



1 Cityplace Dr, Suite 490  
Creve Coeur, MO 63141

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

February 25, 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 six (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

---

The Foundation for a Wireless World.

CrownCastle.com



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Creve Coeur, MO 63141

Phone: (314) 513-0147  
[www.crowncastle.com](http://www.crowncastle.com)

### **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](mailto:edavis@nbcllc.com)  
(551)804-0667



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Creve Coeur, MO 63141

Phone: (314) 513-0147  
[www.crowncastle.com](http://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



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Delivered  
Monday, February 28, 2022 at 10:10 am



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**FROM**  
Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

**TO**  
Luke Bronin, Mayor  
City of Hartford  
550 Main Street, 2nd Floor, Room 20  
HARTFORD, CT US 06103  
860-757-9500

[MANAGE DELIVERY](#)

Travel History

**TIME ZONE**  
Local Scan Time



|                             |                   |                                                                          |
|-----------------------------|-------------------|--------------------------------------------------------------------------|
| Monday, February 28, 2022   |                   |                                                                          |
| 10:10 AM                    | HARTFORD, CT      | Delivered<br>Package delivered to recipient address - release authorized |
| 7:02 AM                     | WINDSOR LOCKS, CT | On FedEx vehicle for delivery                                            |
| 6:16 AM                     | WINDSOR LOCKS, CT | Shipment arriving On-Time                                                |
| 5:58 AM                     | WINDSOR LOCKS, CT | At local FedEx facility                                                  |
| Saturday, February 26, 2022 |                   |                                                                          |
| 7:55 AM                     | WINDSOR LOCKS, CT | At local FedEx facility                                                  |





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Monday, February 28, 2022 at 9:07 am



DELIVERED

Signature release on file

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**FROM**  
Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

**TO**  
I. Charles Mathews, Director  
City of Hartford  
260 Constitution Plaza, 1st Floor  
HARTFORD, CT US 06103  
860-757-9040

[MANAGE DELIVERY](#)

Travel History

**TIME ZONE**  
Local Scan Time



|                             |                   |                                                                          |
|-----------------------------|-------------------|--------------------------------------------------------------------------|
| Monday, February 28, 2022   |                   |                                                                          |
| 9:07 AM                     | HARTFORD, CT      | Delivered<br>Package delivered to recipient address - release authorized |
| 7:21 AM                     | WINDSOR LOCKS, CT | On FedEx vehicle for delivery                                            |
| 5:46 AM                     | WINDSOR LOCKS, CT | Shipment arriving On-Time                                                |
| 5:29 AM                     | WINDSOR LOCKS, CT | At local FedEx facility                                                  |
| Saturday, February 26, 2022 |                   |                                                                          |
| 7:54 AM                     | WINDSOR LOCKS, CT | At local FedEx facility                                                  |



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776149306026



[ADD NICKNAME](#)

Delivered  
Monday, February 28, 2022 at 9:01 am



DELIVERED

Signature not required

[GET STATUS UPDATES](#)

[OBTAIN PROOF OF DELIVERY](#)

**FROM**  
Ersilia Davis  
1777 Sentry Parkway  
VEVA 17, Suite 210  
Blue Bell, PA US 19422  
551-804-0667

**TO**  
Freeport Realty V LLC  
337 Freeport St.  
BOSTON, MA US 02122  
860-985-5005

[MANAGE DELIVERY](#)

Travel History

**TIME ZONE**  
Local Scan Time



| Monday, February 28, 2022   |                  |                                                                          |
|-----------------------------|------------------|--------------------------------------------------------------------------|
| 9:01 AM                     | BOSTON, MA       | Delivered<br>Package delivered to recipient address - release authorized |
| 7:16 AM                     | SOUTH BOSTON, MA | On FedEx vehicle for delivery                                            |
| 6:49 AM                     | SOUTH BOSTON, MA | Shipment arriving On-Time                                                |
| 6:33 AM                     | SOUTH BOSTON, MA | At local FedEx facility                                                  |
| Saturday, February 26, 2022 |                  |                                                                          |
| 8:59 AM                     | SOUTH BOSTON, MA | At local FedEx facility                                                  |

# Exhibit A

## **Original Facility Approval**

CT03X0864

## 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**  
 Prior Parcel ID  
 Property Owner **FREEPORT REALTY V LLC**

Mailing Address **337 FREEPORT ST**

City **BOSTON**  
 Mailing State **MA** Zip **02122**  
 ParcelZoning **ID-1**

Account Number

Property Location **92 WESTON ST**  
 Property Use **WAREHOUSE**  
 Most Recent Sale Date **9/20/2019**  
 Legal Reference **07527-0278**  
 Grantor **NEPREO INC**  
 Sale Price **0**  
 Land Area **187,334.453 acres**

## Current Property Assessment

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

## Building Description

Building Style **OFFICE/WH**  
 # of Living Units **0**  
 Year Built **1978**  
 Building Grade **Average**  
 Building Condition **N/A**  
 Finished Area (SF) **N/A**  
 Number Rooms **0**  
 # of 3/4 Baths **0**

Foundation Type **Concrete**  
 Frame Type **Steel**  
 Roof Structure **FLAT**  
 Roof Cover **Metal**  
 Siding **Brick**  
 Interior Walls **DRYWALL**  
 # of Bedrooms **0**  
 # of 1/2 Baths **0**

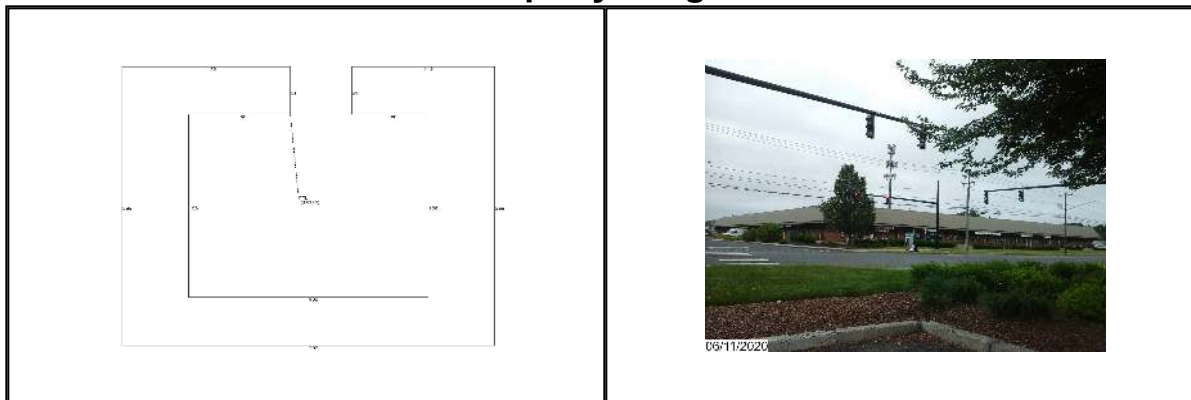
Flooring Type **COMBINATION**  
 Basement Floor **N/A**  
 Heating Type **Warm Air**  
 Heating Fuel **Gas**  
 Air Conditioning **30%**  
 # of Bsmt Garages **0**  
 # of Full Baths **0**  
 # of Other Fixtures **0**

## Legal Description

## Narrative Description of Property

This property contains 187,334.453 acres of land mainly classified as WAREHOUSE with a(n) OFFICE/WH 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 warranted.

# Exhibit C

## **Construction Drawings**



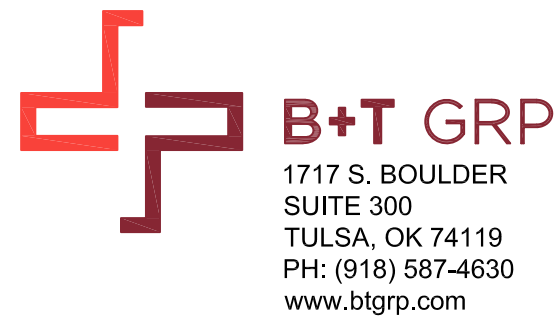


THIS SUBMISSION CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION THAT IS EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAWS. PLEASE MAKE SURE THESE PAGES ARE NOT DISCLOSED. IF ANY REQUEST IS MADE FOR THIS INFORMATION, PLEASE CONTACT THE SENDER IN ADDITION TO ANY LEGAL NOTICE REQUIREMENTS UNDER 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"



**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:**

**T-1**

**REVISION:**

**C**

**SITE INFORMATION**

|                                     |                                                                       |
|-------------------------------------|-----------------------------------------------------------------------|
| CROWN CASTLE USA INC.<br>SITE NAME: | WESTON SQUARE                                                         |
| SITE ADDRESS:                       | 92 WESTON STREET<br>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.<br>337 FREEPORT ST.<br>BOSTON, MA 02122        |
| TOWER OWNER:                        | CROWN CASTLE USA INC<br>2000 CORPORATE DRIVE<br>CANONSBURG, PA 15317  |
| CARRIER/APPLICANT:                  | AT&T TOWER ASSET GROUP<br>575 MOROSGO DRIVE<br>ATLANTA, GA 30324-3300 |
| ELECTRIC PROVIDER:                  | EVERSOURCE<br>(800) 286-2000                                          |
| TELCO PROVIDER:                     | AT&T<br>(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                 |
|          |                                  |
|          |                                  |

