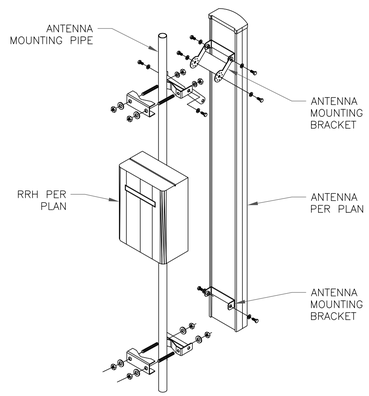


NOTES:
1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



4 ANTENNA WITH RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

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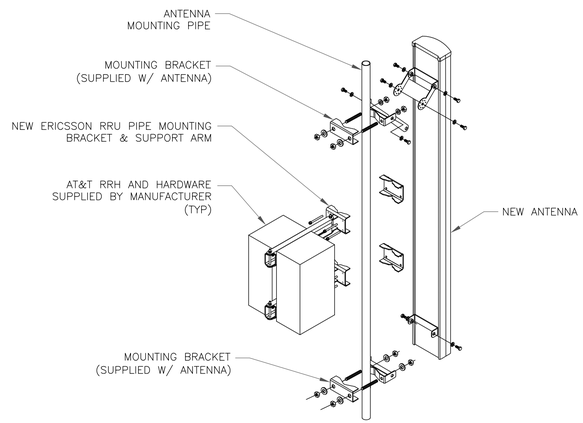
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



5 ANTENNA WITH DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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AT&T SITE NUMBER:
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BU #: **876325**
WESTON SQUARE

92 WESTON STREET
HARTFORD, CT 06103

EXISTING
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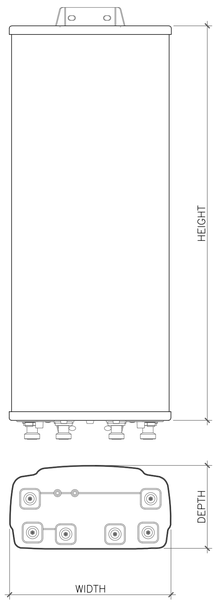
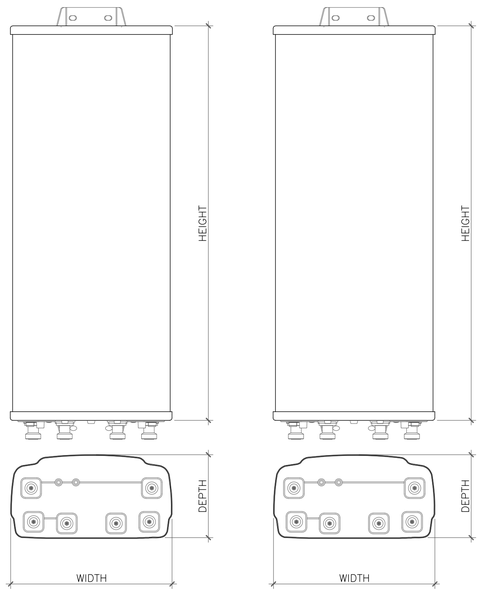
SHEET NUMBER: C-4
REVISION: C



ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
QUINTEL – QD6616-7	72"	22"	9.6"	130 lbs

1 ANTENNA DETAIL
SCALE: NOT TO SCALE



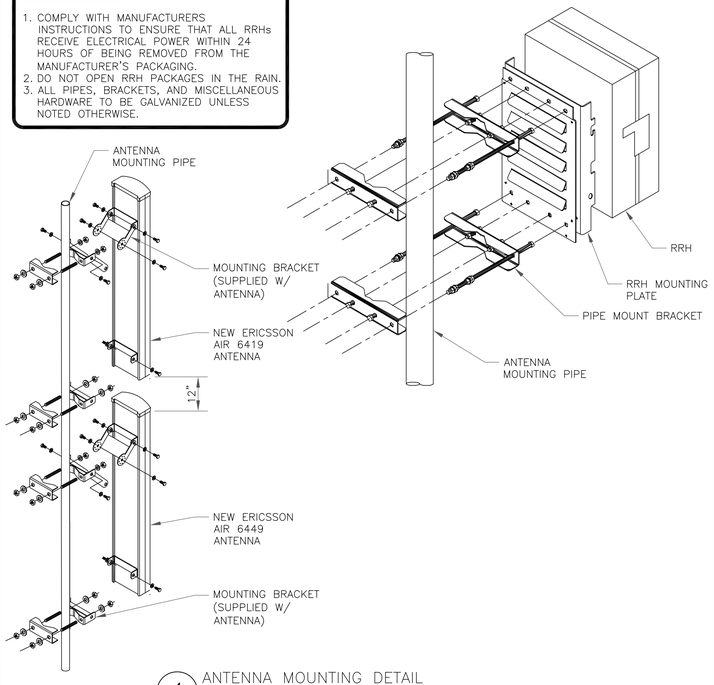
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
ERICSSON/AIR 6419 B77G	27.95"	15.75"	6.68"	66.20lbs
ERICSSON/AIR 6449 N77	30.63"	15.87"	10.55"	83.78lbs

2 ANTENNA DETAIL
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



4 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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STATE OF CONNECTICUT
GRANT LAWRENCE
No. 23924
LICENSED
PROFESSIONAL ENGINEER
2/22/22

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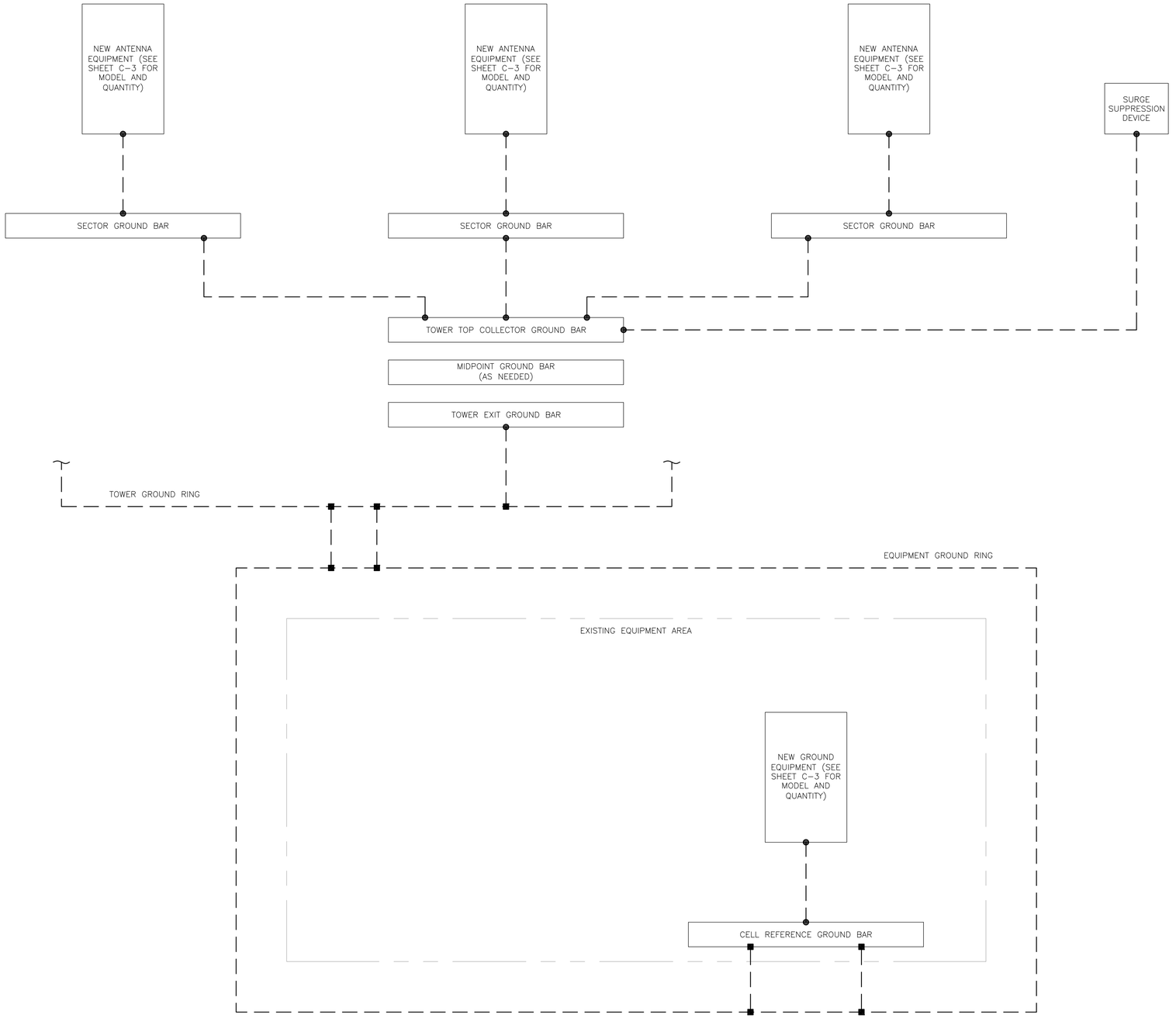
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: C-5
REVISION: C



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

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

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

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

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

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

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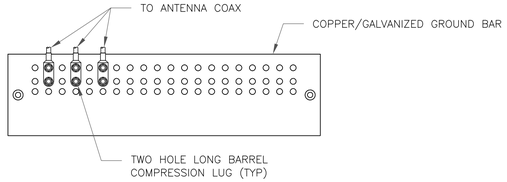
SHEET NUMBER: G-1

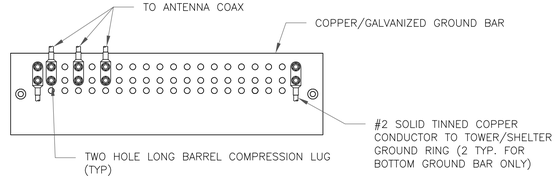
REVISION: C



NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

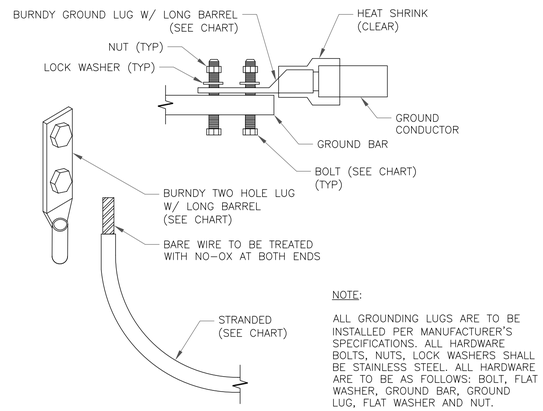


NOTES:

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

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

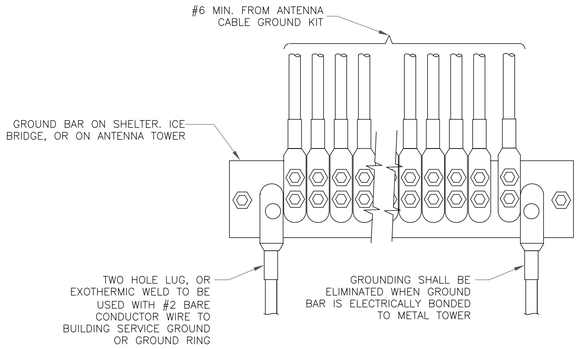
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



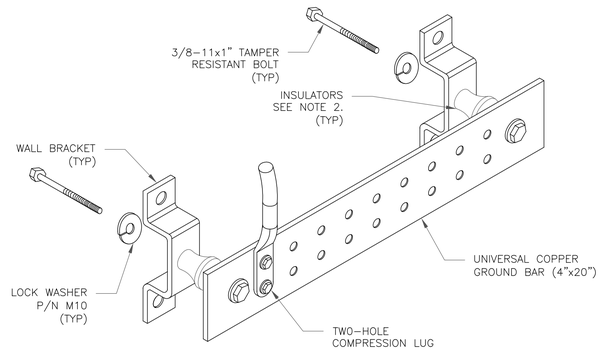
NOTE:

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

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

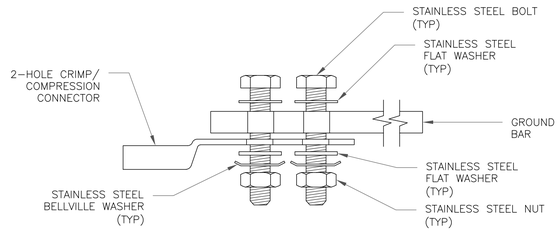


NOTES:

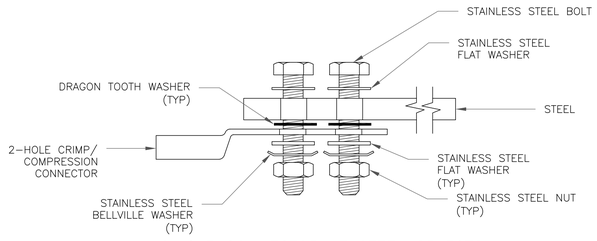
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

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

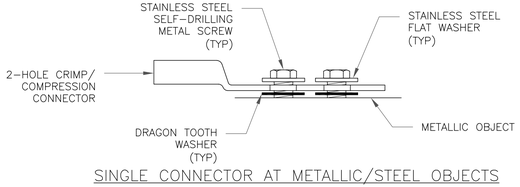
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

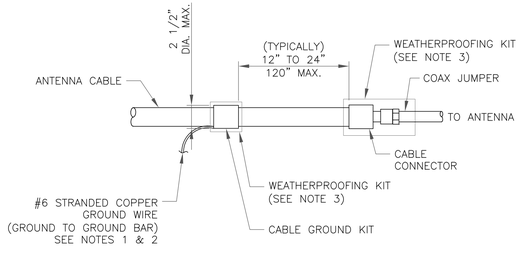


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

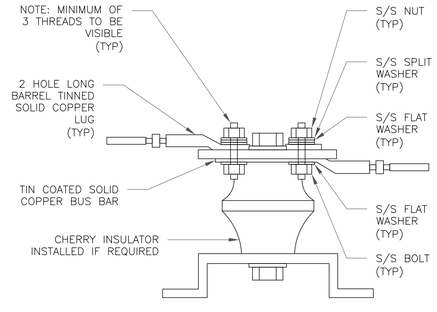
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

THIS PAGE CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW.

DISCLAIMER PROVIDED BY AT&T. THIS STATEMENT DOES NOT CONSTITUTE ENGINEERING ANALYSIS OR DESIGN.

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

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

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

AT&T SITE NUMBER:
CTL05152

BU #: **876325**
WESTON SQUARE

92 WESTON STREET
HARTFORD, CT 06103

EXISTING
110'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	10/8/21	HN	PRELIMINARY REVIEW	VP
B	10/14/21	CLG	PRELIMINARY REVIEW	CLG
C	1/12/22	JJR	PRELIMINARY REVIEW	YX
C	2/22/22	JCO	CONSTRUCTION	MTJ

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/1/23

SHEET NUMBER: G-2
REVISION: C

Diagram - Sector	A	Diagram File Name - C_Band_DoD_700DE(Top)_PCS_4415_3xDCFiber_1xDCSquid_6630+1xXMU.vsd					
Atoll Site Name -	CTU5152	Location Name -	HARTFORD NORTH	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"

Antenna 1
Empty

Antenna 2
LTE 700(DE) / 700(B14) / PCS /AWS

16 Port Antenna

Broadband	Broadband	Broadband	Broadband	Broadband	Broadband	Broadband	Broadband
Low 700 DE +45/-45	Low 700 B14 +45/-45	Low 700 B14 +45/-45	Low 850 +45/-45	HI 4Tx/4Rx +45/-45	HI 4Tx/4Rx +45/-45	HI 4Tx/4Rx +45/-45	HI Tx/4Rx +45/-45
- +	- +	- +	- +	- +	- +	- +	- +
RET	RET	RET	RET	RET	RET	RET	RET

LTE RRUS-E2 700 (D/E)
700 B-14
LTE PCS 4415(B25)
LTE AWS RRUS-32(B66)

Antenna 3
DoD + C band

AIR
DoD
+45/-45
- +

AIR
C-BAND
+45/-45
- +

Antenna 4
LTE 700(BC) / WCS/ 5G 850

Broadband Octo Low 700/850 +45/-45	Broadband Octo Low 700/850 +45/-45	Broadband Octo High 4Tx/4Rx +45/-45	Broadband Octo High 4Tx/4Rx +45/-45
- +	- +	- +	- +
RET	RET	RET	RET

LTE RRUS-4449 850/700BC
LTE RRUS-32 WCS

(Y- Cable)

Fiber/DC Demarcation Box (Squid)
DC Demarcation Box (Squid)
Fiber/DC Demarcation Box (Squid)
Fiber/DC Demarcation Box (Squid)

DC Plant

6673 Fronthaul Gateway

Fiber Demarcation Box

6630 XMU

6630

IDLe

- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

FU FU FU FU

UMTS 1st NodeB

Diagram - Sector	B	Diagram File Name - C_Band_DoD_700DE(Top)_PCS_4415_3xDCFiber_1xDCSquid_6630+1xXMU.vsd					
Atoll Site Name -	CTU5152	Location Name -	HARTFORD NORTH	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"

Antenna 1
Empty

Antenna 2
LTE 700(DE) / 700(B14) / PCS /AWS

16 Port Antenna

Broadband	Broadband	Broadband	Broadband	Broadband	Broadband	Broadband	Broadband
Low 700 DE +45/-45	Low 700 B14 +45/-45	Low 700 B14 +45/-45	Low 850 +45/-45	HI 4Tx/4Rx +45/-45	HI 4Tx/4Rx +45/-45	HI 4Tx/4Rx +45/-45	HI Tx/4Rx +45/-45
- +	- +	- +	- +	- +	- +	- +	- +
RET	RET	RET	RET	RET	RET	RET	RET

Antenna 3
DoD + C band

AIR
DoD
+45/-45
- +

AIR
C-BAND
+45/-45
- +

Antenna 4
LTE 700(BC) / WCS/ 5G 850

Broadband Octo Low 700/850 +45/-45	Broadband Octo Low 700/850 +45/-45	Broadband Octo High 4Tx/4Rx +45/-45	Broadband Octo High 4Tx/4Rx +45/-45
- +	- +	- +	- +
RET	RET	RET	RET

LTE RRUS-E2 700 (D/E)
700 B-14
LTE PCS 4415(B25)
LTE AWS RRUS-32(B66)
LTE RRUS-44 B5(700 BC
LTE RRUS-32 WCS

(Y- Cable)

Fiber/DC Demarcation Box (Squid)
DC Demarcation Box (Squid)
Fiber/DC Demarcation Box (Squid)
Fiber/DC Demarcation Box (Squid)

DC Plant

6673 Fronthaul Gateway

Fiber Demarcation Box

6630 XMU

6630

IDLe

- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

UMTS 1st NodeB

Diagram - Sector	C	Diagram File Name - C_Band_DoD_700DE(Top)_PCS_4415_3xDCFiber_1xDCSquid_6630+1xXMU.vsd					
Atoll Site Name -	CTU5152	Location Name -	HARTFORD NORTH	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"

Antenna 1
Empty

Antenna 2
LTE 700(DE) / 700(B14) / PCS /AWS

16 Port Antenna

Broadband	Broadband	Broadband	Broadband	Broadband	Broadband	Broadband	Broadband
Low 700 DE +45/-45	Low 700 B14 +45/-45	Low 700 B14 +45/-45	Low 850 +45/-45	HI 4Tx/4Rx +45/-45	HI 4Tx/4Rx +45/-45	HI 4Tx/4Rx +45/-45	HI Tx/4Rx +45/-45
- +	- +	- +	- +	- +	- +	- +	- +
RET	RET	RET	RET	RET	RET	RET	RET

LTE RRUS-E2 700 (D/E)
700 B-14
LTE PCS 4415(B25)
LTE AWS RRUS-32(B66)

Antenna 3
DoD + C band

AIR
DoD
+45/-45
- +

AIR
C-BAND
+45/-45
- +

Antenna 4
LTE 700(BC) / WCS/ 5G 850

Broadband Octo Low 700/850 +45/-45	Broadband Octo Low 700/850 +45/-45	Broadband Octo High 4Tx/4Rx +45/-45	Broadband Octo High 4Tx/4Rx +45/-45
- +	- +	- +	- +
RET	RET	RET	RET

LTE RRUS-4449 850/700 BC
LTE RRUS-32 WCS

(Y- Cable)

Fiber/DC Demarcation Box (Squid)
DC Demarcation Box (Squid)
Fiber/DC Demarcation Box (Squid)
Fiber/DC Demarcation Box (Squid)

DC Plant

6673 Fronthaul Gateway

- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

Fiber Demarcation Box

6630 XMU

6630

IDLe

UMTS 1st NodeB

Exhibit D

Structural Analysis Report

Date: **September 10, 2021**

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-6909

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL05152
	Site Name:	WESTON SQUARE
	FA Number:	10071071
Crown Castle Designation:	**BU Number:**	876325
	Site Name:	WESTON SQUARE
	JDE Job Number:	649409
	Work Order Number:	2017813
	Order Number:	556509 Rev. 0
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	406642
Site Data:	**92 Weston Street, Hartford, Hartford County, CT**	
	Latitude *41° 47' 12.3"*, Longitude *-72° 39' 44.42"*	
	110 Foot - Monopole Tower	

Black & Veatch Corp. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity – 95.2%**

This analysis utilizes an ultimate 3-second gust wind speed of 117 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Preechaya Sirisuwan

Respectfully submitted by:

Digitally signed by Jiang, Ping
DN: CN="Jiang, Ping", O=Black Veatch, C=US
Date: 2021.09.13 11:14:06-05'00'

STATE OF CONNECTICUT
PING JIANG
30767
LICENSED
PROFESSIONAL ENGINEER

Sep 13, 2021

Ping Jiang, P.E.
Professional Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 110 ft Monopole tower designed by Rohn Industries, Inc.

The tower has been modified multiple times in the past to accommodate additional loading.

The tower has been modified per reinforcement drawings prepared by B&T Engineering, Inc., in December of 2008. Reinforcement consists of addition of reinforcement plates from 0.5' - 10.5', additional anchor rods and base plate stiffeners. Refer to Post Modification Inspection Report by B&T Engineering, Inc. in November of 2009. This modification has been considered effective in this analysis.

The tower was later modified per reinforcement drawings prepared by Paul J. Ford and Company, in May of 2012. Reinforcement consists of addition of reinforcement plates from 30.5' - 40.5' and bridge stiffeners at 30'. Refer to Modification Inspection Report by Tower Engineering Professionals, Inc. in October of 2012. This modification has been considered effective in this analysis.

The tower was later modified per reinforcement drawings prepared by Paul J. Ford and Company, in February of 2013. Reinforcement consists of addition of reinforcement plates from 6' - 21' and transition stiffeners. Refer to Modification Inspection Report by Tower Engineering Professionals, Inc. in August of 2013. This modification has been considered effective in this analysis.

The tower was later modified per reinforcement drawings prepared by Paul J. Ford and Company, in February of 2017. Reinforcement consists of addition of reinforcement plates from 4.5' - 26.5', jump plates at 30' and additional foundation reinforcement. Refer to Modification Inspection Report by Engineered Tower Solutions, PLLC. in August of 2017. This modification has been considered effective in this analysis.

The tower was later modified per reinforcement drawings prepared by Black & Veatch Corp, in January of 2020. Reinforcement consists of removing existing base plate grout, addition of anchor rods with bracket at elevation 0' and removing existing bracket and installing new anchor rods with bracket at elevation 0'. Refer to Modification Inspection Report by Engineered Tower Solutions, PLLC. in August of 2017. This modification has been considered effective in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	117 mph
Exposure Category:	C
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)
90.0	91.0	3	ericsson	AIR 6419 B77G w/ Mount Pipe	4 4 3 4	7/8 13/16 3/8 Conduit
		3	ericsson	AIR 6449 N77 w/ Mount Pipe		
	90.0	1	site pro1	RMQLP-4120-H10		
		3	cci antennas	DMP65R-BU6D w/ Mount Pipe		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 32 B66A		
		3	ericsson	RRUS 4415 B25		
		3	ericsson	RRUS 4449 B5/B12		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	ericsson	RRUS E2 B29		
		3	quintel technology	QD6616-7 w/ Mount Pipe		
		4	raycap	DC6-48-60-18-8F		

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)
107.0	108.0	3	ericsson	AIR6449 B41_T-MOBILE w/ Mount Pipe	3	1-5/8
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	ericsson	Radio 4480_TMOV2		
		3	rfs celwave	APXVAALL24_43-U-NA20_TMO w/ Mount Pipe		
	107.0	1	site pro 1	RMQP-496 w/ HRK12		
105.0	105.0	3	alcatel lucent	800MHZ 2X50W RRH W/FILTER	-	-
		6	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ		
		1	cci tower mounts (v2.1)	Side Arm Mount [SO 102-3]		
		3	rfs celwave	IBC1900BB-1		
		3	rfs celwave	IBC1900HG-2A		
76.0	76.0	3	andrew	LNX-6515DS-A1M w/ Mount Pipe	2 6	1-5/8 7/8
		1	cci tower mounts (v2.1)	Platform Mount [LP 303-1]		
		3	ericsson	AIR 32 B2A/B66AA w/ Mount Pipe		
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RRUS 11 B12		
64.0	64.0	3	commscope	BSAMNT-SBS-1-2	2	1-7/8
		6	commscope	NHH-65B-R2B		
		1	perfect vision	PV-VPP12M-HR-B		
		2	raycap	RVZDC-6627-PF-48		
		3	samsung telecommunications	20W CBRS		
		3	samsung telecommunications	RFV01U-D1A		
		3	samsung telecommunications	RFV01U-D2A		
54.0	54.0	1	tower mounts	Commscope MC-PK8-DSH	1	1-3/8
		3	fujitsu	TA08025-B604		
		3	fujitsu	TA08025-B605		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	2192540	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1615433	CCISITES
4-TOWER MANUFACTURER DRAWINGS	1615400	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2356066	CCISITES
4-POST-MODIFICATION INSPECTION	2561266	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3187227	CCISITES
4-POST-MODIFICATION INSPECTION	3355603	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	3667858	CCISITES
4-POST-MODIFICATION INSPECTION	4075332	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	6702634	CCISITES
4-POST-MODIFICATION INSPECTION	6996864	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	8892341	CCISITES
4-POST-MODIFICATION INSPECTION	9756042	CCISITES

3.1) Analysis Method

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

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

3.2) Assumptions

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

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary) (Monopole Tower)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
L1	110 - 105	Pole	TP24x24x0.25	Pole	3.1%	Pass
L2	105 - 100	Pole	TP24x24x0.25	Pole	9.6%	Pass
L3	100 - 95	Pole	TP24x24x0.25	Pole	16.4%	Pass
L4	95 - 90	Pole	TP24x24x0.25	Pole	23.6%	Pass
L5	90 - 85	Pole	TP24x24x0.375	Pole	24.3%	Pass
L6	85 - 80	Pole	TP24x24x0.375	Pole	33.3%	Pass
L7	80 - 75	Pole	TP24x24x0.375	Pole	43.2%	Pass
L8	75 - 70	Pole	TP24x24x0.375	Pole	54.3%	Pass
L9	70 - 65	Pole	TP24x24x0.375	Pole	65.6%	Pass
L10	65 - 60	Pole	TP24x24x0.375	Pole	79.2%	Pass
L11	60 - 55	Pole	TP30x30x0.375	Pole	61.5%	Pass
L12	55 - 50	Pole	TP30x30x0.375	Pole	72.1%	Pass
L13	50 - 45	Pole	TP30x30x0.375	Pole	82.8%	Pass
L14	45 - 40	Pole	TP30x30x0.375	Pole	93.7%	Pass
L15	40 - 39.33	Pole	TP30x30x0.375	Pole	95.2%	Pass
L16	39.33 - 39.08	Pole + Reinf.	TP30x30x0.4875	Pole	74.7%	Pass
L17	39.08 - 34.08	Pole + Reinf.	TP30x30x0.4875	Pole	83.4%	Pass
L18	34.08 - 30	Pole + Reinf.	TP30x30x0.4875	Pole	90.7%	Pass
L19	30 - 29.75	Pole	TP30x30x0.5	Pole	84.7%	Pass
L20	29.75 - 25	Pole	TP30x30x0.5	Pole	92.7%	Pass
L21	25 - 24.75	Pole + Reinf.	TP30x30x0.5563	Pole	83.7%	Pass
L22	24.75 - 19.75	Pole + Reinf.	TP30x30x0.5563	Pole	91.4%	Pass
L23	19.75 - 18.58	Pole + Reinf.	TP30x30x0.5563	Pole	93.3%	Pass
L24	18.58 - 18.33	Pole + Reinf.	TP30x30x0.6875	Pole	81.0%	Pass
L25	18.33 - 13.33	Pole + Reinf.	TP30x30x0.6875	Pole	87.9%	Pass
L26	13.33 - 8.42	Pole + Reinf.	TP30x30x0.6875	Pole	94.7%	Pass
L27	8.42 - 8.07	Pole + Reinf.	TP30x30x1.3	Reinf. 1 Bolt Shear	64.7%	Pass
L28	8.07 - 7.83	Pole + Reinf.	TP30x30x1.2	Pole	54.1%	Pass
L29	7.83 - 6	Pole + Reinf.	TP30x30x1.2	Pole	55.6%	Pass
L30	6 - 5.75	Pole + Reinf.	TP30x30x1.15	Reinf. 1 Tension Rupture	63.9%	Pass
L31	5.75 - 2	Pole + Reinf.	TP30x30x1.15	Reinf. 1 Tension Rupture	67.4%	Pass
L32	2 - 1.75	Pole + Reinf.	TP30x30x1.6	Reinf. 4 Weldment	66.1%	Pass
L33	1.75 - 0	Pole + Reinf.	TP30x30x0.875	Pole	85.1%	Pass
					Summary	
				Pole	95.2%	Pass
				Reinforcement	84.6%	Pass
				Overall	95.2%	Pass

Table 5 - Tower Component Stresses vs. Capacity (Monopole Tower) - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1, 2	Flange Bolts	90	13.6	Pass
	Flange Plate		23.6	Pass
1, 2	Flange Bolts	60	41.9	Pass
	Flange Plate		79.2	Pass
1	Bridge Stiffeners	30	30.2	Pass
	Jump Plates		47.1	Pass
	Flange Bolts		14.7	Pass
	Flange Plate		14.8	Pass
1	Anchor Rods (Original)	0	70.7	Pass
1, 3	Anchor Rods (Existing Modification)		93.1	Pass
1	Base Plate		63.7	Pass
1	Base Foundation (Structure)	0	87.9	Pass
	Base Foundation (Soil Interaction)		26.2	Pass

Structure Rating (max from all components) =	**95.2%**

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity. Rating per TIA-222-H Section 15.5.
2) Flange plates are assumed to have the same capacity as their respective splice bolts or shaft.
3) The anchor rod brackets were analyzed previously and found not govern the design. The anchor rods will control the design.

4.1) Recommendations

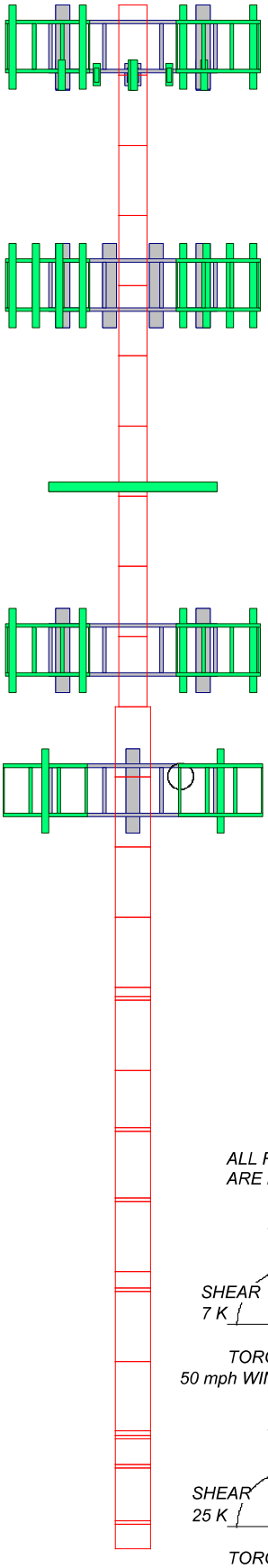
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Size	Length (ft)	Grade	Weight (K)
1	P24x0.25	5.00	A53-B-42	0.3
2	P24x0.25	5.00		0.3
3	P24x0.25	5.00		0.3
4	P24x0.25	5.00		0.3
5	P24x0.375	5.00		0.5
6	P24x0.375	5.00		0.5
7	P24x0.375	5.00		0.5
8	P24x0.375	5.00		0.5
9	P24x0.375	5.00		0.5
10	P24x0.375	5.00		0.5
11	P30x0.375	5.00		0.6
12	P30x0.375	5.00		0.6
13	P30x0.375	5.00		0.6
14	P30x0.375	5.00		0.6
15				
16				
17	P30x0.487	5.00		0.7
18	P30x0.487	4.08		0.6
19		0.25		0.0
20		4.75		0.7
21		0.25		0.1
22		5.00		1.1
23				0.3
24				0.1
25	P30x0.6875	5.00		1.4
26	P30x0.6875	4.91		1.4
27				0.1
28				0.1
29				0.1
30		0.25		0.1
31		3.75		1.2
32		0.25		0.1
33		1.75		0.4
				15.6

110.0 ft
105.0 ft
100.0 ft
95.0 ft
90.0 ft
85.0 ft
80.0 ft
75.0 ft
70.0 ft
65.0 ft
60.0 ft
55.0 ft
50.0 ft
45.0 ft
40.0 ft
34.1 ft
30.0 ft
25.0 ft
19.8 ft
18.6 ft
13.3 ft
8.4 ft
6.0 ft
2.0 ft
0.0 ft



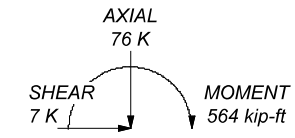
MATERIAL STRENGTH

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

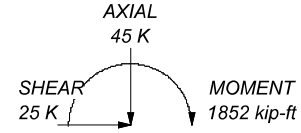
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 117 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: 95.2%

ALL REACTIONS ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.5000 in ICE



TORQUE 0 kip-ft
REACTIONS - 117 mph WIND

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Phone: (913) 458-6909
FAX:

Job:	***WESTON SQUARE (BU# 876325)***		
Project:	***406642 (876325.2017813)***		
Client: Crown Castle	Drawn by: Preechaya Sirisuwan		App'd:
Code: TIA-222-H	Date: 09/10/21		Scale: NTS
Path: C:\Users\sir9435\Desktop\876325\876325.2017813 - TSA\Structural\876325.2017813 Structural Analysis - Modified.eri			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 10.00 ft.
- Basic wind speed of 117 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.5000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	110.00-105.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L2	105.00-100.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L3	100.00-95.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L4	95.00-90.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L5	90.00-85.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L6	85.00-80.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L7	80.00-75.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L8	75.00-70.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L9	70.00-65.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L10	65.00-60.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L11	60.00-55.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L12	55.00-50.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L13	50.00-45.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L14	45.00-40.00	5.00	P30x0.375	A53-B-42 (42 ksi)	
L15	40.00-39.33	0.67	P30x0.375	A53-B-42 (42 ksi)	
L16	39.33-39.08	0.25	P30x0.4875	A53-B-42 (42 ksi)	
L17	39.08-34.08	5.00	P30x0.4875	A53-B-42 (42 ksi)	
L18	34.08-30.00	4.08	P30x0.4875	A53-B-42 (42 ksi)	
L19	30.00-29.75	0.25	P30x0.5	A53-B-42 (42 ksi)	
L20	29.75-25.00	4.75	P30x0.5	A53-B-42 (42 ksi)	
L21	25.00-24.75	0.25	P30x0.55625	A53-B-42 (42 ksi)	
L22	24.75-19.75	5.00	P30x0.55625	A53-B-42 (42 ksi)	
L23	19.75-18.58	1.17	P30x0.55625	A53-B-42 (42 ksi)	
L24	18.58-18.33	0.25	P30x0.6875	A53-B-42 (42 ksi)	
L25	18.33-13.33	5.00	P30x0.6875	A53-B-42 (42 ksi)	
L26	13.33-8.42	4.91	P30x0.6875	A53-B-42 (42 ksi)	
L27	8.42-8.07	0.35	P30x1.3	A53-B-42 (42 ksi)	
L28	8.07-7.83	0.24	P30x1.2	A53-B-42 (42 ksi)	
L29	7.83-6.00	1.83	P30x1.2	A53-B-42 (42 ksi)	
L30	6.00-5.75	0.25	P30x1.15	A53-B-42 (42 ksi)	
L31	5.75-2.00	3.75	P30x1.15	A53-B-42 (42 ksi)	
L32	2.00-1.75	0.25	P30x1.6	A53-B-42 (42 ksi)	
L33	1.75-0.00	1.75	P30x0.875	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 110.00-105.00				1	1	1			
L2 105.00-100.00				1	1	1			
L3 100.00-95.00				1	1	1			
L4 95.00-90.00				1	1	1			
L5 90.00-85.00				1	1	1			
L6 85.00-80.00				1	1	1			
L7 80.00-75.00				1	1	1			
L8 75.00-70.00				1	1	1			
L9 70.00-65.00				1	1	1			
L10 65.00-60.00				1	1	1			
L11 60.00-55.00				1	1	1			
L12 55.00-50.00				1	1	1			
L13 50.00-45.00				1	1	1			
L14 45.00-40.00				1	1	1			
L15 40.00-39.33				1	1	1			
L16 39.33-39.08				1	1	0.965972			
L17 39.08-34.08				1	1	0.965972			
L18 34.08-30.00				1	1	0.965972			
L19 30.00-29.75				1	1	1			
L20 29.75-25.00				1	1	1			
L21 25.00-24.75				1	1	1.25043			
L22 24.75-19.75				1	1	1.25043			
L23 19.75-18.58				1	1	1.25043			
L24 18.58-18.33				1	1	1.28397			
L25 18.33-13.33				1	1	1.28397			
L26 13.33-8.42				1	1	1.28397			
L27 8.42-8.07				1	1	0.929056			
L28 8.07-7.83				1	1	1.00298			
L29 7.83-6.00				1	1	1.00298			
L30 6.00-5.75				1	1	0.872082			
L31 5.75-2.00				1	1	0.872082			
L32 2.00-1.75				1	1	0.820624			
L33 1.75-0.00				1	1	0.906659			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	B	No	Surface Ar (CaAa)	110.00 - 3.00	1	1	0.000 0.010	0.3750		0.22
***										
FB-L98B-034-XXX(3/8)	A	No	Surface Ar (CaAa)	90.00 - 0.00	2	2	-0.500 0.010	0.0000		0.06
PWRT-608-S(13/16)	A	No	Surface Ar (CaAa)	90.00 - 0.00	4	4	-0.500 0.010	0.0000		0.62
PWRT-606-S(7/8)	A	No	Surface Ar (CaAa)	90.00 - 0.00	4	4	-0.500 0.010	0.0000		0.89
3" Flexible Conduit	A	No	Surface Ar (CaAa)	90.00 - 0.00	4	4	-0.500 0.010	3.0000		0.30
***										
810921-001(7/8)	B	No	Surface Ar (CaAa)	76.00 - 0.00	6	6	-0.500 -0.230	1.1120		0.40
***										
HB158-U12S24-160-LI(1-7/8)	C	No	Surface Ar (CaAa)	64.00 - 0.00	2	2	-0.500 -0.350	1.9760		3.20
***										
CU12PSM9P8XXX(1-3/8)	C	No	Surface Ar (CaAa)	54.00 - 0.00	1	1	-0.100 -0.050	1.4110		1.66
***										
*** Existing Modifications ***										
Aero Channel MP305	A	No	Surface Af (CaAa)	10.50 - 0.50	1	1	0.000 0.000	5.3125	14.8400	0.00
Aero Channel MP305	B	No	Surface Af (CaAa)	10.50 - 0.50	1	1	0.000 0.000	5.3125	14.8400	0.00
Aero Channel MP305	C	No	Surface Af (CaAa)	10.50 - 0.50	1	1	0.000 0.000	5.3125	14.8400	0.00
Aero Channel MP305	C	No	Surface Af (CaAa)	10.50 - 0.50	1	1	0.000 0.000	5.3125	14.8400	0.00
***										
Aero Channel MP303	A	No	Surface Af (CaAa)	40.50 - 30.50	1	1	0.000 0.000	4.0625	11.2600	0.00
Aero Channel MP303	B	No	Surface Af (CaAa)	40.50 - 30.50	1	1	0.000 0.000	4.0625	11.2600	0.00
Aero Channel MP303	C	No	Surface Af (CaAa)	40.50 - 30.50	1	1	0.000 0.000	4.0625	11.2600	0.00
***										
Aero Channel MP305	A	No	Surface Af (CaAa)	21.00 - 6.00	1	1	0.000 0.000	5.3125	14.8400	0.00
Aero Channel MP305	B	No	Surface Af (CaAa)	21.00 - 6.00	1	1	0.000 0.000	5.3125	14.8400	0.00
Aero Channel MP305	C	No	Surface Af (CaAa)	21.00 - 6.00	1	1	0.000 0.000	5.3125	14.8400	0.00
***										
CCI-SFP-045100	A	No	Surface Af (CaAa)	26.50 - 4.50	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	B	No	Surface Af (CaAa)	26.50 - 4.50	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	No	Surface Af (CaAa)	26.50 - 4.50	1	1	0.000 0.000	4.5000	11.0000	0.00
CCI-SFP-045100	C	No	Surface Af (CaAa)	26.50 - 4.50	1	1	0.000 0.000	4.5000	11.0000	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_AA_A ft^2/ft	Weight plf
***									
HB158-21U6S24-xxM_TMO(1-5/8)	C	No	No	Inside Pole	107.00 - 0.00	3	No Ice	0.00	2.50
							1/2" Ice	0.00	2.50
							1" Ice	0.00	2.50
							2" Ice	0.00	2.50
FB-L98B-034-XXX(3/8)	A	No	No	Inside Pole	90.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	B	No	No	Inside Pole	76.00 - 0.00	2	No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
							2" Ice	0.00	1.07
***									
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	110.00-105.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L2	105.00-100.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L3	100.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L4	95.00-90.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L5	90.00-85.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L6	85.00-80.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.04
L7	80.00-75.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	0.855	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.04
L8	75.00-70.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	3.524	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.04
L9	70.00-65.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	3.524	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.04
L10	65.00-60.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	3.524	0.000	0.02
		C	0.000	0.000	1.581	0.000	0.06
L11	60.00-55.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	3.524	0.000	0.02
		C	0.000	0.000	1.976	0.000	0.07
L12	55.00-50.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	3.524	0.000	0.02
		C	0.000	0.000	2.540	0.000	0.08
L13	50.00-45.00	A	0.000	0.000	6.000	0.000	0.04
		B	0.000	0.000	3.524	0.000	0.02

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	2.682	0.000	0.08
L14	45.00-40.00	A	0.000	0.000	6.339	0.000	0.04
		B	0.000	0.000	3.862	0.000	0.02
		C	0.000	0.000	3.020	0.000	0.08
L15	40.00-39.33	A	0.000	0.000	1.258	0.000	0.00
		B	0.000	0.000	0.926	0.000	0.00
		C	0.000	0.000	0.813	0.000	0.01
L16	39.33-39.08	A	0.000	0.000	0.469	0.000	0.00
		B	0.000	0.000	0.345	0.000	0.00
		C	0.000	0.000	0.303	0.000	0.00
L17	39.08-34.08	A	0.000	0.000	9.385	0.000	0.04
		B	0.000	0.000	6.909	0.000	0.02
		C	0.000	0.000	6.067	0.000	0.08
L18	34.08-30.00	A	0.000	0.000	7.320	0.000	0.03
		B	0.000	0.000	5.299	0.000	0.02
		C	0.000	0.000	4.612	0.000	0.06
L19	30.00-29.75	A	0.000	0.000	0.300	0.000	0.00
		B	0.000	0.000	0.176	0.000	0.00
		C	0.000	0.000	0.134	0.000	0.00
L20	29.75-25.00	A	0.000	0.000	6.825	0.000	0.04
		B	0.000	0.000	4.472	0.000	0.02
		C	0.000	0.000	4.797	0.000	0.07
L21	25.00-24.75	A	0.000	0.000	0.487	0.000	0.00
		B	0.000	0.000	0.364	0.000	0.00
		C	0.000	0.000	0.509	0.000	0.00
L22	24.75-19.75	A	0.000	0.000	10.857	0.000	0.04
		B	0.000	0.000	8.380	0.000	0.02
		C	0.000	0.000	11.288	0.000	0.08
L23	19.75-18.58	A	0.000	0.000	3.317	0.000	0.01
		B	0.000	0.000	2.738	0.000	0.01
		C	0.000	0.000	3.418	0.000	0.02
L24	18.58-18.33	A	0.000	0.000	0.709	0.000	0.00
		B	0.000	0.000	0.585	0.000	0.00
		C	0.000	0.000	0.730	0.000	0.00
L25	18.33-13.33	A	0.000	0.000	14.177	0.000	0.04
		B	0.000	0.000	11.701	0.000	0.02
		C	0.000	0.000	14.609	0.000	0.08
L26	13.33-8.42	A	0.000	0.000	15.641	0.000	0.04
		B	0.000	0.000	13.209	0.000	0.02
		C	0.000	0.000	17.783	0.000	0.08
L27	8.42-8.07	A	0.000	0.000	1.282	0.000	0.00
		B	0.000	0.000	1.108	0.000	0.00
		C	0.000	0.000	1.601	0.000	0.01
L28	8.07-7.83	A	0.000	0.000	0.879	0.000	0.00
		B	0.000	0.000	0.760	0.000	0.00
		C	0.000	0.000	1.098	0.000	0.00
L29	7.83-6.00	A	0.000	0.000	6.701	0.000	0.01
		B	0.000	0.000	5.795	0.000	0.01
		C	0.000	0.000	8.371	0.000	0.03
L30	6.00-5.75	A	0.000	0.000	0.694	0.000	0.00
		B	0.000	0.000	0.570	0.000	0.00
		C	0.000	0.000	0.922	0.000	0.00
L31	5.75-2.00	A	0.000	0.000	8.536	0.000	0.03
		B	0.000	0.000	6.641	0.000	0.02
		C	0.000	0.000	10.084	0.000	0.06
L32	2.00-1.75	A	0.000	0.000	0.507	0.000	0.00
		B	0.000	0.000	0.373	0.000	0.00
		C	0.000	0.000	0.547	0.000	0.00
L33	1.75-0.00	A	0.000	0.000	3.133	0.000	0.01
		B	0.000	0.000	2.201	0.000	0.01
		C	0.000	0.000	3.004	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_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	110.00-105.00	A	1.435	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.622	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.01
L2	105.00-100.00	A	1.428	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.616	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L3	100.00-95.00	A	1.421	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.608	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L4	95.00-90.00	A	1.413	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.601	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L5	90.00-85.00	A	1.406	0.000	0.000	14.528	0.000	0.17
		B		0.000	0.000	1.593	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L6	85.00-80.00	A	1.397	0.000	0.000	14.487	0.000	0.17
		B		0.000	0.000	1.585	0.000	0.02
		C		0.000	0.000	0.000	0.000	0.04
L7	80.00-75.00	A	1.389	0.000	0.000	14.443	0.000	0.17
		B		0.000	0.000	2.757	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.04
L8	75.00-70.00	A	1.379	0.000	0.000	14.397	0.000	0.17
		B		0.000	0.000	7.461	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.04
L9	70.00-65.00	A	1.370	0.000	0.000	14.348	0.000	0.17
		B		0.000	0.000	7.439	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.04
L10	65.00-60.00	A	1.359	0.000	0.000	14.295	0.000	0.17
		B		0.000	0.000	7.415	0.000	0.09
		C		0.000	0.000	3.335	0.000	0.09
L11	60.00-55.00	A	1.348	0.000	0.000	14.239	0.000	0.16
		B		0.000	0.000	7.390	0.000	0.09
		C		0.000	0.000	4.155	0.000	0.11
L12	55.00-50.00	A	1.336	0.000	0.000	14.178	0.000	0.16
		B		0.000	0.000	7.363	0.000	0.09
		C		0.000	0.000	5.772	0.000	0.13
L13	50.00-45.00	A	1.322	0.000	0.000	14.111	0.000	0.16
		B		0.000	0.000	7.333	0.000	0.09
		C		0.000	0.000	6.151	0.000	0.14
L14	45.00-40.00	A	1.308	0.000	0.000	14.461	0.000	0.16
		B		0.000	0.000	7.723	0.000	0.09
		C		0.000	0.000	6.541	0.000	0.14
L15	40.00-39.33	A	1.299	0.000	0.000	2.441	0.000	0.03
		B		0.000	0.000	1.542	0.000	0.02
		C		0.000	0.000	1.383	0.000	0.02
L16	39.33-39.08	A	1.297	0.000	0.000	0.910	0.000	0.01
		B		0.000	0.000	0.575	0.000	0.01
		C		0.000	0.000	0.516	0.000	0.01
L17	39.08-34.08	A	1.288	0.000	0.000	18.161	0.000	0.20
		B		0.000	0.000	11.476	0.000	0.13
		C		0.000	0.000	10.294	0.000	0.18
L18	34.08-30.00	A	1.271	0.000	0.000	14.322	0.000	0.16
		B		0.000	0.000	8.905	0.000	0.10
		C		0.000	0.000	7.940	0.000	0.14
L19	30.00-29.75	A	1.262	0.000	0.000	0.691	0.000	0.01
		B		0.000	0.000	0.360	0.000	0.00
		C		0.000	0.000	0.301	0.000	0.01
L20	29.75-25.00	A	1.251	0.000	0.000	14.570	0.000	0.16
		B		0.000	0.000	8.315	0.000	0.09
		C		0.000	0.000	8.692	0.000	0.15
L21	25.00-24.75	A	1.239	0.000	0.000	0.934	0.000	0.01
		B		0.000	0.000	0.607	0.000	0.01
		C		0.000	0.000	0.797	0.000	0.01
L22	24.75-19.75	A	1.226	0.000	0.000	19.997	0.000	0.20
		B		0.000	0.000	13.484	0.000	0.13
		C		0.000	0.000	17.278	0.000	0.22

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
L23	19.75-18.58	A	1.208	0.000	0.000	5.629	0.000	0.05
		B		0.000	0.000	4.117	0.000	0.04
		C		0.000	0.000	5.000	0.000	0.06
L24	18.58-18.33	A	1.203	0.000	0.000	1.201	0.000	0.01
		B		0.000	0.000	0.879	0.000	0.01
		C		0.000	0.000	1.067	0.000	0.01
L25	18.33-13.33	A	1.185	0.000	0.000	23.908	0.000	0.23
		B		0.000	0.000	17.508	0.000	0.16
		C		0.000	0.000	21.261	0.000	0.25
L26	13.33-8.42	A	1.141	0.000	0.000	25.172	0.000	0.23
		B		0.000	0.000	19.004	0.000	0.17
		C		0.000	0.000	24.626	0.000	0.27
L27	8.42-8.07	A	1.110	0.000	0.000	1.970	0.000	0.02
		B		0.000	0.000	1.537	0.000	0.01
		C		0.000	0.000	2.126	0.000	0.02
L28	8.07-7.83	A	1.106	0.000	0.000	1.350	0.000	0.01
		B		0.000	0.000	1.053	0.000	0.01
		C		0.000	0.000	1.457	0.000	0.02
L29	7.83-6.00	A	1.091	0.000	0.000	10.249	0.000	0.09
		B		0.000	0.000	8.001	0.000	0.07
		C		0.000	0.000	11.072	0.000	0.11
L30	6.00-5.75	A	1.073	0.000	0.000	1.120	0.000	0.01
		B		0.000	0.000	0.816	0.000	0.01
		C		0.000	0.000	1.234	0.000	0.01
L31	5.75-2.00	A	1.029	0.000	0.000	14.203	0.000	0.13
		B		0.000	0.000	9.480	0.000	0.09
		C		0.000	0.000	13.555	0.000	0.16
L32	2.00-1.75	A	0.957	0.000	0.000	0.847	0.000	0.01
		B		0.000	0.000	0.501	0.000	0.00
		C		0.000	0.000	0.732	0.000	0.01
L33	1.75-0.00	A	0.887	0.000	0.000	5.333	0.000	0.05
		B		0.000	0.000	3.003	0.000	0.03
		C		0.000	0.000	4.121	0.000	0.06

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	110.00-105.00	0.3218	-0.1813	1.1440	-0.6446
L2	105.00-100.00	0.3218	-0.1813	1.1402	-0.6425
L3	100.00-95.00	0.3218	-0.1813	1.1363	-0.6403
L4	95.00-90.00	0.3218	-0.1813	1.1321	-0.6379
L5	90.00-85.00	-6.2516	-0.1559	-4.4574	-0.2993
L6	85.00-80.00	-6.2516	-0.1559	-4.4579	-0.2987
L7	80.00-75.00	-5.7624	-0.7527	-4.1683	-0.6425
L8	75.00-70.00	-4.2144	-2.6415	-3.2158	-1.7747
L9	70.00-65.00	-4.2144	-2.6415	-3.2157	-1.7756
L10	65.00-60.00	-2.9259	-1.6676	-2.2134	-1.0556
L11	60.00-55.00	-3.0255	-1.7046	-2.3196	-1.0614
L12	55.00-50.00	-2.8674	-1.2079	-2.1832	-0.5913
L13	50.00-45.00	-2.8292	-1.0882	-2.1501	-0.4799
L14	45.00-40.00	-2.6906	-1.0349	-2.1032	-0.4720
L15	40.00-39.33	-1.8670	-0.7181	-1.7597	-0.3962
L16	39.33-39.08	-1.8670	-0.7181	-1.7595	-0.3964
L17	39.08-34.08	-1.8670	-0.7181	-1.7588	-0.3975
L18	34.08-30.00	-1.9482	-0.7493	-1.7975	-0.4088
L19	30.00-29.75	-2.8292	-1.0882	-2.1485	-0.4903
L20	29.75-25.00	-2.2809	-0.1263	-1.9317	-0.0521
L21	25.00-24.75	-1.3064	0.8596	-1.5741	0.6471
L22	24.75-19.75	-1.2067	0.7939	-1.4873	0.6114
L23	19.75-18.58	-0.9818	0.6460	-1.2762	0.5246
L24	18.58-18.33	-0.9818	0.6460	-1.2757	0.5244
L25	18.33-13.33	-0.9818	0.6460	-1.2737	0.5236
L26	13.33-8.42	-0.8645	1.0045	-1.1581	0.7972

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L27	8.42-8.07	-0.7436	1.3740	-1.0313	1.1041
L28	8.07-7.83	-0.7436	1.3740	-1.0309	1.1043
L29	7.83-6.00	-0.7436	1.3740	-1.0292	1.1049
L30	6.00-5.75	-0.9160	1.6926	-1.2168	1.3097
L31	5.75-2.00	-1.1311	1.2960	-1.4837	0.9497
L32	2.00-1.75	-1.3155	1.0456	-1.7942	0.7970
L33	1.75-0.00	-1.4904	0.6996	-1.9395	0.5281

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	105.00 - 110.00	1.0000	1.0000
L2	1	Safety Line 3/8	100.00 - 105.00	1.0000	1.0000
L3	1	Safety Line 3/8	95.00 - 100.00	1.0000	1.0000
L4	1	Safety Line 3/8	90.00 - 95.00	1.0000	1.0000
L5	1	Safety Line 3/8	85.00 - 90.00	1.0000	1.0000
L5	7	FB-L98B-034-XXX(3/8)	85.00 - 90.00	1.0000	1.0000
L5	9	PWRT-608-S(13/16)	85.00 - 90.00	1.0000	1.0000
L5	10	PWRT-606-S(7/8)	85.00 - 90.00	1.0000	1.0000
L5	11	3" Flexible Conduit	85.00 - 90.00	1.0000	1.0000
L6	1	Safety Line 3/8	80.00 - 85.00	1.0000	1.0000
L6	7	FB-L98B-034-XXX(3/8)	80.00 - 85.00	1.0000	1.0000
L6	9	PWRT-608-S(13/16)	80.00 - 85.00	1.0000	1.0000
L6	10	PWRT-606-S(7/8)	80.00 - 85.00	1.0000	1.0000
L6	11	3" Flexible Conduit	80.00 - 85.00	1.0000	1.0000
L7	1	Safety Line 3/8	75.00 - 80.00	1.0000	1.0000
L7	7	FB-L98B-034-XXX(3/8)	75.00 - 80.00	1.0000	1.0000
L7	9	PWRT-608-S(13/16)	75.00 - 80.00	1.0000	1.0000
L7	10	PWRT-606-S(7/8)	75.00 - 80.00	1.0000	1.0000
L7	11	3" Flexible Conduit	75.00 - 80.00	1.0000	1.0000
L7	22	810921-001(7/8)	75.00 - 76.00	1.0000	1.0000
L8	1	Safety Line 3/8	70.00 - 75.00	1.0000	1.0000
L8	7	FB-L98B-034-XXX(3/8)	70.00 - 75.00	1.0000	1.0000
L8	9	PWRT-608-S(13/16)	70.00 - 75.00	1.0000	1.0000
L8	10	PWRT-606-S(7/8)	70.00 - 75.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L8	11	3" Flexible Conduit	70.00 - 75.00	1.0000	1.0000
L8	22	810921-001(7/8)	70.00 - 75.00	1.0000	1.0000
L9	1	Safety Line 3/8	65.00 - 70.00	1.0000	1.0000
L9	7	FB-L98B-034-XXX(3/8)	65.00 - 70.00	1.0000	1.0000
L9	9	PWRT-608-S(13/16)	65.00 - 70.00	1.0000	1.0000
L9	10	PWRT-606-S(7/8)	65.00 - 70.00	1.0000	1.0000
L9	11	3" Flexible Conduit	65.00 - 70.00	1.0000	1.0000
L9	22	810921-001(7/8)	65.00 - 70.00	1.0000	1.0000
L10	1	Safety Line 3/8	60.00 - 65.00	1.0000	1.0000
L10	7	FB-L98B-034-XXX(3/8)	60.00 - 65.00	1.0000	1.0000
L10	9	PWRT-608-S(13/16)	60.00 - 65.00	1.0000	1.0000
L10	10	PWRT-606-S(7/8)	60.00 - 65.00	1.0000	1.0000
L10	11	3" Flexible Conduit	60.00 - 65.00	1.0000	1.0000
L10	22	810921-001(7/8)	60.00 - 65.00	1.0000	1.0000
L10	25	HB158-U12S24-160-LI(1-7/8)	60.00 - 64.00	1.0000	1.0000
L11	1	Safety Line 3/8	55.00 - 60.00	1.0000	1.0000
L11	7	FB-L98B-034-XXX(3/8)	55.00 - 60.00	1.0000	1.0000
L11	9	PWRT-608-S(13/16)	55.00 - 60.00	1.0000	1.0000
L11	10	PWRT-606-S(7/8)	55.00 - 60.00	1.0000	1.0000
L11	11	3" Flexible Conduit	55.00 - 60.00	1.0000	1.0000
L11	22	810921-001(7/8)	55.00 - 60.00	1.0000	1.0000
L11	25	HB158-U12S24-160-LI(1-7/8)	55.00 - 60.00	1.0000	1.0000
L12	1	Safety Line 3/8	50.00 - 55.00	1.0000	1.0000
L12	7	FB-L98B-034-XXX(3/8)	50.00 - 55.00	1.0000	1.0000
L12	9	PWRT-608-S(13/16)	50.00 - 55.00	1.0000	1.0000
L12	10	PWRT-606-S(7/8)	50.00 - 55.00	1.0000	1.0000
L12	11	3" Flexible Conduit	50.00 - 55.00	1.0000	1.0000
L12	22	810921-001(7/8)	50.00 - 55.00	1.0000	1.0000
L12	25	HB158-U12S24-160-LI(1-7/8)	50.00 - 55.00	1.0000	1.0000
L12	27	CU12PSM9P8XXX(1-3/8)	50.00 - 54.00	1.0000	1.0000
L13	1	Safety Line 3/8	45.00 - 50.00	1.0000	1.0000
L13	7	FB-L98B-034-XXX(3/8)	45.00 - 50.00	1.0000	1.0000
L13	9	PWRT-608-S(13/16)	45.00 - 50.00	1.0000	1.0000
L13	10	PWRT-606-S(7/8)	45.00 - 50.00	1.0000	1.0000
L13	11	3" Flexible Conduit	45.00 -	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L13	22	810921-001(7/8)	50.00 45.00 - 50.00	1.0000	1.0000
L13	25	HB158-U12S24-160-LI(1-7/8)	45.00 - 50.00	1.0000	1.0000
L13	27	CU12PSM9P8XXX(1-3/8)	45.00 - 50.00	1.0000	1.0000
L14	1	Safety Line 3/8	40.00 - 45.00	1.0000	1.0000
L14	7	FB-L98B-034-XXX(3/8)	40.00 - 45.00	1.0000	1.0000
L14	9	PWRT-608-S(13/16)	40.00 - 45.00	1.0000	1.0000
L14	10	PWRT-606-S(7/8)	40.00 - 45.00	1.0000	1.0000
L14	11	3" Flexible Conduit	40.00 - 45.00	1.0000	1.0000
L14	22	810921-001(7/8)	40.00 - 45.00	1.0000	1.0000
L14	25	HB158-U12S24-160-LI(1-7/8)	40.00 - 45.00	1.0000	1.0000
L14	27	CU12PSM9P8XXX(1-3/8)	40.00 - 45.00	1.0000	1.0000
L14	35	Aero Channel MP303	40.00 - 40.50	1.0000	1.0000
L14	36	Aero Channel MP303	40.00 - 40.50	1.0000	1.0000
L14	37	Aero Channel MP303	40.00 - 40.50	1.0000	1.0000
L15	1	Safety Line 3/8	39.33 - 40.00	1.0000	1.0000
L15	7	FB-L98B-034-XXX(3/8)	39.33 - 40.00	1.0000	1.0000
L15	9	PWRT-608-S(13/16)	39.33 - 40.00	1.0000	1.0000
L15	10	PWRT-606-S(7/8)	39.33 - 40.00	1.0000	1.0000
L15	11	3" Flexible Conduit	39.33 - 40.00	1.0000	1.0000
L15	22	810921-001(7/8)	39.33 - 40.00	1.0000	1.0000
L15	25	HB158-U12S24-160-LI(1-7/8)	39.33 - 40.00	1.0000	1.0000
L15	27	CU12PSM9P8XXX(1-3/8)	39.33 - 40.00	1.0000	1.0000
L15	35	Aero Channel MP303	39.33 - 40.00	1.0000	1.0000
L15	36	Aero Channel MP303	39.33 - 40.00	1.0000	1.0000
L15	37	Aero Channel MP303	39.33 - 40.00	1.0000	1.0000
L16	1	Safety Line 3/8	39.08 - 39.33	1.0000	1.0000
L16	7	FB-L98B-034-XXX(3/8)	39.08 - 39.33	1.0000	1.0000
L16	9	PWRT-608-S(13/16)	39.08 - 39.33	1.0000	1.0000
L16	10	PWRT-606-S(7/8)	39.08 - 39.33	1.0000	1.0000
L16	11	3" Flexible Conduit	39.08 - 39.33	1.0000	1.0000
L16	22	810921-001(7/8)	39.08 - 39.33	1.0000	1.0000
L16	25	HB158-U12S24-160-LI(1-7/8)	39.08 - 39.33	1.0000	1.0000
L16	27	CU12PSM9P8XXX(1-3/8)	39.08 - 39.33	1.0000	1.0000
L16	35	Aero Channel MP303	39.08 - 39.33	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	36	Aero Channel MP303	39.08 - 39.33	1.0000	1.0000
L16	37	Aero Channel MP303	39.08 - 39.33	1.0000	1.0000
L17	1	Safety Line 3/8	34.08 - 39.08	1.0000	1.0000
L17	7	FB-L98B-034-XXX(3/8)	34.08 - 39.08	1.0000	1.0000
L17	9	PWRT-608-S(13/16)	34.08 - 39.08	1.0000	1.0000
L17	10	PWRT-606-S(7/8)	34.08 - 39.08	1.0000	1.0000
L17	11	3" Flexible Conduit	34.08 - 39.08	1.0000	1.0000
L17	22	810921-001(7/8)	34.08 - 39.08	1.0000	1.0000
L17	25	HB158-U12S24-160-LI(1-7/8)	34.08 - 39.08	1.0000	1.0000
L17	27	CU12PSM9P8XXX(1-3/8)	34.08 - 39.08	1.0000	1.0000
L17	35	Aero Channel MP303	34.08 - 39.08	1.0000	1.0000
L17	36	Aero Channel MP303	34.08 - 39.08	1.0000	1.0000
L17	37	Aero Channel MP303	34.08 - 39.08	1.0000	1.0000
L18	1	Safety Line 3/8	30.00 - 34.08	1.0000	1.0000
L18	7	FB-L98B-034-XXX(3/8)	30.00 - 34.08	1.0000	1.0000
L18	9	PWRT-608-S(13/16)	30.00 - 34.08	1.0000	1.0000
L18	10	PWRT-606-S(7/8)	30.00 - 34.08	1.0000	1.0000
L18	11	3" Flexible Conduit	30.00 - 34.08	1.0000	1.0000
L18	22	810921-001(7/8)	30.00 - 34.08	1.0000	1.0000
L18	25	HB158-U12S24-160-LI(1-7/8)	30.00 - 34.08	1.0000	1.0000
L18	27	CU12PSM9P8XXX(1-3/8)	30.00 - 34.08	1.0000	1.0000
L18	35	Aero Channel MP303	30.50 - 34.08	1.0000	1.0000
L18	36	Aero Channel MP303	30.50 - 34.08	1.0000	1.0000
L18	37	Aero Channel MP303	30.50 - 34.08	1.0000	1.0000
L19	1	Safety Line 3/8	29.75 - 30.00	1.0000	1.0000
L19	7	FB-L98B-034-XXX(3/8)	29.75 - 30.00	1.0000	1.0000
L19	9	PWRT-608-S(13/16)	29.75 - 30.00	1.0000	1.0000
L19	10	PWRT-606-S(7/8)	29.75 - 30.00	1.0000	1.0000
L19	11	3" Flexible Conduit	29.75 - 30.00	1.0000	1.0000
L19	22	810921-001(7/8)	29.75 - 30.00	1.0000	1.0000
L19	25	HB158-U12S24-160-LI(1-7/8)	29.75 - 30.00	1.0000	1.0000
L19	27	CU12PSM9P8XXX(1-3/8)	29.75 - 30.00	1.0000	1.0000
L20	1	Safety Line 3/8	25.00 - 29.75	1.0000	1.0000
L20	7	FB-L98B-034-XXX(3/8)	25.00 - 29.75	1.0000	1.0000
L20	9	PWRT-608-S(13/16)	25.00 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	10	PWRT-606-S(7/8)	29.75 25.00 - 29.75	1.0000	1.0000
L20	11	3" Flexible Conduit	25.00 - 29.75	1.0000	1.0000
L20	22	810921-001(7/8)	25.00 - 29.75	1.0000	1.0000
L20	25	HB158-U12S24-160-LI(1-7/8)	25.00 - 29.75	1.0000	1.0000
L20	27	CU12PSM9P8XXX(1-3/8)	25.00 - 29.75	1.0000	1.0000
L20	43	CCI-SFP-045100	25.00 - 26.50	1.0000	1.0000
L20	44	CCI-SFP-045100	25.00 - 26.50	1.0000	1.0000
L20	45	CCI-SFP-045100	25.00 - 26.50	1.0000	1.0000
L20	46	CCI-SFP-045100	25.00 - 26.50	1.0000	1.0000
L21	1	Safety Line 3/8	24.75 - 25.00	1.0000	1.0000
L21	7	FB-L98B-034-XXX(3/8)	24.75 - 25.00	1.0000	1.0000
L21	9	PWRT-608-S(13/16)	24.75 - 25.00	1.0000	1.0000
L21	10	PWRT-606-S(7/8)	24.75 - 25.00	1.0000	1.0000
L21	11	3" Flexible Conduit	24.75 - 25.00	1.0000	1.0000
L21	22	810921-001(7/8)	24.75 - 25.00	1.0000	1.0000
L21	25	HB158-U12S24-160-LI(1-7/8)	24.75 - 25.00	1.0000	1.0000
L21	27	CU12PSM9P8XXX(1-3/8)	24.75 - 25.00	1.0000	1.0000
L21	43	CCI-SFP-045100	24.75 - 25.00	1.0000	1.0000
L21	44	CCI-SFP-045100	24.75 - 25.00	1.0000	1.0000
L21	45	CCI-SFP-045100	24.75 - 25.00	1.0000	1.0000
L21	46	CCI-SFP-045100	24.75 - 25.00	1.0000	1.0000
L22	1	Safety Line 3/8	19.75 - 24.75	1.0000	1.0000
L22	7	FB-L98B-034-XXX(3/8)	19.75 - 24.75	1.0000	1.0000
L22	9	PWRT-608-S(13/16)	19.75 - 24.75	1.0000	1.0000
L22	10	PWRT-606-S(7/8)	19.75 - 24.75	1.0000	1.0000
L22	11	3" Flexible Conduit	19.75 - 24.75	1.0000	1.0000
L22	22	810921-001(7/8)	19.75 - 24.75	1.0000	1.0000
L22	25	HB158-U12S24-160-LI(1-7/8)	19.75 - 24.75	1.0000	1.0000
L22	27	CU12PSM9P8XXX(1-3/8)	19.75 - 24.75	1.0000	1.0000
L22	39	Aero Channel MP305	19.75 - 21.00	1.0000	1.0000
L22	40	Aero Channel MP305	19.75 - 21.00	1.0000	1.0000
L22	41	Aero Channel MP305	19.75 - 21.00	1.0000	1.0000
L22	43	CCI-SFP-045100	19.75 - 24.75	1.0000	1.0000
L22	44	CCI-SFP-045100	19.75 - 24.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L22	45	CCI-SFP-045100	19.75 - 24.75	1.0000	1.0000
L22	46	CCI-SFP-045100	19.75 - 24.75	1.0000	1.0000
L23	1	Safety Line 3/8	18.58 - 19.75	1.0000	1.0000
L23	7	FB-L98B-034-XXX(3/8)	18.58 - 19.75	1.0000	1.0000
L23	9	PWRT-608-S(13/16)	18.58 - 19.75	1.0000	1.0000
L23	10	PWRT-606-S(7/8)	18.58 - 19.75	1.0000	1.0000
L23	11	3" Flexible Conduit	18.58 - 19.75	1.0000	1.0000
L23	22	810921-001(7/8)	18.58 - 19.75	1.0000	1.0000
L23	25	HB158-U12S24-160-LI(1-7/8)	18.58 - 19.75	1.0000	1.0000
L23	27	CU12PSM9P8XXX(1-3/8)	18.58 - 19.75	1.0000	1.0000
L23	39	Aero Channel MP305	18.58 - 19.75	1.0000	1.0000
L23	40	Aero Channel MP305	18.58 - 19.75	1.0000	1.0000
L23	41	Aero Channel MP305	18.58 - 19.75	1.0000	1.0000
L23	43	CCI-SFP-045100	18.58 - 19.75	1.0000	1.0000
L23	44	CCI-SFP-045100	18.58 - 19.75	1.0000	1.0000
L23	45	CCI-SFP-045100	18.58 - 19.75	1.0000	1.0000
L23	46	CCI-SFP-045100	18.58 - 19.75	1.0000	1.0000
L24	1	Safety Line 3/8	18.33 - 18.58	1.0000	1.0000
L24	7	FB-L98B-034-XXX(3/8)	18.33 - 18.58	1.0000	1.0000
L24	9	PWRT-608-S(13/16)	18.33 - 18.58	1.0000	1.0000
L24	10	PWRT-606-S(7/8)	18.33 - 18.58	1.0000	1.0000
L24	11	3" Flexible Conduit	18.33 - 18.58	1.0000	1.0000
L24	22	810921-001(7/8)	18.33 - 18.58	1.0000	1.0000
L24	25	HB158-U12S24-160-LI(1-7/8)	18.33 - 18.58	1.0000	1.0000
L24	27	CU12PSM9P8XXX(1-3/8)	18.33 - 18.58	1.0000	1.0000
L24	39	Aero Channel MP305	18.33 - 18.58	1.0000	1.0000
L24	40	Aero Channel MP305	18.33 - 18.58	1.0000	1.0000
L24	41	Aero Channel MP305	18.33 - 18.58	1.0000	1.0000
L24	43	CCI-SFP-045100	18.33 - 18.58	1.0000	1.0000
L24	44	CCI-SFP-045100	18.33 - 18.58	1.0000	1.0000
L24	45	CCI-SFP-045100	18.33 - 18.58	1.0000	1.0000
L24	46	CCI-SFP-045100	18.33 - 18.58	1.0000	1.0000
L25	1	Safety Line 3/8	13.33 - 18.33	1.0000	1.0000
L25	7	FB-L98B-034-XXX(3/8)	13.33 - 18.33	1.0000	1.0000
L25	9	PWRT-608-S(13/16)	13.33 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
			18.33		
L25	10	PWRT-606-S(7/8)	13.33 - 18.33	1.0000	1.0000
L25	11	3" Flexible Conduit	13.33 - 18.33	1.0000	1.0000
L25	22	810921-001(7/8)	13.33 - 18.33	1.0000	1.0000
L25	25	HB158-U12S24-160-LI(1-7/8)	13.33 - 18.33	1.0000	1.0000
L25	27	CU12PSM9P8XXX(1-3/8)	13.33 - 18.33	1.0000	1.0000
L25	39	Aero Channel MP305	13.33 - 18.33	1.0000	1.0000
L25	40	Aero Channel MP305	13.33 - 18.33	1.0000	1.0000
L25	41	Aero Channel MP305	13.33 - 18.33	1.0000	1.0000
L25	43	CCI-SFP-045100	13.33 - 18.33	1.0000	1.0000
L25	44	CCI-SFP-045100	13.33 - 18.33	1.0000	1.0000
L25	45	CCI-SFP-045100	13.33 - 18.33	1.0000	1.0000
L25	46	CCI-SFP-045100	13.33 - 18.33	1.0000	1.0000
L26	1	Safety Line 3/8	8.42 - 13.33	1.0000	1.0000
L26	7	FB-L98B-034-XXX(3/8)	8.42 - 13.33	1.0000	1.0000
L26	9	PWRT-608-S(13/16)	8.42 - 13.33	1.0000	1.0000
L26	10	PWRT-606-S(7/8)	8.42 - 13.33	1.0000	1.0000
L26	11	3" Flexible Conduit	8.42 - 13.33	1.0000	1.0000
L26	22	810921-001(7/8)	8.42 - 13.33	1.0000	1.0000
L26	25	HB158-U12S24-160-LI(1-7/8)	8.42 - 13.33	1.0000	1.0000
L26	27	CU12PSM9P8XXX(1-3/8)	8.42 - 13.33	1.0000	1.0000
L26	30	Aero Channel MP305	8.42 - 10.50	1.0000	1.0000
L26	31	Aero Channel MP305	8.42 - 10.50	1.0000	1.0000
L26	32	Aero Channel MP305	8.42 - 10.50	1.0000	1.0000
L26	33	Aero Channel MP305	8.42 - 10.50	1.0000	1.0000
L26	39	Aero Channel MP305	8.42 - 13.33	1.0000	1.0000
L26	40	Aero Channel MP305	8.42 - 13.33	1.0000	1.0000
L26	41	Aero Channel MP305	8.42 - 13.33	1.0000	1.0000
L26	43	CCI-SFP-045100	8.42 - 13.33	1.0000	1.0000
L26	44	CCI-SFP-045100	8.42 - 13.33	1.0000	1.0000
L26	45	CCI-SFP-045100	8.42 - 13.33	1.0000	1.0000
L26	46	CCI-SFP-045100	8.42 - 13.33	1.0000	1.0000
L27	1	Safety Line 3/8	8.07 - 8.42	1.0000	1.0000
L27	7	FB-L98B-034-XXX(3/8)	8.07 - 8.42	1.0000	1.0000
L27	9	PWRT-608-S(13/16)	8.07 - 8.42	1.0000	1.0000
L27	10	PWRT-606-S(7/8)	8.07 - 8.42	1.0000	1.0000
L27	11	3" Flexible Conduit	8.07 - 8.42	1.0000	1.0000
L27	22	810921-001(7/8)	8.07 - 8.42	1.0000	1.0000
L27	25	HB158-U12S24-160-LI(1-7/8)	8.07 - 8.42	1.0000	1.0000
L27	27	CU12PSM9P8XXX(1-3/8)	8.07 - 8.42	1.0000	1.0000
L27	30	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	31	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	32	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	33	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	39	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	40	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	41	Aero Channel MP305	8.07 - 8.42	1.0000	1.0000
L27	43	CCI-SFP-045100	8.07 - 8.42	1.0000	1.0000
L27	44	CCI-SFP-045100	8.07 - 8.42	1.0000	1.0000
L27	45	CCI-SFP-045100	8.07 - 8.42	1.0000	1.0000
L27	46	CCI-SFP-045100	8.07 - 8.42	1.0000	1.0000
L28	1	Safety Line 3/8	7.83 - 8.07	1.0000	1.0000
L28	7	FB-L98B-034-XXX(3/8)	7.83 - 8.07	1.0000	1.0000
L28	9	PWRT-608-S(13/16)	7.83 - 8.07	1.0000	1.0000
L28	10	PWRT-606-S(7/8)	7.83 - 8.07	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L28	11	3" Flexible Conduit	7.83 - 8.07	1.0000	1.0000
L28	22	810921-001(7/8)	7.83 - 8.07	1.0000	1.0000
L28	25	HB158-U12S24-160-LI(1-7/8)	7.83 - 8.07	1.0000	1.0000
L28	27	CU12PSM9P8XXX(1-3/8)	7.83 - 8.07	1.0000	1.0000
L28	30	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	31	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	32	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	33	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	39	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	40	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	41	Aero Channel MP305	7.83 - 8.07	1.0000	1.0000
L28	43	CCI-SFP-045100	7.83 - 8.07	1.0000	1.0000
L28	44	CCI-SFP-045100	7.83 - 8.07	1.0000	1.0000
L28	45	CCI-SFP-045100	7.83 - 8.07	1.0000	1.0000
L28	46	CCI-SFP-045100	7.83 - 8.07	1.0000	1.0000
L29	1	Safety Line 3/8	6.00 - 7.83	1.0000	1.0000
L29	7	FB-L98B-034-XXX(3/8)	6.00 - 7.83	1.0000	1.0000
L29	9	PWRT-608-S(13/16)	6.00 - 7.83	1.0000	1.0000
L29	10	PWRT-606-S(7/8)	6.00 - 7.83	1.0000	1.0000
L29	11	3" Flexible Conduit	6.00 - 7.83	1.0000	1.0000
L29	22	810921-001(7/8)	6.00 - 7.83	1.0000	1.0000
L29	25	HB158-U12S24-160-LI(1-7/8)	6.00 - 7.83	1.0000	1.0000
L29	27	CU12PSM9P8XXX(1-3/8)	6.00 - 7.83	1.0000	1.0000
L29	30	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	31	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	32	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	33	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	39	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	40	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	41	Aero Channel MP305	6.00 - 7.83	1.0000	1.0000
L29	43	CCI-SFP-045100	6.00 - 7.83	1.0000	1.0000
L29	44	CCI-SFP-045100	6.00 - 7.83	1.0000	1.0000
L29	45	CCI-SFP-045100	6.00 - 7.83	1.0000	1.0000
L29	46	CCI-SFP-045100	6.00 - 7.83	1.0000	1.0000
L30	1	Safety Line 3/8	5.75 - 6.00	1.0000	1.0000
L30	7	FB-L98B-034-XXX(3/8)	5.75 - 6.00	1.0000	1.0000
L30	9	PWRT-608-S(13/16)	5.75 - 6.00	1.0000	1.0000
L30	10	PWRT-606-S(7/8)	5.75 - 6.00	1.0000	1.0000
L30	11	3" Flexible Conduit	5.75 - 6.00	1.0000	1.0000
L30	22	810921-001(7/8)	5.75 - 6.00	1.0000	1.0000
L30	25	HB158-U12S24-160-LI(1-7/8)	5.75 - 6.00	1.0000	1.0000
L30	27	CU12PSM9P8XXX(1-3/8)	5.75 - 6.00	1.0000	1.0000
L30	30	Aero Channel MP305	5.75 - 6.00	1.0000	1.0000
L30	31	Aero Channel MP305	5.75 - 6.00	1.0000	1.0000
L30	32	Aero Channel MP305	5.75 - 6.00	1.0000	1.0000
L30	33	Aero Channel MP305	5.75 - 6.00	1.0000	1.0000
L30	43	CCI-SFP-045100	5.75 - 6.00	1.0000	1.0000
L30	44	CCI-SFP-045100	5.75 - 6.00	1.0000	1.0000
L30	45	CCI-SFP-045100	5.75 - 6.00	1.0000	1.0000
L30	46	CCI-SFP-045100	5.75 - 6.00	1.0000	1.0000
L31	1	Safety Line 3/8	3.00 - 5.75	1.0000	1.0000
L31	7	FB-L98B-034-XXX(3/8)	2.00 - 5.75	1.0000	1.0000
L31	9	PWRT-608-S(13/16)	2.00 - 5.75	1.0000	1.0000
L31	10	PWRT-606-S(7/8)	2.00 - 5.75	1.0000	1.0000
L31	11	3" Flexible Conduit	2.00 - 5.75	1.0000	1.0000
L31	22	810921-001(7/8)	2.00 - 5.75	1.0000	1.0000
L31	25	HB158-U12S24-160-LI(1-7/8)	2.00 - 5.75	1.0000	1.0000
L31	27	CU12PSM9P8XXX(1-3/8)	2.00 - 5.75	1.0000	1.0000
L31	30	Aero Channel MP305	2.00 - 5.75	1.0000	1.0000
L31	31	Aero Channel MP305	2.00 - 5.75	1.0000	1.0000
L31	32	Aero Channel MP305	2.00 - 5.75	1.0000	1.0000
L31	33	Aero Channel MP305	2.00 - 5.75	1.0000	1.0000
L31	43	CCI-SFP-045100	4.50 - 5.75	1.0000	1.0000
L31	44	CCI-SFP-045100	4.50 - 5.75	1.0000	1.0000
L31	45	CCI-SFP-045100	4.50 - 5.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L31	46	CCI-SFP-045100	4.50 - 5.75	1.0000	1.0000
L32	7	FB-L98B-034-XXX(3/8)	1.75 - 2.00	1.0000	1.0000
L32	9	PWRT-608-S(13/16)	1.75 - 2.00	1.0000	1.0000
L32	10	PWRT-606-S(7/8)	1.75 - 2.00	1.0000	1.0000
L32	11	3" Flexible Conduit	1.75 - 2.00	1.0000	1.0000
L32	22	810921-001(7/8)	1.75 - 2.00	1.0000	1.0000
L32	25	HB158-U12S24-160-LI(1-7/8)	1.75 - 2.00	1.0000	1.0000
L32	27	CU12PSM9P8XXX(1-3/8)	1.75 - 2.00	1.0000	1.0000
L32	30	Aero Channel MP305	1.75 - 2.00	1.0000	1.0000
L32	31	Aero Channel MP305	1.75 - 2.00	1.0000	1.0000
L32	32	Aero Channel MP305	1.75 - 2.00	1.0000	1.0000
L32	33	Aero Channel MP305	1.75 - 2.00	1.0000	1.0000
L33	7	FB-L98B-034-XXX(3/8)	0.00 - 1.75	1.0000	1.0000
L33	9	PWRT-608-S(13/16)	0.00 - 1.75	1.0000	1.0000
L33	10	PWRT-606-S(7/8)	0.00 - 1.75	1.0000	1.0000
L33	11	3" Flexible Conduit	0.00 - 1.75	1.0000	1.0000
L33	22	810921-001(7/8)	0.00 - 1.75	1.0000	1.0000
L33	25	HB158-U12S24-160-LI(1-7/8)	0.00 - 1.75	1.0000	1.0000
L33	27	CU12PSM9P8XXX(1-3/8)	0.00 - 1.75	1.0000	1.0000
L33	30	Aero Channel MP305	0.50 - 1.75	1.0000	1.0000
L33	31	Aero Channel MP305	0.50 - 1.75	1.0000	1.0000
L33	32	Aero Channel MP305	0.50 - 1.75	1.0000	1.0000
L33	33	Aero Channel MP305	0.50 - 1.75	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
L14	35	Aero Channel MP303	40.00 - 40.50	Manual	1.0000
L14	36	Aero Channel MP303	40.00 - 40.50	Manual	1.0000
L14	37	Aero Channel MP303	40.00 - 40.50	Manual	1.0000
L15	35	Aero Channel MP303	39.33 - 40.00	Manual	1.0000
L15	36	Aero Channel MP303	39.33 - 40.00	Manual	1.0000
L15	37	Aero Channel MP303	39.33 - 40.00	Manual	1.0000
L16	35	Aero Channel MP303	39.08 - 39.33	Manual	1.0000
L16	36	Aero Channel MP303	39.08 - 39.33	Manual	1.0000
L16	37	Aero Channel MP303	39.08 - 39.33	Manual	1.0000
L17	35	Aero Channel MP303	34.08 - 39.08	Manual	1.0000
L17	36	Aero Channel MP303	34.08 - 39.08	Manual	1.0000
L17	37	Aero Channel MP303	34.08 - 39.08	Manual	1.0000
L18	35	Aero Channel MP303	30.50 - 34.08	Manual	1.0000
L18	36	Aero Channel MP303	30.50 - 34.08	Manual	1.0000
L18	37	Aero Channel MP303	30.50 - 34.08	Manual	1.0000
L20	43	CCI-SFP-045100	25.00 - 26.50	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L20	44	CCI-SFP-045100	25.00 - 26.50	Auto	1.0000
L20	45	CCI-SFP-045100	25.00 - 26.50	Auto	1.0000
L20	46	CCI-SFP-045100	25.00 - 26.50	Auto	1.0000
L21	43	CCI-SFP-045100	24.75 - 25.00	Auto	1.0000
L21	44	CCI-SFP-045100	24.75 - 25.00	Auto	1.0000
L21	45	CCI-SFP-045100	24.75 - 25.00	Auto	1.0000
L21	46	CCI-SFP-045100	24.75 - 25.00	Auto	1.0000
L22	39	Aero Channel MP305	19.75 - 21.00	Manual	1.0000
L22	40	Aero Channel MP305	19.75 - 21.00	Manual	1.0000
L22	41	Aero Channel MP305	19.75 - 21.00	Manual	1.0000
L22	43	CCI-SFP-045100	19.75 - 24.75	Auto	1.0000
L22	44	CCI-SFP-045100	19.75 - 24.75	Auto	1.0000
L22	45	CCI-SFP-045100	19.75 - 24.75	Auto	1.0000
L22	46	CCI-SFP-045100	19.75 - 24.75	Auto	1.0000
L23	39	Aero Channel MP305	18.58 - 19.75	Manual	1.0000
L23	40	Aero Channel MP305	18.58 - 19.75	Manual	1.0000
L23	41	Aero Channel MP305	18.58 - 19.75	Manual	1.0000
L23	43	CCI-SFP-045100	18.58 - 19.75	Auto	1.0000
L23	44	CCI-SFP-045100	18.58 - 19.75	Auto	1.0000
L23	45	CCI-SFP-045100	18.58 - 19.75	Auto	1.0000
L23	46	CCI-SFP-045100	18.58 - 19.75	Auto	1.0000
L24	39	Aero Channel MP305	18.33 - 18.58	Manual	1.0000
L24	40	Aero Channel MP305	18.33 - 18.58	Manual	1.0000
L24	41	Aero Channel MP305	18.33 - 18.58	Manual	1.0000
L24	43	CCI-SFP-045100	18.33 - 18.58	Auto	1.0000
L24	44	CCI-SFP-045100	18.33 - 18.58	Auto	1.0000
L24	45	CCI-SFP-045100	18.33 - 18.58	Auto	1.0000
L24	46	CCI-SFP-045100	18.33 - 18.58	Auto	1.0000
L25	39	Aero Channel MP305	13.33 - 18.33	Manual	1.0000
L25	40	Aero Channel MP305	13.33 - 18.33	Manual	1.0000
L25	41	Aero Channel MP305	13.33 - 18.33	Manual	1.0000
L25	43	CCI-SFP-045100	13.33 - 18.33	Auto	1.0000
L25	44	CCI-SFP-045100	13.33 - 18.33	Auto	1.0000
L25	45	CCI-SFP-045100	13.33 - 18.33	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L25	46	CCI-SFP-045100	13.33 - 18.33	Auto	1.0000
L26	30	Aero Channel MP305	8.42 - 10.50	Manual	1.0000
L26	31	Aero Channel MP305	8.42 - 10.50	Manual	1.0000
L26	32	Aero Channel MP305	8.42 - 10.50	Manual	1.0000
L26	33	Aero Channel MP305	8.42 - 10.50	Manual	1.0000
L26	39	Aero Channel MP305	8.42 - 13.33	Manual	1.0000
L26	40	Aero Channel MP305	8.42 - 13.33	Manual	1.0000
L26	41	Aero Channel MP305	8.42 - 13.33	Manual	1.0000
L26	43	CCI-SFP-045100	8.42 - 13.33	Auto	1.0000
L26	44	CCI-SFP-045100	8.42 - 13.33	Auto	1.0000
L26	45	CCI-SFP-045100	8.42 - 13.33	Auto	1.0000
L26	46	CCI-SFP-045100	8.42 - 13.33	Auto	1.0000
L27	30	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	31	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	32	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	33	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	39	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	40	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	41	Aero Channel MP305	8.07 - 8.42	Manual	1.0000
L27	43	CCI-SFP-045100	8.07 - 8.42	Auto	1.0000
L27	44	CCI-SFP-045100	8.07 - 8.42	Auto	1.0000
L27	45	CCI-SFP-045100	8.07 - 8.42	Auto	1.0000
L27	46	CCI-SFP-045100	8.07 - 8.42	Auto	1.0000
L28	30	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	31	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	32	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	33	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	39	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	40	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	41	Aero Channel MP305	7.83 - 8.07	Manual	1.0000
L28	43	CCI-SFP-045100	7.83 - 8.07	Auto	1.0000
L28	44	CCI-SFP-045100	7.83 - 8.07	Auto	1.0000
L28	45	CCI-SFP-045100	7.83 - 8.07	Auto	1.0000
L28	46	CCI-SFP-045100	7.83 - 8.07	Auto	1.0000
L29	30	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	31	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	32	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	33	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	39	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	40	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	41	Aero Channel MP305	6.00 - 7.83	Manual	1.0000
L29	43	CCI-SFP-045100	6.00 - 7.83	Auto	1.0000
L29	44	CCI-SFP-045100	6.00 - 7.83	Auto	1.0000
L29	45	CCI-SFP-045100	6.00 - 7.83	Auto	1.0000
L29	46	CCI-SFP-045100	6.00 - 7.83	Auto	1.0000
L30	30	Aero Channel MP305	5.75 - 6.00	Manual	1.0000
L30	31	Aero Channel MP305	5.75 - 6.00	Manual	1.0000
L30	32	Aero Channel MP305	5.75 - 6.00	Manual	1.0000
L30	33	Aero Channel MP305	5.75 - 6.00	Manual	1.0000
L30	43	CCI-SFP-045100	5.75 - 6.00	Auto	1.0000
L30	44	CCI-SFP-045100	5.75 - 6.00	Auto	1.0000
L30	45	CCI-SFP-045100	5.75 - 6.00	Auto	1.0000
L30	46	CCI-SFP-045100	5.75 - 6.00	Auto	1.0000
L31	30	Aero Channel MP305	2.00 - 5.75	Manual	1.0000
L31	31	Aero Channel MP305	2.00 - 5.75	Manual	1.0000
L31	32	Aero Channel MP305	2.00 - 5.75	Manual	1.0000
L31	33	Aero Channel MP305	2.00 - 5.75	Manual	1.0000
L31	43	CCI-SFP-045100	4.50 - 5.75	Auto	1.0000
L31	44	CCI-SFP-045100	4.50 - 5.75	Auto	1.0000
L31	45	CCI-SFP-045100	4.50 - 5.75	Auto	1.0000
L31	46	CCI-SFP-045100	4.50 - 5.75	Auto	1.0000
L32	30	Aero Channel MP305	1.75 - 2.00	Manual	1.0000
L32	31	Aero Channel MP305	1.75 - 2.00	Manual	1.0000
L32	32	Aero Channel MP305	1.75 - 2.00	Manual	1.0000
L32	33	Aero Channel MP305	1.75 - 2.00	Manual	1.0000
L33	30	Aero Channel MP305	0.50 - 1.75	Manual	1.0000
L33	31	Aero Channel MP305	0.50 - 1.75	Manual	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	32	Aero Channel MP305	0.50 - 1.75	Manual	1.0000
L33	33	Aero Channel MP305	0.50 - 1.75	Manual	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails	C	None		0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	21.17 25.84 30.51 39.85	19.65 24.18 28.79 37.77	1.49 1.83 2.29 2.85
AIR6449 B41_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
AIR6449 B41_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.19 5.59 6.02 6.90	2.71 3.04 3.38 4.12	0.13 0.17 0.23 0.35
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
APXVAALL24_43-U-NA20_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.69 15.46 16.23 17.82	6.87 7.55 8.25 9.67	0.18 0.31 0.45 0.78
Radio 4480_TMOV2	A	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.88 3.09 3.31 3.78	1.40 1.56 1.73 2.09	0.08 0.10 0.13 0.19
Radio 4480_TMOV2	B	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.88 3.09 3.31 3.78	1.40 1.56 1.73 2.09	0.08 0.10 0.13 0.19
Radio 4480_TMOV2	C	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.88 3.09 3.31 3.78	1.40 1.56 1.73 2.09	0.08 0.10 0.13 0.19
RADIO 4460 B2/B25	A	From Leg	4.00	0.00	107.00	No Ice	2.14	1.69	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B66_TMO			0.00 1.00			1/2" Ice 1" Ice 2" Ice	2.32 2.51 2.91	1.85 2.02 2.39	0.13 0.16 0.22
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.14 2.32 2.51 2.91	1.69 1.85 2.02 2.39	0.11 0.13 0.16 0.22
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 1.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.14 2.32 2.51 2.91	1.69 1.85 2.02 2.39	0.11 0.13 0.16 0.22
(2) 6'x2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
(2) 6'x2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
(2) 6'x2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	107.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.43 1.92 2.29 3.06	1.43 1.92 2.29 3.06	0.02 0.03 0.05 0.09
*** Side Arm Mount [SO 102-3]	C	None		0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.60 4.18 4.75 5.90	3.60 4.18 4.75 5.90	0.07 0.11 0.14 0.20
(3) 1'x2" Mount Pipe	A	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.15 0.22 0.30 0.50	0.15 0.22 0.30 0.50	0.00 0.01 0.01 0.02
(3) 1'x2" Mount Pipe	B	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.15 0.22 0.30 0.50	0.15 0.22 0.30 0.50	0.00 0.01 0.01 0.02
(3) 1'x2" Mount Pipe	C	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.15 0.22 0.30 0.50	0.15 0.22 0.30 0.50	0.00 0.01 0.01 0.02
800MHZ 2X50W RRH W/FILTER	A	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
800MHZ 2X50W RRH W/FILTER	B	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17
800MHZ 2X50W RRH W/FILTER	C	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.06 2.24 2.43 2.83	1.93 2.11 2.29 2.68	0.06 0.09 0.11 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) PCS 1900MHZ 4X45W-65MHZ	A	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
(2) PCS 1900MHZ 4X45W-65MHZ	B	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
(2) PCS 1900MHZ 4X45W-65MHZ	C	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.32 2.53 2.74 3.19	2.24 2.44 2.65 3.09	0.06 0.08 0.11 0.17
IBC1900BB-1	A	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.97 1.09 1.22 1.51	0.46 0.56 0.66 0.89	0.02 0.03 0.04 0.06
IBC1900BB-1	B	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.97 1.09 1.22 1.51	0.46 0.56 0.66 0.89	0.02 0.03 0.04 0.06
IBC1900BB-1	C	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.97 1.09 1.22 1.51	0.46 0.56 0.66 0.89	0.02 0.03 0.04 0.06
IBC1900HG-2A	A	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.97 1.09 1.22 1.51	0.46 0.56 0.66 0.89	0.02 0.03 0.04 0.06
IBC1900HG-2A	B	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.97 1.09 1.22 1.51	0.46 0.56 0.66 0.89	0.02 0.03 0.04 0.06
IBC1900HG-2A	C	From Leg	2.00 0.00 0.00	0.00	105.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.97 1.09 1.22 1.51	0.46 0.56 0.66 0.89	0.02 0.03 0.04 0.06
***									
SitePro1 RMQLP-4120-H10	C	None		0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	21.41 26.62 31.66 41.38	21.41 26.62 31.66 41.38	1.60 2.06 2.60 3.96
AIR 6449 N77 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.26 4.58 4.91 5.61	3.47 3.91 4.37 5.34	0.10 0.14 0.19 0.30
AIR 6449 N77 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.26 4.58 4.91 5.61	3.47 3.91 4.37 5.34	0.10 0.14 0.19 0.30
AIR 6449 N77 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	90.00	No Ice 1/2" Ice 1" Ice	4.26 4.58 4.91 5.61	3.47 3.91 4.37 5.34	0.10 0.14 0.19 0.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
QD6616-7 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.82 14.43 15.00 16.18	8.46 9.66 10.55 12.35	0.16 0.26 0.37 0.62
QD6616-7 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.82 14.43 15.00 16.18	8.46 9.66 10.55 12.35	0.16 0.26 0.37 0.62
QD6616-7 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	13.82 14.43 15.00 16.18	8.46 9.66 10.55 12.35	0.16 0.26 0.37 0.62
AIR 6419 B77G w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.87 4.18 4.50 5.16	2.32 2.72 3.13 4.01	0.08 0.11 0.15 0.25
AIR 6419 B77G w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.87 4.18 4.50 5.16	2.32 2.72 3.13 4.01	0.08 0.11 0.15 0.25
AIR 6419 B77G w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.87 4.18 4.50 5.16	2.32 2.72 3.13 4.01	0.08 0.11 0.15 0.25
DMP65R-BU6D w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
DMP65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
DMP65R-BU6D w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	11.96 12.70 13.46 15.02	5.97 6.63 7.30 8.69	0.11 0.20 0.30 0.53
RRUS E2 B29	A	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.15 3.36 3.59 4.07	1.29 1.44 1.60 1.95	0.05 0.08 0.10 0.17
RRUS E2 B29	B	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.15 3.36 3.59 4.07	1.29 1.44 1.60 1.95	0.05 0.08 0.10 0.17
RRUS E2 B29	C	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.15 3.36 3.59 4.07	1.29 1.44 1.60 1.95	0.05 0.08 0.10 0.17
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64 2.04	0.92 1.46 1.64 2.04	0.02 0.04 0.06 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
							2" Ice			
RRUS 4449 B5/B12	A	From Leg	4.00	0.00	0.00	90.00	No Ice	1.97	1.41	0.07
			0.00				1/2" Ice	2.14	1.56	0.09
			0.00				1" Ice	2.33	1.73	0.11
							2" Ice	2.72	2.07	0.16
RRUS 4449 B5/B12	B	From Leg	4.00	0.00	0.00	90.00	No Ice	1.97	1.41	0.07
			0.00				1/2" Ice	2.14	1.56	0.09
			0.00				1" Ice	2.33	1.73	0.11
							2" Ice	2.72	2.07	0.16
RRUS 4449 B5/B12	C	From Leg	4.00	0.00	0.00	90.00	No Ice	1.97	1.41	0.07
			0.00				1/2" Ice	2.14	1.56	0.09
			0.00				1" Ice	2.33	1.73	0.11
							2" Ice	2.72	2.07	0.16
RRUS 32 B30	A	From Leg	4.00	0.00	0.00	90.00	No Ice	2.69	1.57	0.06
			0.00				1/2" Ice	2.91	1.76	0.08
			0.00				1" Ice	3.14	1.95	0.10
							2" Ice	3.61	2.35	0.16
RRUS 32 B30	B	From Leg	4.00	0.00	0.00	90.00	No Ice	2.69	1.57	0.06
			0.00				1/2" Ice	2.91	1.76	0.08
			0.00				1" Ice	3.14	1.95	0.10
							2" Ice	3.61	2.35	0.16
RRUS 32 B30	C	From Leg	4.00	0.00	0.00	90.00	No Ice	2.69	1.57	0.06
			0.00				1/2" Ice	2.91	1.76	0.08
			0.00				1" Ice	3.14	1.95	0.10
							2" Ice	3.61	2.35	0.16
RRUS 32 B66A	A	From Leg	4.00	0.00	0.00	90.00	No Ice	2.86	1.78	0.06
			0.00				1/2" Ice	3.09	1.97	0.08
			0.00				1" Ice	3.32	2.17	0.10
							2" Ice	3.81	2.59	0.16
RRUS 32 B66A	B	From Leg	4.00	0.00	0.00	90.00	No Ice	2.86	1.78	0.06
			0.00				1/2" Ice	3.09	1.97	0.08
			0.00				1" Ice	3.32	2.17	0.10
							2" Ice	3.81	2.59	0.16
RRUS 32 B66A	C	From Leg	4.00	0.00	0.00	90.00	No Ice	2.86	1.78	0.06
			0.00				1/2" Ice	3.09	1.97	0.08
			0.00				1" Ice	3.32	2.17	0.10
							2" Ice	3.81	2.59	0.16
RRUS 4415 B25	A	From Leg	4.00	0.00	0.00	90.00	No Ice	1.64	0.68	0.04
			0.00				1/2" Ice	1.80	0.79	0.06
			0.00				1" Ice	1.97	0.91	0.07
							2" Ice	2.33	1.18	0.11
RRUS 4415 B25	B	From Leg	4.00	0.00	0.00	90.00	No Ice	1.64	0.68	0.04
			0.00				1/2" Ice	1.80	0.79	0.06
			0.00				1" Ice	1.97	0.91	0.07
							2" Ice	2.33	1.18	0.11
RRUS 4415 B25	C	From Leg	4.00	0.00	0.00	90.00	No Ice	1.64	0.68	0.04
			0.00				1/2" Ice	1.80	0.79	0.06
			0.00				1" Ice	1.97	0.91	0.07
							2" Ice	2.33	1.18	0.11
DC6-48-60-18-8F	A	From Leg	4.00	0.00	0.00	90.00	No Ice	0.92	0.92	0.02
			0.00				1/2" Ice	1.46	1.46	0.04
			0.00				1" Ice	1.64	1.64	0.06
							2" Ice	2.04	2.04	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
DC6-48-60-18-8F	B	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.92 1.46 1.64 2.04	0.92 1.46 1.64 2.04	0.02 0.04 0.06 0.11
DC6-48-60-18-8F	C	From Leg	4.00 0.00 0.00	0.00	90.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.92 1.46 1.64 2.04	0.92 1.46 1.64 2.04	0.02 0.04 0.06 0.11
***									
Platform Mount [LP 303-1]	C	None		0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	14.69 18.01 21.34 28.08	14.69 18.01 21.34 28.08	1.25 1.57 1.94 2.85
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.14 3.45 3.77 4.43	2.59 2.88 3.19 3.84	0.11 0.16 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.14 3.45 3.77 4.43	2.59 2.88 3.19 3.84	0.11 0.16 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.14 3.45 3.77 4.43	2.59 2.88 3.19 3.84	0.11 0.16 0.23 0.38
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	5.31 5.80 6.30 7.33	4.27 4.75 5.24 6.24	0.09 0.17 0.26 0.50
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	5.31 5.80 6.30 7.33	4.27 4.75 5.24 6.24	0.09 0.17 0.26 0.50
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	5.31 5.80 6.30 7.33	4.27 4.75 5.24 6.24	0.09 0.17 0.26 0.50
AIR 32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	0.19 0.25 0.32 0.48
AIR 32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	0.19 0.25 0.32 0.48
AIR 32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice 1" Ice 2" Ice	3.76 4.12 4.48 5.24	3.15 3.49 3.84 4.58	0.19 0.25 0.32 0.48
KRY 112 144/1	A	From Leg	4.00 0.00 0.00	0.00	76.00	No Ice 1/2" Ice Ice	0.35 0.43 0.51	0.17 0.23 0.30	0.01 0.01 0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	0.70	0.46	0.03
						2" Ice			
KRY 112 144/1	B	From Leg	4.00	0.00	76.00	No Ice	0.35	0.17	0.01
			0.00			1/2"	0.43	0.23	0.01
			0.00			Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			
KRY 112 144/1	C	From Leg	4.00	0.00	76.00	No Ice	0.35	0.17	0.01
			0.00			1/2"	0.43	0.23	0.01
			0.00			Ice	0.51	0.30	0.02
						1" Ice	0.70	0.46	0.03
						2" Ice			
RRUS 11 B12	A	From Leg	4.00	0.00	76.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			0.00			Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
						2" Ice			
RRUS 11 B12	B	From Leg	4.00	0.00	76.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			0.00			Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
						2" Ice			
RRUS 11 B12	C	From Leg	4.00	0.00	76.00	No Ice	2.83	1.18	0.05
			0.00			1/2"	3.04	1.33	0.07
			0.00			Ice	3.26	1.48	0.10
						1" Ice	3.71	1.83	0.15
						2" Ice			
***									
PV-VPP12M-HR-B	C	None		0.00	64.00	No Ice	17.09	17.09	1.50
						1/2"	21.47	21.47	1.88
						Ice	25.72	25.72	2.35
						1" Ice	33.96	33.96	3.52
						2" Ice			
(4) 8'x2" Mount Pipe	A	From Leg	4.00	0.00	64.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(4) 8'x2" Mount Pipe	B	From Leg	4.00	0.00	64.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
(4) 8'x2" Mount Pipe	C	From Leg	4.00	0.00	64.00	No Ice	1.90	1.90	0.03
			0.00			1/2"	2.73	2.73	0.04
			0.00			Ice	3.40	3.40	0.06
						1" Ice	4.40	4.40	0.12
						2" Ice			
BSAMNT-SBS-1-2 (Mount Bracket)	A	From Leg	4.00	0.00	64.00	No Ice	0.00	0.00	0.03
			0.00			1/2"	0.00	0.00	0.05
			0.00			Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.11
						2" Ice			
BSAMNT-SBS-1-2 (Mount Bracket)	B	From Leg	4.00	0.00	64.00	No Ice	0.00	0.00	0.03
			0.00			1/2"	0.00	0.00	0.05
			0.00			Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.11
						2" Ice			
BSAMNT-SBS-1-2 (Mount Bracket)	C	From Leg	4.00	0.00	64.00	No Ice	0.00	0.00	0.03
			0.00			1/2"	0.00	0.00	0.05
			0.00			Ice	0.00	0.00	0.07
						1" Ice	0.00	0.00	0.11
						2" Ice			
(2) NHH-65B-R2B	A	From Leg	4.00	0.00	64.00	No Ice	4.16	2.49	0.04
			0.00			1/2"	4.56	2.88	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	4.98	3.27	0.15
						1" Ice	5.84	4.08	0.28
						2" Ice			
(2) NHH-65B-R2B	B	From Leg	4.00	0.00	64.00	No Ice	4.16	2.49	0.04
			0.00			1/2"	4.56	2.88	0.09
			0.00			Ice	4.98	3.27	0.15
						1" Ice	5.84	4.08	0.28
						2" Ice			
(2) NHH-65B-R2B	C	From Leg	4.00	0.00	64.00	No Ice	4.16	2.49	0.04
			0.00			1/2"	4.56	2.88	0.09
			0.00			Ice	4.98	3.27	0.15
						1" Ice	5.84	4.08	0.28
						2" Ice			
RVZDC-6627-PF-48	B	From Leg	4.00	0.00	64.00	No Ice	3.79	2.51	0.03
			0.00			1/2"	4.04	2.73	0.06
			0.00			Ice	4.30	2.95	0.10
						1" Ice	4.84	3.42	0.18
						2" Ice			
RVZDC-6627-PF-48	C	From Leg	4.00	0.00	64.00	No Ice	3.79	2.51	0.03
			0.00			1/2"	4.04	2.73	0.06
			0.00			Ice	4.30	2.95	0.10
						1" Ice	4.84	3.42	0.18
						2" Ice			
RFV01U-D1A	A	From Leg	4.00	0.00	64.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	B	From Leg	4.00	0.00	64.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D1A	C	From Leg	4.00	0.00	64.00	No Ice	1.88	1.25	0.08
			0.00			1/2"	2.05	1.39	0.10
			0.00			Ice	2.22	1.54	0.12
						1" Ice	2.60	1.86	0.18
						2" Ice			
RFV01U-D2A	A	From Leg	4.00	0.00	64.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	B	From Leg	4.00	0.00	64.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
RFV01U-D2A	C	From Leg	4.00	0.00	64.00	No Ice	1.88	1.01	0.07
			0.00			1/2"	2.05	1.14	0.09
			0.00			Ice	2.22	1.28	0.11
						1" Ice	2.60	1.59	0.15
						2" Ice			
20W CBRS	A	From Leg	4.00	0.00	64.00	No Ice	0.86	0.42	0.02
			0.00			1/2"	0.98	0.51	0.03
			0.00			Ice	1.10	0.61	0.03
						1" Ice	1.37	0.83	0.06
						2" Ice			
20W CBRS	B	From Leg	4.00	0.00	64.00	No Ice	0.86	0.42	0.02
			0.00			1/2"	0.98	0.51	0.03
			0.00			Ice	1.10	0.61	0.03
						1" Ice	1.37	0.83	0.06
						2" Ice			
20W CBRS	C	From Leg	4.00	0.00	64.00	No Ice	0.86	0.42	0.02
			0.00			1/2"	0.98	0.51	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			Ice	1.10	0.61	0.03
						1" Ice	1.37	0.83	0.06
						2" Ice			
***									
Commscope MC-PK8-DSH	C	None		0.00	54.00	No Ice	34.24	34.24	1.75
						1/2" Ice	62.95	62.95	2.10
						1" Ice	91.66	91.66	2.45
						2" Ice	149.08	149.08	3.15
(2) 8'x2" Mount Pipe	A	From Leg	4.00	0.00	54.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
(2) 8'x2" Mount Pipe	B	From Leg	4.00	0.00	54.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
(2) 8'x2" Mount Pipe	C	From Leg	4.00	0.00	54.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
						2" Ice	4.40	4.40	0.12
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00	0.00	54.00	No Ice	8.01	4.23	0.11
			0.00			1/2" Ice	8.52	4.69	0.19
			0.00			1" Ice	9.04	5.16	0.29
						2" Ice	10.11	6.12	0.52
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00	0.00	54.00	No Ice	8.01	4.23	0.11
			0.00			1/2" Ice	8.52	4.69	0.19
			0.00			1" Ice	9.04	5.16	0.29
						2" Ice	10.11	6.12	0.52
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00	0.00	54.00	No Ice	8.01	4.23	0.11
			0.00			1/2" Ice	8.52	4.69	0.19
			0.00			1" Ice	9.04	5.16	0.29
						2" Ice	10.11	6.12	0.52
TA08025-B605	A	From Leg	4.00	0.00	54.00	No Ice	1.96	1.13	0.08
			0.00			1/2" Ice	2.14	1.27	0.09
			0.00			1" Ice	2.32	1.41	0.11
						2" Ice	2.71	1.72	0.16
TA08025-B605	B	From Leg	4.00	0.00	54.00	No Ice	1.96	1.13	0.08
			0.00			1/2" Ice	2.14	1.27	0.09
			0.00			1" Ice	2.32	1.41	0.11
						2" Ice	2.71	1.72	0.16
TA08025-B605	C	From Leg	4.00	0.00	54.00	No Ice	1.96	1.13	0.08
			0.00			1/2" Ice	2.14	1.27	0.09
			0.00			1" Ice	2.32	1.41	0.11
						2" Ice	2.71	1.72	0.16
TA08025-B604	A	From Leg	4.00	0.00	54.00	No Ice	1.96	0.98	0.06
			0.00			1/2" Ice	2.14	1.11	0.08
			0.00			1" Ice	2.32	1.25	0.10
						2" Ice	2.71	1.55	0.15
TA08025-B604	B	From Leg	4.00	0.00	54.00	No Ice	1.96	0.98	0.06
			0.00			1/2" Ice	2.14	1.11	0.08
			0.00			1" Ice	2.32	1.25	0.10
						2" Ice	2.71	1.55	0.15
TA08025-B604	C	From Leg	4.00	0.00	54.00	No Ice	1.96	0.98	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2"	2.14	1.11	0.08
			0.00			Ice	2.32	1.25	0.10
						1" Ice	2.71	1.55	0.15
						2" Ice			
RDIDC-9181-PF-48	B	From Leg	4.00	0.00	54.00	No Ice	2.01	1.17	0.02
			0.00			1/2"	2.19	1.31	0.04
			0.00			Ice	2.37	1.46	0.06
						1" Ice	2.76	1.78	0.11
						2" Ice			
***									
*** Flange Modifications ***									
Bridge Stiffener 72" x 1.25" x 11"	A	From Face	0.00	0.00	30.00	No Ice	1.13	8.99	0.28
			0.00			1/2"	2.07	9.70	0.33
			0.00			Ice	3.02	10.41	0.37
						1" Ice	5.02	11.89	0.46
						2" Ice			
Bridge Stiffener 72" x 1.25" x 11"	B	From Face	0.00	0.00	30.00	No Ice	1.13	8.99	0.28
			0.00			1/2"	2.07	9.70	0.33
			0.00			Ice	3.02	10.41	0.37
						1" Ice	5.02	11.89	0.46
						2" Ice			
Bridge Stiffener 72" x 1.25" x 11"	C	From Face	0.00	0.00	30.00	No Ice	1.13	8.99	0.28
			0.00			1/2"	2.07	9.70	0.33
			0.00			Ice	3.02	10.41	0.37
						1" Ice	5.02	11.89	0.46
						2" Ice			
***									
Jump Plate 116" x 6.25" x 1"	A	From Face	0.00	0.00	30.00	No Ice	8.99	7.79	1.07
			0.00			1/2"	10.52	8.74	1.15
			0.00			Ice	12.07	9.70	1.20
						1" Ice	15.25	11.66	1.32
						2" Ice			
Jump Plate 116" x 6.25" x 1"	B	From Face	0.00	0.00	30.00	No Ice	8.99	7.79	1.07
			0.00			1/2"	10.52	8.74	1.15
			0.00			Ice	12.07	9.70	1.20
						1" Ice	15.25	11.66	1.32
						2" Ice			
Jump Plate 116" x 6.25" x 1"	C	From Face	0.00	0.00	30.00	No Ice	8.99	7.79	1.07
			0.00			1/2"	10.52	8.74	1.15
			0.00			Ice	12.07	9.70	1.20
						1" Ice	15.25	11.66	1.32
						2" Ice			
***									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice