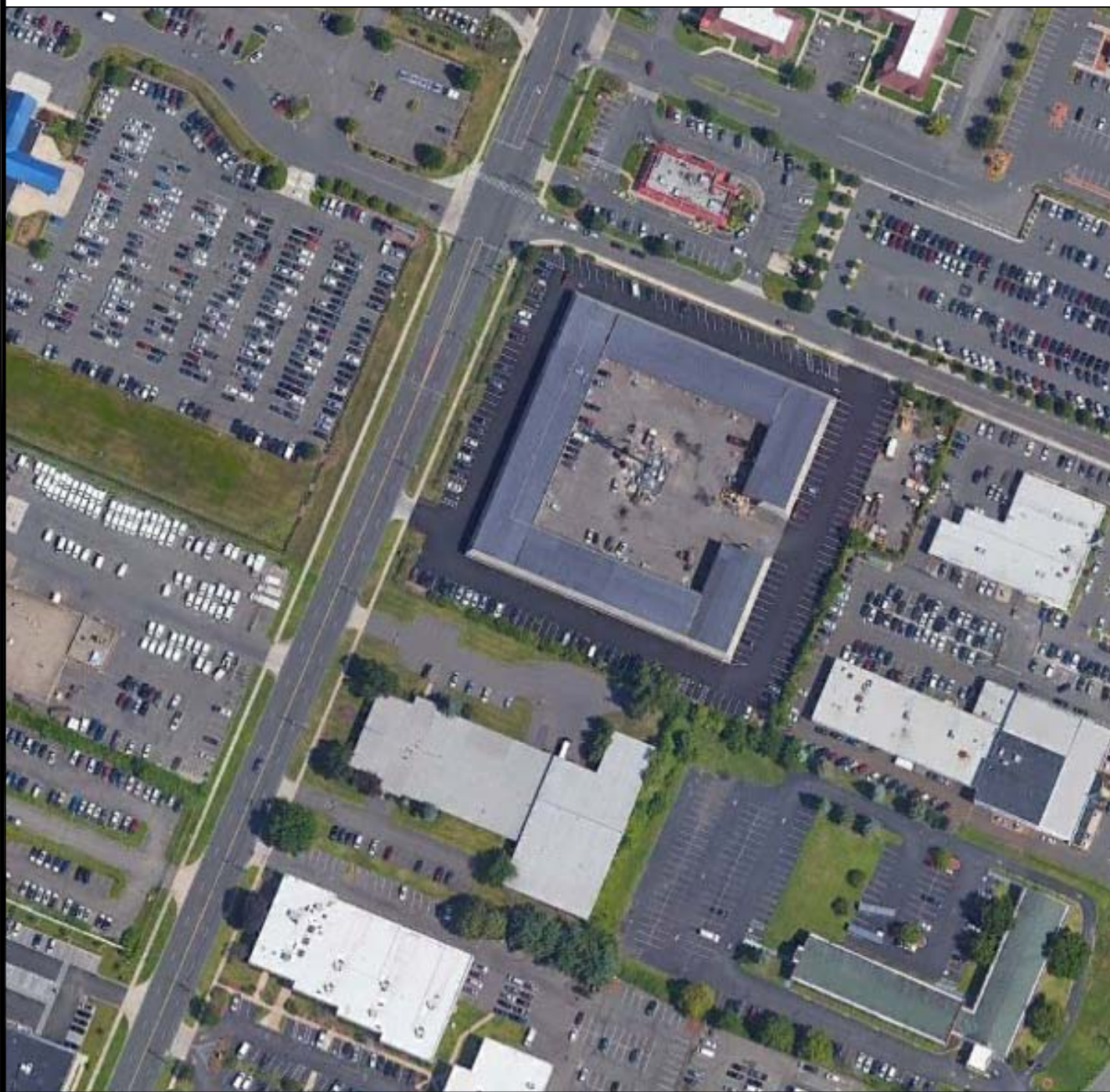
ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



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<br>1717 S BOULDER AVE, SUITE 300<br>TULSA, OK 74119<br>JENNY PAUL<br>jpaul@btgrp.com                                                                                                           |
| CROWN CASTLE<br>USA INC. DISTRICT<br>CONTACTS: | 3530 TORINGDON WAY, SUITE 300<br>CHARLOTTE, NC 28277<br><br>PAUL PEDICONE - PROJECT MANAGER<br>PAUL.PEDICONE@CROWNCastle.COM<br><br>JASON D'AMICO - CONSTRUCTION MANAGER<br>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                   |



CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

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

GREENFIELD GROUNDING NOTES:

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

GENERAL NOTES:

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

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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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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:

T-2

REVISION:

C

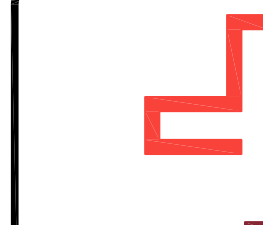




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| A           | 10/8/21  | HN   | PRELIMINARY REVIEW | VP      |
| B           | 10/14/21 | CLG  | PRELIMINARY REVIEW | CLG     |
| C           | 1/12/22  | JJR  | PRELIMINARY REVIEW | YX      |
| C           | 2/22/22  | JCO  | CONSTRUCTION       | MTJ     |



2/22/22

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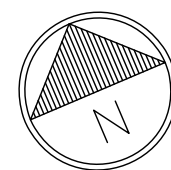
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SHEET NUMBER:  
**C-1.1**

REVISION:  
**C**



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

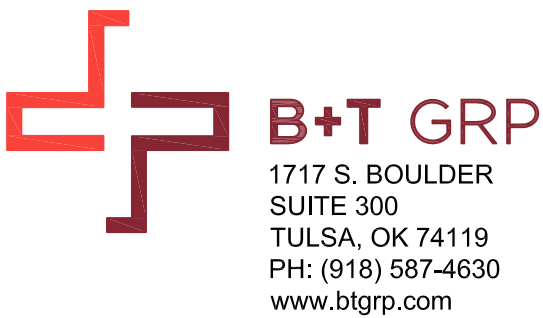


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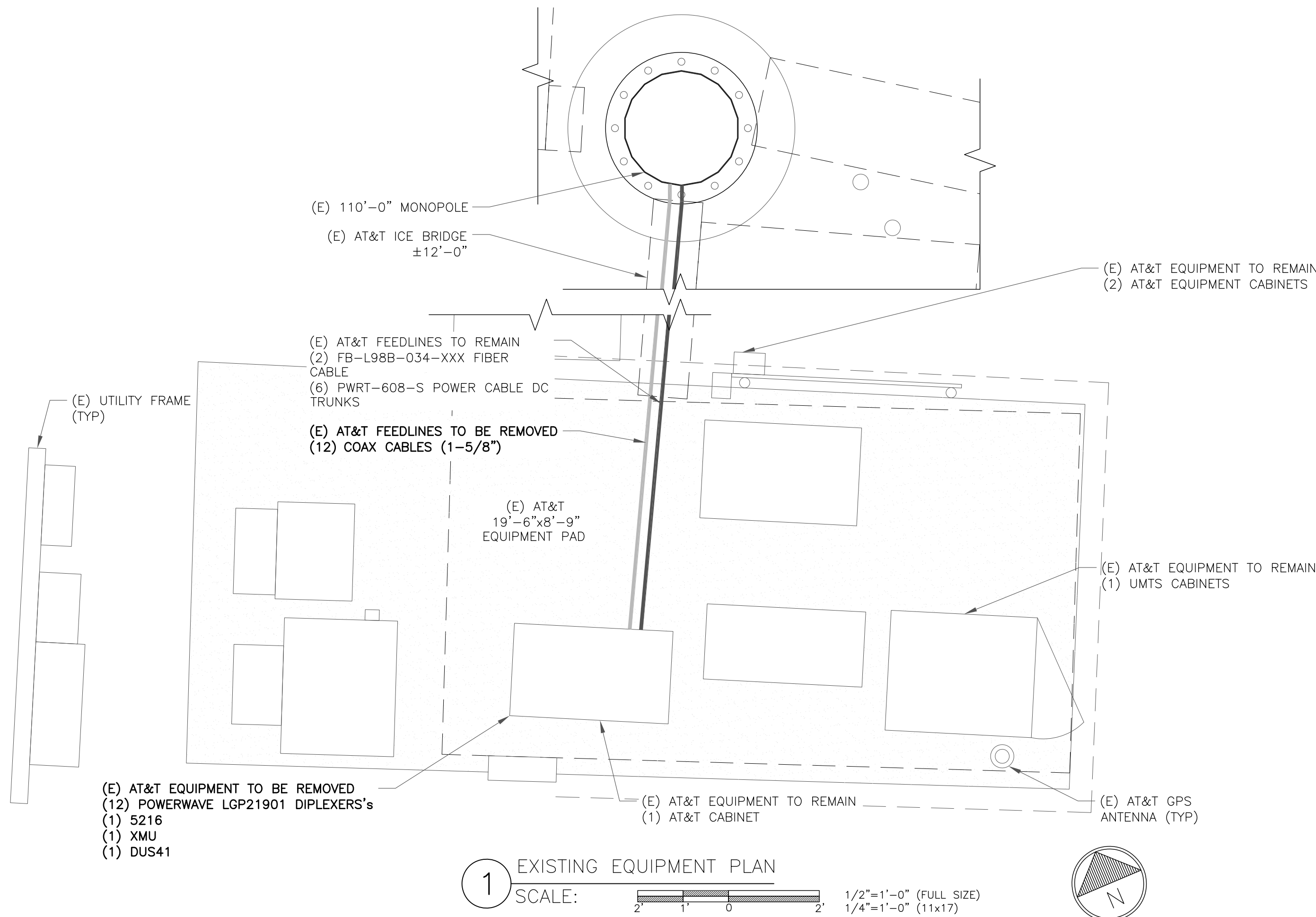


AT&T SITE NUMBER:  
**CTL05152**

BU #: **876325**  
**WESTON SQUARE**

92 WESTON STREET  
HARTFORD, CT 06103

EXISTING  
110'-0" MONOPOLE

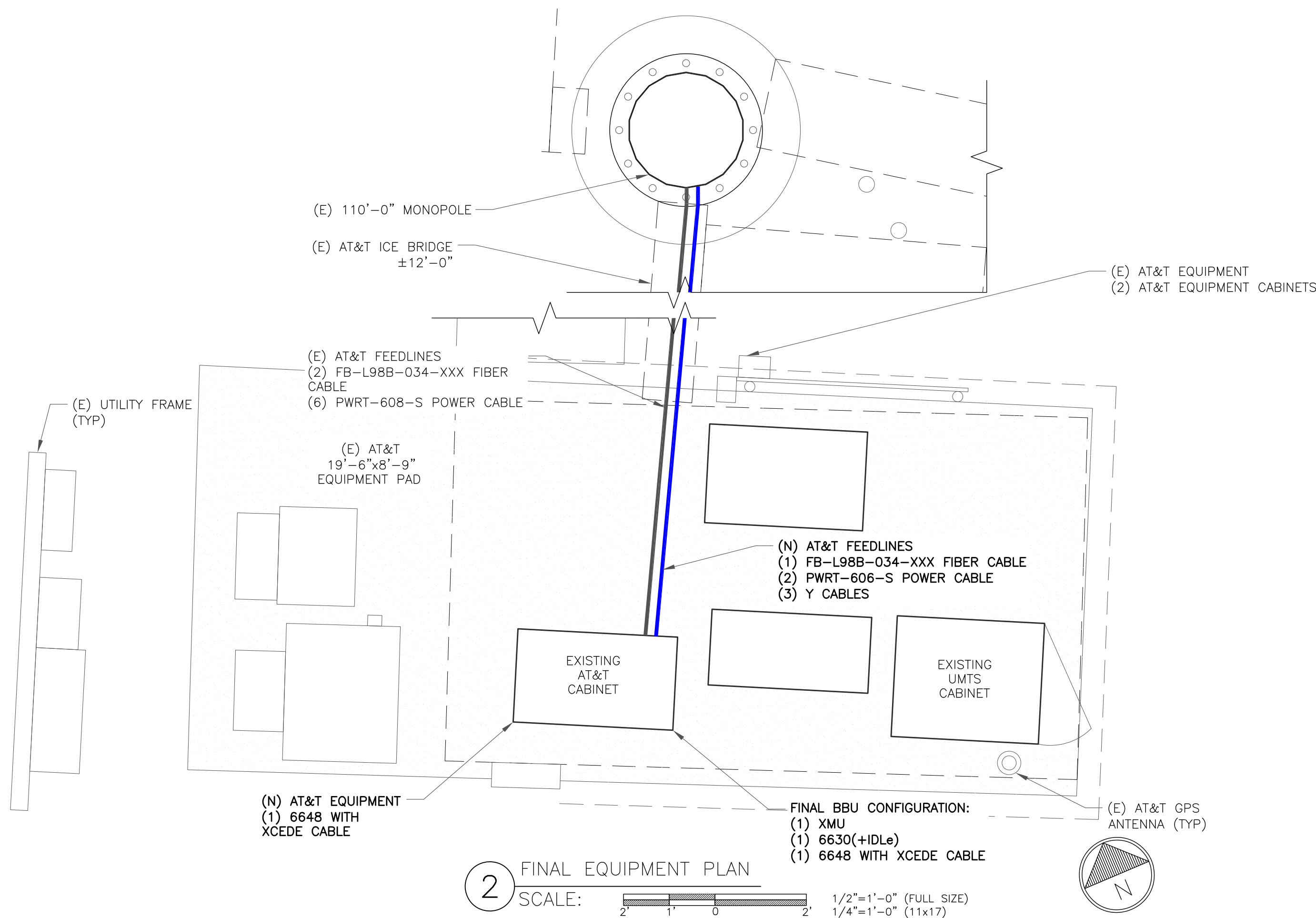


GROUND SCOPE OF WORK:

- 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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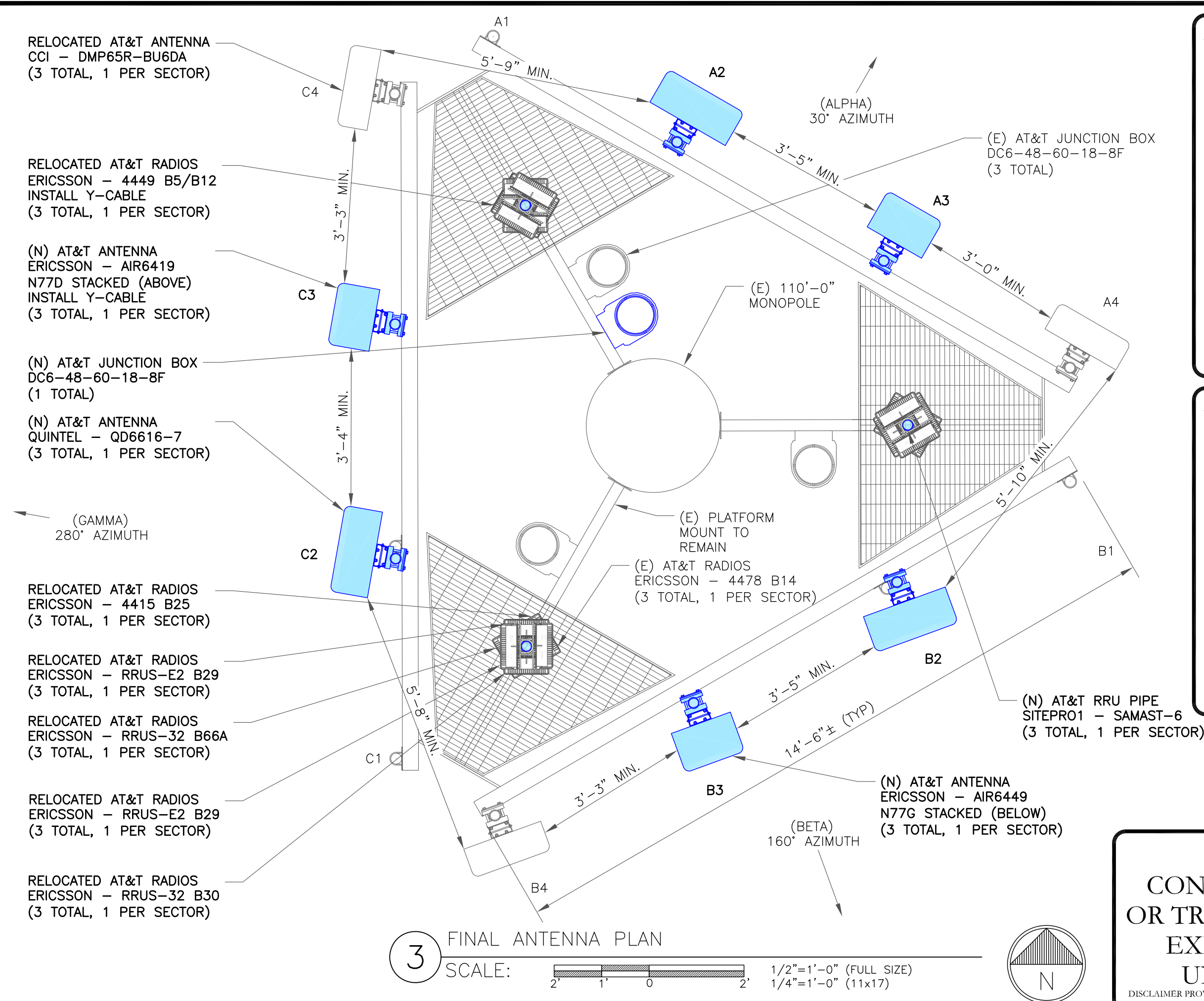
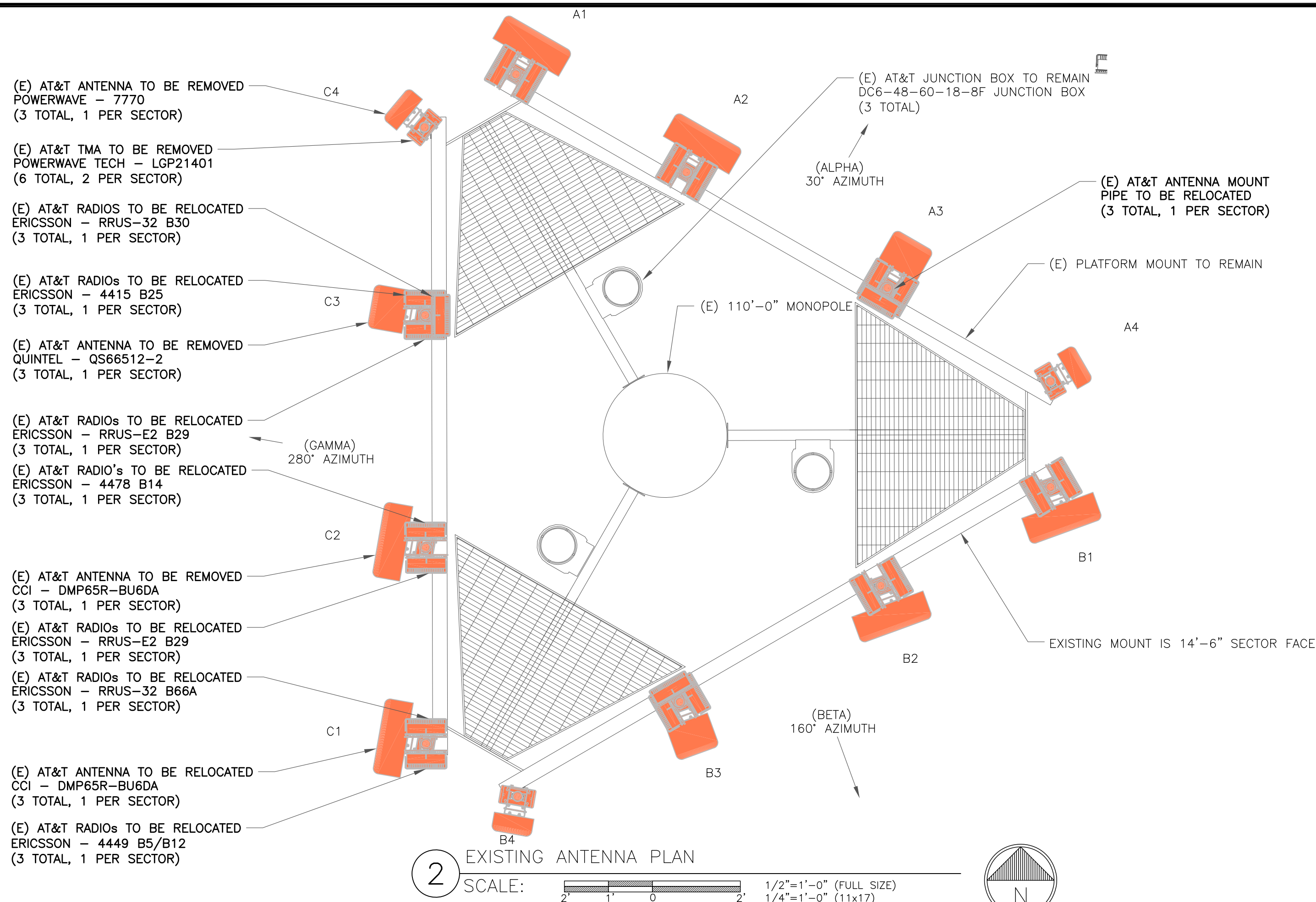
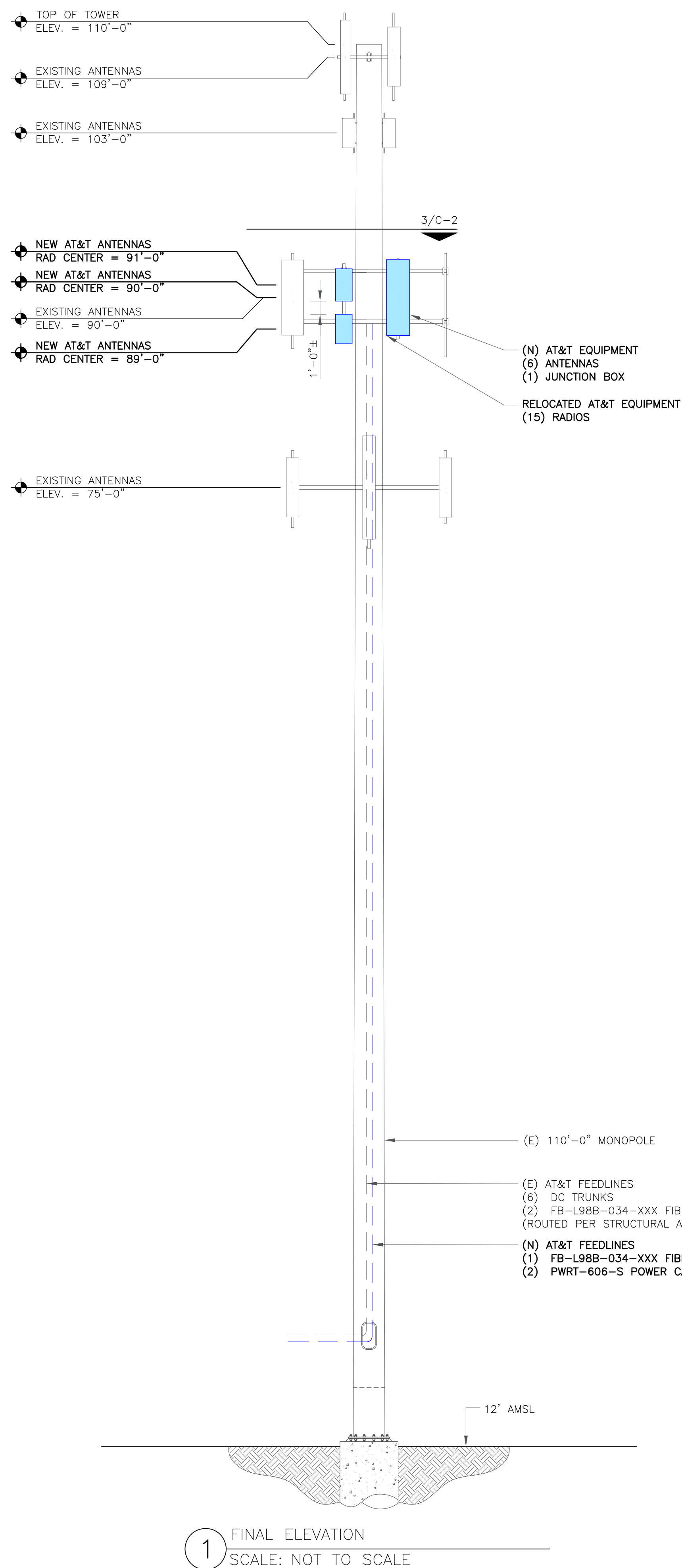
SHEET NUMBER:

**C-1.2**

REVISION:

**C**





"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 PHASES 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:**

| REV | DATE     | DRWN | DESCRIPTION        | DES./QA |
|-----|----------|------|--------------------|---------|
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SHEET NUMBER:

C-2

**REVISION:**

C



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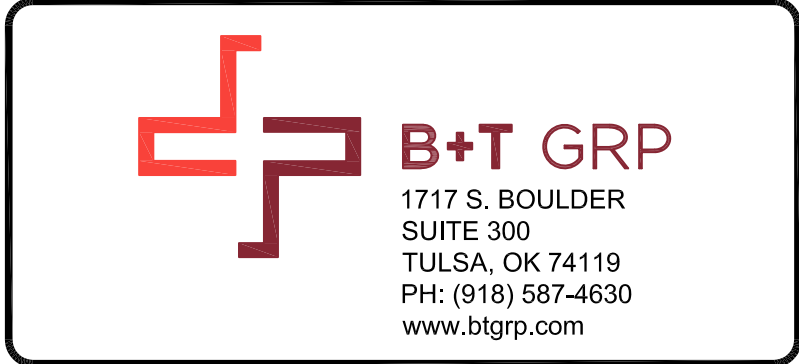
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**WESTON SQUARE**

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HARTFORD, CT 06103

EXISTING  
110'-0" MONOPOLE

| ISSUED FOR: |          |      |                    |         |
|-------------|----------|------|--------------------|---------|
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2/22/22

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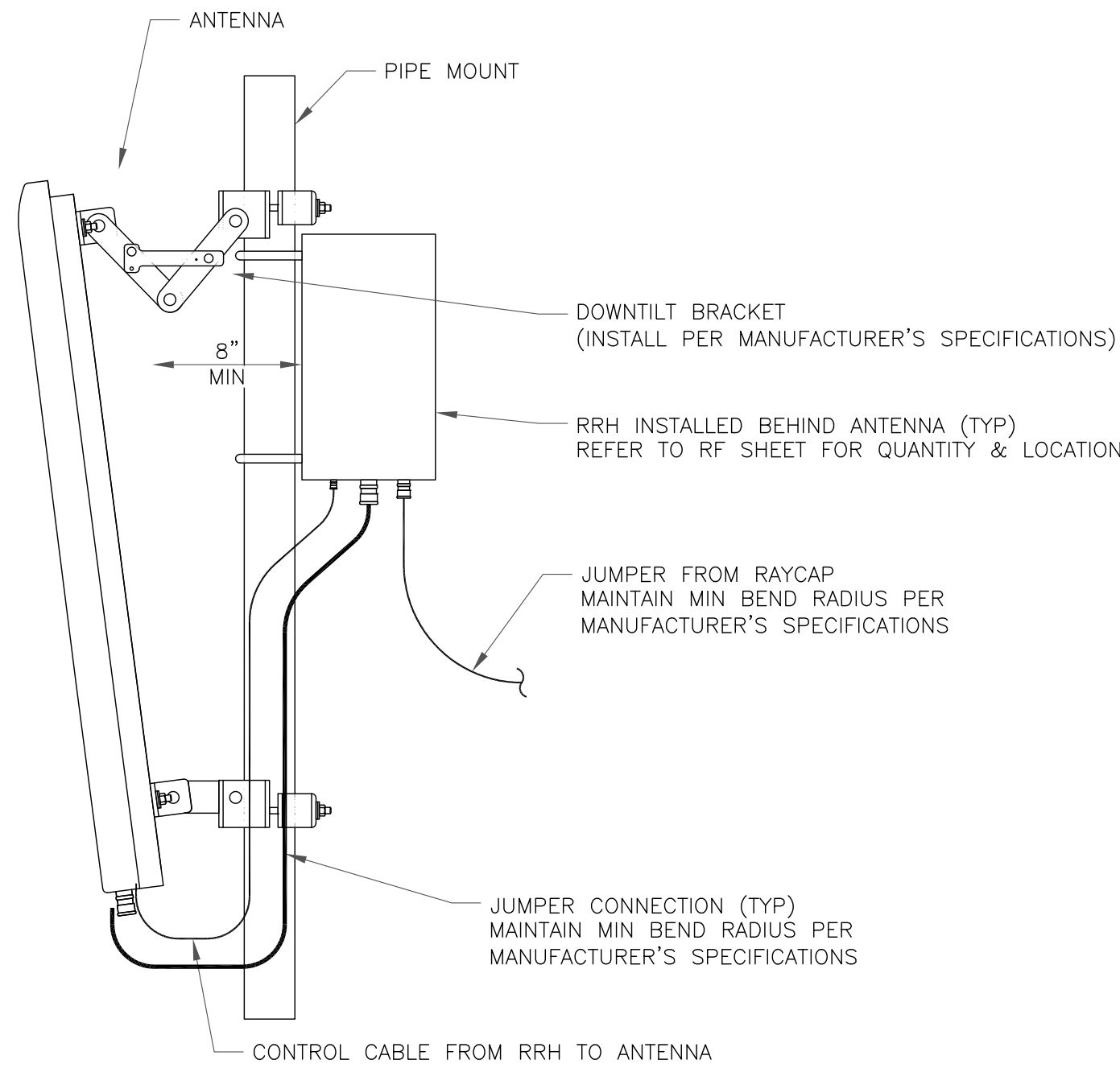
SHEET NUMBER:  
**C-3**