Comb. No.	Description
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	110 - 105	Pole	Max Tension	45	0.00	0.00	0.00
			Max. Compression	26	-7.83	-0.01	0.01
			Max. Mx	8	-3.81	-10.34	0.00
			Max. My	2	-3.81	-0.00	10.34
			Max. Vy	20	-4.01	10.34	0.00
			Max. Vx	14	4.01	-0.00	-10.34
			Max. Torque	18			0.00
L2	105 - 100	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10.46	-0.02	0.02
			Max. Mx	8	-5.04	-36.81	0.00
			Max. My	14	-5.04	-0.00	-36.82
			Max. Vy	20	-5.44	36.81	0.00
			Max. Vx	14	5.45	-0.00	-36.82
			Max. Torque	18			0.00
L3	100 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.12	-0.04	0.04
			Max. Mx	8	-5.45	-64.77	0.00
			Max. My	14	-5.45	-0.00	-64.79
			Max. Vy	20	-5.74	64.76	0.00
			Max. Vx	14	5.74	-0.00	-64.79
			Max. Torque	18			0.00
L4	95 - 90	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.79	-0.05	0.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-5.86	-94.16	0.00
			Max. My	14	-5.86	-0.00	-94.19
			Max. Vy	20	-6.02	94.16	0.00
			Max. Vx	14	6.02	-0.00	-94.19
			Max. Torque	18			0.00
L5	90 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.73	0.11	0.56
			Max. Mx	20	-10.78	151.71	0.13
			Max. My	2	-10.77	0.04	151.90
			Max. Vy	20	-11.51	151.71	0.13
			Max. Vx	14	11.53	0.03	-151.63
			Max. Torque	8			0.17
L6	85 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.76	0.27	0.67
			Max. Mx	20	-11.44	209.97	0.16
			Max. My	2	-11.44	0.08	210.31
			Max. Vy	20	-11.79	209.97	0.16
			Max. Vx	14	11.83	0.07	-210.00
			Max. Torque	8			0.17
L7	80 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.09	0.41	0.78
			Max. Mx	20	-15.10	271.76	0.18
			Max. My	2	-15.09	0.11	272.33
			Max. Vy	20	-14.22	271.76	0.18
			Max. Vx	14	14.28	0.11	-271.98
			Max. Torque	8			0.17
L8	75 - 70	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.19	0.50	0.92
			Max. Mx	20	-15.82	343.47	0.21
			Max. My	2	-15.81	0.14	344.39
			Max. Vy	20	-14.46	343.47	0.21
			Max. Vx	14	14.54	0.13	-343.99
			Max. Torque	8			0.17
L9	70 - 65	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.29	0.58	1.06
			Max. Mx	20	-16.56	416.28	0.24
			Max. My	2	-16.55	0.17	417.65
			Max. Vy	20	-14.67	416.28	0.24
			Max. Vx	14	14.77	0.15	-417.21
			Max. Torque	8			0.17
L10	65 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-41.37	0.67	0.45
			Max. Mx	20	-20.49	501.40	0.08
			Max. My	2	-20.49	0.19	502.93
			Max. Vy	20	-17.68	501.40	0.08
			Max. Vx	14	17.76	0.18	-502.87
			Max. Torque	20			0.25
L11	60 - 55	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.73	0.77	0.52
			Max. Mx	20	-21.41	590.45	0.07
			Max. My	2	-21.40	0.23	592.30
			Max. Vy	20	-17.94	590.45	0.07
			Max. Vx	14	18.02	0.21	-592.28
			Max. Torque	20			0.25
L12	55 - 50	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.76	0.51	0.33
			Max. Mx	20	-25.44	691.66	0.03
			Max. My	14	-25.43	0.09	-694.00
			Max. Vy	20	-20.93	691.66	0.03
			Max. Vx	14	21.00	0.09	-694.00
			Max. Torque	18			0.38
L13	50 - 45	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.14	0.61	0.35
			Max. Mx	20	-26.40	796.82	0.06
			Max. My	14	-26.39	0.07	-799.48
			Max. Vy	20	-21.14	796.82	0.06
			Max. Vx	14	21.20	0.07	-799.48
			Max. Torque	18			0.38
L14	45 - 40	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-52.53	0.72	0.37
			Max. Mx	20	-27.38	902.89	0.09
			Max. My	14	-27.38	0.04	-905.88
			Max. Vy	20	-21.31	902.89	0.09
			Max. Vx	14	21.37	0.04	-905.88
			Max. Torque	18			0.38
L15	40 - 39.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.73	0.73	0.37
			Max. Mx	20	-27.52	917.17	0.10
			Max. My	14	-27.51	0.04	-920.21
			Max. Vy	20	-21.32	917.17	0.10
			Max. Vx	14	21.42	0.04	-920.21
			Max. Torque	18			0.38
L16	39.33 - 39.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.81	0.74	0.37
			Max. Mx	20	-27.58	922.50	0.10
			Max. My	14	-27.57	0.04	-925.56
			Max. Vy	20	-21.33	922.50	0.10
			Max. Vx	14	21.44	0.04	-925.56
			Max. Torque	18			0.38
L17	39.08 - 34.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.48	0.84	0.39
			Max. Mx	20	-28.73	1029.64	0.13
			Max. My	14	-28.71	0.01	-1033.87
			Max. Vy	20	-21.53	1029.64	0.13
			Max. Vx	14	21.89	0.01	-1033.87
			Max. Torque	18			0.38
L18	34.08 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.82	0.92	0.40
			Max. Mx	20	-29.68	1117.73	0.16
			Max. My	14	-29.66	-0.01	-1123.37
			Max. Vy	20	-21.66	1117.73	0.16
			Max. Vx	14	22.00	-0.01	-1123.37
			Max. Torque	18			0.38
L19	30 - 29.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.59	0.92	0.40
			Max. Mx	20	-34.61	1123.18	0.16
			Max. My	14	-34.59	-0.01	-1128.90
			Max. Vy	20	-21.81	1123.18	0.16
			Max. Vx	14	22.15	-0.01	-1128.90
			Max. Torque	18			0.38
L20	29.75 - 25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.14	1.02	0.41
			Max. Mx	20	-35.77	1226.96	0.19
			Max. My	14	-35.75	-0.04	-1234.28
			Max. Vy	20	-21.90	1226.96	0.19
			Max. Vx	14	22.24	-0.04	-1234.28
			Max. Torque	18			0.38
L21	25 - 24.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.24	1.02	0.40
			Max. Mx	20	-35.86	1232.43	0.19
			Max. My	14	-35.84	-0.04	-1239.84
			Max. Vy	20	-21.89	1232.43	0.19
			Max. Vx	14	22.24	-0.04	-1239.84
			Max. Torque	18			0.38
L22	24.75 - 19.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.37	1.12	0.37
			Max. Mx	20	-37.45	1342.18	0.22
			Max. My	14	-37.43	-0.06	-1351.83
			Max. Vy	20	-22.02	1342.18	0.22
			Max. Vx	14	22.57	-0.06	-1351.83
			Max. Torque	18			0.38
L23	19.75 - 18.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.89	1.14	0.36
			Max. Mx	20	-37.82	1367.98	0.23

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-37.81	-0.07	-1378.26
			Max. Vy	20	-22.12	1367.98	0.23
			Max. Vx	14	22.65	-0.07	-1378.26
			Max. Torque	18			0.38
L24	18.58 - 18.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.01	1.15	0.36
			Max. Mx	20	-37.93	1373.50	0.23
			Max. My	14	-37.92	-0.07	-1383.91
			Max. Vy	20	-22.12	1373.50	0.23
			Max. Vx	14	22.64	-0.07	-1383.91
			Max. Torque	18			0.38
L25	18.33 - 13.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.56	1.24	0.33
			Max. Mx	20	-39.85	1485.15	0.26
			Max. My	14	-39.84	-0.10	-1497.92
			Max. Vy	20	-22.55	1485.15	0.26
			Max. Vx	14	22.97	-0.10	-1497.92
			Max. Torque	18			0.38
L26	13.33 - 8.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.10	1.33	0.28
			Max. Mx	20	-41.76	1596.80	0.29
			Max. My	14	-41.76	-0.12	-1611.35
			Max. Vy	20	-22.96	1596.80	0.29
			Max. Vx	14	23.26	-0.12	-1611.35
			Max. Torque	18			0.38
L27	8.42 - 8.07	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.32	1.34	0.27
			Max. Mx	20	-41.95	1604.84	0.29
			Max. My	14	-41.94	-0.12	-1619.49
			Max. Vy	20	-22.98	1604.84	0.29
			Max. Vx	14	23.27	-0.12	-1619.49
			Max. Torque	18			0.38
L28	8.07 - 7.83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.48	1.34	0.27
			Max. Mx	20	-42.07	1610.36	0.29
			Max. My	14	-42.06	-0.13	-1625.07
			Max. Vy	20	-23.00	1610.36	0.29
			Max. Vx	14	23.29	-0.13	-1625.07
			Max. Torque	18			0.38
L29	7.83 - 6	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.65	1.38	0.23
			Max. Mx	20	-42.96	1652.65	0.30
			Max. My	14	-42.95	-0.13	-1667.82
			Max. Vy	20	-23.23	1652.65	0.30
			Max. Vx	14	23.45	-0.13	-1667.82
			Max. Torque	20			0.39
L30	6 - 5.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.78	1.38	0.23
			Max. Mx	20	-43.07	1658.45	0.31
			Max. My	14	-43.07	-0.14	-1673.68
			Max. Vy	20	-23.23	1658.45	0.31
			Max. Vx	14	23.44	-0.14	-1673.68
			Max. Torque	20			0.39
L31	5.75 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.73	1.45	0.19
			Max. Mx	20	-44.65	1746.16	0.33
			Max. My	14	-44.65	-0.15	-1762.03
			Max. Vy	20	-23.56	1746.16	0.33
			Max. Vx	14	23.69	-0.15	-1762.03
			Max. Torque	20			0.40
L32	2 - 1.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.88	1.45	0.19
			Max. Mx	20	-44.79	1752.05	0.33
			Max. My	14	-44.79	-0.16	-1767.94
			Max. Vy	20	-23.56	1752.05	0.33
			Max. Vx	14	23.69	-0.16	-1767.94
			Max. Torque	20			0.41

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L33	1.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.59	1.48	0.17
			Max. Mx	20	-45.39	1793.31	0.34
			Max. My	14	-45.39	-0.16	-1809.46
			Max. Vy	20	-23.62	1793.31	0.34
			Max. Vx	14	23.80	-0.16	-1809.46
			Max. Torque	20			0.41

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	34	75.59	3.67	-6.35
	Max. H_x	20	45.41	23.58	0.01
	Max. H_z	2	45.41	0.01	23.45
	Max. M_x	2	1796.83	0.01	23.45
	Max. M_z	8	1792.38	-23.58	-0.01
	Max. Torsion	20	0.41	23.58	0.01
	Min. Vert	19	34.06	19.84	-11.42
	Min. H_x	8	45.41	-23.58	-0.01
	Min. H_z	14	45.41	-0.01	-23.76
	Min. M_x	14	-1809.46	-0.01	-23.76
	Min. M_z	20	-1793.31	23.58	0.01
	Min. Torsion	8	-0.41	-23.58	-0.01

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	37.84	0.00	0.00	0.24	0.37	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	45.41	-0.01	-23.45	-1796.83	1.10	0.17
0.9 Dead+1.0 Wind 0 deg - No Ice	34.06	-0.01	-23.45	-1772.42	0.97	0.17
1.2 Dead+1.0 Wind 30 deg - No Ice	45.41	12.69	-21.94	-1603.32	-926.75	0.22
0.9 Dead+1.0 Wind 30 deg - No Ice	34.06	12.69	-21.94	-1581.89	-914.43	0.22
1.2 Dead+1.0 Wind 60 deg - No Ice	45.41	20.60	-11.86	-899.90	-1562.35	0.38
0.9 Dead+1.0 Wind 60 deg - No Ice	34.06	20.60	-11.86	-887.75	-1541.26	0.38
1.2 Dead+1.0 Wind 90 deg - No Ice	45.41	23.58	0.01	0.92	-1792.38	0.41
0.9 Dead+1.0 Wind 90 deg - No Ice	34.06	23.58	0.01	0.84	-1768.09	0.40
1.2 Dead+1.0 Wind 120 deg - No Ice	45.41	19.86	11.44	891.30	-1545.17	0.21
0.9 Dead+1.0 Wind 120 deg - No Ice	34.06	19.86	11.44	879.05	-1524.17	0.21
1.2 Dead+1.0 Wind 150 deg - No Ice	45.41	11.86	20.49	1565.94	-905.56	0.08
0.9 Dead+1.0 Wind 150 deg - No Ice	34.06	11.86	20.49	1544.56	-893.36	0.08
1.2 Dead+1.0 Wind 180 deg - No Ice	45.41	0.01	23.76	1809.46	-0.16	-0.17
0.9 Dead+1.0 Wind 180 deg - No Ice	34.06	0.01	23.76	1784.82	-0.28	-0.17
1.2 Dead+1.0 Wind 210 deg	45.41	-12.62	21.82	1602.37	926.80	-0.22

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
- No Ice						
0.9 Dead+1.0 Wind 210 deg - No Ice	34.06	-12.62	21.82	1580.79	914.24	-0.22
1.2 Dead+1.0 Wind 240 deg - No Ice	45.41	-19.84	11.42	890.20	1545.47	-0.38
0.9 Dead+1.0 Wind 240 deg - No Ice	34.06	-19.84	11.42	877.96	1524.24	-0.38
1.2 Dead+1.0 Wind 270 deg - No Ice	45.41	-23.58	-0.01	-0.34	1793.31	-0.41
0.9 Dead+1.0 Wind 270 deg - No Ice	34.06	-23.58	-0.01	-0.41	1768.77	-0.40
1.2 Dead+1.0 Wind 300 deg - No Ice	45.41	-20.61	-11.88	-901.00	1563.91	-0.21
0.9 Dead+1.0 Wind 300 deg - No Ice	34.06	-20.61	-11.88	-888.84	1542.58	-0.21
1.2 Dead+1.0 Wind 330 deg - No Ice	45.41	-12.07	-20.85	-1570.80	909.64	-0.08
0.9 Dead+1.0 Wind 330 deg - No Ice	34.06	-12.07	-20.85	-1549.56	897.19	-0.08
1.2 Dead+1.0 Ice+1.0 Temp	75.59	-0.00	-0.00	-0.17	1.48	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	75.59	-0.00	-6.98	-556.66	1.76	0.05
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	75.59	3.68	-6.37	-488.65	-280.65	0.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	75.59	6.07	-3.50	-278.45	-481.01	0.08
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	75.59	7.13	0.00	-0.10	-557.06	0.08
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	75.59	6.03	3.48	277.94	-480.67	0.03
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	75.59	3.56	6.15	483.13	-277.88	0.01
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	75.59	0.00	6.98	556.19	1.49	-0.05
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	75.59	-3.67	6.35	487.91	283.74	-0.03
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	75.59	-6.03	3.47	277.71	483.79	-0.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	75.59	-7.13	-0.00	-0.37	560.30	-0.08
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	75.59	-6.07	-3.50	-278.68	484.38	-0.03
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	75.59	-3.57	-6.18	-483.87	281.29	-0.01
Dead+Wind 0 deg - Service	37.84	-0.00	-5.81	-441.68	0.54	0.04
Dead+Wind 30 deg - Service	37.84	3.15	-5.44	-394.14	-227.65	0.05
Dead+Wind 60 deg - Service	37.84	5.11	-2.94	-221.12	-383.93	0.09
Dead+Wind 90 deg - Service	37.84	5.84	0.00	0.40	-440.48	0.10
Dead+Wind 120 deg - Service	37.84	4.92	2.84	219.34	-379.69	0.05
Dead+Wind 150 deg - Service	37.84	2.94	5.08	385.25	-222.41	0.02
Dead+Wind 180 deg - Service	37.84	0.00	5.89	445.14	0.23	-0.04
Dead+Wind 210 deg - Service	37.84	-3.13	5.41	394.25	228.20	-0.05
Dead+Wind 240 deg - Service	37.84	-4.92	2.83	219.07	380.30	-0.09
Dead+Wind 270 deg - Service	37.84	-5.84	-0.00	0.09	441.25	-0.10
Dead+Wind 300 deg - Service	37.84	-5.11	-2.94	-221.39	384.86	-0.05
Dead+Wind 330 deg - Service	37.84	-2.99	-5.17	-386.11	223.97	-0.02

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-37.84	0.00	0.00	37.84	0.00	0.000%
2	-0.01	-45.41	-23.45	0.01	45.41	23.45	0.000%
3	-0.01	-34.06	-23.45	0.01	34.06	23.45	0.000%
4	12.69	-45.41	-21.94	-12.69	45.41	21.94	0.000%
5	12.69	-34.06	-21.94	-12.69	34.06	21.94	0.000%
6	20.60	-45.41	-11.86	-20.60	45.41	11.86	0.000%
7	20.60	-34.06	-11.86	-20.60	34.06	11.86	0.000%
8	23.58	-45.41	0.01	-23.58	45.41	-0.01	0.000%
9	23.58	-34.06	0.01	-23.58	34.06	-0.01	0.000%
10	19.86	-45.41	11.44	-19.86	45.41	-11.44	0.000%
11	19.86	-34.06	11.44	-19.86	34.06	-11.44	0.000%
12	11.86	-45.41	20.49	-11.86	45.41	-20.49	0.000%
13	11.86	-34.06	20.49	-11.86	34.06	-20.49	0.000%
14	0.01	-45.41	23.76	-0.01	45.41	-23.76	0.000%
15	0.01	-34.06	23.76	-0.01	34.06	-23.76	0.000%
16	-12.62	-45.41	21.82	12.62	45.41	-21.82	0.000%
17	-12.62	-34.06	21.82	12.62	34.06	-21.82	0.000%
18	-19.84	-45.41	11.42	19.84	45.41	-11.42	0.000%
19	-19.84	-34.06	11.42	19.84	34.06	-11.42	0.000%
20	-23.58	-45.41	-0.01	23.58	45.41	0.01	0.000%
21	-23.58	-34.06	-0.01	23.58	34.06	0.01	0.000%
22	-20.61	-45.41	-11.88	20.61	45.41	11.88	0.000%
23	-20.61	-34.06	-11.88	20.61	34.06	11.88	0.000%
24	-12.07	-45.41	-20.85	12.07	45.41	20.85	0.000%
25	-12.07	-34.06	-20.85	12.07	34.06	20.85	0.000%
26	0.00	-75.59	0.00	0.00	75.59	0.00	0.000%
27	-0.00	-75.59	-6.98	0.00	75.59	6.98	0.000%
28	3.68	-75.59	-6.37	-3.68	75.59	6.37	0.000%
29	6.07	-75.59	-3.50	-6.07	75.59	3.50	0.000%
30	7.13	-75.59	0.00	-7.13	75.59	-0.00	0.000%
31	6.03	-75.59	3.48	-6.03	75.59	-3.48	0.000%
32	3.56	-75.59	6.15	-3.56	75.59	-6.15	0.000%
33	0.00	-75.59	6.98	-0.00	75.59	-6.98	0.000%
34	-3.67	-75.59	6.35	3.67	75.59	-6.35	0.000%
35	-6.03	-75.59	3.47	6.03	75.59	-3.47	0.000%
36	-7.13	-75.59	-0.00	7.13	75.59	0.00	0.000%
37	-6.07	-75.59	-3.50	6.07	75.59	3.50	0.000%
38	-3.57	-75.59	-6.18	3.57	75.59	6.18	0.000%
39	-0.00	-37.84	-5.81	0.00	37.84	5.81	0.000%
40	3.15	-37.84	-5.44	-3.15	37.84	5.44	0.000%
41	5.11	-37.84	-2.94	-5.11	37.84	2.94	0.000%
42	5.84	-37.84	0.00	-5.84	37.84	-0.00	0.000%
43	4.92	-37.84	2.84	-4.92	37.84	-2.84	0.000%
44	2.94	-37.84	5.08	-2.94	37.84	-5.08	0.000%
45	0.00	-37.84	5.89	-0.00	37.84	-5.89	0.000%
46	-3.13	-37.84	5.41	3.13	37.84	-5.41	0.000%
47	-4.92	-37.84	2.83	4.92	37.84	-2.83	0.000%
48	-5.84	-37.84	-0.00	5.84	37.84	0.00	0.000%
49	-5.11	-37.84	-2.94	5.11	37.84	2.94	0.000%
50	-2.99	-37.84	-5.17	2.99	37.84	5.17	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	0.00019395
3	Yes	5	0.00000001	0.00007377
4	Yes	6	0.00000001	0.00040600
5	Yes	6	0.00000001	0.00013948
6	Yes	6	0.00000001	0.00038911
7	Yes	6	0.00000001	0.00013426