REVISION:  
**C**

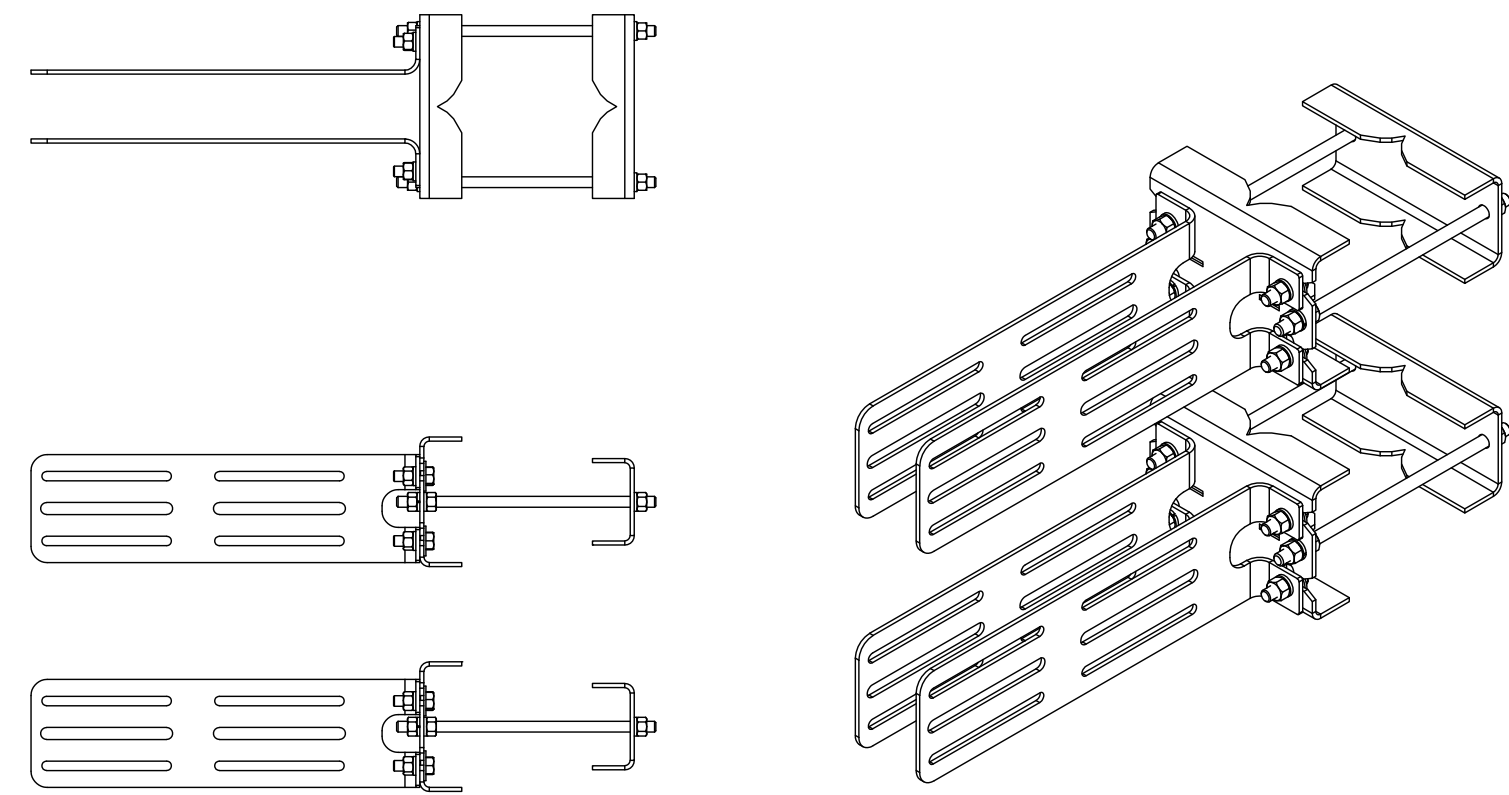
| FINAL ANTENNA AND FEEDLINE SCHEDULE |                                                         |          |         |                                                          |                    |                     |                             |                |                  |          |                   |                                                                            |                                                                                                        |                                                                                                                 |          |                   |                    |           |
|-------------------------------------|---------------------------------------------------------|----------|---------|----------------------------------------------------------|--------------------|---------------------|-----------------------------|----------------|------------------|----------|-------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------|-------------------|--------------------|-----------|
| 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)<br>DC6-48-60-18-8F JUNCTION BOX<br>(1)<br>DC6-48-60-18-8F JUNCTION BOX | (4) PWRT-608-S POWER CABLE<br>(1)<br>FB-L98B-034-XXX FIBER CABLE<br>(1)<br>FB-L98B-034-XXX FIBER CABLE | —                                                                                                               | TOWER    | N                 | N                  | N         |
| A2                                  | LTE 700/<br>LTE 1900/<br>LTE AWS/<br>5G AWS/<br>5G 1900 | NEW      | 30°     | QUINTEL —<br>QD6616-7                                    | 90'-0"             | 0°                  | 3°/2°/7°/7°/<br>7°/8°/7°/7° | —              | —                | —        | —                 |                                                                            |                                                                                                        | (1) ERICSSON — 4478 B14<br>(1) ERICSSON — 4415 B25<br>(1) ERICSSON — RRUS-32 B66A<br>(1) ERICSSON — RRUS-E2 B29 | TOWER    | N                 | N                  | N         |
| A3                                  | 5G CBAND                                                | NEW      | 30°     | ERICSSON —<br>AIR6449 B77D<br>ERICSSON —<br>AIR6419 B77G | 91'-0"<br>89'-0"   | 0°<br>0°            | 0°/0°<br>0°/0°              | —              | —                | —        | —                 |                                                                            |                                                                                                        | INTEGRATED RADIO WITH ANTENNA                                                                                   | TOWER    | N                 | N                  | N         |
| A4                                  | LTE 700/5G<br>850/LTE WCS                               | EXISTING | 30°     | CCI —<br>DMP65R-BU6DA                                    | 90'-0"             | 0°                  | 3°/3°/3°                    | —              | —                | —        | —                 |                                                                            |                                                                                                        | (1) ERICSSON — 4449 B5/B12<br>(1) ERICSSON — RRUS-32 B30                                                        | TOWER    | N                 | Y                  | N         |
| BETA SECTOR                         |                                                         |          |         |                                                          |                    |                     |                             |                |                  |          |                   |                                                                            |                                                                                                        |                                                                                                                 |          |                   |                    |           |
| B1                                  | —                                                       | —        | —       | EMPTY MOUNT PIPE                                         | —                  | —                   | —                           | —              | —                | —        | —                 | (1)<br>DC6-48-60-18-8F JUNCTION BOX                                        | (2) PWRT-608-S POWER CABLE<br>(1)<br>FB-L98B-034-XXX FIBER CABLE                                       | —                                                                                                               | TOWER    | N                 | N                  | N         |
| B2                                  | LTE 700/<br>LTE 1900/<br>LTE AWS/<br>5G AWS/<br>5G 1900 | NEW      | 160°    | QUINTEL —<br>QD6616-7                                    | 90'-0"             | 0°                  | 3°/2°/7°/7°/<br>7°/8°/7°/7° | —              | —                | —        | —                 |                                                                            |                                                                                                        | (1) ERICSSON — 4478 B14<br>(1) ERICSSON — 4415 B25<br>(1) ERICSSON — RRUS-32 B66A<br>(1) ERICSSON — RRUS-E2 B29 | TOWER    | N                 | N                  | N         |
| B3                                  | 5G CBAND                                                | NEW      | 160°    | ERICSSON —<br>AIR6449 B77D<br>ERICSSON —<br>AIR6419 B77G | 91'-0"<br>89'-0"   | 0°<br>0°            | 0°/0°<br>0°/0°              | —              | —                | —        | —                 |                                                                            |                                                                                                        | INTEGRATED RADIO WITH ANTENNA                                                                                   | TOWER    | N                 | N                  | N         |
| B4                                  | LTE 700/5G<br>850/LTE WCS                               | EXISTING | 160°    | CCI —<br>DMP65R-BU6DA                                    | 90'-0"             | 0°                  | 3°/3°/3°                    | —              | —                | —        | —                 |                                                                            |                                                                                                        | (1) ERICSSON — 4449 B5/B12<br>(1) ERICSSON — RRUS-32 B30                                                        | TOWER    | N                 | Y                  | N         |
| GAMMA SECTOR                        |                                                         |          |         |                                                          |                    |                     |                             |                |                  |          |                   |                                                                            |                                                                                                        |                                                                                                                 |          |                   |                    |           |
| C1                                  | —                                                       | —        | —       | EMPTY MOUNT PIPE                                         | —                  | —                   | —                           | —              | —                | —        | —                 | (1)<br>DC6-48-60-18-8F JUNCTION BOX                                        | (2) PWRT-606-S POWER CABLE                                                                             | —                                                                                                               | TOWER    | N                 | N                  | N         |
| C2                                  | LTE 700/<br>LTE 1900/<br>LTE AWS/<br>5G AWS/<br>5G 1900 | NEW      | 280°    | QUINTEL —<br>QD6616-7                                    | 90'-0"             | 0°                  | 3°/2°/7°/7°/<br>7°/8°/7°/7° | —              | —                | —        | —                 |                                                                            |                                                                                                        | (1) ERICSSON — 4478 B14<br>(1) ERICSSON — 4415 B25<br>(1) ERICSSON — RRUS-32 B66A<br>(1) ERICSSON — RRUS-E2 B29 | TOWER    | N                 | N                  | N         |
| C3                                  | 5G CBAND                                                | NEW      | 280°    | ERICSSON —<br>AIR6449 B77D<br>ERICSSON —<br>AIR6419 B77G | 91'-0"<br>89'-0"   | 0°<br>0°            | 0°/0°<br>0°/0°              | —              | —                | —        | —                 |                                                                            |                                                                                                        | INTEGRATED RADIO WITH ANTENNA                                                                                   | TOWER    | N                 | N                  | N         |
| C4                                  | LTE 700/5G<br>850/LTE WCS                               | EXISTING | 280°    | CCI —<br>DMP65R-BU6DA                                    | 90'-0"             | 0°                  | 3°/3°/3°                    | —              | —                | —        | —                 |                                                                            |                                                                                                        | (1) ERICSSON — 4449 B5/B12<br>(1) ERICSSON — RRUS-32 B30                                                        | TOWER    | N                 | Y                  | N         |

NOTE: BOLD DENOTES NEW EQUIPMENT

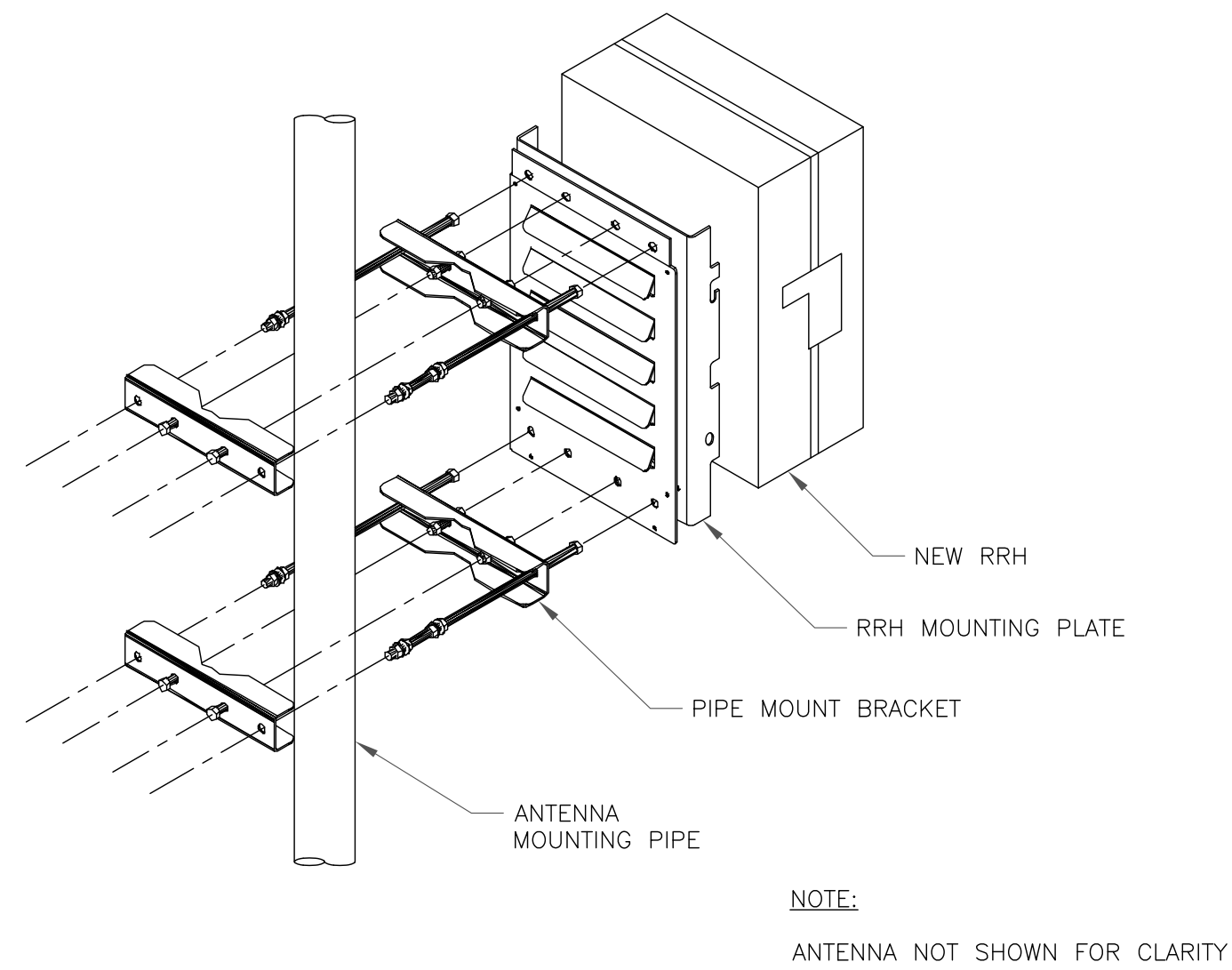




1 GENERIC ANTENNA MOUNTING ELEVATION  
SCALE: NOT TO SCALE



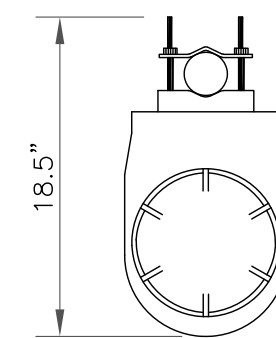
2 COMMSCOPE - RR-FA2  
SCALE: NOT TO SCALE