8	Yes	5	0.00000001	0.00021804
9	Yes	5	0.00000001	0.00008878
10	Yes	6	0.00000001	0.00039234
11	Yes	6	0.00000001	0.00013580
12	Yes	6	0.00000001	0.00039780
13	Yes	6	0.00000001	0.00013718
14	Yes	5	0.00000001	0.00019585
15	Yes	5	0.00000001	0.00007491
16	Yes	6	0.00000001	0.00040177
17	Yes	6	0.00000001	0.00013786
18	Yes	6	0.00000001	0.00039383
19	Yes	6	0.00000001	0.00013635
20	Yes	5	0.00000001	0.00021430
21	Yes	5	0.00000001	0.00008654
22	Yes	6	0.00000001	0.00039142
23	Yes	6	0.00000001	0.00013505
24	Yes	6	0.00000001	0.00039897
25	Yes	6	0.00000001	0.00013749
26	Yes	4	0.00000001	0.00002369
27	Yes	6	0.00000001	0.00054455
28	Yes	6	0.00000001	0.00061866
29	Yes	6	0.00000001	0.00061500
30	Yes	6	0.00000001	0.00054244
31	Yes	6	0.00000001	0.00061360
32	Yes	6	0.00000001	0.00061371
33	Yes	6	0.00000001	0.00054245
34	Yes	6	0.00000001	0.00061932
35	Yes	6	0.00000001	0.00061727
36	Yes	6	0.00000001	0.00054588
37	Yes	6	0.00000001	0.00061910
38	Yes	6	0.00000001	0.00061917
39	Yes	4	0.00000001	0.00064223
40	Yes	5	0.00000001	0.00011757
41	Yes	5	0.00000001	0.00011018
42	Yes	4	0.00000001	0.00064568
43	Yes	5	0.00000001	0.00011232
44	Yes	5	0.00000001	0.00011367
45	Yes	4	0.00000001	0.00064413
46	Yes	5	0.00000001	0.00011514
47	Yes	5	0.00000001	0.00011361
48	Yes	4	0.00000001	0.00064655
49	Yes	5	0.00000001	0.00011154
50	Yes	5	0.00000001	0.00011443

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 105	16.9323	46	1.19	0.00
L2	105 - 100	15.6837	46	1.19	0.00
L3	100 - 95	14.4383	46	1.19	0.00
L4	95 - 90	13.2032	46	1.17	0.00
L5	90 - 85	11.9861	46	1.15	0.00
L6	85 - 80	10.7913	46	1.13	0.00
L7	80 - 75	9.6250	46	1.10	0.00
L8	75 - 70	8.4982	46	1.05	0.00
L9	70 - 65	7.4226	46	1.00	0.00
L10	65 - 60	6.4117	46	0.93	0.00
L11	60 - 55	5.4795	46	0.85	0.00
L12	55 - 50	4.6173	46	0.80	0.00
L13	50 - 45	3.8117	46	0.74	0.00
L14	45 - 40	3.0725	46	0.67	0.00
L15	40 - 39.33	2.4098	46	0.59	0.00
L16	39.33 - 39.08	2.3274	46	0.58	0.00
L17	39.08 - 34.08	2.2970	46	0.58	0.00
L18	34.08 - 30	1.7271	46	0.51	0.00
L19	30 - 29.75	1.3189	46	0.45	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L20	29.75 - 25	1.2956	46	0.44	0.00
L21	25 - 24.75	0.8945	46	0.36	0.00
L22	24.75 - 19.75	0.8756	46	0.36	0.00
L23	19.75 - 18.58	0.5415	46	0.28	0.00
L24	18.58 - 18.33	0.4760	46	0.26	0.00
L25	18.33 - 13.33	0.4626	46	0.25	0.00
L26	13.33 - 8.42	0.2359	46	0.18	0.00
L27	8.42 - 8.07	0.0930	46	0.10	0.00
L28	8.07 - 7.83	0.0859	46	0.10	0.00
L29	7.83 - 6	0.0812	46	0.09	0.00
L30	6 - 5.75	0.0493	46	0.07	0.00
L31	5.75 - 2	0.0455	46	0.07	0.00
L32	2 - 1.75	0.0063	46	0.03	0.00
L33	1.75 - 0	0.0049	46	0.03	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.00	Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails	46	16.1830	1.19	0.00	92249
105.00	Side Arm Mount [SO 102-3]	46	15.6837	1.19	0.00	92249
90.00	SitePro1 RMQLP-4120-H10	46	11.9861	1.15	0.00	13395
76.00	Platform Mount [LP 303-1]	46	8.7198	1.06	0.00	6103
64.00	PV-VPP12M-HR-B	46	6.2190	0.91	0.00	3792
54.00	Commscope MC-PK8-DSH	46	4.4516	0.79	0.00	5250
30.00	Bridge Stiffener 72" x 1.25" x 11"	46	1.3189	0.45	0.00	3610

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 105	68.8914	16	4.86	0.00
L2	105 - 100	63.8116	16	4.86	0.00
L3	100 - 95	58.7449	16	4.83	0.00
L4	95 - 90	53.7199	16	4.78	0.00
L5	90 - 85	48.7680	16	4.69	0.00
L6	85 - 80	43.9069	16	4.60	0.00
L7	80 - 75	39.1616	16	4.47	0.00
L8	75 - 70	34.5768	16	4.29	0.00
L9	70 - 65	30.2006	16	4.07	0.00
L10	65 - 60	26.0873	16	3.79	0.00
L11	60 - 55	22.2941	16	3.45	0.00
L12	55 - 50	18.7854	16	3.25	0.00
L13	50 - 45	15.5074	16	3.01	0.00
L14	45 - 40	12.4994	16	2.73	0.00
L15	40 - 39.33	9.8030	16	2.41	0.00
L16	39.33 - 39.08	9.4676	16	2.37	0.00
L17	39.08 - 34.08	9.3440	16	2.36	0.00
L18	34.08 - 30	7.0250	16	2.07	0.00
L19	30 - 29.75	5.3642	16	1.81	0.00
L20	29.75 - 25	5.2697	16	1.80	0.00
L21	25 - 24.75	3.6377	16	1.48	0.00
L22	24.75 - 19.75	3.5607	16	1.46	0.00
L23	19.75 - 18.58	2.2018	4	1.13	0.00
L24	18.58 - 18.33	1.9354	4	1.05	0.00
L25	18.33 - 13.33	1.8811	4	1.03	0.00
L26	13.33 - 8.42	0.9593	4	0.73	0.00
L27	8.42 - 8.07	0.3782	4	0.40	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L28	8.07 - 7.83	0.3494	4	0.39	0.00
L29	7.83 - 6	0.3302	4	0.38	0.00
L30	6 - 5.75	0.2004	4	0.30	0.00
L31	5.75 - 2	0.1850	4	0.29	0.00
L32	2 - 1.75	0.0256	4	0.12	0.00
L33	1.75 - 0	0.0197	4	0.11	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.00	Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails	16	65.8429	4.86	0.00	22931
105.00	Side Arm Mount [SO 102-3]	16	63.8116	4.86	0.00	22931
90.00	SitePro1 RMQLP-4120-H10	16	48.7680	4.69	0.00	3326
76.00	Platform Mount [LP 303-1]	16	35.4786	4.33	0.00	1516
64.00	PV-VPP12M-HR-B	16	25.3029	3.72	0.00	939
54.00	Commscope MC-PK8-DSH	16	18.1111	3.21	0.00	1296
30.00	Bridge Stiffener 72" x 1.25" x 11"	16	5.3642	1.81	0.00	888

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	110 - 105 (1)	P24x0.25	5.00	0.00	0.0	18.6532	-3.80	662.26	0.006
L2	105 - 100 (2)	P24x0.25	5.00	0.00	0.0	18.6532	-5.04	662.26	0.008
L3	100 - 95 (3)	P24x0.25	5.00	0.00	0.0	18.6532	-5.45	662.26	0.008
L4	95 - 90 (4)	P24x0.25	5.00	0.00	0.0	18.6532	-5.86	662.26	0.009
L5	90 - 85 (5)	P24x0.375	5.00	0.00	0.0	27.8325	-10.77	1052.07	0.010
L6	85 - 80 (6)	P24x0.375	5.00	0.00	0.0	27.8325	-11.43	1052.07	0.011
L7	80 - 75 (7)	P24x0.375	5.00	0.00	0.0	27.8325	-15.08	1052.07	0.014
L8	75 - 70 (8)	P24x0.375	5.00	0.00	0.0	27.8325	-15.80	1052.07	0.015
L9	70 - 65 (9)	P24x0.375	5.00	0.00	0.0	27.8325	-16.54	1052.07	0.016
L10	65 - 60 (10)	P24x0.375	5.00	0.00	0.0	27.8325	-20.48	1052.07	0.019
L11	60 - 55 (11)	P30x0.375	5.00	0.00	0.0	34.9011	-21.39	1311.06	0.016
L12	55 - 50 (12)	P30x0.375	5.00	0.00	0.0	34.9011	-25.42	1311.06	0.019
L13	50 - 45 (13)	P30x0.375	5.00	0.00	0.0	34.9011	-26.37	1311.06	0.020
L14	45 - 40 (14)	P30x0.375	5.00	0.00	0.0	34.9011	-27.35	1311.06	0.021
L15	40 - 39.33 (15)	P30x0.375	0.67	0.00	0.0	34.9011	-27.49	1311.06	0.021

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L16	39.33 - 39.08 (16)	P30x0.4875	0.25	0.00	0.0	45.1992	-27.55	1708.53	0.016
L17	39.08 - 34.08 (17)	P30x0.4875	5.00	0.00	0.0	45.1992	-28.68	1708.53	0.017
L18	34.08 - 30 (18)	P30x0.4875	4.08	0.00	0.0	45.1992	-29.62	1708.53	0.017
L19	30 - 29.75 (19)	P30x0.5	0.25	0.00	0.0	46.3385	-34.56	1751.60	0.020
L20	29.75 - 25 (20)	P30x0.5	4.75	0.00	0.0	46.3385	-35.72	1751.60	0.020
L21	25 - 24.75 (21)	P30x0.55625	0.25	0.00	0.0	51.4533	-35.81	1944.93	0.018
L22	24.75 - 19.75 (22)	P30x0.55625	5.00	0.00	0.0	51.4533	-37.40	1944.93	0.019
L23	19.75 - 18.58 (23)	P30x0.55625	1.17	0.00	0.0	51.4533	-37.78	1944.93	0.019
L24	18.58 - 18.33 (24)	P30x0.6875	0.25	0.00	0.0	63.3105	-37.89	2393.14	0.016
L25	18.33 - 13.33 (25)	P30x0.6875	5.00	0.00	0.0	63.3105	-39.82	2393.14	0.017
L26	13.33 - 8.42 (26)	P30x0.6875	4.91	0.00	0.0	63.3105	-41.74	2393.14	0.017
L27	8.42 - 8.07 (27)	P30x1.3	0.35	0.00	0.0	117.2130	-41.93	4430.64	0.009
L28	8.07 - 7.83 (28)	P30x1.2	0.24	0.00	0.0	108.5730	-42.05	4104.08	0.010
L29	7.83 - 6 (29)	P30x1.2	1.83	0.00	0.0	108.5730	-42.94	4104.08	0.010
L30	6 - 5.75 (30)	P30x1.15	0.25	0.00	0.0	104.2300	-43.06	3939.90	0.011
L31	5.75 - 2 (31)	P30x1.15	3.75	0.00	0.0	104.2300	-44.64	3939.90	0.011
L32	2 - 1.75 (32)	P30x1.6	0.25	0.00	0.0	142.7540	-44.78	5396.10	0.008
L33	1.75 - 0 (33)	P30x0.875	1.75	0.00	0.0	80.0615	-45.39	3026.33	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	110 - 105 (1)	P24x0.25	10.35	396.68	0.026	0.00	396.68	0.000
L2	105 - 100 (2)	P24x0.25	36.85	396.68	0.093	0.00	396.68	0.000
L3	100 - 95 (3)	P24x0.25	64.83	396.68	0.163	0.00	396.68	0.000
L4	95 - 90 (4)	P24x0.25	94.25	396.68	0.238	0.00	396.68	0.000
L5	90 - 85 (5)	P24x0.375	151.98	623.72	0.244	0.00	623.72	0.000
L6	85 - 80 (6)	P24x0.375	210.51	623.72	0.338	0.00	623.72	0.000
L7	80 - 75 (7)	P24x0.375	272.72	623.72	0.437	0.00	623.72	0.000
L8	75 - 70 (8)	P24x0.375	345.02	623.72	0.553	0.00	623.72	0.000
L9	70 - 65 (9)	P24x0.375	418.58	623.72	0.671	0.00	623.72	0.000
L10	65 - 60 (10)	P24x0.375	504.29	623.72	0.809	0.00	623.72	0.000
L11	60 - 55 (11)	P30x0.375	594.14	947.86	0.627	0.00	947.86	0.000
L12	55 - 50 (12)	P30x0.375	696.21	947.86	0.735	0.00	947.86	0.000
L13	50 - 45 (13)	P30x0.375	802.32	947.86	0.846	0.00	947.86	0.000
L14	45 - 40 (14)	P30x0.375	910.05	947.86	0.960	0.00	947.86	0.000
L15	40 - 39.33 (15)	P30x0.375	924.59	947.86	0.975	0.00	947.86	0.000
L16	39.33 - 39.08 (16)	P30x0.4875	930.02	1273.78	0.730	0.00	1273.78	0.000
L17	39.08 - 34.08 (17)	P30x0.4875	1040.30	1273.78	0.817	0.00	1273.78	0.000
L18	34.08 - 30 (18)	P30x0.4875	1132.36	1273.78	0.889	0.00	1273.78	0.000
L19	30 - 29.75	P30x0.5	1138.09	1311.10	0.868	0.00	1311.10	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	(19)							
L20	29.75 - 25	P30x0.5	1247.37	1311.10	0.951	0.00	1311.10	0.000
	(20)							
L21	25 - 24.75	P30x0.55625	1253.13	1481.77	0.846	0.00	1481.77	0.000
	(21)							
L22	24.75 - 19.75	P30x0.55625	1369.60	1481.77	0.924	0.00	1481.77	0.000
	(22)							
L23	19.75 - 18.58	P30x0.55625	1397.17	1481.77	0.943	0.00	1481.77	0.000
	(23)							
L24	18.58 - 18.33	P30x0.6875	1403.07	1861.09	0.754	0.00	1861.09	0.000
	(24)							
L25	18.33 - 13.33	P30x0.6875	1522.34	1861.09	0.818	0.00	1861.09	0.000
	(25)							
L26	13.33 - 8.42	P30x0.6875	1641.57	1861.09	0.882	0.00	1861.09	0.000
	(26)							
L27	8.42 - 8.07	P30x1.3	1650.14	3375.32	0.489	0.00	3375.32	0.000
	(27)							
L28	8.07 - 7.83	P30x1.2	1656.03	3137.10	0.528	0.00	3137.10	0.000
	(28)							
L29	7.83 - 6 (29)	P30x1.2	1701.25	3137.10	0.542	0.00	3137.10	0.000
L30	6 - 5.75 (30)	P30x1.15	1707.46	3016.68	0.566	0.00	3016.68	0.000
L31	5.75 - 2 (31)	P30x1.15	1801.34	3016.68	0.597	0.00	3016.68	0.000
L32	2 - 1.75 (32)	P30x1.6	1807.64	4069.37	0.444	0.00	4069.37	0.000
L33	1.75 - 0 (33)	P30x0.875	1851.89	2338.73	0.792	0.00	2338.73	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	110 - 105 (1)	P24x0.25	4.02	201.86	0.020	0.00	324.23	0.000
L2	105 - 100 (2)	P24x0.25	5.45	201.86	0.027	0.00	324.23	0.000
L3	100 - 95 (3)	P24x0.25	5.74	201.86	0.028	0.00	324.23	0.000
L4	95 - 90 (4)	P24x0.25	6.03	201.86	0.030	0.00	324.23	0.000
L5	90 - 85 (5)	P24x0.375	11.55	315.62	0.037	0.08	655.57	0.000
L6	85 - 80 (6)	P24x0.375	11.86	315.62	0.038	0.08	655.57	0.000
L7	80 - 75 (7)	P24x0.375	14.32	315.62	0.045	0.08	655.57	0.000
L8	75 - 70 (8)	P24x0.375	14.59	315.62	0.046	0.08	655.57	0.000
L9	70 - 65 (9)	P24x0.375	14.83	315.62	0.047	0.08	655.57	0.000
L10	65 - 60 (10)	P24x0.375	17.84	315.62	0.057	0.12	655.57	0.000
L11	60 - 55 (11)	P30x0.375	18.12	395.78	0.046	0.12	994.73	0.000
L12	55 - 50 (12)	P30x0.375	21.12	395.78	0.053	0.02	994.73	0.000
L13	50 - 45 (13)	P30x0.375	21.44	395.78	0.054	0.32	994.73	0.000
L14	45 - 40 (14)	P30x0.375	21.67	395.78	0.055	0.32	994.73	0.000
L15	40 - 39.33	P30x0.375	21.74	395.78	0.055	0.32	994.73	0.000
	(15)							
L16	39.33 - 39.08	P30x0.4875	21.76	512.56	0.042	0.31	1329.93	0.000
	(16)							
L17	39.08 - 34.08	P30x0.4875	22.35	512.56	0.044	0.29	1329.93	0.000
	(17)							
L18	34.08 - 30	P30x0.4875	22.79	512.56	0.044	0.26	1329.93	0.000
	(18)							
L19	30 - 29.75	P30x0.5	22.94	525.48	0.044	0.25	1362.88	0.000
	(19)							
L20	29.75 - 25	P30x0.5	23.09	525.48	0.044	0.25	1362.88	0.000
	(20)							
L21	25 - 24.75	P30x0.55625	23.07	583.48	0.040	0.25	1510.43	0.000
	(21)							
L22	24.75 - 19.75	P30x0.55625	23.52	583.48	0.040	0.25	1510.43	0.000
	(22)							
L23	19.75 - 18.58	P30x0.55625	23.63	583.48	0.040	0.24	1510.43	0.000
	(23)							
L24	18.58 - 18.33	P30x0.6875	23.63	717.94	0.033	0.24	1850.21	0.000
	(24)							
L25	18.33 - 13.33	P30x0.6875	24.09	717.94	0.034	0.23	1850.21	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(25)							
L26	13.33 - 8.42	P30x0.6875	24.51	717.94	0.034	0.23	1850.21	0.000
	(26)							
L27	8.42 - 8.07	P30x1.3	24.52	1329.19	0.018	0.23	3353.90	0.000
	(27)							
L28	8.07 - 7.83	P30x1.2	24.55	1231.22	0.020	0.23	3117.52	0.000
	(28)							
L29	7.83 - 6 (29)	P30x1.2	24.88	1231.22	0.020	0.23	3117.52	0.000
L30	6 - 5.75 (30)	P30x1.15	24.88	1181.97	0.021	0.23	2998.00	0.000
L31	5.75 - 2 (31)	P30x1.15	25.23	1181.97	0.021	0.22	2998.00	0.000
L32	2 - 1.75 (32)	P30x1.6	25.24	1618.83	0.016	0.22	4042.03	0.000
L33	1.75 - 0 (33)	P30x0.875	25.39	907.90	0.028	0.22	2324.78	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 105 (1)	0.006	0.026	0.000	0.020	0.000	0.032	1.050	4.8.2
L2	105 - 100 (2)	0.008	0.093	0.000	0.027	0.000	0.101	1.050	4.8.2
L3	100 - 95 (3)	0.008	0.163	0.000	0.028	0.000	0.172	1.050	4.8.2
L4	95 - 90 (4)	0.009	0.238	0.000	0.030	0.000	0.247	1.050	4.8.2
L5	90 - 85 (5)	0.010	0.244	0.000	0.037	0.000	0.255	1.050	4.8.2
L6	85 - 80 (6)	0.011	0.338	0.000	0.038	0.000	0.350	1.050	4.8.2
L7	80 - 75 (7)	0.014	0.437	0.000	0.045	0.000	0.454	1.050	4.8.2
L8	75 - 70 (8)	0.015	0.553	0.000	0.046	0.000	0.570	1.050	4.8.2
L9	70 - 65 (9)	0.016	0.671	0.000	0.047	0.000	0.689	1.050	4.8.2
L10	65 - 60 (10)	0.019	0.809	0.000	0.057	0.000	0.831	1.050	4.8.2
L11	60 - 55 (11)	0.016	0.627	0.000	0.046	0.000	0.645	1.050	4.8.2
L12	55 - 50 (12)	0.019	0.735	0.000	0.053	0.000	0.757	1.050	4.8.2
L13	50 - 45 (13)	0.020	0.846	0.000	0.054	0.000	0.870	1.050	4.8.2
L14	45 - 40 (14)	0.021	0.960	0.000	0.055	0.000	0.984	1.050	4.8.2
L15	40 - 39.33	0.021	0.975	0.000	0.055	0.000	0.999	1.050	4.8.2
	(15)								
L16	39.33 - 39.08	0.016	0.730	0.000	0.042	0.000	0.748	1.050	4.8.2
	(16)								
L17	39.08 - 34.08	0.017	0.817	0.000	0.044	0.000	0.835	1.050	4.8.2
	(17)								
L18	34.08 - 30	0.017	0.889	0.000	0.044	0.000	0.908	1.050	4.8.2
	(18)								
L19	30 - 29.75	0.020	0.868	0.000	0.044	0.000	0.890	1.050	4.8.2
	(19)								
L20	29.75 - 25	0.020	0.951	0.000	0.044	0.000	0.974	1.050	4.8.2
	(20)								
L21	25 - 24.75	0.018	0.846	0.000	0.040	0.000	0.866	1.050	4.8.2
	(21)								
L22	24.75 - 19.75	0.019	0.924	0.000	0.040	0.000	0.945	1.050	4.8.2
	(22)								
L23	19.75 - 18.58	0.019	0.943	0.000	0.040	0.000	0.964	1.050	4.8.2
	(23)								
L24	18.58 - 18.33	0.016	0.754	0.000	0.033	0.000	0.771	1.050	4.8.2
	(24)								
L25	18.33 - 13.33	0.017	0.818	0.000	0.034	0.000	0.836	1.050	4.8.2
	(25)								
L26	13.33 - 8.42	0.017	0.882	0.000	0.034	0.000	0.901	1.050	4.8.2
	(26)								
L27	8.42 - 8.07	0.009	0.489	0.000	0.018	0.000	0.499	1.050	4.8.2
	(27)								
L28	8.07 - 7.83	0.010	0.528	0.000	0.020	0.000	0.539	1.050	4.8.2
	(28)								
L29	7.83 - 6 (29)	0.010	0.542	0.000	0.020	0.000	0.553	1.050	4.8.2
L30	6 - 5.75 (30)	0.011	0.566	0.000	0.021	0.000	0.577	1.050	4.8.2
L31	5.75 - 2 (31)	0.011	0.597	0.000	0.021	0.000	0.609	1.050	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L32	2 - 1.75 (32)	0.008	0.444	0.000	0.016	0.000	0.453	1.050	4.8.2
L33	1.75 - 0 (33)	0.015	0.792	0.000	0.028	0.000	0.808	1.050	4.8.2

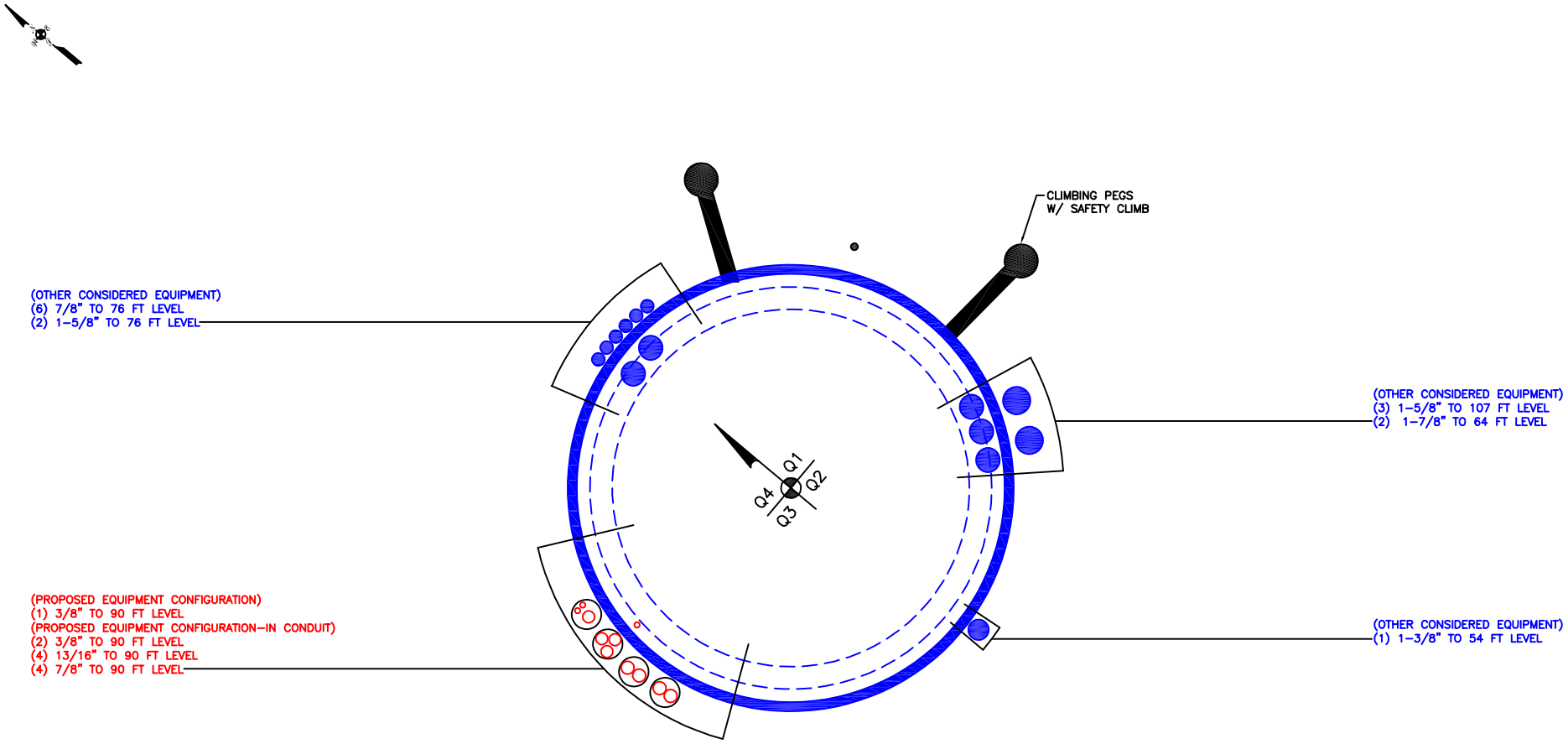
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	110 - 105	Pole	P24x0.25	1	-3.80	695.38	3.1	Pass
L2	105 - 100	Pole	P24x0.25	2	-5.04	695.38	9.6	Pass
L3	100 - 95	Pole	P24x0.25	3	-5.45	695.38	16.4	Pass
L4	95 - 90	Pole	P24x0.25	4	-5.86	695.38	23.6	Pass
L5	90 - 85	Pole	P24x0.375	5	-10.77	1104.67	24.3	Pass
L6	85 - 80	Pole	P24x0.375	6	-11.43	1104.67	33.3	Pass
L7	80 - 75	Pole	P24x0.375	7	-15.08	1104.67	43.2	Pass
L8	75 - 70	Pole	P24x0.375	8	-15.80	1104.67	54.3	Pass
L9	70 - 65	Pole	P24x0.375	9	-16.54	1104.67	65.6	Pass
L10	65 - 60	Pole	P24x0.375	10	-20.48	1104.67	79.2	Pass
L11	60 - 55	Pole	P30x0.375	11	-21.39	1376.61	61.5	Pass
L12	55 - 50	Pole	P30x0.375	12	-25.42	1376.61	72.1	Pass
L13	50 - 45	Pole	P30x0.375	13	-26.37	1376.61	82.8	Pass
L14	45 - 40	Pole	P30x0.375	14	-27.35	1376.61	93.7	Pass
L15	40 - 39.33	Pole	P30x0.375	15	-27.49	1376.61	95.2	Pass
L16	39.33 - 39.08	Pole	P30x0.4875	16	-27.55	1793.96	71.2	Pass
L17	39.08 - 34.08	Pole	P30x0.4875	17	-28.68	1793.96	79.6	Pass
L18	34.08 - 30	Pole	P30x0.4875	18	-29.62	1793.96	86.5	Pass
L19	30 - 29.75	Pole	P30x0.5	19	-34.56	1839.18	84.7	Pass
L20	29.75 - 25	Pole	P30x0.5	20	-35.72	1839.18	92.7	Pass
L21	25 - 24.75	Pole	P30x0.55625	21	-35.81	2042.18	82.4	Pass
L22	24.75 - 19.75	Pole	P30x0.55625	22	-37.40	2042.18	90.0	Pass
L23	19.75 - 18.58	Pole	P30x0.55625	23	-37.78	2042.18	91.8	Pass
L24	18.58 - 18.33	Pole	P30x0.6875	24	-37.89	2512.80	73.4	Pass
L25	18.33 - 13.33	Pole	P30x0.6875	25	-39.82	2512.80	79.6	Pass
L26	13.33 - 8.42	Pole	P30x0.6875	26	-41.74	2512.80	85.8	Pass
L27	8.42 - 8.07	Pole	P30x1.3	27	-41.93	4652.17	47.5	Pass
L28	8.07 - 7.83	Pole	P30x1.2	28	-42.05	4309.28	51.3	Pass
L29	7.83 - 6	Pole	P30x1.2	29	-42.94	4309.28	52.7	Pass
L30	6 - 5.75	Pole	P30x1.15	30	-43.06	4136.89	55.0	Pass
L31	5.75 - 2	Pole	P30x1.15	31	-44.64	4136.89	58.0	Pass
L32	2 - 1.75	Pole	P30x1.6	32	-44.78	5665.90	43.1	Pass
L33	1.75 - 0	Pole	P30x0.875	33	-45.39	3177.65	76.9	Pass
							Summary	
						Pole (L15)	95.2	Pass
						RATING =	**95.2**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876325 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876325

Work Order: 2017813

CROWN CASTLE

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	110	20		0	24	24	0.25		A53-B-42
2	90	30		0	24.00	24	0.375		A53-B-42
3	60	30		0	30.00	30	0.375		A53-B-42
4	30	30		0	30.00	30	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	0	8.08	plate	MP3-05 (Bottom Weld	4	45	135	225	315														
2	30	39.33	channel	MP3-03 (1.1875in)	3					105	225	345											
3	8.42	18.58	channel	MP3-05 (1.1875in)	3								0	90	270								
4	0	2	plate	TS 7"x1.25"	3											110	248	345					
5	6	25	plate	CCI-SFP-045100	4														70	110	250	290	
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 (in2)	Bolt Hole Size (in)	Reinforcement Material
1	5.33	2.09	11.1397	1.045	Welded	n/a	PC 8.8 - M20 (100)	29.000	18.000	8.527	1.1875	A572-65
2	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
3	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
4	1.25	7	8.75	3.5	Welded	n/a	Welded	n/a	0.000	8.750	0.0000	A572-65
5	4.5	1	4.5	0.5	PC 8.8 - M20 (100)	18	PC 8.8 - M20 (100)	18.000	20.000	3.250	1.1875	A572-65

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)
MP3-05 (Bottom Weld)	Top	10	N	3	2	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	70	None	-	-	-	-	12	0.375	-
TS 7"x1.25"	Top	-	-	-	-	80	None	-	-	-	-	18	0.375	-
	Bottom	-	-	-	-	80	CJP Groove	12.5	0.625	45	0.625	-	-	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	110 - 105	5		0	24.000	24.000	0.25	A53-B-42	1.000
2	105 - 100	5		0	24.000	24.000	0.25	A53-B-42	1.000
3	100 - 95	5		0	24.000	24.000	0.25	A53-B-42	1.000
4	95 - 90	5	0	0	24.000	24.000	0.25	A53-B-42	1.000
5	90 - 85	5		0	24.000	24.000	0.375	A53-B-42	1.000
6	85 - 80	5		0	24.000	24.000	0.375	A53-B-42	1.000
7	80 - 75	5		0	24.000	24.000	0.375	A53-B-42	1.000
8	75 - 70	5		0	24.000	24.000	0.375	A53-B-42	1.000
9	70 - 65	5		0	24.000	24.000	0.375	A53-B-42	1.000
10	65 - 60	5	0	0	24.000	24.000	0.375	A53-B-42	1.000
11	60 - 55	5		0	30.000	30.000	0.375	A53-B-42	1.000
12	55 - 50	5		0	30.000	30.000	0.375	A53-B-42	1.000
13	50 - 45	5		0	30.000	30.000	0.375	A53-B-42	1.000
14	45 - 40	5		0	30.000	30.000	0.375	A53-B-42	1.000
15	40 - 39.33	0.67		0	30.000	30.000	0.375	A53-B-42	1.000
16	39.33 - 39.08	0.25		0	30.000	30.000	0.4875	A53-B-42	0.966
17	39.08 - 34.08	5		0	30.000	30.000	0.4875	A53-B-42	0.966
18	34.08 - 30	4.08	0	0	30.000	30.000	0.4875	A53-B-42	0.966
19	30 - 29.75	0.25		0	30.000	30.000	0.5	A53-B-42	1.000
20	29.75 - 25	4.75		0	30.000	30.000	0.5	A53-B-42	1.000
21	25 - 24.75	0.25		0	30.000	30.000	0.55625	A53-B-42	1.250
22	24.75 - 19.75	5		0	30.000	30.000	0.55625	A53-B-42	1.250
23	19.75 - 18.58	1.17		0	30.000	30.000	0.55625	A53-B-42	1.250
24	18.58 - 18.33	0.25		0	30.000	30.000	0.6875	A53-B-42	1.284
25	18.33 - 13.33	5		0	30.000	30.000	0.6875	A53-B-42	1.284
26	13.33 - 8.42	4.91		0	30.000	30.000	0.6875	A53-B-42	1.284
27	8.42 - 8.07	0.35		0	30.000	30.000	1.3	A53-B-42	0.929
28	8.07 - 7.83	0.24		0	30.000	30.000	1.2	A53-B-42	1.003
29	7.83 - 6	1.83		0	30.000	30.000	1.2	A53-B-42	1.003
30	6 - 5.75	0.25		0	30.000	30.000	1.15	A53-B-42	0.872
31	5.75 - 2	3.75		0	30.000	30.000	1.15	A53-B-42	0.872
32	2 - 1.75	0.25		0	30.000	30.000	1.6	A53-B-42	0.821
33	1.75 - 0	1.75		0	30.000	30.000	0.875	A53-B-42	0.907

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	110 - 105	3.80	10.35	4.02
2	105 - 100	5.04	36.85	5.45
3	100 - 95	5.45	64.83	5.74
4	95 - 90	5.86	94.25	6.03
5	90 - 85	10.77	151.98	11.54
6	85 - 80	11.43	210.51	11.86
7	80 - 75	15.08	272.72	14.32
8	75 - 70	15.80	345.02	14.59
9	70 - 65	16.54	418.59	14.83
10	65 - 60	20.48	504.29	17.84
11	60 - 55	21.39	594.14	18.12
12	55 - 50	25.42	696.21	21.12
13	50 - 45	26.37	802.32	21.44
14	45 - 40	27.35	910.05	21.67
15	40 - 39.33	27.49	924.59	21.74
16	39.33 - 39.08	27.55	930.03	21.76
17	39.08 - 34.08	28.68	1040.30	22.35
18	34.08 - 30	29.62	1132.36	22.79
19	30 - 29.75	34.56	1138.09	22.94
20	29.75 - 25	35.72	1247.37	23.09
21	25 - 24.75	35.81	1253.14	23.07
22	24.75 - 19.75	37.40	1369.60	23.52
23	19.75 - 18.58	37.78	1397.17	23.63
24	18.58 - 18.33	37.89	1403.07	23.63
25	18.33 - 13.33	39.82	1522.34	24.09
26	13.33 - 8.42	41.74	1641.56	24.51
27	8.42 - 8.07	41.93	1650.14	24.52
28	8.07 - 7.83	42.05	1656.03	24.55
29	7.83 - 6	42.94	1701.25	24.88
30	6 - 5.75	43.06	1707.46	24.88
31	5.75 - 2	44.64	1801.34	25.23
32	2 - 1.75	44.78	1807.64	25.24
33	1.75 - 0	45.39	1851.89	25.39

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
110 - 105	Pole	TP24x24x0.25	Pole	3.1%	Pass
105 - 100	Pole	TP24x24x0.25	Pole	9.6%	Pass
100 - 95	Pole	TP24x24x0.25	Pole	16.4%	Pass
95 - 90	Pole	TP24x24x0.25	Pole	23.6%	Pass
90 - 85	Pole	TP24x24x0.375	Pole	24.3%	Pass
85 - 80	Pole	TP24x24x0.375	Pole	33.3%	Pass
80 - 75	Pole	TP24x24x0.375	Pole	43.2%	Pass
75 - 70	Pole	TP24x24x0.375	Pole	54.3%	Pass
70 - 65	Pole	TP24x24x0.375	Pole	65.6%	Pass
65 - 60	Pole	TP24x24x0.375	Pole	79.2%	Pass
60 - 55	Pole	TP30x30x0.375	Pole	61.5%	Pass
55 - 50	Pole	TP30x30x0.375	Pole	72.1%	Pass
50 - 45	Pole	TP30x30x0.375	Pole	82.8%	Pass
45 - 40	Pole	TP30x30x0.375	Pole	93.7%	Pass
40 - 39.33	Pole	TP30x30x0.375	Pole	95.2%	Pass
39.33 - 39.08	Pole + Reinf.	TP30x30x0.4875	Pole	74.7%	Pass
39.08 - 34.08	Pole + Reinf.	TP30x30x0.4875	Pole	83.4%	Pass
34.08 - 30	Pole + Reinf.	TP30x30x0.4875	Pole	90.7%	Pass
30 - 29.75	Pole	TP30x30x0.5	Pole	84.7%	Pass
29.75 - 25	Pole	TP30x30x0.5	Pole	92.7%	Pass
25 - 24.75	Pole + Reinf.	TP30x30x0.5563	Pole	83.7%	Pass
24.75 - 19.75	Pole + Reinf.	TP30x30x0.5563	Pole	91.4%	Pass
19.75 - 18.58	Pole + Reinf.	TP30x30x0.5563	Pole	93.3%	Pass
18.58 - 18.33	Pole + Reinf.	TP30x30x0.6875	Pole	81.0%	Pass
18.33 - 13.33	Pole + Reinf.	TP30x30x0.6875	Pole	87.9%	Pass
13.33 - 8.42	Pole + Reinf.	TP30x30x0.6875	Pole	94.7%	Pass
8.42 - 8.07	Pole + Reinf.	TP30x30x1.3	Reinf. 1 Bolt Shear	64.7%	Pass
8.07 - 7.83	Pole + Reinf.	TP30x30x1.2	Pole	54.1%	Pass
7.83 - 6	Pole + Reinf.	TP30x30x1.2	Pole	55.6%	Pass
6 - 5.75	Pole + Reinf.	TP30x30x1.15	Reinf. 1 Tension Rupture	63.9%	Pass
5.75 - 2	Pole + Reinf.	TP30x30x1.15	Reinf. 1 Tension Rupture	67.4%	Pass
2 - 1.75	Pole + Reinf.	TP30x30x1.6	Reinf. 4 Weldment	66.1%	Pass
1.75 - 0	Pole + Reinf.	TP30x30x0.875	Pole	85.1%	Pass
				Summary	
			Pole	95.2%	Pass
			Reinforcement	84.6%	Pass
			Overall	95.2%	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	R4	R5
110 - 105	1315	n/a	1315	18.65	n/a	18.65	3.1%					
105 - 100	1315	n/a	1315	18.65	n/a	18.65	9.6%					
100 - 95	1315	n/a	1315	18.65	n/a	18.65	16.4%					
95 - 90	1315	n/a	1315	18.65	n/a	18.65	23.6%					
90 - 85	1942	n/a	1942	27.83	n/a	27.83	24.3%					
85 - 80	1942	n/a	1942	27.83	n/a	27.83	33.3%					
80 - 75	1942	n/a	1942	27.83	n/a	27.83	43.2%					
75 - 70	1942	n/a	1942	27.83	n/a	27.83	54.3%					
70 - 65	1942	n/a	1942	27.83	n/a	27.83	65.6%					
65 - 60	1942	n/a	1942	27.83	n/a	27.83	79.2%					
60 - 55	3829	n/a	3829	34.90	n/a	34.90	61.5%					
55 - 50	3829	n/a	3829	34.90	n/a	34.90	72.1%					
50 - 45	3829	n/a	3829	34.90	n/a	34.90	82.8%					
45 - 40	3829	n/a	3829	34.90	n/a	34.90	93.7%					
40 - 39.33	3829	n/a	3829	34.90	n/a	34.90	95.2%					
39.33 - 39.08	3829	1067	4897	34.90	8.76	43.66	74.7%		69.7%			
39.08 - 34.08	3829	1067	4897	34.90	8.76	43.66	83.4%		77.8%			
34.08 - 30	3829	1067	4897	34.90	8.76	43.66	90.7%		84.6%			
30 - 29.75	5042	n/a	5042	46.34	n/a	46.34	84.7%					
29.75 - 25	5042	n/a	5042	46.34	n/a	46.34	92.7%					
25 - 24.75	5042	533	5575	46.34	18.00	64.34	83.7%					65.7%
24.75 - 19.75	5042	533	5575	46.34	18.00	64.34	91.4%					71.7%
19.75 - 18.58	5042	533	5575	46.34	18.00	64.34	93.3%					73.2%
18.58 - 18.33	5098	1801	6899	46.34	34.95	81.29	81.0%			67.0%		60.5%
18.33 - 13.33	5098	1801	6899	46.34	34.95	81.29	87.9%			72.6%		65.6%
13.33 - 8.42	5098	1801	6899	46.34	34.95	81.29	94.7%			78.3%		70.7%
8.42 - 8.07	5042	7152	12194	46.34	62.56	108.90	50.4%	64.7%				48.8%
8.07 - 7.83	5042	6329	11372	46.34	62.56	108.90	54.1%	53.2%				49.0%
7.83 - 6	5042	6329	11372	46.34	62.56	108.90	55.6%	54.6%				50.3%
6 - 5.75	5042	5797	10839	46.34	44.56	90.90	58.7%	63.9%				
5.75 - 2	5042	5797	10839	46.34	44.56	90.90	61.9%	67.4%				
2 - 1.75	5049	9515	14564	46.34	70.81	117.15	47.6%	50.6%			66.1%	
1.75 - 0	5049	3377	8426	46.34	26.25	72.59	85.1%				76.1%	

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

Monopole Flange Plate Connection

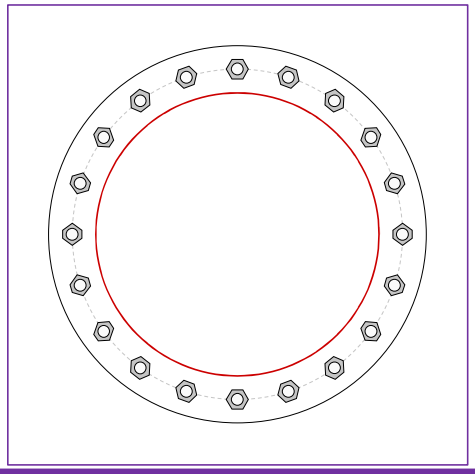
Elevation = 90 ft.