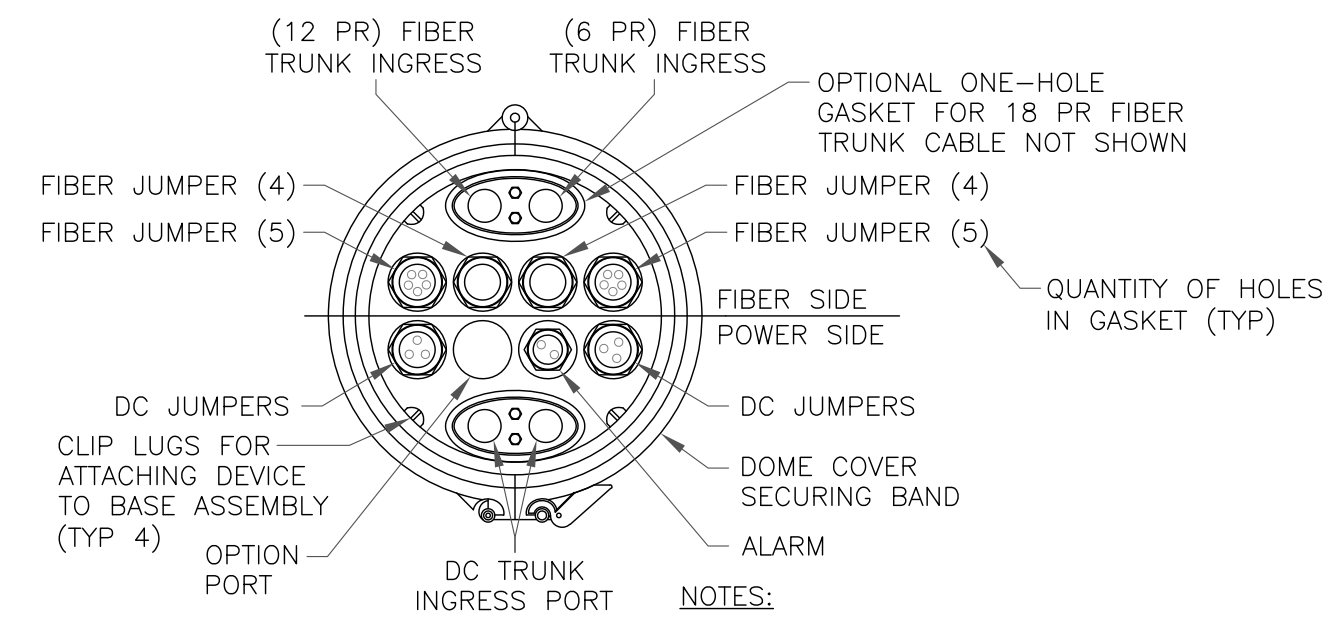
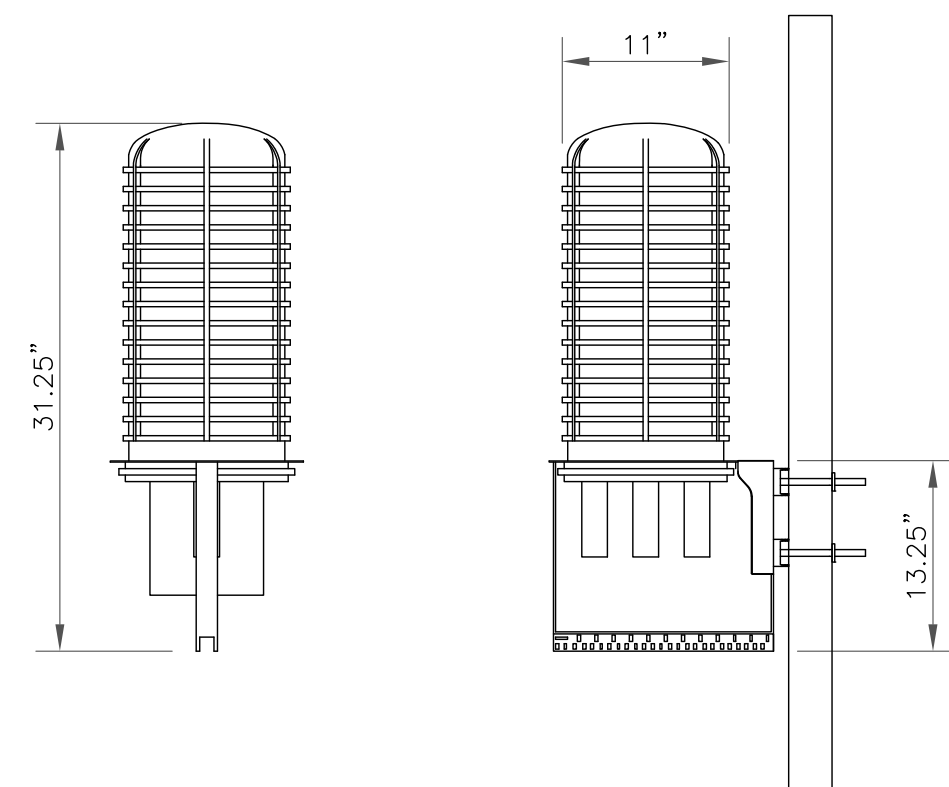
3 SINGLE RRH MOUNTING DETAIL  
SCALE: NOT TO SCALE

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



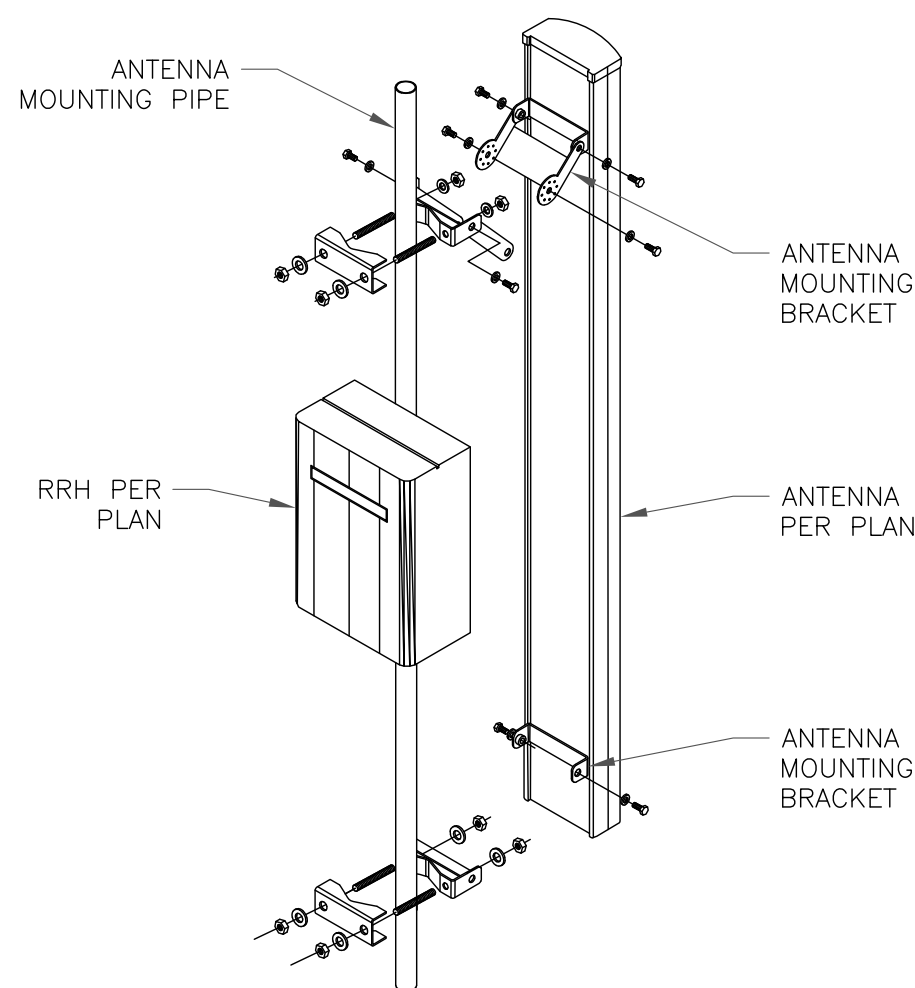
6 SQUID MOUNTING DETAIL  
SCALE: NOT TO SCALE

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INSTALLER NOTES:

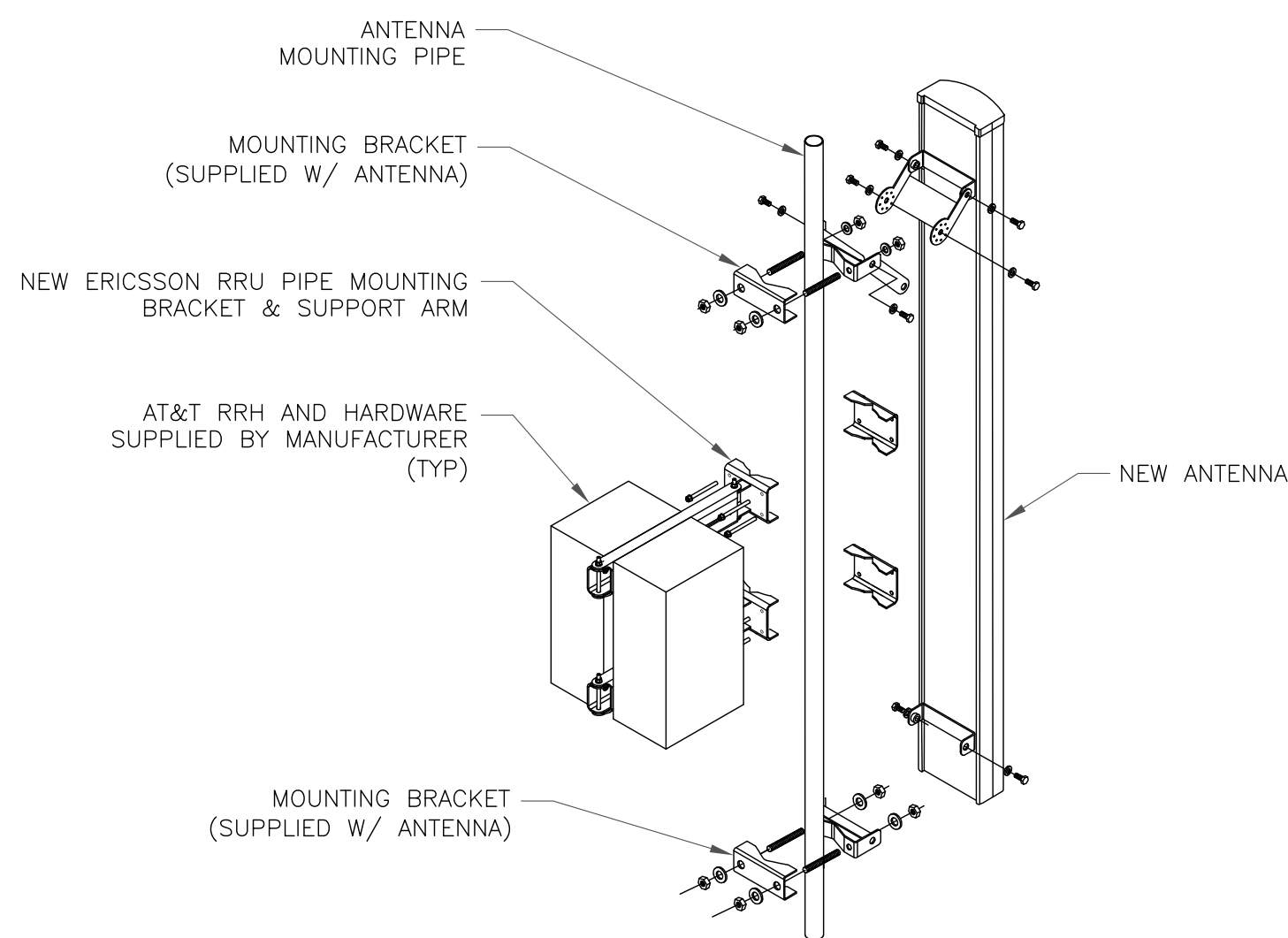
1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHS RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