BU #	876325
Site Name	WESTON SQUARE
Order #	556509 Rev.0
TIA-222 Revision	H

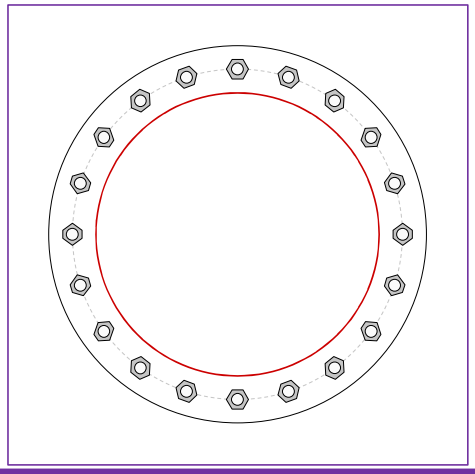
Applied Loads	
Moment (kip-ft)	94.25
Axial Force (kips)	5.86
Shear Force (kips)	6.03

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(20) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 28" BC

Top Plate Data

32" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

32" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

24" x 0.25" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

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)	7.78	
Allowable (kips)	54.54	
Stress Rating:	**13.6%**	Pass

Top Plate Capacity

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

Bottom Plate Capacity

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

Monopole Flange Plate Connection

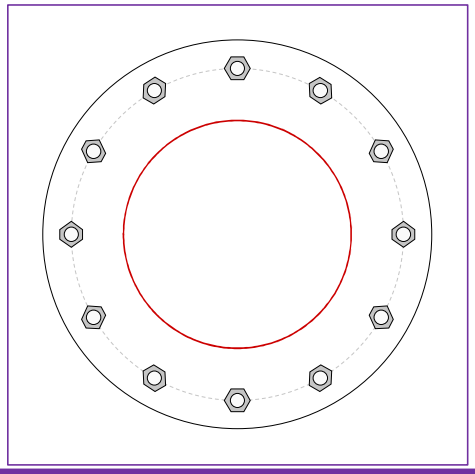
Elevation = 60 ft.

BU #	876325
Site Name	WESTON SQUARE
Order #	556509 Rev.0
TIA-222 Revision	H

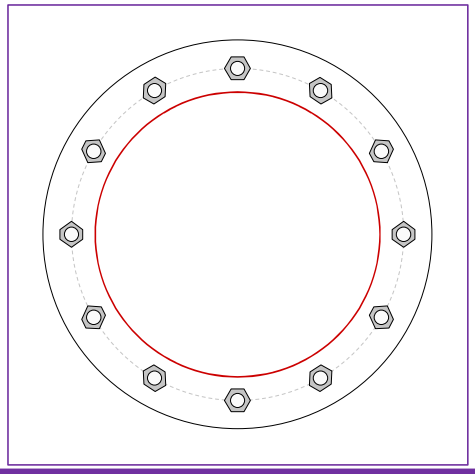
Applied Loads	
Moment (kip-ft)	504.29
Axial Force (kips)	20.48
Shear Force (kips)	17.84

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1-1/2" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 35" BC

Top Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

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

Bottom Pole Data

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

Analysis Results

Bolt Capacity

Max Load (kips)	55.89	
Allowable (kips)	126.88	
Stress Rating:	**41.9%**	Pass

Top Plate Capacity

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

Bottom Plate Capacity

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

Monopole Flange Plate Connection

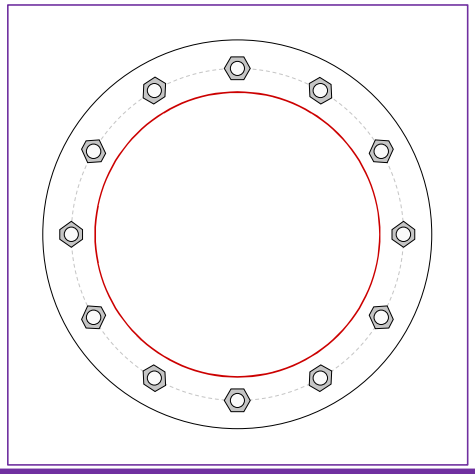
Elevation = 30 ft.

BU #	876325
Site Name	WESTON SQUARE
Order #	556509 Rev.0
TIA-222 Revision	H

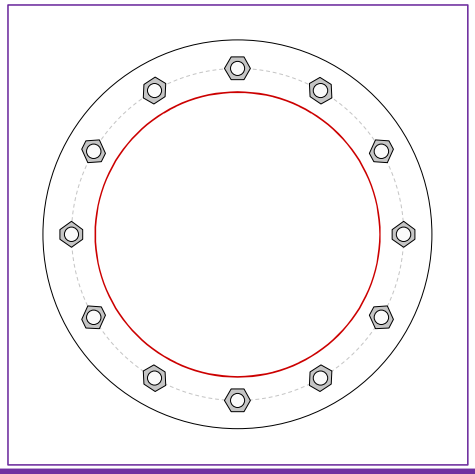
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	193.03	Moment (kip-ft)	939.32
Axial Force (kips)	29.62	Axial Force (kips)	0.00
Shear Force (kips)	22.79	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1-1/2" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 35" BC

Top Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

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

Bottom Pole Data

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

Bridge Stiffener Group 1 Data

(3) Welded, 11''x1.25'', A572-65, Lu=4.125", Upper Plate Width=11'', Lower Plate Width=11'', Neglect Flange in MOI: No

Bridge Stiffener Group 2 Data

(3) Bolted, 6.25''x1'', A572-65, Lu=20", Neglect Flange in MOI: No

Analysis Results

Bolt Capacity

Max Load (kips)	19.58	
Allowable (kips)	126.86	
Stress Rating:	**14.7%**	Pass

Top Plate Capacity

Max Stress (ksi):	5.02	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**14.8%**	Pass
Tension Side Stress Rating:	**4.4%**	Pass

Bottom Plate Capacity

Max Stress (ksi):	5.02	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**14.8%**	Pass
Tension Side Stress Rating:	**4.4%**	Pass

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	252.01	
Max Tension (kip):	252.01	
Comp. Capacity (kip):	794.45	
Tens. Capacity (kip):	804.38	(Yield)
Comp. Stress Rating:	**30.2%**	Pass
Tens. Stress Rating:	**29.8%**	Pass

Bridge Stiffener Group 2 Analysis Capacity

Max Compression (kip):	114.55	
Max Tension (kip):	114.55	
Comp. Capacity (kip):	231.68	
Tens. Capacity (kip):	300.00	(Rupture)
Comp. Stress Rating:	**47.1%**	Pass
Tens. Stress Rating:	**36.4%**	Pass

Welded Bridge Stiffener Design

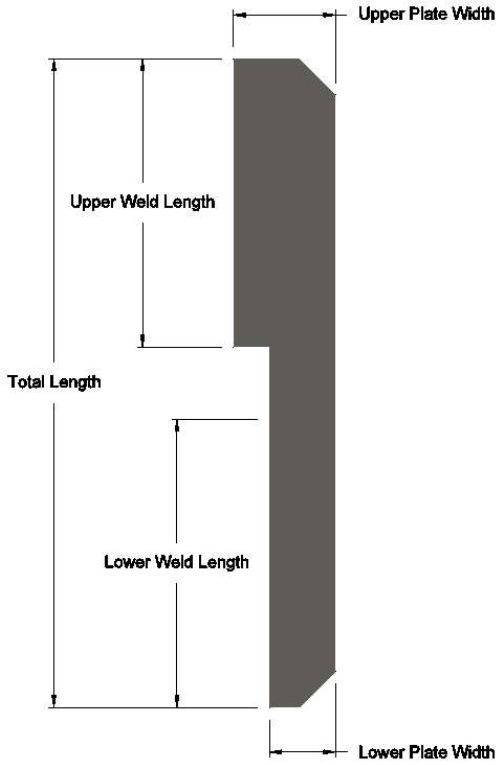
Elevation = 30 ft.

BU #	876325
Site Name	WESTON SQUARE
Order #	556509 Rev.0

TIA-222 Revision	H

Applied Loads to Design Groups	
Moment (kip-ft)	645.78
Axial Force (kips)	0.00
Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*



Design Properties

Bridge Stiffener Group 1 Data

(3) Welded, 11''x1.25'', A572-65, Lu=4.125'', Upper Plate Width=11'', Lower Plate Width=11'', Neglect Flange in MOI: No

Total Length:	72	in
Weld Type:	Fillet (both sides)	
Weld Size:	0.375	in
Exx:	80	ksi
Upper Weld Length:	34.75	in
Upper Plate Width:	11	in
Lower Weld Length:	33.125	in
Lower Plate Width:	11	in
Stiffener Front EPA (No Ice):	6.63	ft²
Stiffener Side EPA (No Ice):	1.25	ft²
Stiffener Front EPA (1/2'' Ice):	7.00	ft²
Stiffener Side EPA (1/2'' Ice):	2.28	ft²
Stiffener Weight (No Ice):	0.245	kip
Stiffener Weight (1/2'' Ice):	0.271	kip

Upper Weld Size:	***Good***
Upper Weld Rating:	**40.90%**
Lower Weld Size:	***Good***
Lower Weld Rating:	**43.20%**
Top Plate Lateral-Torsional Buckling Rating:	**6.55%**
Top Plate Tension Yield Rating:	**14.17%**
Top Plate Tension Rupture Rating:	**15.35%**
Top Plate Interaction Rating:	**9.02%**
Bottom Plate Lateral-Torsional Buckling Rating:	**7.17%**
Bottom Plate Tension Yield Rating:	**14.86%**
Bottom Plate Tension Rupture Rating:	**16.10%**
Bottom Plate Interaction Rating:	**9.89%**
Top Pole Punching Shear Rating:	**23.14%**
Bottom Pole Punching Shear Rating:	**19.10%**

Bolted Bridge Stiffeners Reinforcement Check

TIA Rev. H

Description:

This sheet is for evaluation of the reinforcement of a flange connection using bolted bridge stiffeners.

Assumptions / Notes:

1. *For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.*
2. *The plastification of the pole is not considered.*
3. *All shear and axial loads are taken by the flange bolts.*

1. PARAMETERS

Analysis / Design

Flange Elevation: 30'- 0"

1.1 Force From CCI Plate

Apply TIA-222-H Section 15.5? No / Yes

Critical Bending Stress: $P := 114.55kip$

1.2 Shaft Properties at the Flange

Upper Shaft Diameter: $D_{shaft1} := 30in$

Upper Shaft Thickness: (inches) $t_1 := 0.375$

Lower Shaft Diameter: $D_{shaft2} := 30in$

Lower Shaft Thickness: (inches) $t_2 := 0.5$

Shaft Grade: $Fy_{shaft} := 42ksi$ $Fu_{shaft} := 60ksi$

1.3 Existing Bridge Stiffeners Properties

Number of Existing Bridge Stiffeners: $N_{new} := 3$

Thickness of Existing Bridge Stiffeners: $t_{new} := 1in$

Width of Existing Bridge Stiffeners: $w_{new} := 6.25in$

Diameter to the centroid of Existing Bridge Stiffeners: $BC_{new} := 43in$

Gross Area of One Exisnting Bridge Stiffener: $A_{g\_new} := w_{new} \cdot t_{new} = 6.25 \cdot in^2$

Radius of Gyration about x-axis: $r_x := \frac{t_{new}}{\sqrt{12}} = 0.289 \cdot in$

Moment of Inertia of Proposed Bridge Stiffeners: $I_{new} := \frac{N_{new} \cdot BC_{new}^{2} \cdot A_{g\_new}}{8} = 4333.594 \cdot in^4$

2. Bolt Checks

Controlling Capacity/Demand: $P_{max} := P = 114.55 \cdot kip$

2.1 Blind Bolt Properties

[ENG-STD-10183]

AJAX - Standard Sleeve
AJAX - Hi Shear Sleeve
NextGen2
FORGBolt
Design
Default

Number of Bolts in the Eccentric Bolt Group: $N_{be} := 14$

Number of Bolts in Shear-Only Group: $N_{bs} := 14$

Intermediate Bolt Spacing: $L_b := 3in$

Eccentricity: $ecc := \frac{BC_{new} - D_{shaft1}}{2} = 6.5 \cdot in$

Bolt Diameter: $D_b := 20mm$

Bolt Hole Diameter: $D_h := 1.1875in$

Sleeve Diameter: $D_s := 1.14173in$

Washer Diameter: $D_w := 42mm = 1.654 \cdot in$

Ultimate Strength: $Fu_{bolt} := 120ksi$

Gross Area: $A_{gb} := \frac{\pi}{4} \cdot D_b^{\,2} = 0.487 \cdot in^2$

Allowable Shear: $\phi R_{nv} = 53.98 \cdot kip$

2.2 Eccentric Connection

Bolt Shear Capacity:

$$\phi R_{nv1} := \begin{cases} \phi R_{nv} & \text{if } N_{be} \cdot L_b \le 38\text{in} \\ \left(\phi R_{nv} \cdot 0.833\right) & \text{if } N_{be} \cdot L_b > 38\text{in} \end{cases}$$

[AISC 15th Edition Table J3.2 Note (b)]

$$\phi R_{nv1} = 44.965 \cdot \text{kip}$$

Applied Bolt Shear:

$$V_{max} := \frac{P_{max}}{N_{be}} = 8.182 \cdot \text{kip}$$

$$Check_{ecc1} := \begin{cases} \text{"OK"} & \text{if } Capacity_{shear.eccentric} \le 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$Check_{ecc1} = \text{"OK"}$$

3. Pole/ Shaft Checks

3.1 Shaft Bearing

[AISC 15th Ed., Eqs. J3-6a and J3-6c]

Minimum Thickness to Bear On:

$$t := \min(t_1, t_2) \cdot in = 0.375 \cdot in$$

Clear Distance from Edge of Hole to Edge of Adjacent Hole:

$$L_c := L_b - D_h = 1.812 \cdot in$$

Bearing By Tear-out:

$$Rn_{shaft1} := 1.2 \cdot L_c \cdot t \cdot Fu_{shaft} = 48.937 \cdot kip$$

Bearing By Hole Deformation:

$$Rn_{shaft2} := 2.4 \cdot D_s \cdot t \cdot Fu_{shaft} = 61.653 \cdot kip$$

Bearing Capacity:

$$\phi Rn_{shaft} := 0.75 \cdot \min(Rn_{shaft1}, Rn_{shaft2}) = 36.703 \cdot kip$$

$$Check_{bearing} := \begin{cases} \text{"OK"} & \text{if } Capacity_{shaft.bearing} \le 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{bearing} = \text{"OK"}$

3.2 Pull-Out Check (through shaft wall)

AISC Design Guide 24 Ch. 3

Reduction Factor:

$$\phi := 0.67$$

Hollow Member Pull-Out Capacity:

$$\phi R_n := \phi \cdot (0.6 \cdot \pi \, D_w \cdot t) \cdot Fu_{shaft} = 46.987 \cdot kip$$

$$r_{ut} = 5.065 \cdot kip$$

$$Check_{pull} := \begin{cases} \text{"OK"} & \text{if } Capacity_{pullout} \le 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{pull} = \text{"OK"}$

4 Weld Connection to Filler Plates

4.1 Weld Sizing

Thickness of Filler Plate: 6"

Interpolation per AISC SCM Table 8-4:

13th Edition
14th Edition
15th Edition

Length of Filler Plate: $L_{be} := N_{be} \cdot L_b = 42 \cdot in$

Weld Material Grade:
- ○ E70XX
- ◉ E80XX

Electrode Strength Coefficient: $C_1 = 1.03$

Coefficient for Eccentrically Loaded Weld Groups: $C = 3.655$

Weld Reduction Factor: $\phi_w := 0.75$

Minimum Weld Size for Eccentrically Loaded Weld:

$$D_{min} := \frac{P_{max}}{\phi_w \cdot C \cdot C_1 \cdot L_{be} \cdot \frac{kip}{in^2}} = 0.966 \cdot in$$ *(In sixteenths of an inch)*

$$D_{min1} := ceil\left(\frac{D_{min}}{in}\right) \cdot in = 1 \cdot in$$ *(In sixteenths of an inch)*

Minimum Fillet Size per Material Thickness (In sixteenths of an inch): $D_{min2} = 5 \cdot in$ [AISC 15th Edition Table J2.3]

Design Weld Size (In sixteenths of an inch): $D := \max(D_{min1}, D_{min2}) = 5 \cdot in$

4.2 Weld Capacity

Weld Capacity:

$$\phi R_w := \phi_w \cdot C \cdot C_1 \cdot L_{be} \cdot D \cdot \frac{kip}{in^2} = 592.894 \cdot kip$$

Check Weld Does Not Control:

$$Check_{weld} := \begin{cases} \text{"OK"} & \text{if } Capacity_{weld} \le 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$Check_{weld} = \text{"OK"}$

Weld Size Used: $D = \frac{5}{16} \cdot in$

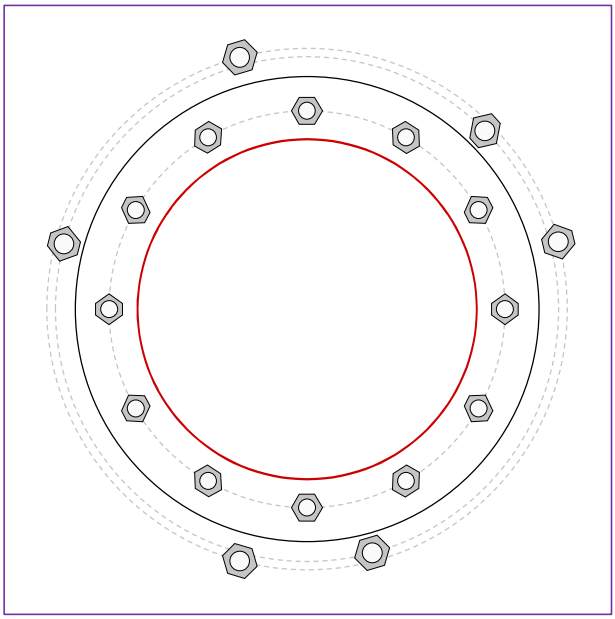
Monopole Base Plate Connection

Site Info	
BU #	876325
Site Name	WESTON SQUARE
Order #	556509 Rev.0

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

Applied Loads	
Moment (kip-ft)	1851.89
Axial Force (kips)	45.39
Shear Force (kips)	25.39

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (12) 1-1/2" ø bolts (A354-BC N; Fy=109 ksi, Fu=125 ksi) on 35" BC
GROUP 2: (3) 1-3/4" ø bolts (A722 N; Fy=120 ksi, Fu=125 ksi) on 44.5" BC
GROUP 3: (3) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 46" BC
pos. (deg): 15, 105, 255

Base Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

N/A

Pole Data

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

Analysis Results

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

GROUP 1:		
Pu_t = 98.08	ϕPn_t = 132.19	**Stress Rating**
Vu = 2.12	ϕVn = 82.83	**70.7%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 238.28	ϕPn_t = 243.75	**Stress Rating**
Vu = 0	ϕVn = 121.88	**93.1%**
Mu = 0	ϕMn = 108.42	**Pass**
GROUP 3:		
Pu_t = 164.68	ϕPn_t = 178.13	**Stress Rating**
Vu = 0	ϕVn = 112.75	**88.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	21.68	(Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**63.7%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

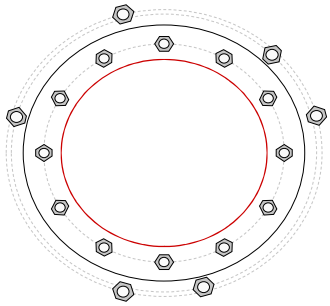
note: Bending interaction not considered when Grout Considered = "Yes"

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

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1.5	A354-BC	35	0.5	0.75	N-Included		No
2	1	30	1.5	A354-BC	35	0.5	0.75	N-Included		No
3	1	60	1.5	A354-BC	35	0.5	0.75	N-Included		No
4	1	90	1.5	A354-BC	35	0.5	0.75	N-Included		No
5	1	120	1.5	A354-BC	35	0.5	0.75	N-Included		No
6	1	150	1.5	A354-BC	35	0.5	0.75	N-Included		No
7	1	180	1.5	A354-BC	35	0.5	0.75	N-Included		No
8	1	210	1.5	A354-BC	35	0.5	0.75	N-Included		No
9	1	240	1.5	A354-BC	35	0.5	0.75	N-Included		No
10	1	270	1.5	A354-BC	35	0.5	0.75	N-Included		No
11	1	300	1.5	A354-BC	35	0.5	0.75	N-Included		No
12	1	330	1.5	A354-BC	35	0.5	0.75	N-Included		No
13	2	45	1.75	A722	44.5	0.5	2	N-Included	2.6	No
14	2	165	1.75	A722	44.5	0.5	2	N-Included	2.6	No
15	2	285	1.75	A722	44.5	0.5	2	N-Included	2.6	No
16	3	15	1.75	A193 Gr. B7	46	0.5	1	N-Included		No
17	3	105	1.75	A193 Gr. B7	46	0.5	1	N-Included		No
18	3	255	1.75	A193 Gr. B7	46	0.5	1	N-Included		No

Plot Graphic



Drilled Pier Foundation

BU # :	876325
Site Name:	WESTON SQUARE
Order Number:	
TIA-222 Revison:	H
Tower Type:	Monopole

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☑
Override Critical Depth:	☐

Go to Soil Calculations

Applied Loads	Comp.	Uplift
Moment (kip-ft)	1851.89	
Axial Force (kips)	45.41	
Shear Force (kips)	25.35	

Material Properties			Rebar 2, Fy Override (ksi)
Concrete Strength, f'c:	3	ksi	
Rebar Strength, Fy:	60	ksi	
Tie Yield Strength, Fyt:	60	ksi	

Pier Design Data		
Depth	37	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 25.17' below grade		
Pier Diameter	5	ft
Rebar Quantity	16	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing	12	in
Rebar Quantity	3	
Rebar Size	10	
Rebar Cage Diameter	44.5	in
Pier Section 2		
From 25.17' below grade to 37' below grade		
Pier Diameter	5	ft
Rebar Quantity	16	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	4	
Tie Spacing	12	in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	9.06	-
Soil Safety Factor	5.47	-
Max Moment (kip-ft)	2023.27	-
Rating*	*23.2%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	395.02	-
End Bearing (kips)	135.00	-
Weight of Concrete (kips)	100.17	-
Total Capacity (kips)	530.01	-
Axial (kips)	145.58	-
Rating*	*26.2%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	8.76	-
Critical Moment (kip-ft)	2023.01	-
Critical Moment Capacity	2193.07	-
Rating*	*87.9%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	23.14	-
Critical Shear (kip)	173.78	-
Critical Shear Capacity	1008.00	-
Rating*	*16.4%*	-

Shear-Friction Methodology is Applied

Structural Foundation Rating*	**87.9%**
Soil Interaction Rating*	**26.2%**

*Rating per TIA-222-H Section 15.5

Soil Profile

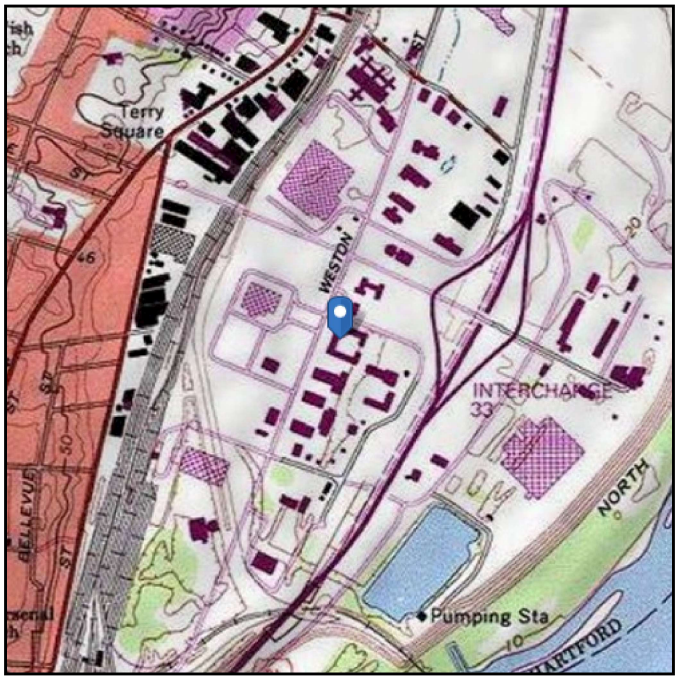
Groundwater Depth	15	# of Layers	8

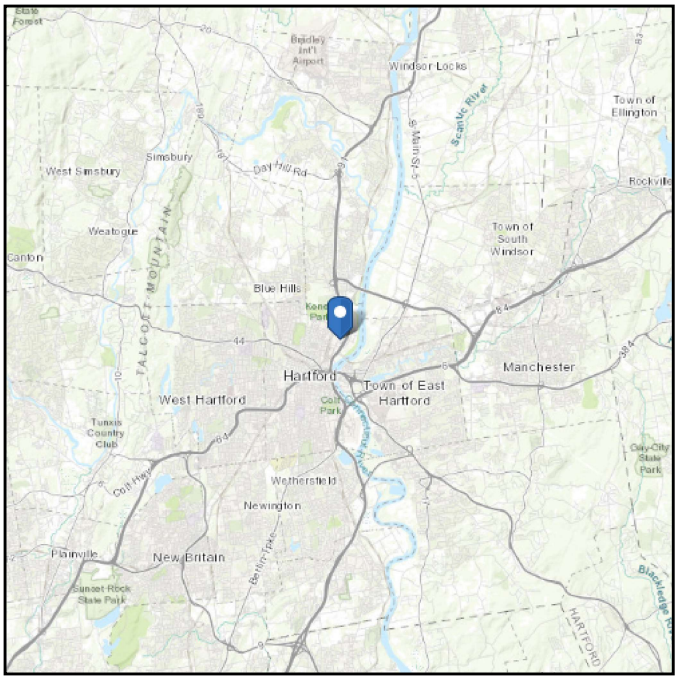
Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.33	1.33	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.33	6	2.67	110	150	0	30	0.000	0.000	0.00	0.00			Cohesionless
4	6	13	7	110	150	0.75	0	0.413	0.413	0.40	0.40			Cohesive
5	13	15	2	105	150	0	30	0.000	0.000	1.70	1.70			Cohesionless
6	15	28	13	52.6	87.6	0	32	0.000	0.000	1.70	1.70			Cohesionless
7	28	33	5	37.6	87.6	0.75	0	0.41	0.41	0.39	0.39			Cohesive
8	33	37	4	57.6	87.6	1.5	0	0.83	0.83	0.79	0.79	9.167		Cohesive

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	10.46 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.78675
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.662339





Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

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

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

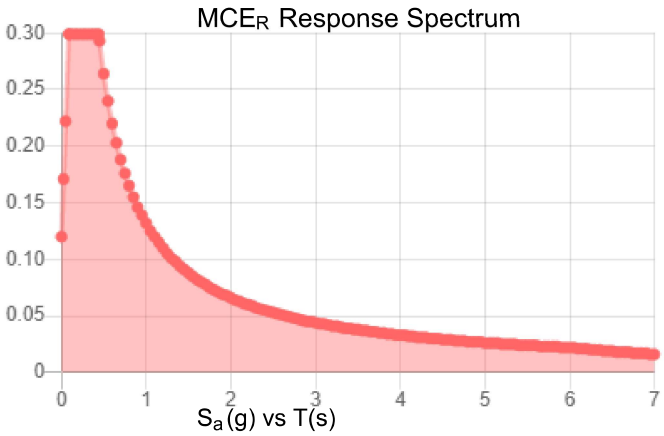
Seismic

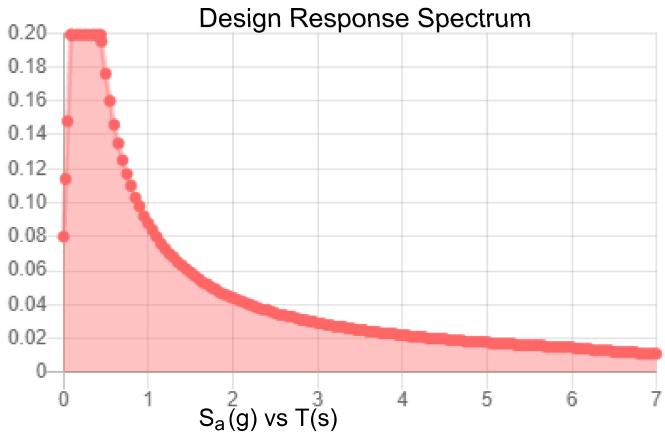
Site Soil Class: D - Default (see Section 11.4.3)

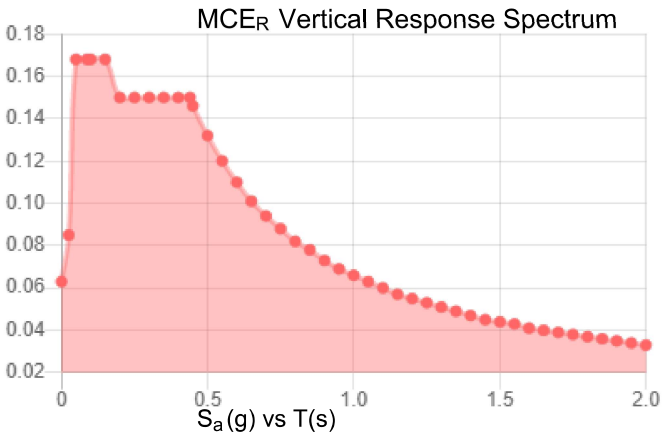
Results:

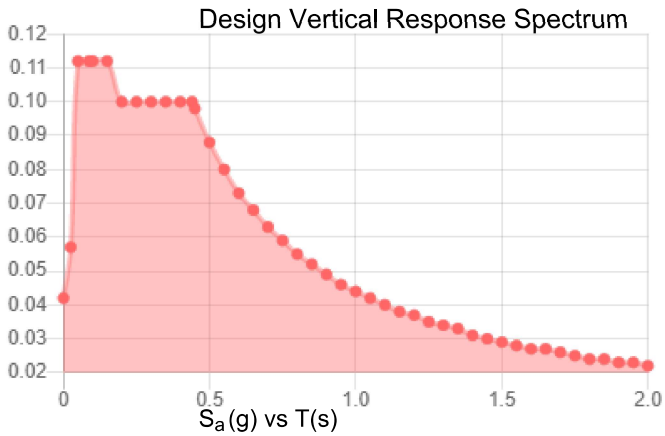
S_S :	0.187	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.1
F_v :	2.4	PGA_M :	0.161
S_{MS} :	0.299	F_{PGA} :	1.599
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.199	C_v :	0.7

Seismic Design Category B









Data Accessed: Mon Sep 06 2021

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Mon Sep 06 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Exhibit E

Mount Analysis

Date: September 8, 2021

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

Subject:	**Mount Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change Out**	
	Carrier Site Number:	CTL05152
	Carrier Site Name:	Weston Square
	Carrier FA Number:	10071071
Crown Castle Designation:	**BU Number:**	876325
	Site Name:	Weston Square
	JDE Job Number:	649409
	Order Number:	556509, Rev. 0
Engineering Firm Designation:	**B+T Group Report Designation:**	136350.008.01
Site Data:	**92 Weston Street, Hartford, CT, Hartford County, 06103-1217 Latitude 41° 47' 12.30" Longitude -72° 39' 44.42"**	
Structure Information:	**Tower Height & Type:**	**110 ft. Monopole**
	Mount Elevation:	**90 ft.**
	Mount Type:	**14.5 ft. Platform Mount**

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

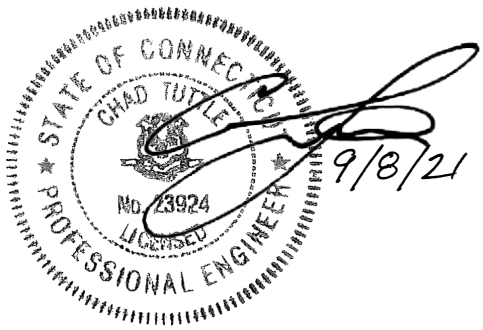
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Platform Mount **Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 117 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Anne Delice

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2022



Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is an existing 14.5' Platform Mount, designed by SitePro1 (Part #RMQLP-4120-H10 w/o Stabilizer kit).

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	117 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.187
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Qty.	Manufacturer	Model / Type	Mount / Modification Details
90	91	3	Ericsson	AIR 6419 B77G	14.5 ft. Platform Mount
		3	Ericsson	AIR 6449 N77	
	90	3	CCI Antennas	DMP65R-BU6D	
		3	Quintel Technology	QD6616-7	
		3	Ericsson	RRUS 32 B30	
		3	Ericsson	RRUS 32 B66A	
		3	Ericsson	RRUS 4415 B25	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS E2 B29	
		4	Raycap	DC6-48-60-18-8F	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing and Proposed Equipment's	Date: 09/01/2021	Crown Castle
RFDS		Date: 07/29/2021	
Previous MA	B+T Group	Date: 11/19/2020	On File

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 19.0.4), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by B+T Group, was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B "Software Input Calculations".

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision D). In addition, this analysis is in accordance with AT&T's *Mount Technical Directive – R15.*

Manufacturer's drawings were used to create models.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
   The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Raycap Pipe	2" Std. Pipe	6'-0"	-
Existing Mount Pipes		9'-0"	In Pos. 3
		7'-0"	In Pos. 4

5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

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

4) ANALYSIS RESULTS

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

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Main Horizontal	90	45	35.1	Pass
	Support Tubes	90	15	92.8	Pass
	Mount Pipes	90	76	84.2	Pass
	Connection Plates	90	30	82.8	Pass
	Support Angles	90	55	24.7	Pass
	Support Rails	90	61	66.2	Pass
	Connection Angles	90	69	60.5	Pass
2	Connection Bolts	90	-	73.6	Pass

Structure Rating (max from all components) =	**92.8%**

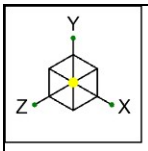
Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

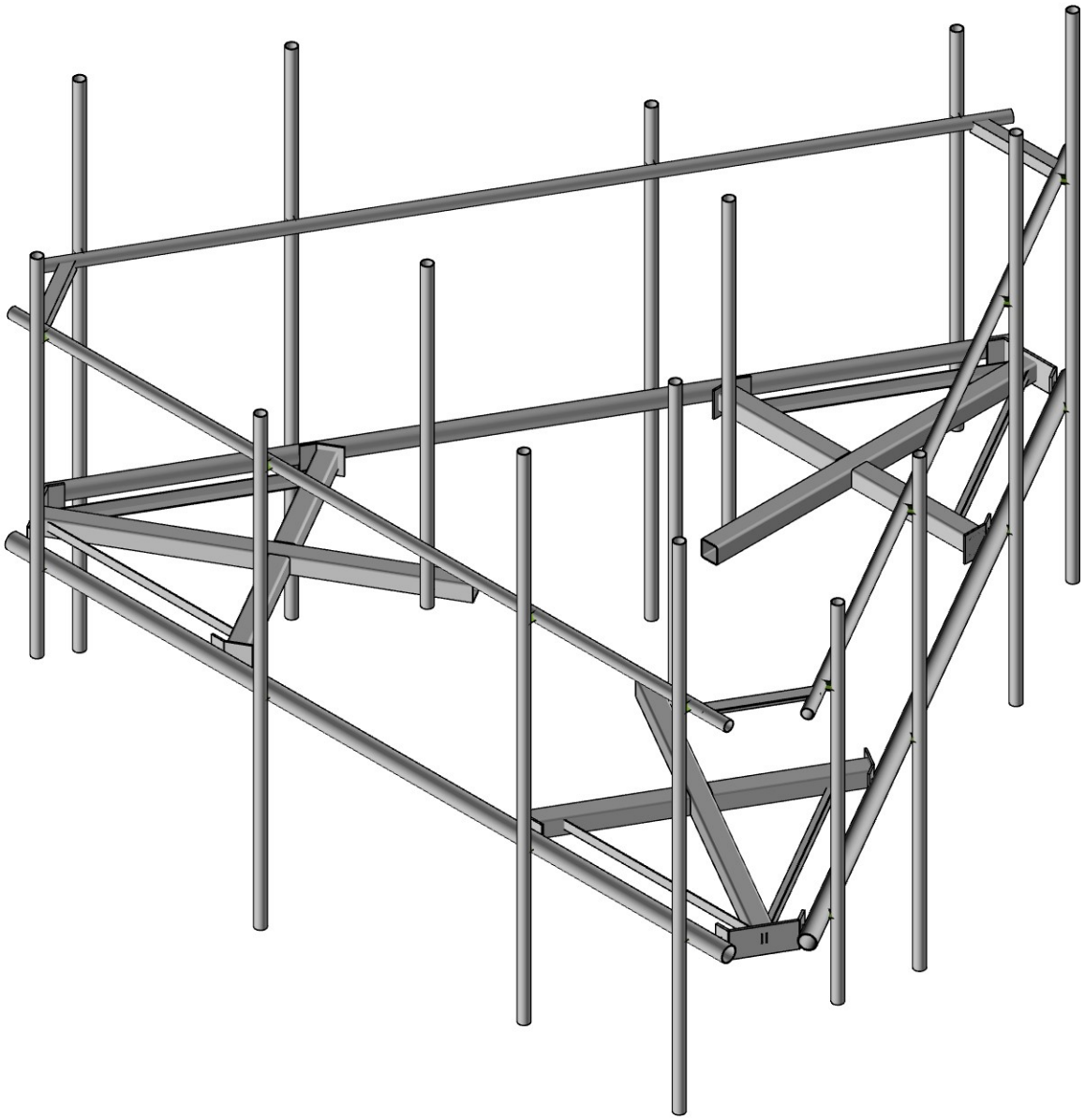
4.1) Recommendations

The SitePro1 (Part #RMQLP-4120-H10 w/o Stabilizer kit) mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

APPENDIX A

WIRE FRAME AND RENDERED MODELS





Envelope Only Solution

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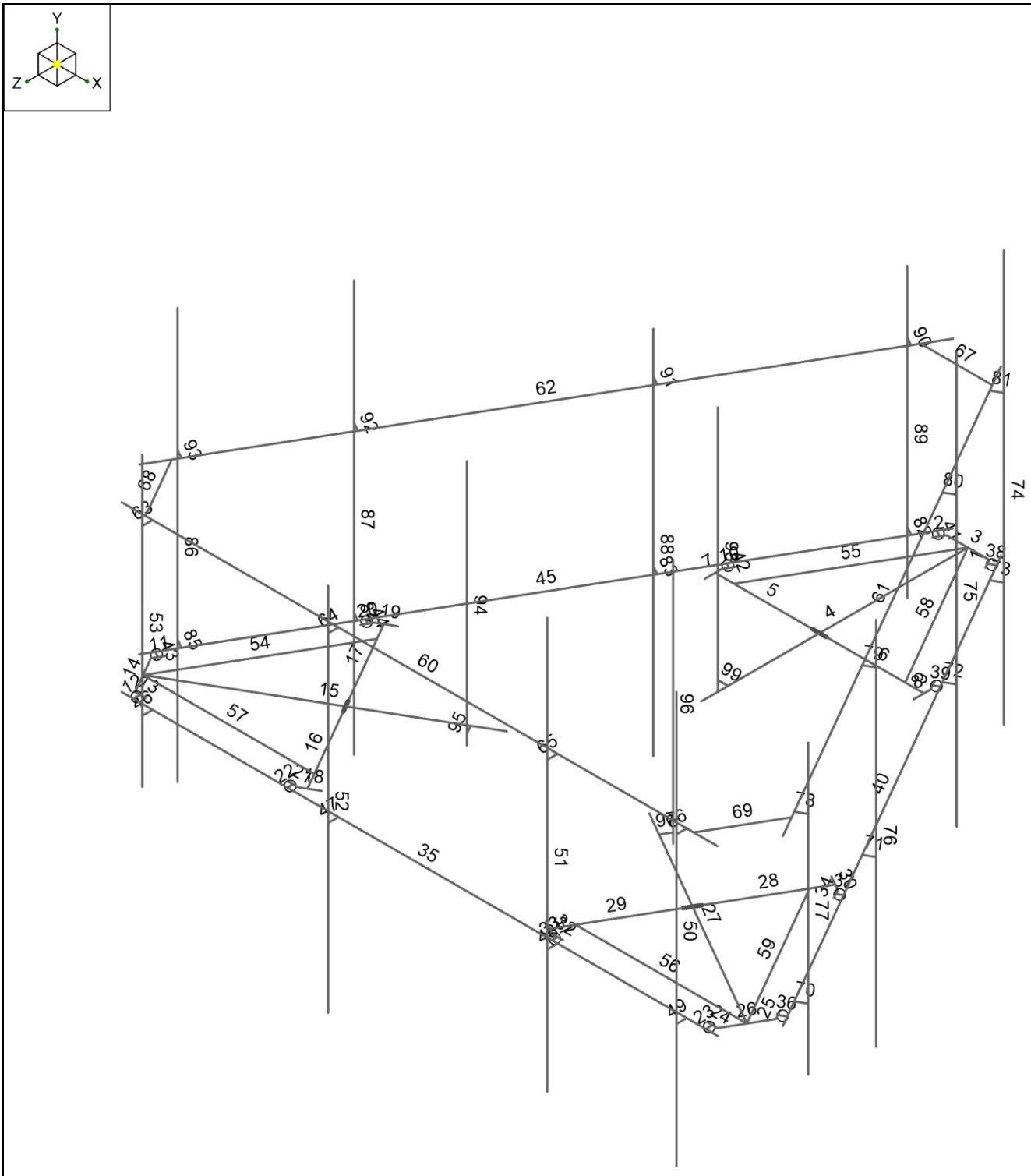

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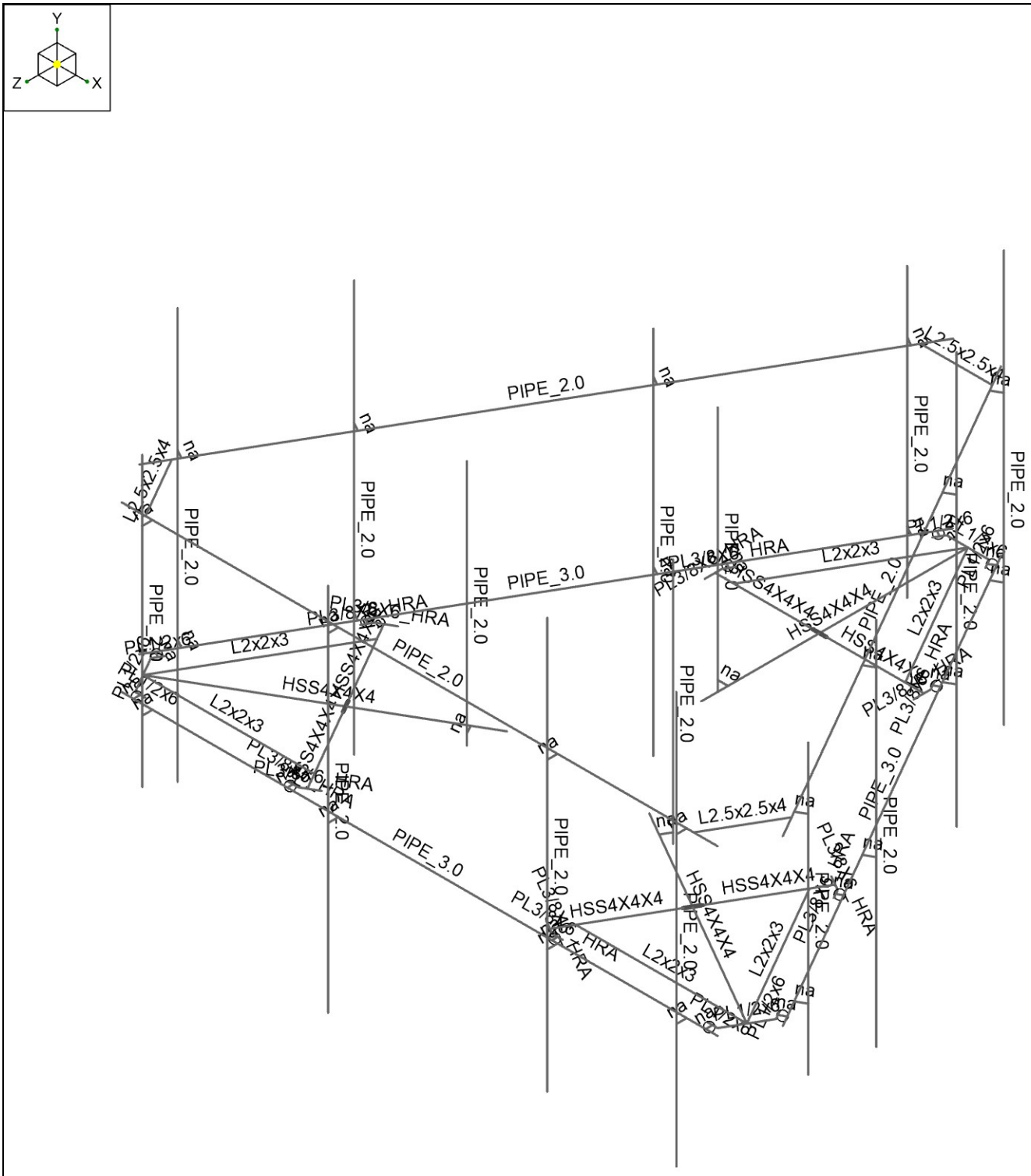