4 ANTENNA WITH RRH MOUNTING DETAIL  
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



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

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

92 WESTON STREET  
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EXISTING  
110'-0" MONOPOLE

ISSUED FOR:

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



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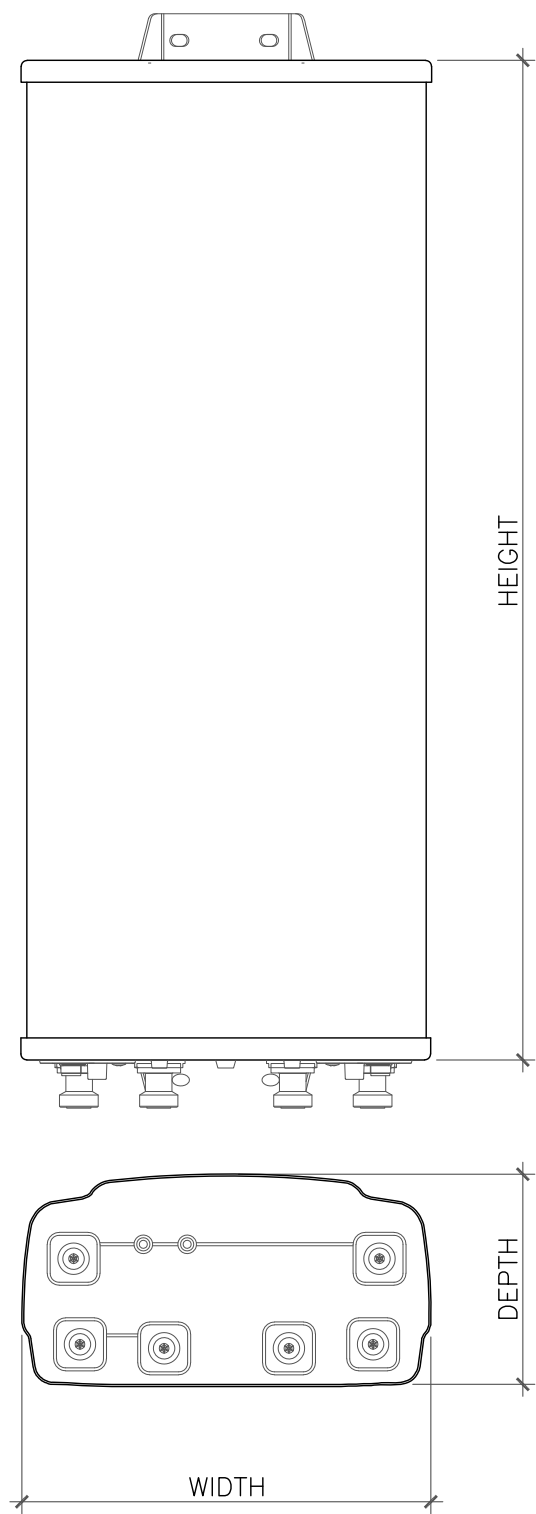
**C-4**

REVISION:

**C**

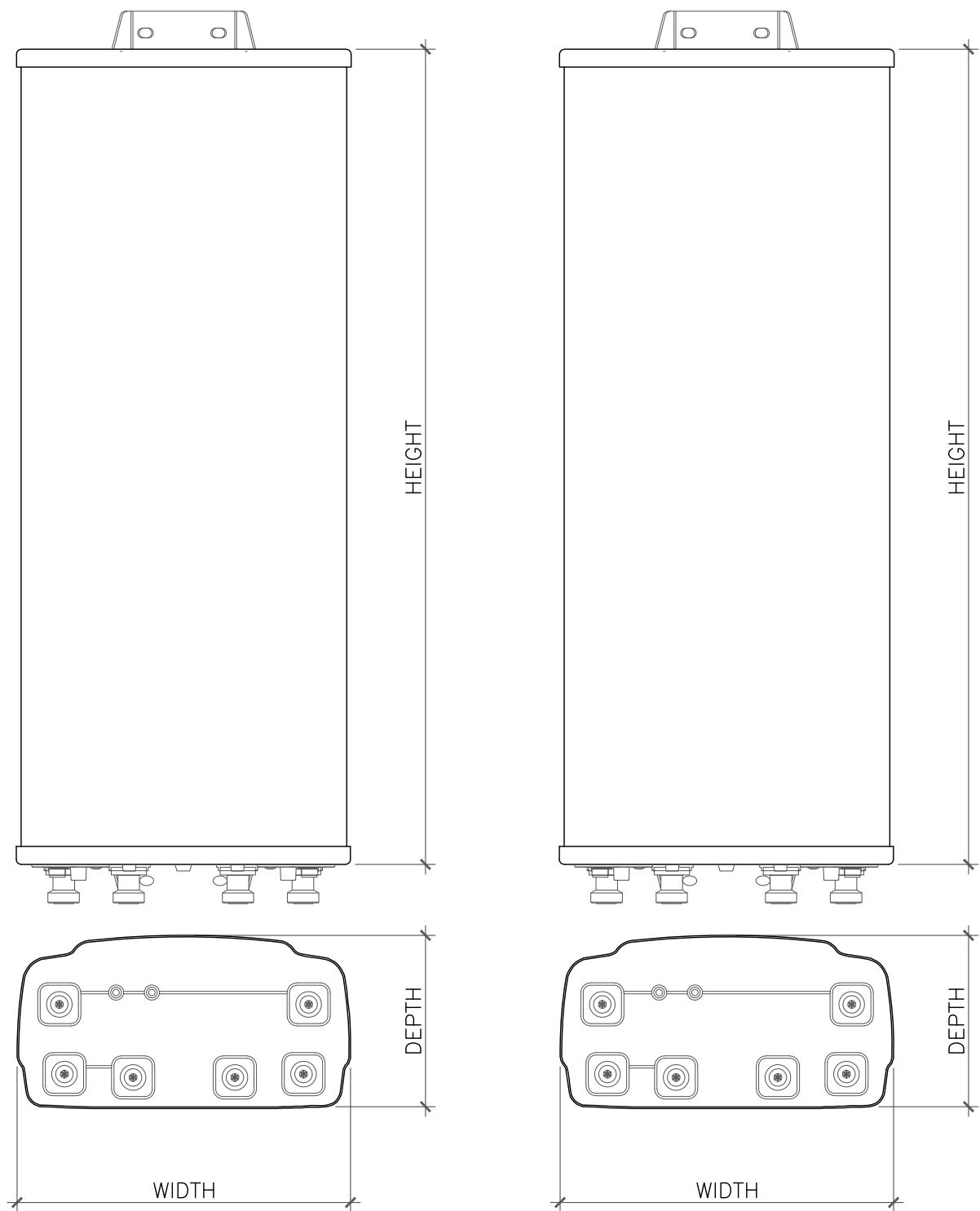


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| ANTENNA DIMENSIONS (INCHES) |        |       |       |         |
|-----------------------------|--------|-------|-------|---------|
| MODEL                       | HEIGHT | WIDTH | DEPTH | WEIGHT  |
| QUINTEL -- QD6616--7        | 72"    | 22"  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