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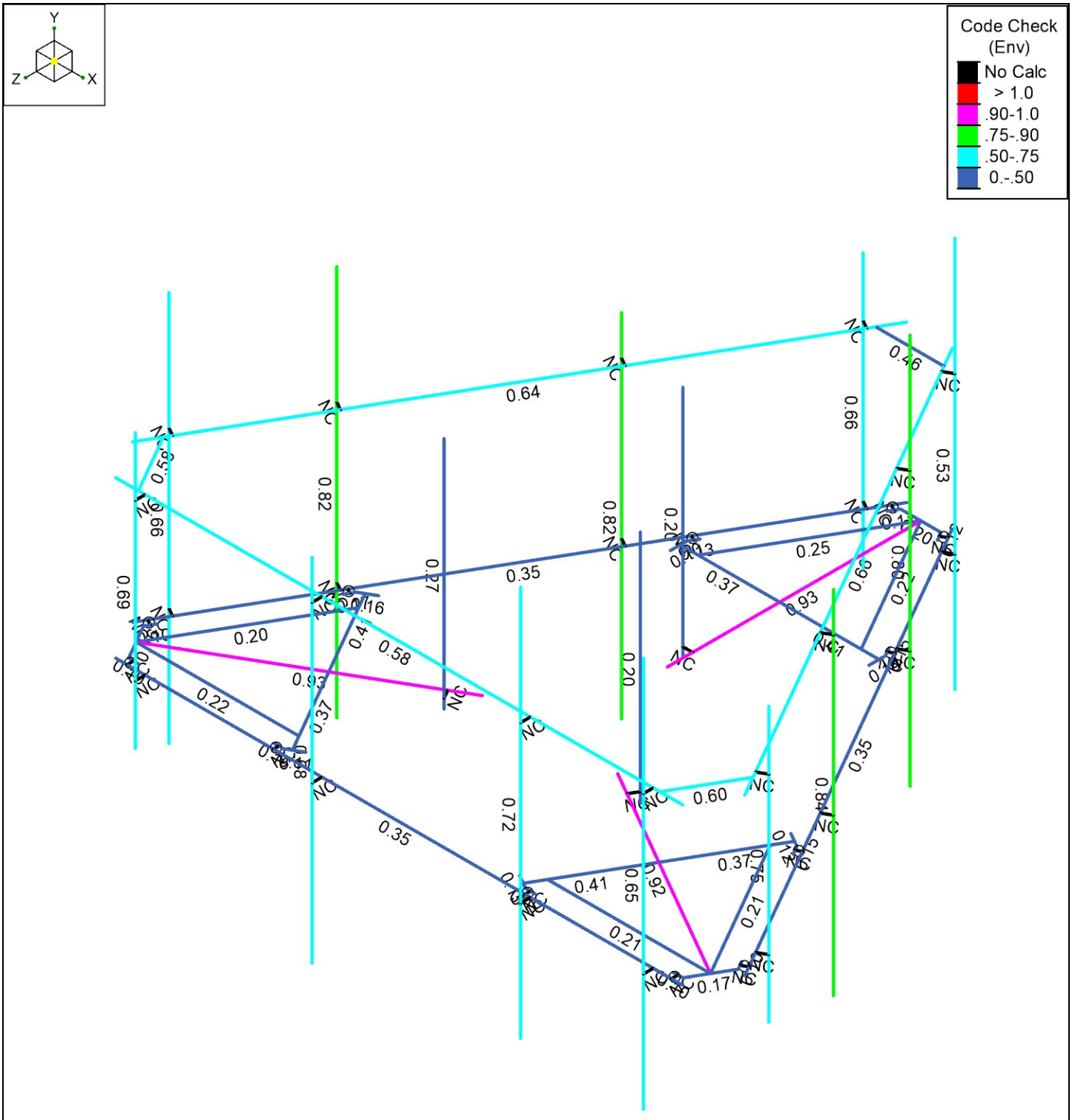

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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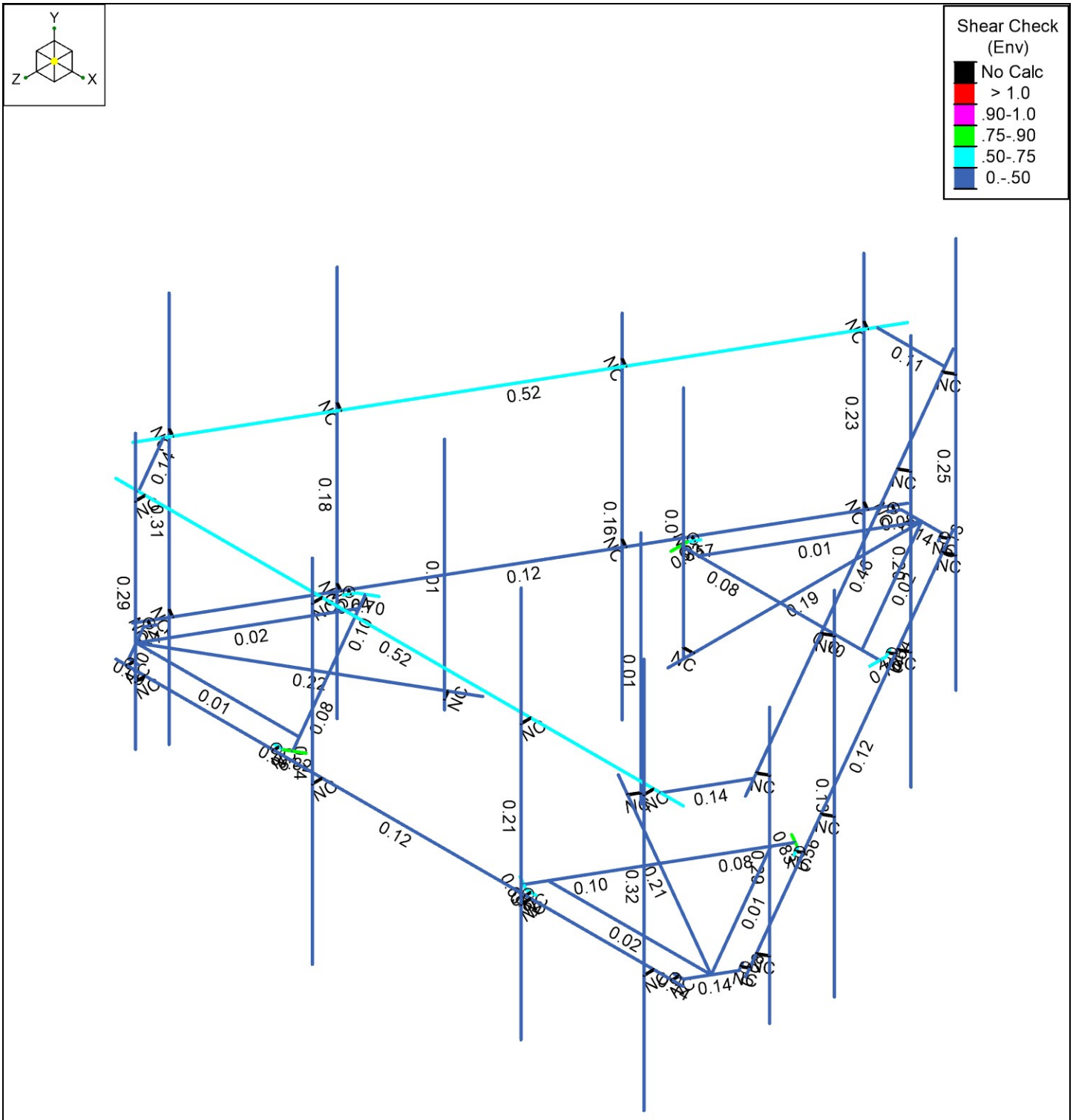

Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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APK		Sep 07, 2021
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APPENDIX B

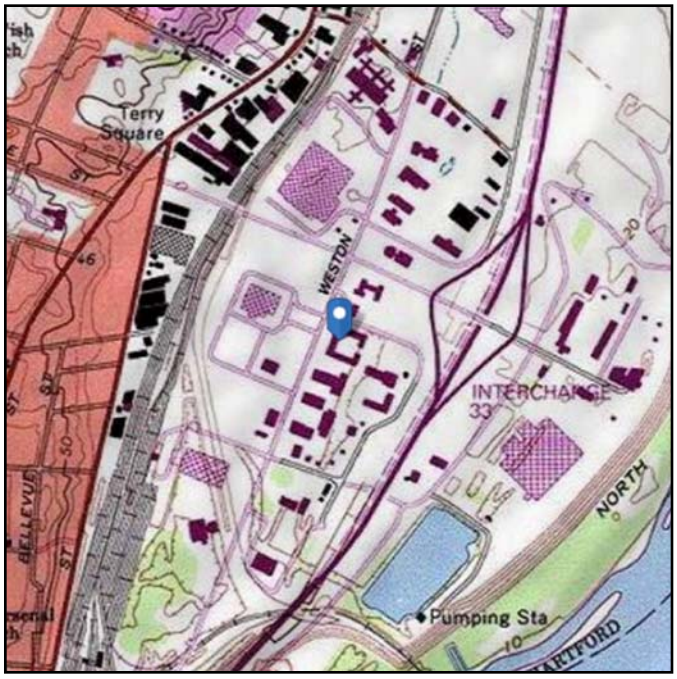
SOFTWARE INPUT CALCULATIONS

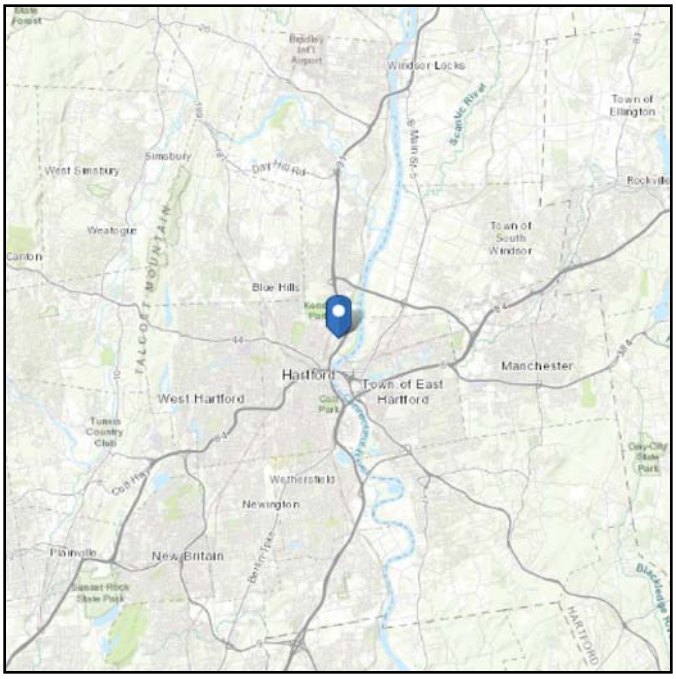
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 10.46 ft (NAVD 88)
Latitude: 41.78675
Longitude: -72.662339





Wind

Results:

Wind Speed:	117 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Sat Sep 04 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

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

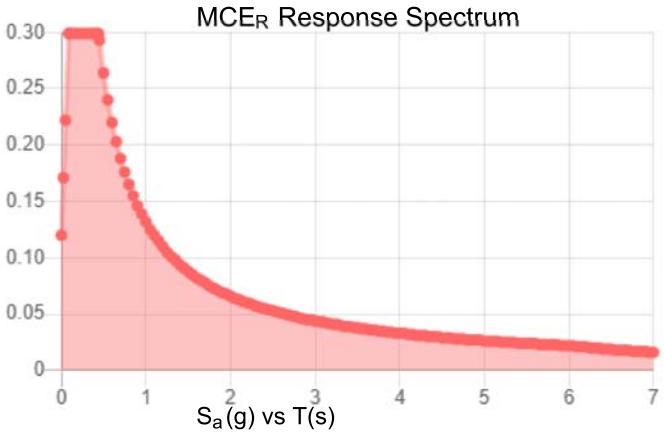
Seismic

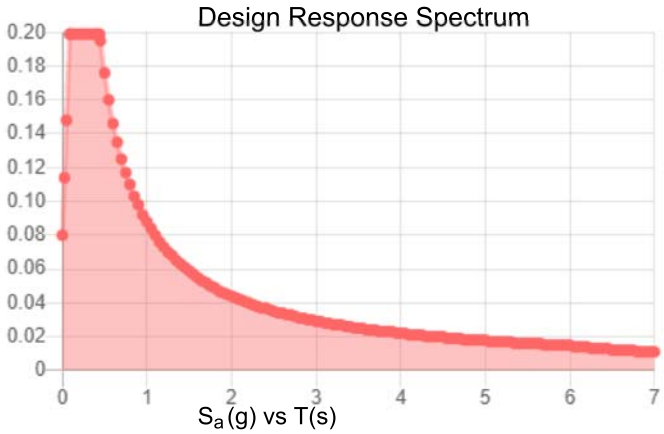
Site Soil Class: D - Default (see Section 11.4.3)

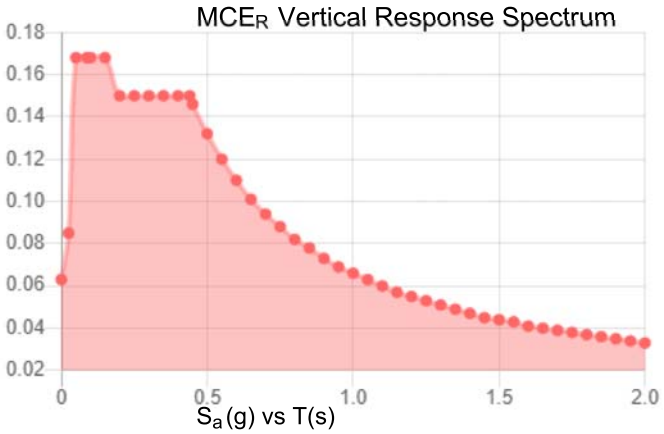
Results:

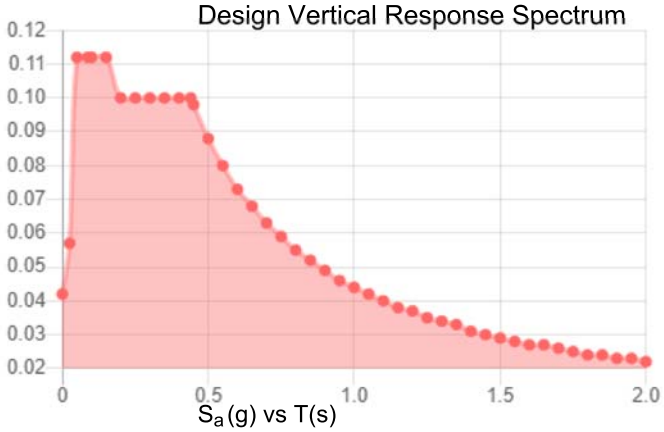
S_S :	0.187	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.1
F_v :	2.4	PGA_M :	0.161
S_{MS} :	0.299	F_{PGA} :	1.599
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.199	C_v :	0.7

Seismic Design Category B









Data Accessed: Sat Sep 04 2021

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Sat Sep 04 2021

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

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

PROJECT	**136350.008.01 - Weston Squ**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**09-07-21**	PAGE	OF

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

Tower Type		:	Monopole		
Ground Elevation	z_s	:	10	ft	[ASCE7 Hazard Tool]
Tower Height		:	110.00	ft	
Mount Elevation		:	90.00	ft	
Antenna Elevation		:	91.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	117	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.50	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.19		
	S_1	:	0.06		
	S_{DS}	:	0.20		
	S_{D1}	:	0.09		

Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.24		[Sec. 2.6.5.2]
Topography Factor	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	1.00		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.66	in	[Sec. 2.6.10]

Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.100		[Sec. 2.7.7.1]
Amplification	A_s	:	2.272727		[Sec. 16.7]

	q_z	:	41.19	psf

PROJECT	**136350.008.01 - Weston Squ**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**09-07-21**	PAGE	OF

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

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
)UINTEL TECHNOLOG	QD6616-7	0.5	3.27	1.23	5.50	2.40	6.62	3.38	0.25	0.11	0.05	0.02
)UINTEL TECHNOLOG	QD6616-7	0.5	3.27	1.23	5.50	2.40	6.62	3.38	0.25	0.11	0.05	0.02
ERICSSON	RRUS 4415 B25	1	2.78	1.21	0.56	1.37	1.11	2.10	0.03	0.06	0.00	0.01
ERICSSON	TME-RRUS 4478 B14	1	2.14	1.20	0.88	1.54	1.52	2.30	0.04	0.07	0.01	0.01
ERICSSON	TME-RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.30	3.39	0.07	0.11	0.01	0.02
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	2.07	1.09	0.07	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	2.07	1.09	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.26	1.63	0.08	0.05	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.26	1.63	0.08	0.05	0.01	0.01
CCI ANTENNAS	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	7.12	3.24	0.25	0.09	0.05	0.02
CCI ANTENNAS	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	7.12	3.24	0.25	0.09	0.05	0.02
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.88	2.43	0.05	0.07	0.01	0.01
ERICSSON	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.29	2.19	3.27	0.06	0.11	0.01	0.02
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.44	3.44	0.05	0.05	0.01	0.01
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.44	3.44	0.05	0.05	0.01	0.01
ERICSSON	TME-RRUS E2 B29	1	2.72	1.21	1.06	2.62	1.78	3.59	0.05	0.12	0.01	0.02
)UINTEL TECHNOLOG	QD6616-7	0.5	3.27	1.23	5.50	2.40	6.62	3.38	0.25	0.11	0.05	0.02
)UINTEL TECHNOLOG	QD6616-7	0.5	3.27	1.23	5.50	2.40	6.62	3.38	0.25	0.11	0.05	0.02
ERICSSON	RRUS 4415 B25	1	2.78	1.21	0.56	1.37	1.11	2.10	0.03	0.06	0.00	0.01
ERICSSON	TME-RRUS 4478 B14	1	2.14	1.20	0.88	1.54	1.52	2.30	0.04	0.07	0.01	0.01
ERICSSON	TME-RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.30	3.39	0.07	1.20		0.07

PROJECT	**136350.008.01 - Weston Squ**		**KSC**
SUBJECT	**Platform Mount Analysis**		
DATE	**09-07-21**	PAGE 3	OF

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

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	2.07	1.09	0.07	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	2.07	1.09	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.26	1.63	0.08	0.05	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.26	1.63	0.08	0.05	0.01	0.01
CCI ANTENNAS	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	7.12	3.24	0.25	0.09	0.05	0.02
CCI ANTENNAS	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	7.12	3.24	0.25	0.09	0.05	0.02
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.88	2.43	0.05	0.07	0.01	0.01
ERICSSON	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.29	2.19	3.27	0.06	0.11	0.01	0.02
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.44	3.44	0.05	0.05	0.01	0.01
ERICSSON	TME-RRUS E2 B29	1	2.72	1.21	1.06	2.62	1.78	3.59	0.05	0.12	0.01	0.02
)UINTEL TECHNOLOG	QD6616-7	0.5	3.27	1.23	5.50	2.40	6.62	3.38	0.25	0.11	0.05	0.02
)UINTEL TECHNOLOG	QD6616-7	0.5	3.27	1.23	5.50	2.40	6.62	3.38	0.25	0.11	0.05	0.02
ERICSSON	RRUS 4415 B25	1	2.78	1.21	0.56	1.37	1.11	2.10	0.03	0.06	0.00	0.01
ERICSSON	TME-RRUS 4478 B14	1	2.14	1.20	0.88	1.54	1.52	2.30	0.04	0.07	0.01	0.01
ERICSSON	TME-RRUS 32 B66A	1	3.72	1.25	1.42	2.39	2.30	3.39	0.07	0.11	0.01	0.02
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	2.07	1.09	0.07	0.03	0.01	0.01
ERICSSON	AIR 6419 B77G	0.5	1.77	1.20	1.53	0.65	2.07	1.09	0.07	0.03	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.26	1.63	0.08	0.05	0.01	0.01
ERICSSON	AIR 6449 N77	0.5	1.93	1.20	1.69	1.12	2.26	1.63	0.08	0.05	0.01	0.01

PROJECT	**136350.008.01 - Weston Squ**		**KSC**
SUBJECT	**Platform Mount Analysis**		
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B+T GRP
1717 S. Boulder, Suite 300
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(918) 587-4630

Manufacturer	Model	Qty	Aspect Ratio	C_a flat/round	EPA_N (ft^2)	EPA_T (ft^2)	$EPA_{N\text{-}Ice}$ (ft^2)	$EPA_{T\text{-}Ice}$ (ft^2)	$F_{A\ No\ Ice\ (N)}$	$F_{A\ No\ Ice\ (T)}$	$F_{A\ Ice\ (N)}$	$F_{A\ Ice\ (T)}$
CCI ANTENNAS	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	7.12	3.24	0.25	0.09	0.05	0.02
CCI ANTENNAS	DMP65R-BU6D	0.5	3.44	1.24	5.97	2.24	7.12	3.24	0.25	0.09	0.05	0.02
ERICSSON	RRUS 4449 B5/B12	1	1.90	1.20	1.17	1.64	1.88	2.43	0.05	0.07	0.01	0.01
ERICSSON	TME-RRUS 32 B30	1	3.89	1.26	1.32	2.29	2.19	3.27	0.06	0.11	0.01	0.02
RAYCAP	TME-DC6-48-60-18-8F	1	2.84	0.51	2.39	2.39	3.44	3.44	0.05	0.05	0.01	0.01
ERICSSON	TME-RRUS E2 B29	1	2.72	1.21	1.06	2.62	1.78	3.59	0.05	0.12	0.01	0.02

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0.581858	0	-8.376158	
2	2	0.644358	0	-8.267905	
3	3	0.519358	0	-8.484411	
4	4	-0.581858	0	-8.376158	
5	5	-0.644358	0	-8.267905	
6	6	-0.519358	0	-8.484411	
7	7	0	0	-8.484411	
8	8	0	0	-2	
9	9	0	0	-4.875003	
10	10	-2.54129	0	-4.875003	
11	11	2.54129	0	-4.875003	
12	12	-2.54129	0	-4.62297	
13	13	2.54129	0	-4.62297	
14	14	2.54129	0	-5.039613	
15	15	-2.54129	0	-5.039613	
16	16	2.41629	0	-5.256119	
17	17	2.47879	0	-5.147866	
18	18	-2.41629	0	-5.256119	
19	19	-2.47879	0	-5.147866	
20	20	-7.544895	0	3.684176	
21	21	-7.482395	0	3.575923	
22	22	-7.607395	0	3.792429	
23	23	-6.963037	0	4.858646	
24	24	-6.963037	0	4.691983	
25	25	-6.838037	0	4.691983	
26	26	-7.088037	0	4.691983	
27	27	-7.347716	0	4.242206	
28	28	-1.732051	0	1	
29	29	-4.221876	0	2.437502	
30	30	-2.951231	0	4.638324	
31	31	-5.492522	0	0.236679	
32	32	-2.732964	0	4.512307	
33	33	-5.274254	0	0.110663	
34	34	-5.635078	0	0.318984	
35	35	-3.093787	0	4.720628	
36	36	-5.760078	0	0.535491	
37	37	-5.697578	0	0.427237	
38	38	-3.343787	0	4.720628	
39	39	-3.218787	0	4.720628	
40	40	-3.218787	0	4.858646	
41	41	6.963037	0	4.858646	
42	42	6.963037	0	4.691983	
43	43	6.838037	0	4.691983	
44	44	7.088037	0	4.691983	
45	45	7.544895	0	3.684176	
46	46	7.482395	0	3.575923	
47	47	7.607395	0	3.792429	
48	48	7.347716	0	4.242206	
49	49	1.732051	0	1	
50	50	4.221876	0	2.437502	
51	51	5.492522	0	0.236679	
52	52	2.951231	0	4.638324	
53	53	5.274254	0	0.110663	
54	54	2.732964	0	4.512307	
55	55	3.093787	0	4.720628	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
56	56	5.635078	0	0.318984	
57	57	3.343787	0	4.720628	
58	58	3.218787	0	4.720628	
59	59	3.218787	0	4.858646	
60	60	5.760078	0	0.535491	
61	61	5.697578	0	0.427237	
62	62	7.25	0	4.858646	
63	63	-7.25	0	4.858646	
64	64	7.689229	0	3.600844	
65	65	5.817104	0	0.358229	
66	66	0.726192	0	-8.45949	
67	67	2.598317	0	-5.216874	
68	68	0.582711	0	-8.708007	
69	69	7.832711	0	3.849361	
70	70	-0.726192	0	-8.45949	
71	71	-2.598317	0	-5.216874	
72	72	-7.689229	0	3.600844	
73	73	-5.817104	0	0.358229	
74	74	-7.832711	0	3.849361	
75	75	-0.582711	0	-8.708007	
76	76	-6.5	0	4.858646	
77	77	6.5	0	4.858646	
78	78	-1.976217	0	4.858646	
79	79	3.357117	0	4.858646	
80	80	-6.5	0	5.108646	
81	81	6.5	0	5.108646	
82	82	-1.976217	0	5.108646	
83	83	3.357117	0	5.108646	
84	84	-6.5	5.5	5.108646	
85	85	6.5	7	5.108646	
86	86	-1.976217	5	5.108646	
87	87	3.357117	7	5.108646	
88	88	-6.5	-1.5	5.108646	
89	89	6.5	-3	5.108646	
90	90	-1.976217	-4	5.108646	
91	91	3.357117	-3	5.108646	
92	92	-2.083893	0	-4.875003	
93	93	-5.263823	0	0.632797	
94	94	-3.17993	0	4.242206	
95	95	3.17993	0	4.242206	
96	96	5.263823	0	0.632797	
97	97	2.083893	0	-4.875003	
98	98	0	0	0	
99	99	7.25	4	4.858646	
100	100	-7.25	4	4.858646	
101	101	0.582711	4	-8.708007	
102	102	7.832711	4	3.849361	
103	103	-7.832711	4	3.849361	
104	104	-0.582711	4	-8.708007	
105	105	-6.5	4	4.858646	
106	106	6.5	4	4.858646	
107	107	-1.976217	4	4.858646	
108	108	3.357117	4	4.858646	
109	109	-6.5	4	5.108646	
110	110	6.5	4	5.108646	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
111	111	-1.976217	4	5.108646	
112	112	3.357117	4	5.108646	
113	113	0.872048	4	-8.20686	
114	114	-0.872048	4	-8.20686	
115	115	-7.543373	4	3.348214	
116	116	-6.671325	4	4.858646	
117	117	6.671325	4	4.858646	
118	118	7.543373	4	3.348214	
119	119	7.457711	0	3.199842	
120	120	0.957711	0	-8.058488	
121	121	5.195819	0	-0.717869	
122	122	2.529152	0	-5.336671	
123	123	7.674217	0	3.074842	
124	124	1.174217	0	-8.183488	
125	125	5.412325	0	-0.842869	
126	126	2.745659	0	-5.461671	
127	127	7.674217	5.5	3.074842	
128	128	1.174217	7	-8.183488	
129	129	5.412326	5	-0.842869	
130	130	2.745659	7	-5.461671	
131	131	7.674217	-1.5	3.074842	
132	132	1.174217	-3	-8.183488	
133	133	5.412326	-4	-0.842869	
134	134	2.745659	-3	-5.461671	
135	135	7.457711	4	3.199842	
136	136	0.957711	4	-8.058488	
137	137	5.195819	4	-0.717869	
138	138	2.529152	4	-5.336671	
139	139	7.674217	4	3.074842	
140	140	1.174217	4	-8.183488	
141	141	5.412326	4	-0.842869	
142	142	2.745659	4	-5.461671	
143	143	-0.957711	0	-8.058488	
144	144	-7.457711	0	3.199842	
145	145	-3.219602	0	-4.140777	
146	146	-5.886269	0	0.478025	
147	147	-1.174217	0	-8.183488	
148	148	-7.674217	0	3.074842	
149	149	-3.436109	0	-4.265777	
150	150	-6.102775	0	0.353025	
151	151	-1.174217	5.5	-8.183488	
152	152	-7.674217	7	3.074842	
153	153	-3.436109	5	-4.265777	
154	154	-6.102775	7	0.353025	
155	155	-1.174217	-1.5	-8.183488	
156	156	-7.674217	-3	3.074842	
157	157	-3.436109	-4	-4.265777	
158	158	-6.102775	-3	0.353025	
159	159	-0.957711	4	-8.058488	
160	160	-7.457711	4	3.199842	
161	161	-3.219602	4	-4.140777	
162	162	-5.886269	4	0.478025	
163	163	-1.174217	4	-8.183488	
164	164	-7.674217	4	3.074842	
165	165	-3.436109	4	-4.265777	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
166	166	-6.102775	4	0.353025	
167	167	-2.293617	0	1.324221	
168	168	-2.168617	0	1.540727	
169	169	-2.168617	-0.25	1.540727	
170	170	-2.168617	5.75	1.540727	
171	171	2.293617	0	1.324221	
172	172	2.418617	0	1.107714	
173	173	2.418617	-0.25	1.107714	
174	174	2.418617	5.75	1.107714	
175	175	0	0	-2.648441	
176	176	-0.25	0	-2.648441	
177	177	-0.25	-0.25	-2.648441	
178	178	-0.25	5.75	-2.648441	

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	28	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	49	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	MF-H1	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	SF-H1	HSS4X4X4	Beam	Tube	A53 Gr.B	Typical	3.37	7.8	7.8	12.8
3	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
4	MF-CP1	PL3/8X6_HRA	Beam	RECT	A36 Gr.36	Typical	2.28	0.027	6.84	0.105
5	MF-CP2	PL1/2x6	Beam	RECT	A36 Gr.36	Typical	3	0.063	9	0.237
6	SF-H2	L2x2x3	Beam	Single Angle	A36 Gr.36	Typical	0.722	0.271	0.271	0.009
7	Handrail	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
8	AHCp	L2.5x2.5x4	Beam	Single Angle	A36 Gr.36	Typical	1.19	0.692	0.692	0.026

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	2	3		MF-CP2	Beam	RECT	A36 Gr.36	Typical
2	2	5	6		MF-CP2	Beam	RECT	A36 Gr.36	Typical
3	3	6	3		MF-CP2	Beam	RECT	A36 Gr.36	Typical
4	4	8	7		SF-H1	Beam	Tube	A53 Gr.B	Typical
5	5	10	9		SF-H1	Beam	Tube	A53 Gr.B	Typical
6	6	9	11		SF-H1	Beam	Tube	A53 Gr.B	Typical
7	7	12	15		MF-CP1	Beam	RECT	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
8	8	13	14		MF-CP1	Beam	RECT	A36 Gr.36	Typical
9	9	14	16		MF-CP1	Beam	RECT	A36 Gr.36	Typical
10	10	15	18		MF-CP1	Beam	RECT	A36 Gr.36	Typical
11	11	21	22		MF-CP2	Beam	RECT	A36 Gr.36	Typical
12	12	23	24		RIGID	None	None	RIGID	Typical
13	13	25	26		MF-CP2	Beam	RECT	A36 Gr.36	Typical
14	14	26	22		MF-CP2	Beam	RECT	A36 Gr.36	Typical
15	15	28	27		SF-H1	Beam	Tube	A53 Gr.B	Typical
16	16	30	29		SF-H1	Beam	Tube	A53 Gr.B	Typical
17	17	29	31		SF-H1	Beam	Tube	A53 Gr.B	Typical
18	18	32	35		MF-CP1	Beam	RECT	A36 Gr.36	Typical
19	19	33	34		MF-CP1	Beam	RECT	A36 Gr.36	Typical
20	20	34	36		MF-CP1	Beam	RECT	A36 Gr.36	Typical
21	21	35	38		MF-CP1	Beam	RECT	A36 Gr.36	Typical
22	22	39	40		RIGID	None	None	RIGID	Typical
23	23	41	42		RIGID	None	None	RIGID	Typical
24	24	43	44		MF-CP2	Beam	RECT	A36 Gr.36	Typical
25	25	46	47		MF-CP2	Beam	RECT	A36 Gr.36	Typical
26	26	47	44		MF-CP2	Beam	RECT	A36 Gr.36	Typical
27	27	49	48		SF-H1	Beam	Tube	A53 Gr.B	Typical
28	28	51	50		SF-H1	Beam	Tube	A53 Gr.B	Typical
29	29	50	52		SF-H1	Beam	Tube	A53 Gr.B	Typical
30	30	53	56		MF-CP1	Beam	RECT	A36 Gr.36	Typical
31	31	54	55		MF-CP1	Beam	RECT	A36 Gr.36	Typical
32	32	55	57		MF-CP1	Beam	RECT	A36 Gr.36	Typical
33	33	58	59		RIGID	None	None	RIGID	Typical
34	34	56	60		MF-CP1	Beam	RECT	A36 Gr.36	Typical
35	35	63	62		MF-H1	Beam	Pipe	A53 Gr.B	Typical
36	36	64	45		RIGID	None	None	RIGID	Typical
37	37	61	65		RIGID	None	None	RIGID	Typical
38	38	66	1		RIGID	None	None	RIGID	Typical
39	39	17	67		RIGID	None	None	RIGID	Typical
40	40	69	68		MF-H1	Beam	Pipe	A53 Gr.B	Typical
41	41	70	4		RIGID	None	None	RIGID	Typical
42	42	19	71		RIGID	None	None	RIGID	Typical
43	43	72	20		RIGID	None	None	RIGID	Typical
44	44	37	73		RIGID	None	None	RIGID	Typical
45	45	75	74		MF-H1	Beam	Pipe	A53 Gr.B	Typical
46	46	80	76		RIGID	None	None	RIGID	Typical
47	47	82	78		RIGID	None	None	RIGID	Typical
48	48	83	79		RIGID	None	None	RIGID	Typical
49	49	81	77		RIGID	None	None	RIGID	Typical
50	50	85	89		MF-P1	Column	Pipe	A53 Gr.B	Typical
51	51	87	91		MF-P1	Column	Pipe	A53 Gr.B	Typical
52	52	86	90		MF-P1	Column	Pipe	A53 Gr.B	Typical
53	53	84	88		MF-P1	Column	Pipe	A53 Gr.B	Typical
54	54	27	93		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
55	55	92	7		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
56	56	48	95		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
57	57	94	27		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
58	58	7	97		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
59	59	96	48		SF-H2	Beam	Single Angle	A36 Gr.36	Typical
60	60	100	99		Handrail	Beam	Pipe	A53 Gr.B	Typical
61	61	102	101		Handrail	Beam	Pipe	A53 Gr.B	Typical
62	62	104	103		Handrail	Beam	Pipe	A53 Gr.B	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
63	63	109	105		RIGID	None	None	RIGID	Typical
64	64	111	107		RIGID	None	None	RIGID	Typical
65	65	112	108		RIGID	None	None	RIGID	Typical
66	66	110	106		RIGID	None	None	RIGID	Typical
67	67	114	113	180	AHCp	Beam	Single Angle	A36 Gr.36	Typical
68	68	116	115	180	AHCp	Beam	Single Angle	A36 Gr.36	Typical
69	69	118	117	180	AHCp	Beam	Single Angle	A36 Gr.36	Typical
70	70	123	119		RIGID	None	None	RIGID	Typical
71	71	125	121		RIGID	None	None	RIGID	Typical
72	72	126	122		RIGID	None	None	RIGID	Typical
73	73	124	120		RIGID	None	None	RIGID	Typical
74	74	128	132		MF-P1	Column	Pipe	A53 Gr.B	Typical
75	75	130	134		MF-P1	Column	Pipe	A53 Gr.B	Typical
76	76	129	133		MF-P1	Column	Pipe	A53 Gr.B	Typical
77	77	127	131		MF-P1	Column	Pipe	A53 Gr.B	Typical
78	78	139	135		RIGID	None	None	RIGID	Typical
79	79	141	137		RIGID	None	None	RIGID	Typical
80	80	142	138		RIGID	None	None	RIGID	Typical
81	81	140	136		RIGID	None	None	RIGID	Typical
82	82	147	143		RIGID	None	None	RIGID	Typical
83	83	149	145		RIGID	None	None	RIGID	Typical
84	84	150	146		RIGID	None	None	RIGID	Typical
85	85	148	144		RIGID	None	None	RIGID	Typical
86	86	152	156		MF-P1	Column	Pipe	A53 Gr.B	Typical
87	87	154	158		MF-P1	Column	Pipe	A53 Gr.B	Typical
88	88	153	157		MF-P1	Column	Pipe	A53 Gr.B	Typical
89	89	151	155		MF-P1	Column	Pipe	A53 Gr.B	Typical
90	90	163	159		RIGID	None	None	RIGID	Typical
91	91	165	161		RIGID	None	None	RIGID	Typical
92	92	166	162		RIGID	None	None	RIGID	Typical
93	93	164	160		RIGID	None	None	RIGID	Typical
94	94	170	169		MF-P1	Column	Pipe	A53 Gr.B	Typical
95	95	168	167		RIGID	None	None	RIGID	Typical
96	96	174	173		MF-P1	Column	Pipe	A53 Gr.B	Typical
97	97	172	171		RIGID	None	None	RIGID	Typical
98	98	178	177		MF-P1	Column	Pipe	A53 Gr.B	Typical
99	99	176	175		RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
1	1					Yes	N/A	None
2	2					Yes	N/A	None
3	3					Yes	N/A	None
4	4					Yes	N/A	None
5	5				2	Yes	N/A	None
6	6			2		Yes	N/A	None
7	7					Yes	Default	None
8	8					Yes	Default	None
9	9					Yes	N/A	None
10	10					Yes	N/A	None
11	11					Yes	N/A	None
12	12	OOOOOX				Yes	** NA **	None
13	13					Yes	N/A	None
14	14					Yes	N/A	None
15	15					Yes	N/A	None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
16	16				2	Yes	N/A	None
17	17			2		Yes	N/A	None
18	18					Yes	Default	None
19	19					Yes	Default	None
20	20					Yes	N/A	None
21	21					Yes	N/A	None
22	22		OOOOOX			Yes	** NA **	None
23	23	OOOOOX				Yes	** NA **	None
24	24					Yes	N/A	None
25	25					Yes	N/A	None
26	26					Yes	N/A	None
27	27					Yes	N/A	None
28	28				2	Yes	N/A	None
29	29			2		Yes	N/A	None
30	30					Yes	Default	None
31	31					Yes	Default	None
32	32					Yes	N/A	None
33	33		OOOOOX			Yes	** NA **	None
34	34					Yes	N/A	None
35	35					Yes	N/A	None
36	36	OOOOOX				Yes	** NA **	None
37	37		OOOOOX			Yes	** NA **	None
38	38	OOOOOX				Yes	** NA **	None
39	39		OOOOOX			Yes	** NA **	None
40	40					Yes	N/A	None
41	41	OOOOOX				Yes	** NA **	None
42	42		OOOOOX			Yes	** NA **	None
43	43	OOOOOX				Yes	** NA **	None
44	44		OOOOOX			Yes	** NA **	None
45	45					Yes	N/A	None
46	46					Yes	** NA **	None
47	47					Yes	** NA **	None
48	48					Yes	** NA **	None
49	49					Yes	** NA **	None
50	50					Yes	** NA **	None
51	51					Yes	** NA **	None
52	52					Yes	** NA **	None
53	53					Yes	** NA **	None
54	54					Yes	N/A	None
55	55					Yes	N/A	None
56	56					Yes	N/A	None
57	57					Yes	N/A	None
58	58					Yes	N/A	None
59	59					Yes	N/A	None
60	60					Yes	N/A	None
61	61					Yes	N/A	None
62	62					Yes	Default	None
63	63					Yes	** NA **	None
64	64					Yes	** NA **	None
65	65					Yes	** NA **	None
66	66					Yes	** NA **	None
67	67					Yes	Default	None
68	68					Yes	Default	None
69	69					Yes	Default	None
70	70					Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset [in]	J Offset [in]	Physical	Deflection Ratio Options	Seismic DR
71	71					Yes	** NA **	None
72	72					Yes	** NA **	None
73	73					Yes	** NA **	None
74	74					Yes	** NA **	None
75	75					Yes	** NA **	None
76	76					Yes	** NA **	None
77	77					Yes	** NA **	None
78	78					Yes	** NA **	None
79	79					Yes	** NA **	None
80	80					Yes	** NA **	None
81	81					Yes	** NA **	None
82	82					Yes	** NA **	None
83	83					Yes	** NA **	None
84	84					Yes	** NA **	None
85	85					Yes	** NA **	None
86	86					Yes	** NA **	None
87	87					Yes	** NA **	None
88	88					Yes	** NA **	None
89	89					Yes	** NA **	None
90	90					Yes	** NA **	None
91	91					Yes	** NA **	None
92	92					Yes	** NA **	None
93	93					Yes	** NA **	None
94	94					Yes	** NA **	None
95	95					Yes	** NA **	None
96	96					Yes	** NA **	None
97	97					Yes	** NA **	None
98	98					Yes	** NA **	None
99	99					Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-CP2	0.25	Lbyy	Lateral
2	2	MF-CP2	0.25	Lbyy	Lateral
3	3	MF-CP2	1.039	Lbyy	Lateral
4	4	SF-H1	6.484	Lbyy	Lateral
5	5	SF-H1	2.541	Lbyy	Lateral
6	6	SF-H1	2.541	Lbyy	Lateral
7	7	MF-CP1	0.417	Lbyy	Lateral
8	8	MF-CP1	0.417	Lbyy	Lateral
9	9	MF-CP1	0.25	Lbyy	Lateral
10	10	MF-CP1	0.25	Lbyy	Lateral
11	11	MF-CP2	0.25	Lbyy	Lateral
12	13	MF-CP2	0.25	Lbyy	Lateral
13	14	MF-CP2	1.039	Lbyy	Lateral
14	15	SF-H1	6.484	Lbyy	Lateral
15	16	SF-H1	2.541	Lbyy	Lateral
16	17	SF-H1	2.541	Lbyy	Lateral
17	18	MF-CP1	0.417	Lbyy	Lateral
18	19	MF-CP1	0.417	Lbyy	Lateral
19	20	MF-CP1	0.25	Lbyy	Lateral
20	21	MF-CP1	0.25	Lbyy	Lateral
21	24	MF-CP2	0.25	Lbyy	Lateral
22	25	MF-CP2	0.25	Lbyy	Lateral
23	26	MF-CP2	1.039	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
24	27	SF-H1	6.484	Lbyy	Lateral
25	28	SF-H1	2.541	Lbyy	Lateral
26	29	SF-H1	2.541	Lbyy	Lateral
27	30	MF-CP1	0.417	Lbyy	Lateral
28	31	MF-CP1	0.417	Lbyy	Lateral
29	32	MF-CP1	0.25	Lbyy	Lateral
30	34	MF-CP1	0.25	Lbyy	Lateral
31	35	MF-H1	14.5	Lbyy	Lateral
32	40	MF-H1	14.5	Lbyy	Lateral
33	45	MF-H1	14.5	Lbyy	Lateral
34	50	MF-P1	10	Lbyy	Lateral
35	51	MF-P1	10	Lbyy	Lateral
36	52	MF-P1	9	Lbyy	Lateral
37	53	MF-P1	7	Lbyy	Lateral
38	54	SF-H2	4.168	Lbyy	Lateral
39	55	SF-H2	4.168	Lbyy	Lateral
40	56	SF-H2	4.168	Lbyy	Lateral
41	57	SF-H2	4.168	Lbyy	Lateral
42	58	SF-H2	4.168	Lbyy	Lateral
43	59	SF-H2	4.168	Lbyy	Lateral
44	60	Handrail	14.5	Lbyy	Lateral
45	61	Handrail	14.5	Lbyy	Lateral
46	62	Handrail	14.5	Lbyy	Lateral
47	67	AHCp	1.744	Lbyy	Lateral
48	68	AHCp	1.744	Lbyy	Lateral
49	69	AHCp	1.744	Lbyy	Lateral
50	74	MF-P1	10	Lbyy	Lateral
51	75	MF-P1	10	Lbyy	Lateral
52	76	MF-P1	9	Lbyy	Lateral
53	77	MF-P1	7	Lbyy	Lateral
54	86	MF-P1	10	Lbyy	Lateral
55	87	MF-P1	10	Lbyy	Lateral
56	88	MF-P1	9	Lbyy	Lateral
57	89	MF-P1	7	Lbyy	Lateral
58	94	MF-P1	6	Lbyy	Lateral
59	96	MF-P1	6	Lbyy	Lateral
60	98	MF-P1	6	Lbyy	Lateral

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.065	%5
2	51	Y	-0.065	%65
3	51	Y	-0.044	%35
4	51	Y	-0.06	%35
5	51	Y	-0.055	%60
6	52	Y	-0.033	%5
7	52	Y	-0.033	%25
8	52	Y	-0.042	%55
9	52	Y	-0.042	%75
10	52	Y	0	0
11	53	Y	-0.045	%25
12	53	Y	-0.045	%75
13	53	Y	-0.071	%30
14	53	Y	-0.053	%30
15	53	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
16	94	Y	-0.033	%15
17	94	Y	-0.033	%45
18	94	Y	0	0
19	94	Y	0	0
20	94	Y	0	0
21	51	Y	-0.06	%60
22	51	Y	0	0
23	51	Y	0	0
24	51	Y	0	0
25	51	Y	0	0
26	87	Y	-0.065	%5
27	87	Y	-0.065	%65
28	87	Y	-0.044	%35
29	87	Y	-0.06	%35
30	87	Y	-0.055	%60
31	88	Y	-0.033	%5
32	88	Y	-0.033	%25
33	88	Y	-0.042	%55
34	88	Y	-0.042	%75
35	88	Y	0	0
36	89	Y	-0.045	%25
37	89	Y	-0.045	%75
38	89	Y	-0.071	%30
39	89	Y	-0.053	%30
40	89	Y	0	0
41	98	Y	-0.033	%15
42	98	Y	0	0
43	98	Y	0	0
44	98	Y	0	0
45	98	Y	0	0
46	87	Y	-0.06	%60
47	87	Y	0	0
48	87	Y	0	0
49	87	Y	0	0
50	87	Y	0	0
51	75	Y	-0.065	%5
52	75	Y	-0.065	%65
53	75	Y	-0.044	%35
54	75	Y	-0.06	%35
55	75	Y	-0.055	%60
56	76	Y	-0.033	%5
57	76	Y	-0.033	%25
58	76	Y	-0.042	%55
59	76	Y	-0.042	%75
60	76	Y	0	0
61	77	Y	-0.045	%25
62	77	Y	-0.045	%75
63	77	Y	-0.071	%35
64	77	Y	-0.053	%35
65	77	Y	0	0
66	96	Y	-0.033	%15
67	96	Y	0	0
68	96	Y	0	0
69	96	Y	0	0
70	96	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
71	75	Y	-0.06	%60
72	75	Y	0	0
73	75	Y	0	0
74	75	Y	0	0
75	75	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Z	-0.252	%5
2	51	Z	-0.252	%65
3	51	Z	-0.025	%35
4	51	Z	-0.039	%35
5	51	Z	-0.066	%60
6	52	Z	-0.068	%5
7	52	Z	-0.068	%25
8	52	Z	-0.075	%55
9	52	Z	-0.075	%75
10	52	Z	0	0
11	53	Z	-0.246	%25
12	53	Z	-0.246	%75
13	53	Z	-0.052	%30
14	53	Z	-0.062	%30
15	53	Z	0	0
16	94	Z	-0.045	%15
17	94	Z	-0.045	%45
18	94	Z	0	0
19	94	Z	0	0
20	94	Z	0	0
21	51	Z	-0.048	%60
22	51	Z	0	0
23	51	Z	0	0
24	51	Z	0	0
25	51	Z	0	0
26	87	Z	-0.252	%5
27	87	Z	-0.252	%65
28	87	Z	-0.025	%35
29	87	Z	-0.039	%35
30	87	Z	-0.066	%60
31	88	Z	-0.068	%5
32	88	Z	-0.068	%25
33	88	Z	-0.075	%55
34	88	Z	-0.075	%75
35	88	Z	0	0
36	89	Z	-0.246	%25
37	89	Z	-0.246	%75
38	89	Z	-0.052	%30
39	89	Z	-0.062	%30
40	89	Z	0	0
41	98	Z	-0.045	%15
42	98	Z	0	0
43	98	Z	0	0
44	98	Z	0	0
45	98	Z	0	0
46	87	Z	-0.048	%60
47	87	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
48	87	Z	0	0
49	87	Z	0	0
50	87	Z	0	0
51	75	Z	-0.252	%5
52	75	Z	-0.252	%65
53	75	Z	-0.025	%35
54	75	Z	-0.039	%35
55	75	Z	-0.066	%60
56	76	Z	-0.068	%5
57	76	Z	-0.068	%25
58	76	Z	-0.075	%55
59	76	Z	-0.075	%75
60	76	Z	0	0
61	77	Z	-0.246	%25
62	77	Z	-0.246	%75
63	77	Z	-0.052	%35
64	77	Z	-0.062	%35
65	77	Z	0	0
66	96	Z	-0.045	%15
67	96	Z	0	0
68	96	Z	0	0
69	96	Z	0	0
70	96	Z	0	0
71	75	Z	-0.048	%60
72	75	Z	0	0
73	75	Z	0	0
74	75	Z	0	0
75	75	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	X	-0.11	%5
2	51	X	-0.11	%65
3	51	X	-0.062	%35
4	51	X	-0.069	%35
5	51	X	-0.111	%60
6	52	X	-0.029	%5
7	52	X	-0.029	%25
8	52	X	-0.05	%55
9	52	X	-0.05	%75
10	52	X	0	0
11	53	X	-0.092	%25
12	53	X	-0.092	%75
13	53	X	-0.073	%30
14	53	X	-0.107	%30
15	53	X	0	0
16	94	X	-0.045	%15
17	94	X	-0.045	%45
18	94	X	0	0
19	94	X	0	0
20	94	X	0	0
21	51	X	-0.118	%60
22	51	X	0	0
23	51	X	0	0
24	51	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
25	51	X	0	0
26	87	X	-0.11	%5
27	87	X	-0.11	%65
28	87	X	-0.062	%35
29	87	X	-0.069	%35
30	87	X	-0.111	%60
31	88	X	-0.029	%5
32	88	X	-0.029	%25
33	88	X	-0.05	%55
34	88	X	-0.05	%75
35	88	X	0	0
36	89	X	-0.092	%25
37	89	X	-0.092	%75
38	89	X	-0.073	%30
39	89	X	-0.107	%30
40	89	X	0	0
41	98	X	-0.045	%15
42	98	X	0	0
43	98	X	0	0
44	98	X	0	0
45	98	X	0	0
46	87	X	-0.118	%60
47	87	X	0	0
48	87	X	0	0
49	87	X	0	0
50	87	X	0	0
51	75	X	-0.11	%5
52	75	X	-0.11	%65
53	75	X	-0.062	%35
54	75	X	-0.069	%35
55	75	X	-0.111	%60
56	76	X	-0.029	%5
57	76	X	-0.029	%25
58	76	X	-0.05	%55
59	76	X	-0.05	%75
60	76	X	0	0
61	77	X	-0.092	%25
62	77	X	-0.092	%75
63	77	X	-0.073	%35
64	77	X	-0.107	%35
65	77	X	0	0
66	96	X	-0.045	%15
67	96	X	0	0
68	96	X	0	0
69	96	X	0	0
70	96	X	0	0
71	75	X	-0.118	%60
72	75	X	0	0
73	75	X	0	0
74	75	X	0	0
75	75	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Z	-0.046	%5
2	51	Z	-0.046	%65
3	51	Z	-0.005	%35
4	51	Z	-0.007	%35
5	51	Z	-0.012	%60
6	52	Z	-0.012	%5
7	52	Z	-0.012	%25
8	52	Z	-0.014	%55
9	52	Z	-0.014	%75
10	52	Z	0	0
11	53	Z	-0.054	%25
12	53	Z	-0.054	%75
13	53	Z	-0.01	%30
14	53	Z	-0.011	%30
15	53	Z	0	0
16	94	Z	-0.008	%15
17	94	Z	-0.008	%45
18	94	Z	0	0
19	94	Z	0	0
20	94	Z	0	0
21	51	Z	-0.009	%60
22	51	Z	0	0
23	51	Z	0	0
24	51	Z	0	0
25	51	Z	0	0
26	87	Z	-0.046	%5
27	87	Z	-0.046	%65
28	87	Z	-0.005	%35
29	87	Z	-0.007	%35
30	87	Z	-0.012	%60
31	88	Z	-0.012	%5
32	88	Z	-0.012	%25
33	88	Z	-0.014	%55
34	88	Z	-0.014	%75
35	88	Z	0	0
36	89	Z	-0.054	%25
37	89	Z	-0.054	%75
38	89	Z	-0.01	%30
39	89	Z	-0.011	%30
40	89	Z	0	0
41	98	Z	-0.008	%15
42	98	Z	0	0
43	98	Z	0	0
44	98	Z	0	0
45	98	Z	0	0
46	87	Z	-0.009	%60
47	87	Z	0	0
48	87	Z	0	0
49	87	Z	0	0
50	87	Z	0	0
51	75	Z	-0.046	%5
52	75	Z	-0.046	%65
53	75	Z	-0.005	%35
54	75	Z	-0.007	%35
55	75	Z	-0.012	%60

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
56	76	Z	-0.012	%5
57	76	Z	-0.012	%25
58	76	Z	-0.014	%55
59	76	Z	-0.014	%75
60	76	Z	0	0
61	77	Z	-0.054	%25
62	77	Z	-0.054	%75
63	77	Z	-0.01	%35
64	77	Z	-0.011	%35
65	77	Z	0	0
66	96	Z	-0.008	%15
67	96	Z	0	0
68	96	Z	0	0
69	96	Z	0	0
70	96	Z	0	0
71	75	Z	-0.009	%60
72	75	Z	0	0
73	75	Z	0	0
74	75	Z	0	0
75	75	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	X	-0.02	%5
2	51	X	-0.02	%65
3	51	X	-0.011	%35
4	51	X	-0.013	%35
5	51	X	-0.02	%60
6	52	X	-0.005	%5
7	52	X	-0.005	%25
8	52	X	-0.009	%55
9	52	X	-0.009	%75
10	52	X	0	0
11	53	X	-0.024	%25
12	53	X	-0.024	%75
13	53	X	-0.013	%30
14	53	X	-0.02	%30
15	53	X	0	0
16	94	X	-0.008	%15
17	94	X	-0.008	%45
18	94	X	0	0
19	94	X	0	0
20	94	X	0	0
21	51	X	-0.022	%60
22	51	X	0	0
23	51	X	0	0
24	51	X	0	0
25	51	X	0	0
26	87	X	-0.02	%5
27	87	X	-0.02	%65
28	87	X	-0.011	%35
29	87	X	-0.013	%35
30	87	X	-0.02	%60
31	88	X	-0.005	%5
32	88	X	-0.005	%25

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
33	88	X	-0.009	%55
34	88	X	-0.009	%75
35	88	X	0	0
36	89	X	-0.024	%25
37	89	X	-0.024	%75
38	89	X	-0.013	%30
39	89	X	-0.02	%30
40	89	X	0	0
41	98	X	-0.008	%15
42	98	X	0	0
43	98	X	0	0
44	98	X	0	0
45	98	X	0	0
46	87	X	-0.022	%60
47	87	X	0	0
48	87	X	0	0
49	87	X	0	0
50	87	X	0	0
51	75	X	-0.02	%5
52	75	X	-0.02	%65
53	75	X	-0.011	%35
54	75	X	-0.013	%35
55	75	X	-0.02	%60
56	76	X	-0.005	%5
57	76	X	-0.005	%25
58	76	X	-0.009	%55
59	76	X	-0.009	%75
60	76	X	0	0
61	77	X	-0.024	%25
62	77	X	-0.024	%75
63	77	X	-0.013	%35
64	77	X	-0.02	%35
65	77	X	0	0
66	96	X	-0.008	%15
67	96	X	0	0
68	96	X	0	0
69	96	X	0	0
70	96	X	0	0
71	75	X	-0.022	%60
72	75	X	0	0
73	75	X	0	0
74	75	X	0	0
75	75	X	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Z	-0.017	%5
2	51	Z	-0.017	%65
3	51	Z	-0.002	%35
4	51	Z	-0.003	%35
5	51	Z	-0.004	%60
6	52	Z	-0.005	%5
7	52	Z	-0.005	%25
8	52	Z	-0.005	%55
9	52	Z	-0.005	%75

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	52	Z	0	0
11	53	Z	-0.016	%25
12	53	Z	-0.016	%75
13	53	Z	-0.003	%30
14	53	Z	-0.004	%30
15	53	Z	0	0
16	94	Z	-0.003	%15
17	94	Z	-0.003	%45
18	94	Z	0	0
19	94	Z	0	0
20	94	Z	0	0
21	51	Z	-0.003	%60
22	51	Z	0	0
23	51	Z	0	0
24	51	Z	0	0
25	51	Z	0	0
26	87	Z	-0.017	%5
27	87	Z	-0.017	%65
28	87	Z	-0.002	%35
29	87	Z	-0.003	%35
30	87	Z	-0.004	%60
31	88	Z	-0.005	%5
32	88	Z	-0.005	%25
33	88	Z	-0.005	%55
34	88	Z	-0.005	%75
35	88	Z	0	0
36	89	Z	-0.016	%25
37	89	Z	-0.016	%75
38	89	Z	-0.003	%30
39	89	Z	-0.004	%30
40	89	Z	0	0
41	98	Z	-0.003	%15
42	98	Z	0	0
43	98	Z	0	0
44	98	Z	0	0
45	98	Z	0	0
46	87	Z	-0.003	%60
47	87	Z	0	0
48	87	Z	0	0
49	87	Z	0	0
50	87	Z	0	0
51	75	Z	-0.017	%5
52	75	Z	-0.017	%65
53	75	Z	-0.002	%35
54	75	Z	-0.003	%35
55	75	Z	-0.004	%60
56	76	Z	-0.005	%5
57	76	Z	-0.005	%25
58	76	Z	-0.005	%55
59	76	Z	-0.005	%75
60	76	Z	0	0
61	77	Z	-0.016	%25
62	77	Z	-0.016	%75
63	77	Z	-0.003	%35
64	77	Z	-0.004	%35

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
65	77	Z	0	0
66	96	Z	-0.003	%15
67	96	Z	0	0
68	96	Z	0	0
69	96	Z	0	0
70	96	Z	0	0
71	75	Z	-0.003	%60
72	75	Z	0	0
73	75	Z	0	0
74	75	Z	0	0
75	75	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	X	-0.007	%5
2	51	X	-0.007	%65
3	51	X	-0.004	%35
4	51	X	-0.005	%35
5	51	X	-0.007	%60
6	52	X	-0.002	%5
7	52	X	-0.002	%25
8	52	X	-0.003	%55
9	52	X	-0.003	%75
10	52	X	0	0
11	53	X	-0.006	%25
12	53	X	-0.006	%75
13	53	X	-0.005	%30
14	53	X	-0.007	%30
15	53	X	0	0
16	94	X	-0.003	%15
17	94	X	-0.003	%45
18	94	X	0	0
19	94	X	0	0
20	94	X	0	0
21	51	X	-0.008	%60
22	51	X	0	0
23	51	X	0	0
24	51	X	0	0
25	51	X	0	0
26	87	X	-0.007	%5
27	87	X	-0.007	%65
28	87	X	-0.004	%35
29	87	X	-0.005	%35
30	87	X	-0.007	%60
31	88	X	-0.002	%5
32	88	X	-0.002	%25
33	88	X	-0.003	%55
34	88	X	-0.003	%75
35	88	X	0	0
36	89	X	-0.006	%25
37	89	X	-0.006	%75
38	89	X	-0.005	%30
39	89	X	-0.007	%30
40	89	X	0	0
41	98	X	-0.003	%15

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
42	98	X	0	0
43	98	X	0	0
44	98	X	0	0
45	98	X	0	0
46	87	X	-0.008	%60
47	87	X	0	0
48	87	X	0	0
49	87	X	0	0
50	87	X	0	0
51	75	X	-0.007	%5
52	75	X	-0.007	%65
53	75	X	-0.004	%35
54	75	X	-0.005	%35
55	75	X	-0.007	%60
56	76	X	-0.002	%5
57	76	X	-0.002	%25
58	76	X	-0.003	%55
59	76	X	-0.003	%75
60	76	X	0	0
61	77	X	-0.006	%25
62	77	X	-0.006	%75
63	77	X	-0.005	%35
64	77	X	-0.007	%35
65	77	X	0	0
66	96	X	-0.003	%15
67	96	X	0	0
68	96	X	0	0
69	96	X	0	0
70	96	X	0	0
71	75	X	-0.008	%60
72	75	X	0	0
73	75	X	0	0
74	75	X	0	0
75	75	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Y	-0.156	%5
2	51	Y	-0.156	%65
3	51	Y	-0.04	%35
4	51	Y	-0.048	%35
5	51	Y	-0.075	%60
6	52	Y	-0.044	%5
7	52	Y	-0.044	%25
8	52	Y	-0.054	%55
9	52	Y	-0.054	%75
10	52	Y	0	0
11	53	Y	-0.167	%25
12	53	Y	-0.167	%75
13	53	Y	-0.054	%30
14	53	Y	-0.072	%30
15	53	Y	0	0
16	94	Y	-0.067	%15
17	94	Y	-0.067	%45
18	94	Y	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
19	94	Y	0	0
20	94	Y	0	0
21	51	Y	-0.075	%60
22	51	Y	0	0
23	51	Y	0	0
24	51	Y	0	0
25	51	Y	0	0
26	87	Y	-0.156	%5
27	87	Y	-0.156	%65
28	87	Y	-0.04	%35
29	87	Y	-0.048	%35
30	87	Y	-0.075	%60
31	88	Y	-0.044	%5
32	88	Y	-0.044	%25
33	88	Y	-0.054	%55
34	88	Y	-0.054	%75
35	88	Y	0	0
36	89	Y	-0.167	%25
37	89	Y	-0.167	%75
38	89	Y	-0.054	%30
39	89	Y	-0.072	%30
40	89	Y	0	0
41	98	Y	-0.067	%15
42	98	Y	0	0
43	98	Y	0	0
44	98	Y	0	0
45	98	Y	0	0
46	87	Y	-0.075	%60
47	87	Y	0	0
48	87	Y	0	0
49	87	Y	0	0
50	87	Y	0	0
51	75	Y	-0.156	%5
52	75	Y	-0.156	%65
53	75	Y	-0.04	%35
54	75	Y	-0.048	%35
55	75	Y	-0.075	%60
56	76	Y	-0.044	%5
57	76	Y	-0.044	%25
58	76	Y	-0.054	%55
59	76	Y	-0.054	%75
60	76	Y	0	0
61	77	Y	-0.167	%25
62	77	Y	-0.167	%75
63	77	Y	-0.054	%35
64	77	Y	-0.072	%35
65	77	Y	0	0
66	96	Y	-0.067	%15
67	96	Y	0	0
68	96	Y	0	0
69	96	Y	0	0
70	96	Y	0	0
71	75	Y	-0.075	%60
72	75	Y	0	0
73	75	Y	0	0

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

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

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	Z	-0.029	%5
2	51	Z	-0.029	%65
3	51	Z	-0.01	%35
4	51	Z	-0.014	%35
5	51	Z	-0.013	%60
6	52	Z	-0.015	%5
7	52	Z	-0.015	%25
8	52	Z	-0.019	%55
9	52	Z	-0.019	%75
10	52	Z	0	0
11	53	Z	-0.02	%25
12	53	Z	-0.02	%75
13	53	Z	-0.016	%30
14	53	Z	-0.012	%30
15	53	Z	0	0
16	94	Z	-0.007	%15
17	94	Z	-0.007	%45
18	94	Z	0	0
19	94	Z	0	0
20	94	Z	0	0
21	51	Z	-0.014	%60
22	51	Z	0	0
23	51	Z	0	0
24	51	Z	0	0
25	51	Z	0	0
26	87	Z	-0.029	%5
27	87	Z	-0.029	%65
28	87	Z	-0.01	%35
29	87	Z	-0.014	%35
30	87	Z	-0.013	%60
31	88	Z	-0.015	%5
32	88	Z	-0.015	%25
33	88	Z	-0.019	%55
34	88	Z	-0.019	%75
35	88	Z	0	0
36	89	Z	-0.02	%25
37	89	Z	-0.02	%75
38	89	Z	-0.016	%30
39	89	Z	-0.012	%30
40	89	Z	0	0
41	98	Z	-0.007	%15
42	98	Z	0	0
43	98	Z	0	0
44	98	Z	0	0
45	98	Z	0	0
46	87	Z	-0.014	%60
47	87	Z	0	0
48	87	Z	0	0
49	87	Z	0	0
50	87	Z	0	0

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
51	75	Z	-0.029	%5
52	75	Z	-0.029	%65
53	75	Z	-0.01	%35
54	75	Z	-0.014	%35
55	75	Z	-0.013	%60
56	76	Z	-0.015	%5
57	76	Z	-0.015	%25
58	76	Z	-0.019	%55
59	76	Z	-0.019	%75
60	76	Z	0	0
61	77	Z	-0.02	%25
62	77	Z	-0.02	%75
63	77	Z	-0.016	%35
64	77	Z	-0.012	%35
65	77	Z	0	0
66	96	Z	-0.007	%15
67	96	Z	0	0
68	96	Z	0	0
69	96	Z	0	0
70	96	Z	0	0
71	75	Z	-0.014	%60
72	75	Z	0	0
73	75	Z	0	0
74	75	Z	0	0
75	75	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	51	X	-0.029	%5
2	51	X	-0.029	%65
3	51	X	-0.01	%35
4	51	X	-0.014	%35
5	51	X	-0.013	%60
6	52	X	-0.015	%5
7	52	X	-0.015	%25
8	52	X	-0.019	%55
9	52	X	-0.019	%75
10	52	X	0	0
11	53	X	-0.02	%25
12	53	X	-0.02	%75
13	53	X	-0.016	%30
14	53	X	-0.012	%30
15	53	X	0	0
16	94	X	-0.007	%15
17	94	X	-0.007	%45
18	94	X	0	0
19	94	X	0	0
20	94	X	0	0
21	51	X	-0.014	%60
22	51	X	0	0
23	51	X	0	0
24	51	X	0	0
25	51	X	0	0
26	87	X	-0.029	%5
27	87	X	-0.029	%65

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

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
28	87	X	-0.01	%35
29	87	X	-0.014	%35
30	87	X	-0.013	%60
31	88	X	-0.015	%5
32	88	X	-0.015	%25
33	88	X	-0.019	%55
34	88	X	-0.019	%75
35	88	X	0	0
36	89	X	-0.02	%25
37	89	X	-0.02	%75
38	89	X	-0.016	%30
39	89	X	-0.012	%30
40	89	X	0	0
41	98	X	-0.007	%15
42	98	X	0	0
43	98	X	0	0
44	98	X	0	0
45	98	X	0	0
46	87	X	-0.014	%60
47	87	X	0	0
48	87	X	0	0
49	87	X	0	0
50	87	X	0	0
51	75	X	-0.029	%5
52	75	X	-0.029	%65
53	75	X	-0.01	%35
54	75	X	-0.014	%35
55	75	X	-0.013	%60
56	76	X	-0.015	%5
57	76	X	-0.015	%25
58	76	X	-0.019	%55
59	76	X	-0.019	%75
60	76	X	0	0
61	77	X	-0.02	%25
62	77	X	-0.02	%75
63	77	X	-0.016	%35
64	77	X	-0.012	%35
65	77	X	0	0
66	96	X	-0.007	%15
67	96	X	0	0
68	96	X	0	0
69	96	X	0	0
70	96	X	0	0
71	75	X	-0.014	%60
72	75	X	0	0
73	75	X	0	0
74	75	X	0	0
75	75	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	60	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	35	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	62	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	45	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	61	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	40	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	60	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	35	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	62	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	45	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	61	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	40	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	15	Y	-0.25	%90

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	4	Y	-0.25	%90

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	27	Y	-0.25	%90

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.022	-0.022	0	%100
2	2	Z	-0.022	-0.022	0	%100
3	3	Z	-0.022	-0.022	0	%100
4	4	Z	-0.022	-0.022	0	%100
5	5	Z	-0.017	-0.017	0	%100
6	6	Z	-0.017	-0.017	0	%100
7	7	Z	-0.022	-0.022	0	%100
8	8	Z	-0.022	-0.022	0	%100
9	9	Z	-0.022	-0.022	0	%100
10	10	Z	-0.022	-0.022	0	%100
11	11	Z	-0.022	-0.022	0	%100
12	13	Z	-0.022	-0.022	0	%100
13	14	Z	-0.022	-0.022	0	%100
14	15	Z	-0.022	-0.022	0	%100
15	16	Z	-0.017	-0.017	0	%100
16	17	Z	-0.017	-0.017	0	%100
17	18	Z	-0.022	-0.022	0	%100
18	19	Z	-0.022	-0.022	0	%100
19	20	Z	-0.022	-0.022	0	%100
20	21	Z	-0.022	-0.022	0	%100
21	24	Z	-0.022	-0.022	0	%100
22	25	Z	-0.022	-0.022	0	%100
23	26	Z	-0.022	-0.022	0	%100
24	27	Z	-0.022	-0.022	0	%100
25	28	Z	-0.017	-0.017	0	%100
26	29	Z	-0.017	-0.017	0	%100
27	30	Z	-0.022	-0.022	0	%100
28	31	Z	-0.022	-0.022	0	%100
29	32	Z	-0.022	-0.022	0	%100
30	34	Z	-0.022	-0.022	0	%100
31	35	Z	-0.013	-0.013	0	%100
32	40	Z	-0.013	-0.013	0	%100
33	45	Z	-0.013	-0.013	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
34	50	Z	-0.009	-0.009	0	%100
35	51	Z	-0.009	-0.009	0	%100
36	52	Z	-0.009	-0.009	0	%100
37	53	Z	-0.009	-0.009	0	%100
38	54	Z	-0.012	-0.012	0	%100
39	55	Z	-0.012	-0.012	0	%100
40	56	Z	-0.012	-0.012	0	%100
41	57	Z	-0.012	-0.012	0	%100
42	58	Z	-0.012	-0.012	0	%100
43	59	Z	-0.012	-0.012	0	%100
44	60	Z	-0.009	-0.009	0	%100
45	61	Z	-0.009	-0.009	0	%100
46	62	Z	-0.009	-0.009	0	%100
47	67	Z	-0.011	-0.011	0	%100
48	68	Z	-0.011	-0.011	0	%100
49	69	Z	-0.011	-0.011	0	%100
50	74	Z	-0.009	-0.009	0	%100
51	75	Z	-0.009	-0.009	0	%100
52	76	Z	-0.009	-0.009	0	%100
53	77	Z	-0.009	-0.009	0	%100
54	86	Z	-0.009	-0.009	0	%100
55	87	Z	-0.009	-0.009	0	%100
56	88	Z	-0.009	-0.009	0	%100
57	89	Z	-0.009	-0.009	0	%100
58	94	Z	-0.009	-0.009	0	%100
59	96	Z	-0.009	-0.009	0	%100
60	98	Z	-0.009	-0.009	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.022	-0.022	0	%100
2	2	X	-0.022	-0.022	0	%100
3	3	X	-0.022	-0.022	0	%100
4	4	X	-0.022	-0.022	0	%100
5	5	X	-0.017	-0.017	0	%100
6	6	X	-0.017	-0.017	0	%100
7	7	X	-0.022	-0.022	0	%100
8	8	X	-0.022	-0.022	0	%100
9	9	X	-0.022	-0.022	0	%100
10	10	X	-0.022	-0.022	0	%100
11	11	X	-0.022	-0.022	0	%100
12	13	X	-0.022	-0.022	0	%100
13	14	X	-0.022	-0.022	0	%100
14	15	X	-0.022	-0.022	0	%100
15	16	X	-0.017	-0.017	0	%100
16	17	X	-0.017	-0.017	0	%100
17	18	X	-0.022	-0.022	0	%100
18	19	X	-0.022	-0.022	0	%100
19	20	X	-0.022	-0.022	0	%100
20	21	X	-0.022	-0.022	0	%100
21	24	X	-0.022	-0.022	0	%100
22	25	X	-0.022	-0.022	0	%100
23	26	X	-0.022	-0.022	0	%100
24	27	X	-0.022	-0.022	0	%100
25	28	X	-0.017	-0.017	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
26	29	X	-0.017	-0.017	0	%100
27	30	X	-0.022	-0.022	0	%100
28	31	X	-0.022	-0.022	0	%100
29	32	X	-0.022	-0.022	0	%100
30	34	X	-0.022	-0.022	0	%100
31	35	X	-0.013	-0.013	0	%100
32	40	X	-0.013	-0.013	0	%100
33	45	X	-0.013	-0.013	0	%100
34	50	X	-0.009	-0.009	0	%100
35	51	X	-0.009	-0.009	0	%100
36	52	X	-0.009	-0.009	0	%100
37	53	X	-0.009	-0.009	0	%100
38	54	X	-0.012	-0.012	0	%100
39	55	X	-0.012	-0.012	0	%100
40	56	X	-0.012	-0.012	0	%100
41	57	X	-0.012	-0.012	0	%100
42	58	X	-0.012	-0.012	0	%100
43	59	X	-0.012	-0.012	0	%100
44	60	X	-0.009	-0.009	0	%100
45	61	X	-0.009	-0.009	0	%100
46	62	X	-0.009	-0.009	0	%100
47	67	X	-0.011	-0.011	0	%100
48	68	X	-0.011	-0.011	0	%100
49	69	X	-0.011	-0.011	0	%100
50	74	X	-0.009	-0.009	0	%100
51	75	X	-0.009	-0.009	0	%100
52	76	X	-0.009	-0.009	0	%100
53	77	X	-0.009	-0.009	0	%100
54	86	X	-0.009	-0.009	0	%100
55	87	X	-0.009	-0.009	0	%100
56	88	X	-0.009	-0.009	0	%100
57	89	X	-0.009	-0.009	0	%100
58	94	X	-0.009	-0.009	0	%100
59	96	X	-0.009	-0.009	0	%100
60	98	X	-0.009	-0.009	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.013	-0.013	0	%100
2	2	Z	-0.013	-0.013	0	%100
3	3	Z	-0.008	-0.008	0	%100
4	4	Z	-0.008	-0.008	0	%100
5	5	Z	-0.006	-0.006	0	%100
6	6	Z	-0.006	-0.006	0	%100
7	7	Z	-0.011	-0.011	0	%100
8	8	Z	-0.011	-0.011	0	%100
9	9	Z	-0.013	-0.013	0	%100
10	10	Z	-0.013	-0.013	0	%100
11	11	Z	-0.013	-0.013	0	%100
12	13	Z	-0.013	-0.013	0	%100
13	14	Z	-0.008	-0.008	0	%100
14	15	Z	-0.008	-0.008	0	%100
15	16	Z	-0.006	-0.006	0	%100
16	17	Z	-0.006	-0.006	0	%100
17	18	Z	-0.011	-0.011	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
18	19	Z	-0.011	-0.011	0	%100
19	20	Z	-0.013	-0.013	0	%100
20	21	Z	-0.013	-0.013	0	%100
21	24	Z	-0.013	-0.013	0	%100
22	25	Z	-0.013	-0.013	0	%100
23	26	Z	-0.008	-0.008	0	%100
24	27	Z	-0.008	-0.008	0	%100
25	28	Z	-0.006	-0.006	0	%100
26	29	Z	-0.006	-0.006	0	%100
27	30	Z	-0.011	-0.011	0	%100
28	31	Z	-0.011	-0.011	0	%100
29	32	Z	-0.013	-0.013	0	%100
30	34	Z	-0.013	-0.013	0	%100
31	35	Z	-0.002	-0.002	0	%100
32	40	Z	-0.002	-0.002	0	%100
33	45	Z	-0.002	-0.002	0	%100
34	50	Z	-0.002	-0.002	0	%100
35	51	Z	-0.002	-0.002	0	%100
36	52	Z	-0.002	-0.002	0	%100
37	53	Z	-0.002	-0.002	0	%100
38	54	Z	-0.006	-0.006	0	%100
39	55	Z	-0.006	-0.006	0	%100
40	56	Z	-0.006	-0.006	0	%100
41	57	Z	-0.006	-0.006	0	%100
42	58	Z	-0.006	-0.006	0	%100
43	59	Z	-0.006	-0.006	0	%100
44	60	Z	-0.002	-0.002	0	%100
45	61	Z	-0.002	-0.002	0	%100
46	62	Z	-0.002	-0.002	0	%100
47	67	Z	-0.005	-0.005	0	%100
48	68	Z	-0.005	-0.005	0	%100
49	69	Z	-0.005	-0.005	0	%100
50	74	Z	-0.002	-0.002	0	%100
51	75	Z	-0.002	-0.002	0	%100
52	76	Z	-0.002	-0.002	0	%100
53	77	Z	-0.002	-0.002	0	%100
54	86	Z	-0.002	-0.002	0	%100
55	87	Z	-0.002	-0.002	0	%100
56	88	Z	-0.002	-0.002	0	%100
57	89	Z	-0.002	-0.002	0	%100
58	94	Z	-0.002	-0.002	0	%100
59	96	Z	-0.002	-0.002	0	%100
60	98	Z	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.013	-0.013	0	%100
2	2	X	-0.013	-0.013	0	%100
3	3	X	-0.008	-0.008	0	%100
4	4	X	-0.008	-0.008	0	%100
5	5	X	-0.006	-0.006	0	%100
6	6	X	-0.006	-0.006	0	%100
7	7	X	-0.011	-0.011	0	%100
8	8	X	-0.011	-0.011	0	%100
9	9	X	-0.013	-0.013	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
10	10	X	-0.013	-0.013	0	%100
11	11	X	-0.013	-0.013	0	%100
12	13	X	-0.013	-0.013	0	%100
13	14	X	-0.008	-0.008	0	%100
14	15	X	-0.008	-0.008	0	%100
15	16	X	-0.006	-0.006	0	%100
16	17	X	-0.006	-0.006	0	%100
17	18	X	-0.011	-0.011	0	%100
18	19	X	-0.011	-0.011	0	%100
19	20	X	-0.013	-0.013	0	%100
20	21	X	-0.013	-0.013	0	%100
21	24	X	-0.013	-0.013	0	%100
22	25	X	-0.013	-0.013	0	%100
23	26	X	-0.008	-0.008	0	%100
24	27	X	-0.008	-0.008	0	%100
25	28	X	-0.006	-0.006	0	%100
26	29	X	-0.006	-0.006	0	%100
27	30	X	-0.011	-0.011	0	%100
28	31	X	-0.011	-0.011	0	%100
29	32	X	-0.013	-0.013	0	%100
30	34	X	-0.013	-0.013	0	%100
31	35	X	-0.002	-0.002	0	%100
32	40	X	-0.002	-0.002	0	%100
33	45	X	-0.002	-0.002	0	%100
34	50	X	-0.002	-0.002	0	%100
35	51	X	-0.002	-0.002	0	%100
36	52	X	-0.002	-0.002	0	%100
37	53	X	-0.002	-0.002	0	%100
38	54	X	-0.006	-0.006	0	%100
39	55	X	-0.006	-0.006	0	%100
40	56	X	-0.006	-0.006	0	%100
41	57	X	-0.006	-0.006	0	%100
42	58	X	-0.006	-0.006	0	%100
43	59	X	-0.006	-0.006	0	%100
44	60	X	-0.002	-0.002	0	%100
45	61	X	-0.002	-0.002	0	%100
46	62	X	-0.002	-0.002	0	%100
47	67	X	-0.005	-0.005	0	%100
48	68	X	-0.005	-0.005	0	%100
49	69	X	-0.005	-0.005	0	%100
50	74	X	-0.002	-0.002	0	%100
51	75	X	-0.002	-0.002	0	%100
52	76	X	-0.002	-0.002	0	%100
53	77	X	-0.002	-0.002	0	%100
54	86	X	-0.002	-0.002	0	%100
55	87	X	-0.002	-0.002	0	%100
56	88	X	-0.002	-0.002	0	%100
57	89	X	-0.002	-0.002	0	%100
58	94	X	-0.002	-0.002	0	%100
59	96	X	-0.002	-0.002	0	%100
60	98	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.002	-0.002	0	%100
5	5	Z	-0.001	-0.001	0	%100
6	6	Z	-0.001	-0.001	0	%100
7	7	Z	-0.002	-0.002	0	%100
8	8	Z	-0.002	-0.002	0	%100
9	9	Z	-0.002	-0.002	0	%100
10	10	Z	-0.002	-0.002	0	%100
11	11	Z	-0.002	-0.002	0	%100
12	13	Z	-0.002	-0.002	0	%100
13	14	Z	-0.002	-0.002	0	%100
14	15	Z	-0.002	-0.002	0	%100
15	16	Z	-0.001	-0.001	0	%100
16	17	Z	-0.001	-0.001	0	%100
17	18	Z	-0.002	-0.002	0	%100
18	19	Z	-0.002	-0.002	0	%100
19	20	Z	-0.002	-0.002	0	%100
20	21	Z	-0.002	-0.002	0	%100
21	24	Z	-0.002	-0.002	0	%100
22	25	Z	-0.002	-0.002	0	%100
23	26	Z	-0.002	-0.002	0	%100
24	27	Z	-0.002	-0.002	0	%100
25	28	Z	-0.001	-0.001	0	%100
26	29	Z	-0.001	-0.001	0	%100
27	30	Z	-0.002	-0.002	0	%100
28	31	Z	-0.002	-0.002	0	%100
29	32	Z	-0.002	-0.002	0	%100
30	34	Z	-0.002	-0.002	0	%100
31	35	Z	-0.0004	-0.0004	0	%100
32	40	Z	-0.0004	-0.0004	0	%100
33	45	Z	-0.0004	-0.0004	0	%100
34	50	Z	-0.0003	-0.0003	0	%100
35	51	Z	-0.0003	-0.0003	0	%100
36	52	Z	-0.0003	-0.0003	0	%100
37	53	Z	-0.0003	-0.0003	0	%100
38	54	Z	-0.0008	-0.0008	0	%100
39	55	Z	-0.0008	-0.0008	0	%100
40	56	Z	-0.0008	-0.0008	0	%100
41	57	Z	-0.0008	-0.0008	0	%100
42	58	Z	-0.0008	-0.0008	0	%100
43	59	Z	-0.0008	-0.0008	0	%100
44	60	Z	-0.0003	-0.0003	0	%100
45	61	Z	-0.0003	-0.0003	0	%100
46	62	Z	-0.0003	-0.0003	0	%100
47	67	Z	-0.0007	-0.0007	0	%100
48	68	Z	-0.0007	-0.0007	0	%100
49	69	Z	-0.0007	-0.0007	0	%100
50	74	Z	-0.0003	-0.0003	0	%100
51	75	Z	-0.0003	-0.0003	0	%100
52	76	Z	-0.0003	-0.0003	0	%100
53	77	Z	-0.0003	-0.0003	0	%100
54	86	Z	-0.0003	-0.0003	0	%100
55	87	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
56	88	Z	-0.0003	-0.0003	0	%100
57	89	Z	-0.0003	-0.0003	0	%100
58	94	Z	-0.0003	-0.0003	0	%100
59	96	Z	-0.0003	-0.0003	0	%100
60	98	Z	-0.0003	-0.0003	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.002	-0.002	0	%100
5	5	X	-0.001	-0.001	0	%100
6	6	X	-0.001	-0.001	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.002	-0.002	0	%100
10	10	X	-0.002	-0.002	0	%100
11	11	X	-0.002	-0.002	0	%100
12	13	X	-0.002	-0.002	0	%100
13	14	X	-0.002	-0.002	0	%100
14	15	X	-0.002	-0.002	0	%100
15	16	X	-0.001	-0.001	0	%100
16	17	X	-0.001	-0.001	0	%100
17	18	X	-0.002	-0.002	0	%100
18	19	X	-0.002	-0.002	0	%100
19	20	X	-0.002	-0.002	0	%100
20	21	X	-0.002	-0.002	0	%100
21	24	X	-0.002	-0.002	0	%100
22	25	X	-0.002	-0.002	0	%100
23	26	X	-0.002	-0.002	0	%100
24	27	X	-0.002	-0.002	0	%100
25	28	X	-0.001	-0.001	0	%100
26	29	X	-0.001	-0.001	0	%100
27	30	X	-0.002	-0.002	0	%100
28	31	X	-0.002	-0.002	0	%100
29	32	X	-0.002	-0.002	0	%100
30	34	X	-0.002	-0.002	0	%100
31	35	X	-0.0004	-0.0004	0	%100
32	40	X	-0.0004	-0.0004	0	%100
33	45	X	-0.0004	-0.0004	0	%100
34	50	X	-0.0003	-0.0003	0	%100
35	51	X	-0.0003	-0.0003	0	%100
36	52	X	-0.0003	-0.0003	0	%100
37	53	X	-0.0003	-0.0003	0	%100
38	54	X	-0.0008	-0.0008	0	%100
39	55	X	-0.0008	-0.0008	0	%100
40	56	X	-0.0008	-0.0008	0	%100
41	57	X	-0.0008	-0.0008	0	%100
42	58	X	-0.0008	-0.0008	0	%100
43	59	X	-0.0008	-0.0008	0	%100
44	60	X	-0.0003	-0.0003	0	%100
45	61	X	-0.0003	-0.0003	0	%100
46	62	X	-0.0003	-0.0003	0	%100
47	67	X	-0.0007	-0.0007	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
48	68	X	-0.0007	-0.0007	0	%100
49	69	X	-0.0007	-0.0007	0	%100
50	74	X	-0.0003	-0.0003	0	%100
51	75	X	-0.0003	-0.0003	0	%100
52	76	X	-0.0003	-0.0003	0	%100
53	77	X	-0.0003	-0.0003	0	%100
54	86	X	-0.0003	-0.0003	0	%100
55	87	X	-0.0003	-0.0003	0	%100
56	88	X	-0.0003	-0.0003	0	%100
57	89	X	-0.0003	-0.0003	0	%100
58	94	X	-0.0003	-0.0003	0	%100
59	96	X	-0.0003	-0.0003	0	%100
60	98	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.016	-0.016	0	%100
2	2	Y	-0.016	-0.016	0	%100
3	3	Y	-0.016	-0.016	0	%100
4	4	Y	-0.015	-0.015	0	%100
5	5	Y	-0.015	-0.015	0	%100
6	6	Y	-0.015	-0.015	0	%100
7	7	Y	-0.016	-0.016	0	%100
8	8	Y	-0.016	-0.016	0	%100
9	9	Y	-0.016	-0.016	0	%100
10	10	Y	-0.016	-0.016	0	%100
11	11	Y	-0.016	-0.016	0	%100
12	13	Y	-0.016	-0.016	0	%100
13	14	Y	-0.016	-0.016	0	%100
14	15	Y	-0.015	-0.015	0	%100
15	16	Y	-0.015	-0.015	0	%100
16	17	Y	-0.015	-0.015	0	%100
17	18	Y	-0.016	-0.016	0	%100
18	19	Y	-0.016	-0.016	0	%100
19	20	Y	-0.016	-0.016	0	%100
20	21	Y	-0.016	-0.016	0	%100
21	24	Y	-0.016	-0.016	0	%100
22	25	Y	-0.016	-0.016	0	%100
23	26	Y	-0.016	-0.016	0	%100
24	27	Y	-0.015	-0.015	0	%100
25	28	Y	-0.015	-0.015	0	%100
26	29	Y	-0.015	-0.015	0	%100
27	30	Y	-0.016	-0.016	0	%100
28	31	Y	-0.016	-0.016	0	%100
29	32	Y	-0.016	-0.016	0	%100
30	34	Y	-0.016	-0.016	0	%100
31	35	Y	-0.01	-0.01	0	%100
32	40	Y	-0.01	-0.01	0	%100
33	45	Y	-0.01	-0.01	0	%100
34	50	Y	-0.008	-0.008	0	%100
35	51	Y	-0.008	-0.008	0	%100
36	52	Y	-0.008	-0.008	0	%100
37	53	Y	-0.008	-0.008	0	%100
38	54	Y	-0.009	-0.009	0	%100
39	55	Y	-0.009	-0.009	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
40	56	Y	-0.009	-0.009	0	%100
41	57	Y	-0.009	-0.009	0	%100
42	58	Y	-0.009	-0.009	0	%100
43	59	Y	-0.009	-0.009	0	%100
44	60	Y	-0.008	-0.008	0	%100
45	61	Y	-0.008	-0.008	0	%100
46	62	Y	-0.008	-0.008	0	%100
47	67	Y	-0.011	-0.011	0	%100
48	68	Y	-0.011	-0.011	0	%100
49	69	Y	-0.011	-0.011	0	%100
50	74	Y	-0.008	-0.008	0	%100
51	75	Y	-0.008	-0.008	0	%100
52	76	Y	-0.008	-0.008	0	%100
53	77	Y	-0.008	-0.008	0	%100
54	86	Y	-0.008	-0.008	0	%100
55	87	Y	-0.008	-0.008	0	%100
56	88	Y	-0.008	-0.008	0	%100
57	89	Y	-0.008	-0.008	0	%100
58	94	Y	-0.008	-0.008	0	%100
59	96	Y	-0.008	-0.008	0	%100
60	98	Y	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

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

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
32	40	Z	-0.002	-0.002	0	%100
33	45	Z	-0.002	-0.002	0	%100
34	50	Z	-0.0008	-0.0008	0	%100
35	51	Z	-0.0008	-0.0008	0	%100
36	52	Z	-0.0008	-0.0008	0	%100
37	53	Z	-0.0008	-0.0008	0	%100
38	54	Z	-0.0006	-0.0006	0	%100
39	55	Z	-0.0006	-0.0006	0	%100
40	56	Z	-0.0006	-0.0006	0	%100
41	57	Z	-0.0006	-0.0006	0	%100
42	58	Z	-0.0006	-0.0006	0	%100
43	59	Z	-0.0006	-0.0006	0	%100
44	60	Z	-0.0008	-0.0008	0	%100
45	61	Z	-0.0008	-0.0008	0	%100
46	62	Z	-0.0008	-0.0008	0	%100
47	67	Z	-0.0009	-0.0009	0	%100
48	68	Z	-0.0009	-0.0009	0	%100
49	69	Z	-0.0009	-0.0009	0	%100
50	74	Z	-0.0008	-0.0008	0	%100
51	75	Z	-0.0008	-0.0008	0	%100
52	76	Z	-0.0008	-0.0008	0	%100
53	77	Z	-0.0008	-0.0008	0	%100
54	86	Z	-0.0008	-0.0008	0	%100
55	87	Z	-0.0008	-0.0008	0	%100
56	88	Z	-0.0008	-0.0008	0	%100
57	89	Z	-0.0008	-0.0008	0	%100
58	94	Z	-0.0008	-0.0008	0	%100
59	96	Z	-0.0008	-0.0008	0	%100
60	98	Z	-0.0008	-0.0008	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.003	-0.003	0	%100
5	5	X	-0.003	-0.003	0	%100
6	6	X	-0.003	-0.003	0	%100
7	7	X	-0.002	-0.002	0	%100
8	8	X	-0.002	-0.002	0	%100
9	9	X	-0.002	-0.002	0	%100
10	10	X	-0.002	-0.002	0	%100
11	11	X	-0.002	-0.002	0	%100
12	13	X	-0.002	-0.002	0	%100
13	14	X	-0.002	-0.002	0	%100
14	15	X	-0.003	-0.003	0	%100
15	16	X	-0.003	-0.003	0	%100
16	17	X	-0.003	-0.003	0	%100
17	18	X	-0.002	-0.002	0	%100
18	19	X	-0.002	-0.002	0	%100
19	20	X	-0.002	-0.002	0	%100
20	21	X	-0.002	-0.002	0	%100
21	24	X	-0.002	-0.002	0	%100
22	25	X	-0.002	-0.002	0	%100
23	26	X	-0.002	-0.002	0	%100

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

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
24	27	X	-0.003	-0.003	0	%100
25	28	X	-0.003	-0.003	0	%100
26	29	X	-0.003	-0.003	0	%100
27	30	X	-0.002	-0.002	0	%100
28	31	X	-0.002	-0.002	0	%100
29	32	X	-0.002	-0.002	0	%100
30	34	X	-0.002	-0.002	0	%100
31	35	X	-0.002	-0.002	0	%100
32	40	X	-0.002	-0.002	0	%100
33	45	X	-0.002	-0.002	0	%100
34	50	X	-0.0008	-0.0008	0	%100
35	51	X	-0.0008	-0.0008	0	%100
36	52	X	-0.0008	-0.0008	0	%100
37	53	X	-0.0008	-0.0008	0	%100
38	54	X	-0.0006	-0.0006	0	%100
39	55	X	-0.0006	-0.0006	0	%100
40	56	X	-0.0006	-0.0006	0	%100
41	57	X	-0.0006	-0.0006	0	%100
42	58	X	-0.0006	-0.0006	0	%100
43	59	X	-0.0006	-0.0006	0	%100
44	60	X	-0.0008	-0.0008	0	%100
45	61	X	-0.0008	-0.0008	0	%100
46	62	X	-0.0008	-0.0008	0	%100
47	67	X	-0.0009	-0.0009	0	%100
48	68	X	-0.0009	-0.0009	0	%100
49	69	X	-0.0009	-0.0009	0	%100
50	74	X	-0.0008	-0.0008	0	%100
51	75	X	-0.0008	-0.0008	0	%100
52	76	X	-0.0008	-0.0008	0	%100
53	77	X	-0.0008	-0.0008	0	%100
54	86	X	-0.0008	-0.0008	0	%100
55	87	X	-0.0008	-0.0008	0	%100
56	88	X	-0.0008	-0.0008	0	%100
57	89	X	-0.0008	-0.0008	0	%100
58	94	X	-0.0008	-0.0008	0	%100
59	96	X	-0.0008	-0.0008	0	%100
60	98	X	-0.0008	-0.0008	0	%100

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	56	Y	-0.005	-0.008	2.084	4.168
2	59	Y	-0.008	-0.005	0	2.084
3	59	Y	-0.005	-0.001	2.084	4.168
4	15	Y	-0.011	-0.011	3.778	5.447
5	16	Y	-0.01	-0.01	1.58	2.375
6	17	Y	-0.01	-0.01	0.167	0.962
7	54	Y	-0.001	-0.005	0	2.084
8	54	Y	-0.005	-0.008	2.084	4.168
9	57	Y	-0.008	-0.005	0	2.084
10	57	Y	-0.005	-0.001	2.084	4.168
11	4	Y	-0.011	-0.011	3.778	5.447
12	5	Y	-0.01	-0.01	1.58	2.375
13	6	Y	-0.01	-0.01	0.167	0.962
14	55	Y	-0.008	-0.005	0	2.084
15	55	Y	-0.005	-0.001	2.084	4.168

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
16	58	Y	-0.001	-0.005	0	2.084
17	58	Y	-0.005	-0.008	2.084	4.168
18	27	Y	-0.011	-0.011	3.778	5.447
19	28	Y	-0.01	-0.01	1.579	2.375
20	29	Y	-0.01	-0.01	0.167	0.961
21	56	Y	-0.001	-0.005	0	2.084

Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	15	Y	-0.009	-0.009	3.78	5.441
2	16	Y	-0.008	-0.008	1.579	2.375
3	17	Y	-0.008	-0.008	0.167	0.962
4	54	Y	-0.001	-0.004	0	2.084
5	54	Y	-0.004	-0.007	2.084	4.168
6	57	Y	-0.007	-0.004	0	2.084
7	57	Y	-0.004	-0.001	2.084	4.168
8	4	Y	-0.009	-0.009	3.78	5.441
9	5	Y	-0.008	-0.008	1.579	2.375
10	6	Y	-0.008	-0.008	0.167	0.962
11	55	Y	-0.007	-0.004	0	2.084
12	55	Y	-0.004	-0.001	2.084	4.168
13	58	Y	-0.001	-0.004	0	2.084
14	58	Y	-0.004	-0.007	2.084	4.168
15	27	Y	-0.009	-0.009	3.78	5.441
16	28	Y	-0.008	-0.008	1.579	2.375
17	29	Y	-0.008	-0.008	0.167	0.962
18	56	Y	-0.001	-0.004	0	2.084
19	56	Y	-0.004	-0.007	2.084	4.168
20	59	Y	-0.007	-0.004	0	2.084
21	59	Y	-0.004	-0.001	2.084	4.168

Member Area Loads (BLC 1 : Dead)

	Node A	Node B	Node C	Node D	Direction	Load Direction	Magnitude [ksf]
1	27	93	94	27	Y	Two Way	-0.01
2	7	97	92	7	Y	Two Way	-0.01
3	48	96	95	48	Y	Two Way	-0.01

Member Area Loads (BLC 8 : Ice)

	Node A	Node B	Node C	Direction	Load Direction	Magnitude [ksf]
1	27	93	94	Y	Two Way	-0.008
2	7	97	92	Y	Two Way	-0.008
3	48	96	95	Y	Two Way	-0.008

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	76	L	Y	-0.5
2	119	L	Y	-0.5
3	143	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	78	L	Y	-0.5
2	121	L	Y	-0.5
3	145	L	Y	-0.5

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

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	79	L	Y	-0.5
2	122	L	Y	-0.5
3	146	L	Y	-0.5

Node Loads and Enforced Displacements (BLC 14 : Live Load d)

	Node Label	L, D, M	Direction	Magnitude [(k, k-ft), (in, rad), (k*s²/ft, k*s²*ft)]
1	77	L	Y	-0.5
2	120	L	Y	-0.5
3	144	L	Y	-0.5

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		75		3
2	0 Wind - No Ice	WLZ			75	60	
3	90 Wind - No Ice	WLX			75	60	
4	0 Wind - Ice	WLZ			75	60	
5	90 Wind - Ice	WLX			75	60	
6	0 Wind - Service	WLZ			75	60	
7	90 Wind - Service	WLX			75	60	
8	Ice	OL1			75	60	3
9	0 Seismic	ELZ			75	60	
10	90 Seismic	ELX			75	60	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL		3			
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				21	
31	BLC 8 Transient Area Loads	None				21	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	8	max	1.23	5	4.094	14	3.965	2	11.342	14	1.722	11	1.348	11
2		min	-1.228	11	0.146	8	-4.042	8	-2.246	8	-1.718	5	-1.145	5
3	28	max	3.001	6	4.146	18	2.258	13	1.43	13	2.023	3	0.864	12
4		min	-3.067	12	0.469	12	-2.221	7	-5.585	19	-2.018	9	-9.793	18
5	49	max	2.918	4	4.043	22	2.299	3	0.88	3	1.924	7	9.519	22
6		min	-2.853	10	0.42	4	-2.258	9	-5.844	21	-1.924	13	-0.943	4
7	Totals:	max	6.781	5	11.507	23	8.205	2						

Envelope Node Reactions (Continued)

Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
8	min	-6.781	11	4.723	5	-8.205	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	1	PL1/2x6	0.117	0.25	2	0.13	0.125	y	7	95.032	97.2	1.012	12.15	1.865	H1-1b
2	2	PL1/2x6	0.115	0.25	2	0.083	0.25	y	40	95.032	97.2	1.012	12.15	2.635	H1-1b
3	3	PL1/2x6	0.195	0.519	8	0.142	1.039	y	20	65.844	97.2	1.012	12.15	1.424	H1-1b
4	4	HSS4X4X4	0.928	0	15	0.185	0	y	12	92.852	106.155	12.311	12.311	3	H1-1b
5	5	HSS4X4X4	0.375	2.375	15	0.078	2.375	y	15	104.266	106.155	12.311	12.311	1.604	H1-1b
6	6	HSS4X4X4	0.412	0	25	0.101	0	y	25	104.266	106.155	12.311	12.311	1.616	H1-1b
7	7	PL3/8X6_HRA	0.098	0.256	6	0.826	0.256	y	25	66.219	73.872	0.585	9.234	2.566	H1-1b
8	8	PL3/8X6_HRA	0.142	0.256	11	0.7	0.256	y	14	66.219	73.872	0.585	9.234	2.609	H1-1b
9	9	PL3/8X6_HRA	0.153	0.125	6	0.642	0	y	25	71.02	73.872	0.585	9.234	1.385	H1-1b
10	10	PL3/8X6_HRA	0.129	0.125	11	0.566	0	y	14	71.02	73.872	0.585	9.234	1.363	H1-1b
11	11	PL1/2x6	0.1	0.25	6	0.114	0.125	y	22	95.032	97.2	1.012	12.15	1.5	H1-1b
12	13	PL1/2x6	0.096	0.25	6	0.093	0.125	y	2	95.032	97.2	1.012	12.15	2.309	H1-1b
13	14	PL1/2x6	0.161	0.519	12	0.141	1.039	y	25	65.844	97.2	1.012	12.15	1.379	H1-1b
14	15	HSS4X4X4	0.928	0	19	0.218	0	y	8	92.852	106.155	12.311	12.311	3	H1-1b
15	16	HSS4X4X4	0.374	2.375	19	0.078	2.375	y	19	104.266	106.155	12.311	12.311	1.605	H1-1b
16	17	HSS4X4X4	0.408	0	17	0.1	0	y	17	104.266	106.155	12.311	12.311	1.616	H1-1b
17	18	PL3/8X6_HRA	0.114	0.256	3	0.817	0.256	y	17	66.219	73.872	0.585	9.234	2.616	H1-1b
18	19	PL3/8X6_HRA	0.162	0.256	3	0.7	0.256	y	19	66.219	73.872	0.585	9.234	2.567	H1-1b
19	20	PL3/8X6_HRA	0.166	0.125	9	0.636	0	y	17	71.02	73.872	0.585	9.234	1.392	H1-1b
20	21	PL3/8X6_HRA	0.157	0.125	3	0.561	0	y	19	71.02	73.872	0.585	9.234	1.354	H1-1b
21	24	PL1/2x6	0.098	0.25	10	0.136	0.125	y	2	95.032	97.2	1.012	12.15	1.698	H1-1b
22	25	PL1/2x6	0.1	0.25	10	0.083	0.25	y	49	95.032	97.2	1.012	12.15	2.258	H1-1b
23	26	PL1/2x6	0.168	0.519	4	0.14	1.039	y	16	65.844	97.2	1.012	12.15	1.475	H1-1b
24	27	HSS4X4X4	0.92	0	21	0.214	0	y	8	92.852	106.155	12.311	12.311	3	H1-1b
25	28	HSS4X4X4	0.369	2.375	23	0.077	2.375	y	23	104.266	106.155	12.311	12.311	1.604	H1-1b
26	29	HSS4X4X4	0.413	0	20	0.102	0	y	21	104.266	106.155	12.311	12.311	1.617	H1-1b
27	30	PL3/8X6_HRA	0.124	0.256	2	0.828	0.256	y	21	66.219	73.872	0.585	9.234	2.497	H1-1b
28	31	PL3/8X6_HRA	0.151	0.256	7	0.693	0.256	y	22	66.219	73.872	0.585	9.234	2.585	H1-1b
29	32	PL3/8X6_HRA	0.172	0.125	2	0.642	0	y	21	71.02	73.872	0.585	9.234	1.368	H1-1b
30	34	PL3/8X6_HRA	0.155	0.125	7	0.559	0	y	22	71.02	73.872	0.585	9.234	1.36	H1-1b
31	35	PIPE_3.0	0.35	4.078	19	0.124	10.724		8	21.266	65.205	5.749	5.749	1.953	H1-1b
32	40	PIPE_3.0	0.346	4.078	23	0.119	10.724		13	21.266	65.205	5.749	5.749	1.966	H1-1b
33	45	PIPE_3.0	0.351	4.078	15	0.123	4.078		2	21.266	65.205	5.749	5.749	1.967	H1-1b
34	50	PIPE_2.0	0.647	6.979	7	0.323	3.021		8	9.837	32.13	1.872	1.872	3	H3-6
35	51	PIPE_2.0	0.722	6.979	5	0.215	6.979		8	9.837	32.13	1.872	1.872	3	H1-1b
36	52	PIPE_2.0	0.678	4.969	11	0.14	4.969		7	12.144	32.13	1.872	1.872	1.919	H1-1b
37	53	PIPE_2.0	0.692	5.469	9	0.294	1.531		8	17.855	32.13	1.872	1.872	1.639	H3-6
38	54	L2x2x3	0.202	0	6	0.019	0	y	22	9.798	23.393	0.558	1.14	1.5	H2-1
39	55	L2x2x3	0.248	4.168	2	0.013	0	y	23	9.798	23.393	0.558	1.14	1.5	H2-1
40	56	L2x2x3	0.207	4.168	9	0.019	0	y	14	9.798	23.393	0.558	1.14	1.5	H2-1
41	57	L2x2x3	0.221	0	7	0.013	0	y	15	9.798	23.393	0.558	1.14	1.5	H2-1
42	58	L2x2x3	0.22	0	2	0.019	0	y	19	9.798	23.393	0.558	1.14	1.5	H2-1
43	59	L2x2x3	0.211	4.168	10	0.013	0	y	19	9.798	23.393	0.558	1.14	1.5	H2-1
44	60	PIPE_2.0	0.58	10.724	7	0.516	13.896		13	4.679	32.13	1.872	1.872	1.792	H3-6
45	61	PIPE_2.0	0.662	0.604	2	0.463	0.604		7	4.679	32.13	1.872	1.872	2.786	H3-6
46	62	PIPE_2.0	0.64	13.896	8	0.517	13.896		9	4.679	32.13	1.872	1.872	2.321	H3-6
47	67	L2.5x2.5x4	0.463	1.744	5	0.111	1.744	y	11	34.913	38.556	1.114	2.537	1.5	H2-1
48	68	L2.5x2.5x4	0.577	1.744	9	0.144	1.744	y	3	34.913	38.556	1.114	2.537	1.5	H2-1
49	69	L2.5x2.5x4	0.605	1.744	13	0.144	1.744	y	7	34.913	38.556	1.114	2.537	1.5	H2-1
50	74	PIPE_2.0	0.533	6.979	9	0.248	6.979		11	9.837	32.13	1.872	1.872	3	H1-1b
51	75	PIPE_2.0	0.801	6.979	9	0.195	6.979		13	9.837	32.13	1.872	1.872	3	H1-1b

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
52	76	PIPE_2.0	0.842	4.969	3	0.128	4.969		4	12.144	32.13	1.872	1.872	1.955	H1-1b
53	77	PIPE_2.0	0.749	5.469	13	0.292	5.469		13	17.855	32.13	1.872	1.872	1.655	H3-6
54	86	PIPE_2.0	0.663	6.979	3	0.307	6.979		3	9.837	32.13	1.872	1.872	3	H3-6
55	87	PIPE_2.0	0.825	6.979	13	0.178	6.979		3	9.837	32.13	1.872	1.872	3	H1-1b
56	88	PIPE_2.0	0.824	4.969	7	0.164	4.969		8	12.144	32.13	1.872	1.872	1.878	H1-1b
57	89	PIPE_2.0	0.657	5.469	7	0.229	1.531		4	17.855	32.13	1.872	1.872	1.54	H1-1b
58	94	PIPE_2.0	0.272	5.75	6	0.015	5.75		6	20.867	32.13	1.872	1.872	2.118	H1-1b
59	96	PIPE_2.0	0.197	5.75	10	0.01	5.75		10	20.867	32.13	1.872	1.872	1.966	H1-1b
60	98	PIPE_2.0	0.197	5.75	2	0.01	5.75		2	20.867	32.13	1.872	1.872	1	H1-1b

APPENDIX D

ADDITIONAL CALCUATIONS

PROJECT	**136350.008.01 - Weston Square, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**09/08/21**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	3.965	k
Vertical Shear	:	4.094	k
Horizontal Shear	:	1.23	k
Torsion	:	1.348	k.ft
Moment from Horizontal Forces	:	1.722	k.ft
Moment from Vertical Forces	:	11.342	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1	in
Bolt edge distance, plate width	:	1	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	4.27	k
Force from Horz. Moment	:	3.12	k
Force from Vert. Moment	:	20.54	k
Shear Load / Bolt	:	1.07	k
Tension Load / Bolt	:	0.99	k
Resultant from Moments / Bolt	:	10.39	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**54.92%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**18.64%**		**OKAY**
Unity Check, Combined	:	**73.56%**		**OKAY**
Available Bearing Strength, ΦR_n	:	18.35	k/bolt	
Unity Check, Bolt Bearing	:	**5.82%**		**OKAY**

PROJECT	**136350.008.01 - Weston Square, CT**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**09/08/21**	PAGE	1	OF	1

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

[REF: AISC 360-05]

Connecting Member Parameters

Plate Yield Strength, F_y	:	36.00	ksi	[AISC Table 2-5]
Plate Tensile Strength, F_u	:	58.00	ksi	[AISC Table 2-5]
Plate Height	:	9.00	in	
Plate Width	:	9.00	in	
Plate Thickness	:	0.50	in	
Edge Distance	:	0.56	in	
Gross Tension Area, A_{gt}	:	4.50	in^2	
Gross Shear Area, A_{gv}	:	0.5	in^2	
Net Area for tension, A_{nv}	:	4.16	in^2	
Net Area for shear, A_{nt}	:	3.00	in^2	

Plate Check

Available Tensile Yield	:	145.80	k	[Eq. J4-1]
Available Tensile Rupture	:	180.80	k	[Eq. J4-2]
Unity Check, Plate Tension	:	**7.81%**		**OKAY**
Available Shear Yield	:	10.80	k	[Eq. J4-3]
Available Shear Rupture	:	104.40	k	[Eq. J4-4]
Unity Check, Plate Shear	:	**39.58%**		**OKAY**
Available Block Shear, ΦRn	:	73.35	k	[Eq. J4-5]
Unity Check, Block Shear	:	**5.83%**		**OKAY**

Exhibit F

Power Density/RF Emissions Report

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

Site Name:	HARTFORD NORTH
FA#	10071071
USID:	4551
Site ID:	CTL05152
Address:	92 WESTON STREET, HARTFORD, CT 06103
County:	HARTFORD
Latitude:	41.7863919
Longitude:	-72.6624989
Structure Type:	MONOPOLE
Property Owner:	FREEPORT REALTY V LLC.
Pace Job:	MRCTB052252
RFDS Technology:	5G NR 1SR CBAND

Report Information

Report Writer: Manoj Singh

Report Generated Date: 06-18-2022

Compliance Statement

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

Table of Contents

1. Executive Summary

1.1 Site Summary

Max Predictive Spatial Average MPE% & Location on Site (General Public)	55636.5% on Antennas Centerline Level & at AT&T Sec-B antenna no. #B3-2
Max Predictive Spatial Average MPE% at Ground Level (General Public)	6.08%
AT&T Mobility Site Compliance	AT&T Mobility will be Compliant by implementing remediation recommended as per section 5 in this report.

TABLE 1: Site Summary

1.2 Signage Summary (Proposed)

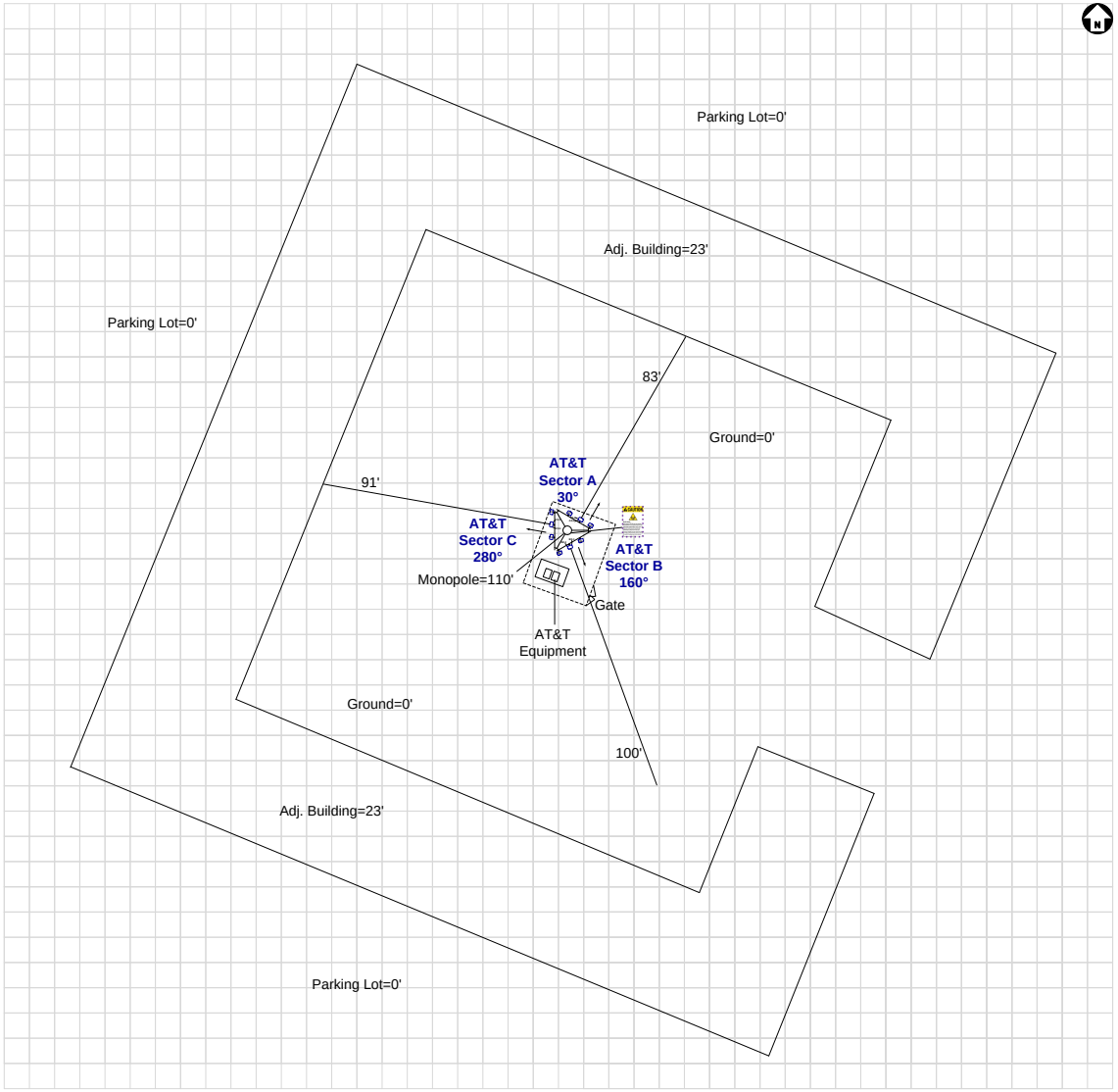
AT&T Signage Locations	Sign Type									
	Safety Instructions	Notice Sign 2	Caution Sign 2	Caution Sign 2B	Caution Sign 2C	Caution 7"x7"	Warning Sign 1B	RF Exposure Map	Lock	Barriers
Access Point(s)				1						
Alpha										
Beta										
Gamma										

TABLE 2: Signage Summary (Proposed)

1.3 List of Documents used to prepare this Report

- *876325 CDs*
- *876325 RFDS*

2. Site Scale Map



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

3. Antenna Inventory

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	HBW (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
A2	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	30	71	12.05	6	120.00	0.5	1714.67	2813.07
A2	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	30	71	12.05	6	60.00	0.5	857.34	1406.54
A2	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	30	67	15.05	6	120.00	0.5	3421.22	5612.82
A2	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	30	62	15.55	6	120.00	0.5	3838.67	6297.69
A3-1	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	30	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A3-2	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	30	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
A4	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	30	74	11.85	6	120.00	0.5	1637.50	2686.47
A4	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	30	63	12.45	6	120.00	0.5	1880.10	3084.47
A4	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	30	54	16.25	6	75.00	0.5	2818.78	4624.46
B2	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	160	71	12.05	6	120.00	0.5	1714.67	2813.07
B2	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	160	71	12.05	6	60.00	0.5	857.34	1406.54
B2	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	160	67	15.05	6	120.00	0.5	3421.22	5612.82
B2	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	160	62	15.55	6	120.00	0.5	3838.67	6297.69
B3-1	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	160	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B3-2	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	160	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
B4	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	160	74	11.85	6	120.00	0.5	1637.50	2686.47
B4	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	160	63	12.45	6	120.00	0.5	1880.10	3084.47
B4	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	160	54	16.25	6	75.00	0.5	2818.78	4624.46

Table 3.1: Antenna Inventory Table

Note: **^ Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**

* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	HBW (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	Transmitter Power (Watts)	Total Loss (dB)	Total ERP (Watts)	Total EIRP (Watts)
C2	AT&T	Quintel	QD6616-7	Panel	700	LTE(FN)	280	71	12.05	6	120.00	0.5	1714.67	2813.07
C2	AT&T	Quintel	QD6616-7	Panel	700	LTE(B29)	280	71	12.05	6	60.00	0.5	857.34	1406.54
C2	AT&T	Quintel	QD6616-7	Panel	1900	LTE/5G	280	67	15.05	6	120.00	0.5	3421.22	5612.82
C2	AT&T	Quintel	QD6616-7	Panel	2100	LTE/5G	280	62	15.55	6	120.00	0.5	3838.67	6297.69
C3-1	AT&T	Ericsson	AIR 6449 B77D^	Panel	3840	5G	280	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C3-2	AT&T	Ericsson	AIR 6419 B77G^	Panel	3450	5G	280	11	23.5	2.55	108.44*	0	24277.05*	39828.68*
C4	AT&T	CCI	DMP65R-BU6D	Panel	700	LTE(B12)	280	74	11.85	6	120.00	0.5	1637.50	2686.47
C4	AT&T	CCI	DMP65R-BU6D	Panel	850	5G	280	63	12.45	6	120.00	0.5	1880.10	3084.47
C4	AT&T	CCI	DMP65R-BU6D	Panel	2300	LTE	280	54	16.25	6	75.00	0.5	2818.78	4624.46

Table 3.2: Antenna Inventory Table

Note: **^ Mechanical Tilt value of "0°" MUST be retained for C-BAND and/or DoD AAS antenna(s) at all times to ensure that "EME (Predictive) Study" shall remain valid.**

* 75% TDD duty Cycle, 1.5dB Power Tolerance & 0.32 Power Reduction factor[1] are used to calculate Transmitter Power & ERP/EiRP

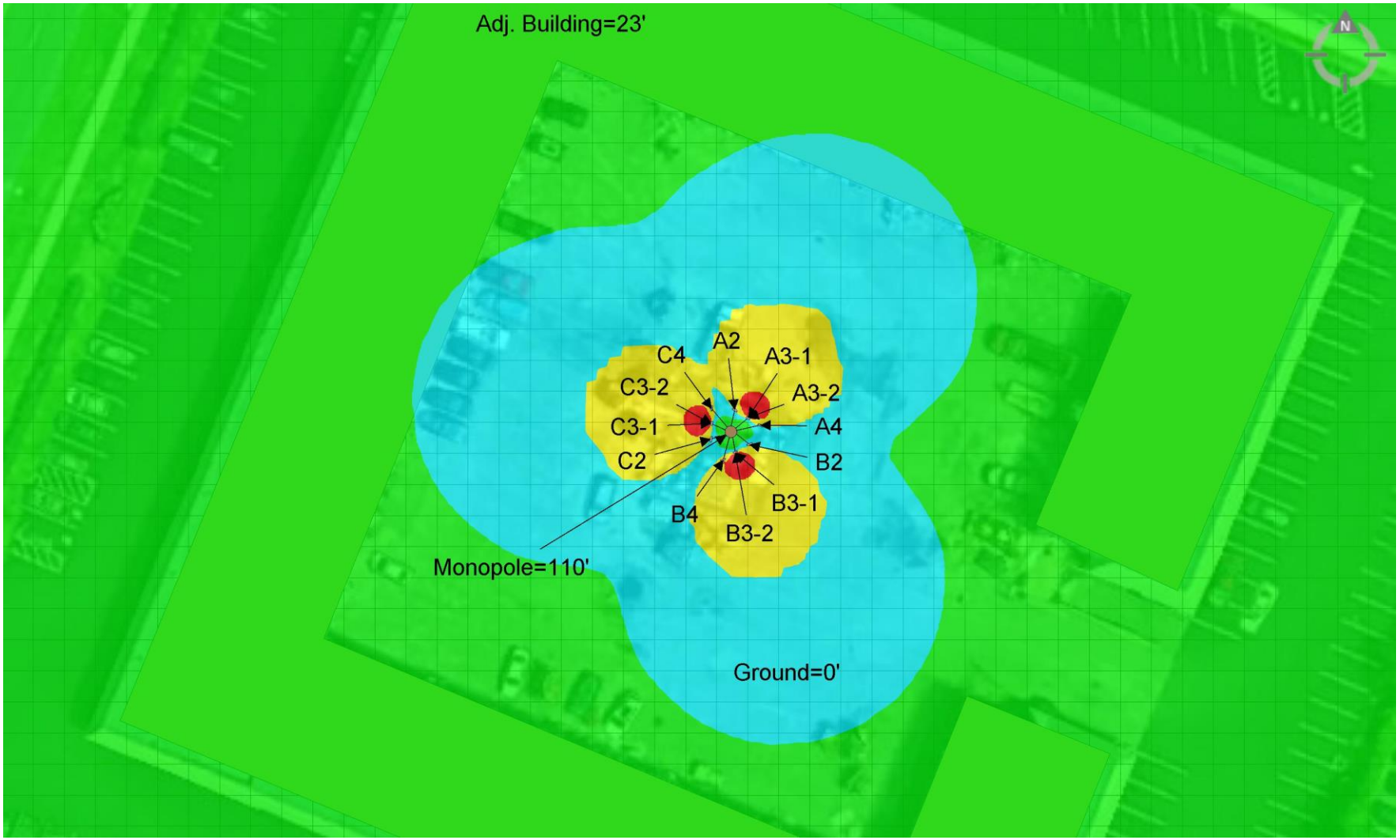
Antenna Heights (Z)

Ant ID	Operator	Antenna Radiation Centerline	Z-Height from Adj. Building	Z-Height from Ground
A2	AT&T	90.00	64.00	87.00
A3-1	AT&T	91.00	66.73	89.73
A3-2	AT&T	89.00	64.73	87.73
A4	AT&T	90.00	64.00	87.00
B2	AT&T	90.00	64.00	87.00
B3-1	AT&T	91.00	66.73	89.73
B3-2	AT&T	89.00	64.73	87.73
B4	AT&T	90.00	64.00	87.00
C2	AT&T	90.00	64.00	87.00
C3-1	AT&T	91.00	66.73	89.73
C3-2	AT&T	89.00	64.73	87.73
C4	AT&T	90.00	64.00	87.00

Table 3.3: Antenna Height(s) Summary Table

4. Predicted Emission

4.1 Predictive Cumulative MPE Contribution from All Sources at Antennas Centerline Level (90 ft.)



Max. Predictive Spatial Average MPE% = **55636.5%**

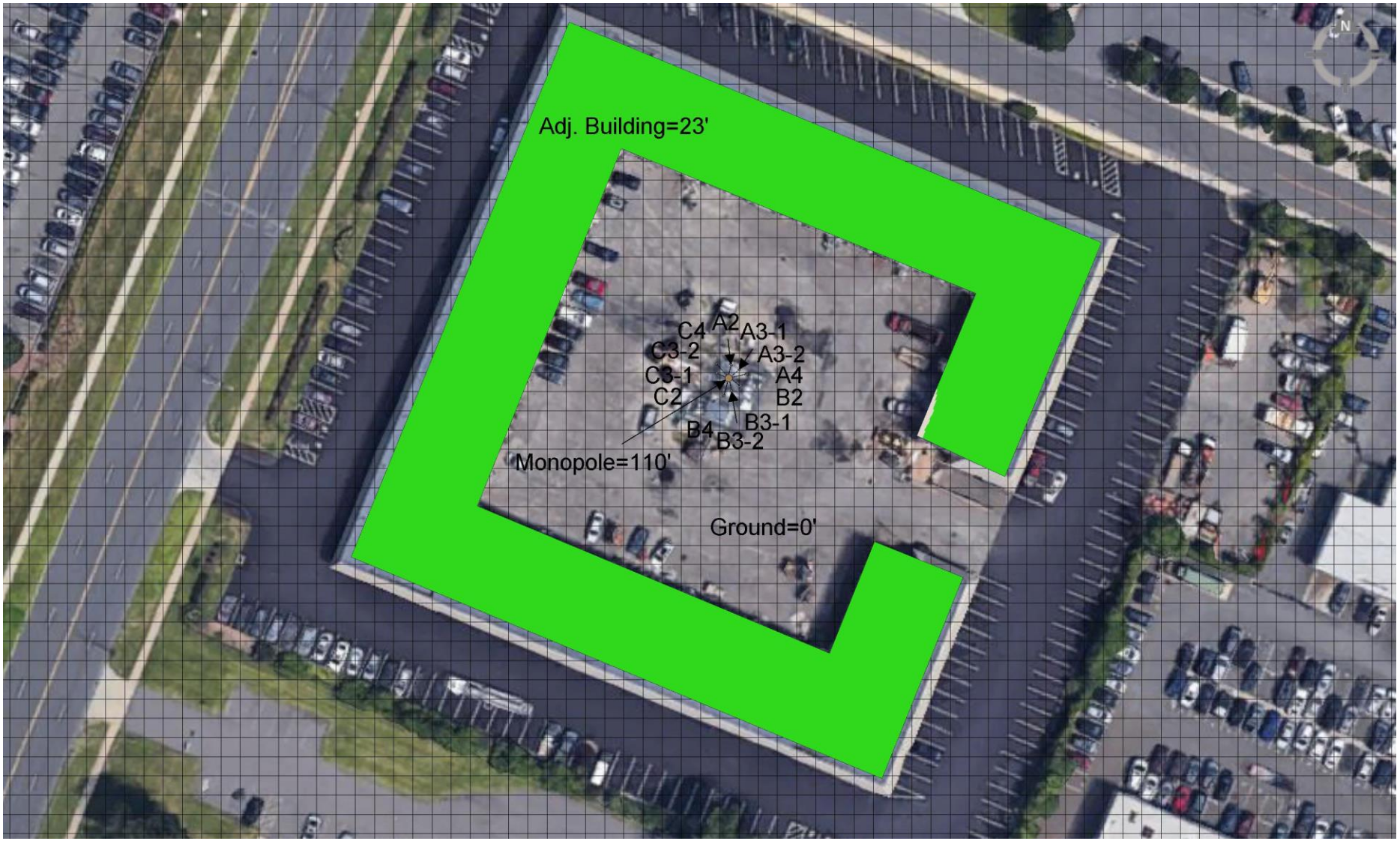
Proposed Barrier
Proposed Posts

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

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

Map Scale = 10 ft

4.2 Predictive Cumulative MPE Contribution from All Sources at Adj. Building Level (23 ft.)



Max. Predictive Spatial Average MPE% = **11.14%**

Proposed Barrier

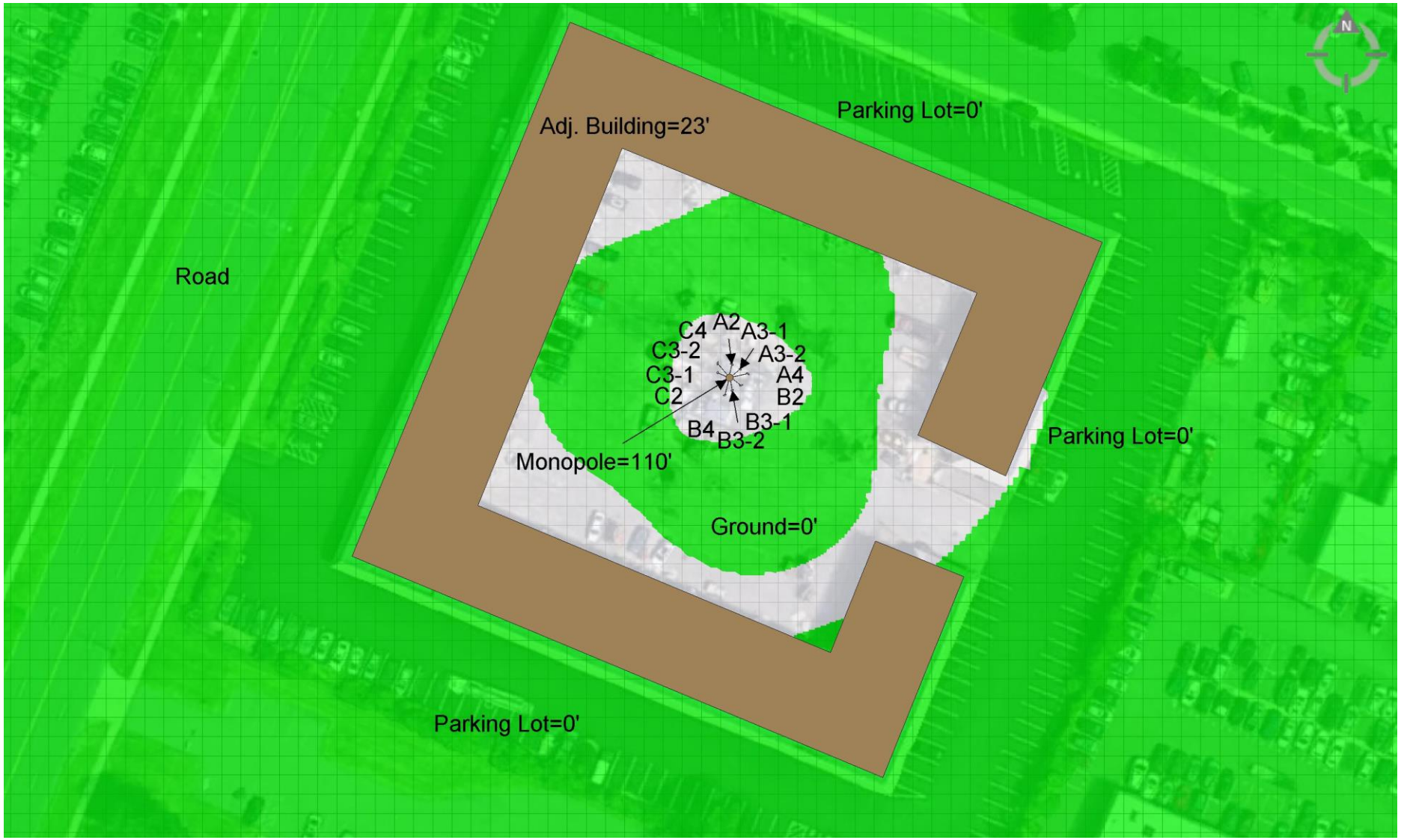
Proposed Posts

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

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

Map Scale = 10 ft

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



Max. Predictive Spatial Average MPE% = **6.08%**

Proposed Barrier
Proposed Posts

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

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

Map Scale = 10 ft

5. Statement of Compliance

5.1 Statement of AT&T Mobility Compliance

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

Recommendations.

AT&T Alpha Sector:

- No action Required.

AT&T Beta Sector:

- No action Required.

AT&T Gamma Sector:

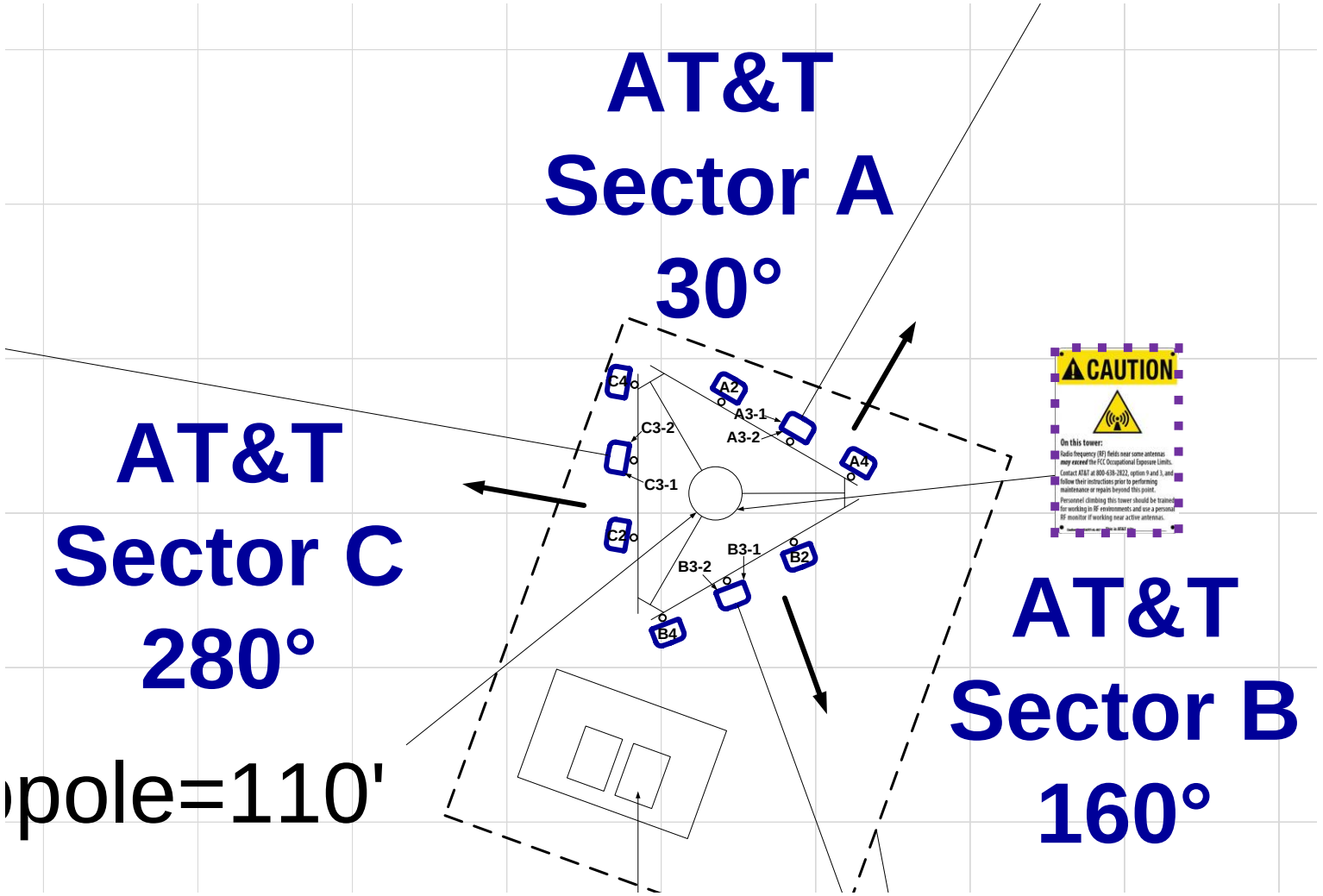
No action Required.

Monopole:

- One Caution 2B Sign to be posted on Monopole at the climbing access, facing outwards so approaching people can see as shown in "Recommendations Map – Detailed View" on page 12. (1 Total Sign)

Recommendations Map – Detailed View

AT&T Alpha, Beta & Gamma Sectors



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

Appendix A – Statement of Limiting Conditions

General Model Assumptions

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

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

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

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

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

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

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

Use of Generic Antennas

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

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

Appendix B – FCC Guidelines and Emissions Threshold Limits

All power density values used in this report were analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2).The number of µW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (µW/cm2). The general population exposure limit for the 700 and 800 MHz Bands is approximately 467 µW/cm2 and 567 µW/cm2 respectively, and the general population exposure limit for the 1900 MHz PCS and 2100 MHz AWS bands is 1000 µW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure, have been properly trained in RF safety and can exercise control over their exposure. Occupational/Controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

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

Appendix C – Rules & Regulations

Explanation of Applicable Rules and Regulations

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

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

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

Occupational Environment Explained

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

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

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

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

Appendix D – General Safety Recommendations

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

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

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

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

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

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

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

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

Appendix E – References

1 - FCC Definition

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

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

2 - Physical Testing measurement procedure and Tools

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

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

3 - Site Safety Procedures

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

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

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

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

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

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

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

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

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

4 - Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix F – Proprietary Statement

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

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 ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.