1 ANTENNA DETAIL  
SCALE: NOT TO SCALE



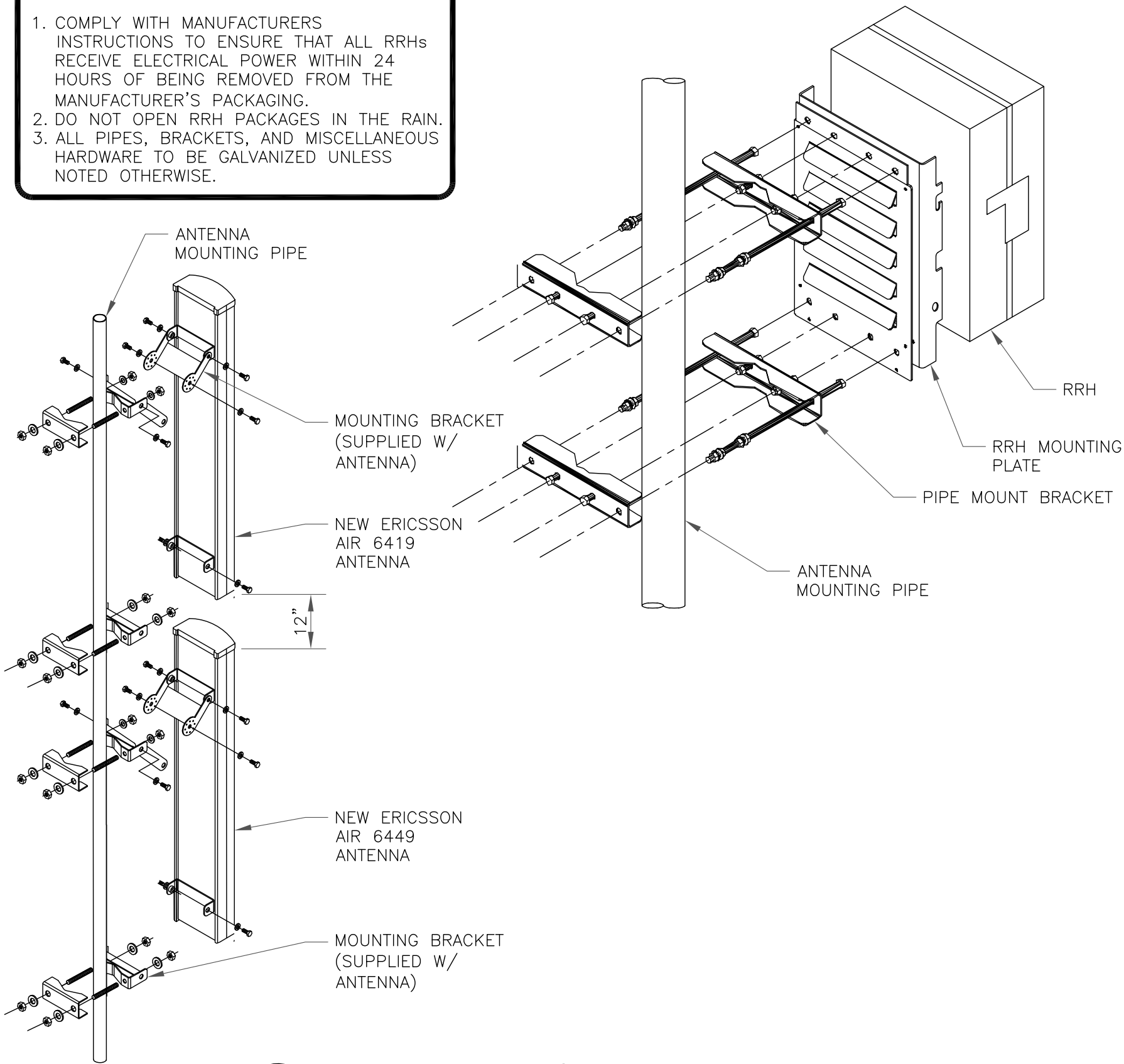
| ANTENNA DIMENSIONS (INCHES) |        |        |        |          |
|-----------------------------|--------|--------|--------|----------|
| MODEL                       | HEIGHT | WIDTH  | DEPTH  | WEIGHT   |
| ERICSSON/AIR 6419 B77G      | 27.95" | 15.75" | 6.68"  | 66.20lbs |
| ERICSSON/AIR 6449 N77       | 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.
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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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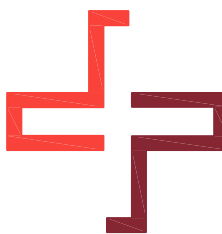
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ISSUED FOR:

| 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     |



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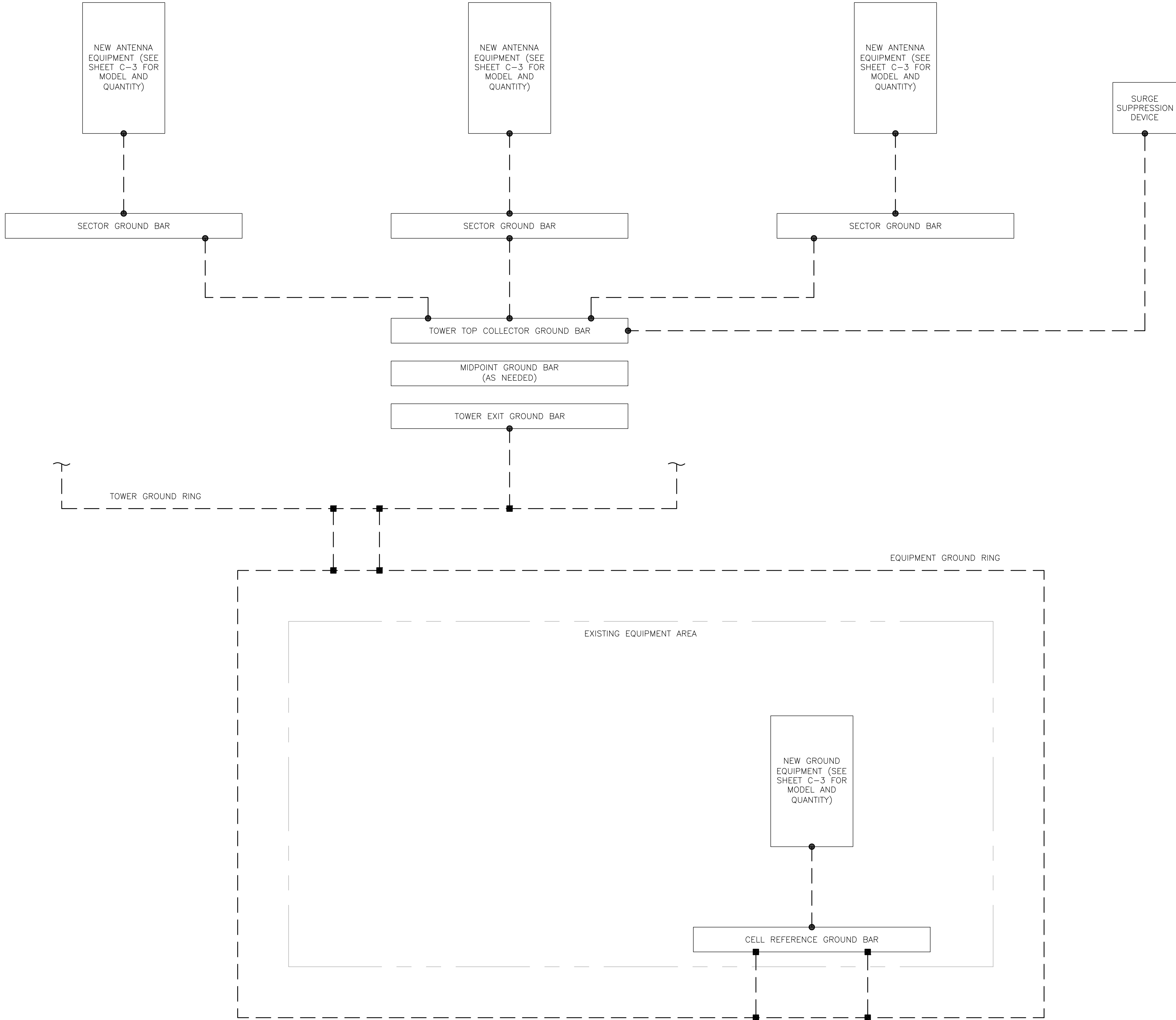
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C



1:36350.009.01\_WESTON SQUARE CCI ATT.dwg - Sheet:G-1 - User: mjonas - Feb 22, 2022 - 3:48pm



GROUNDING PLAN LEGEND:

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

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.

575 MOROSGO DRIVE  
ATLANTA, GA 30324-3300

3530 TORINGDON WAY, SUITE 300  
CHARLOTTE, NC 28277

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      |
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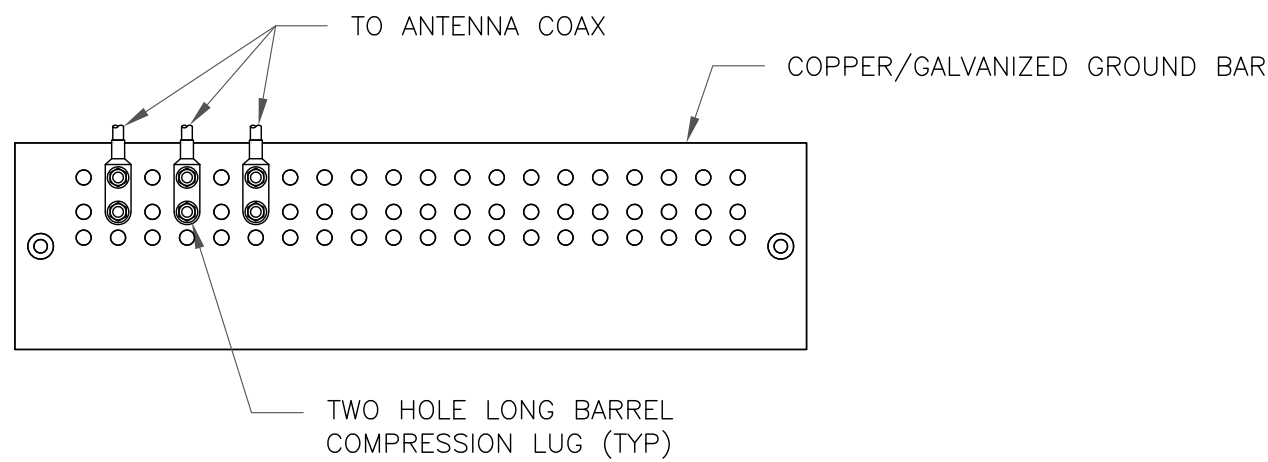
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| G-1           | C         |

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1 GROUNDING SCHEMATIC  
SCALE: NOT TO SCALE

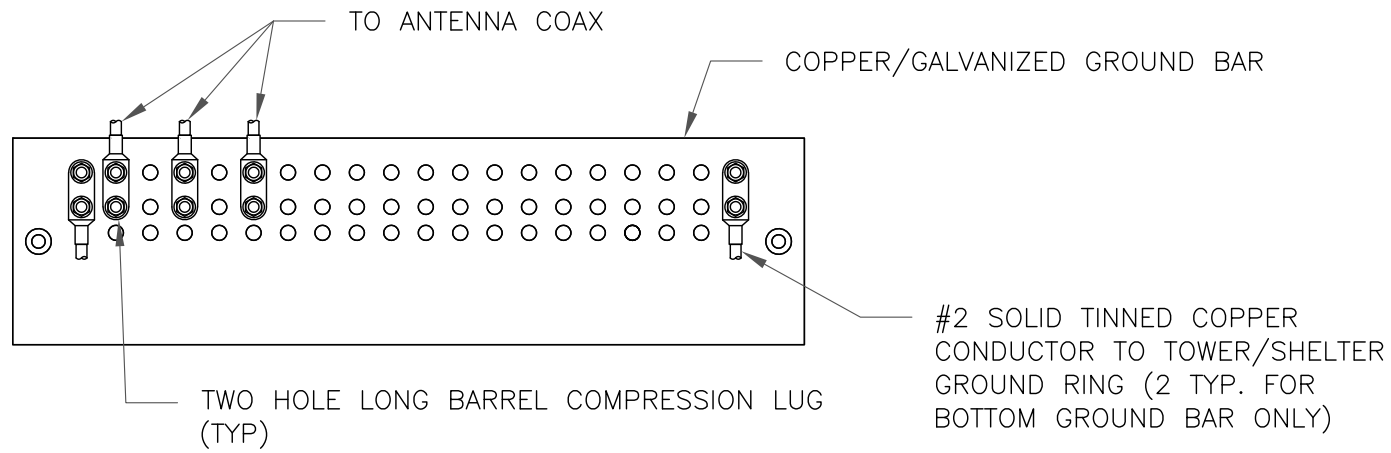




NOTES:

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

1 ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE

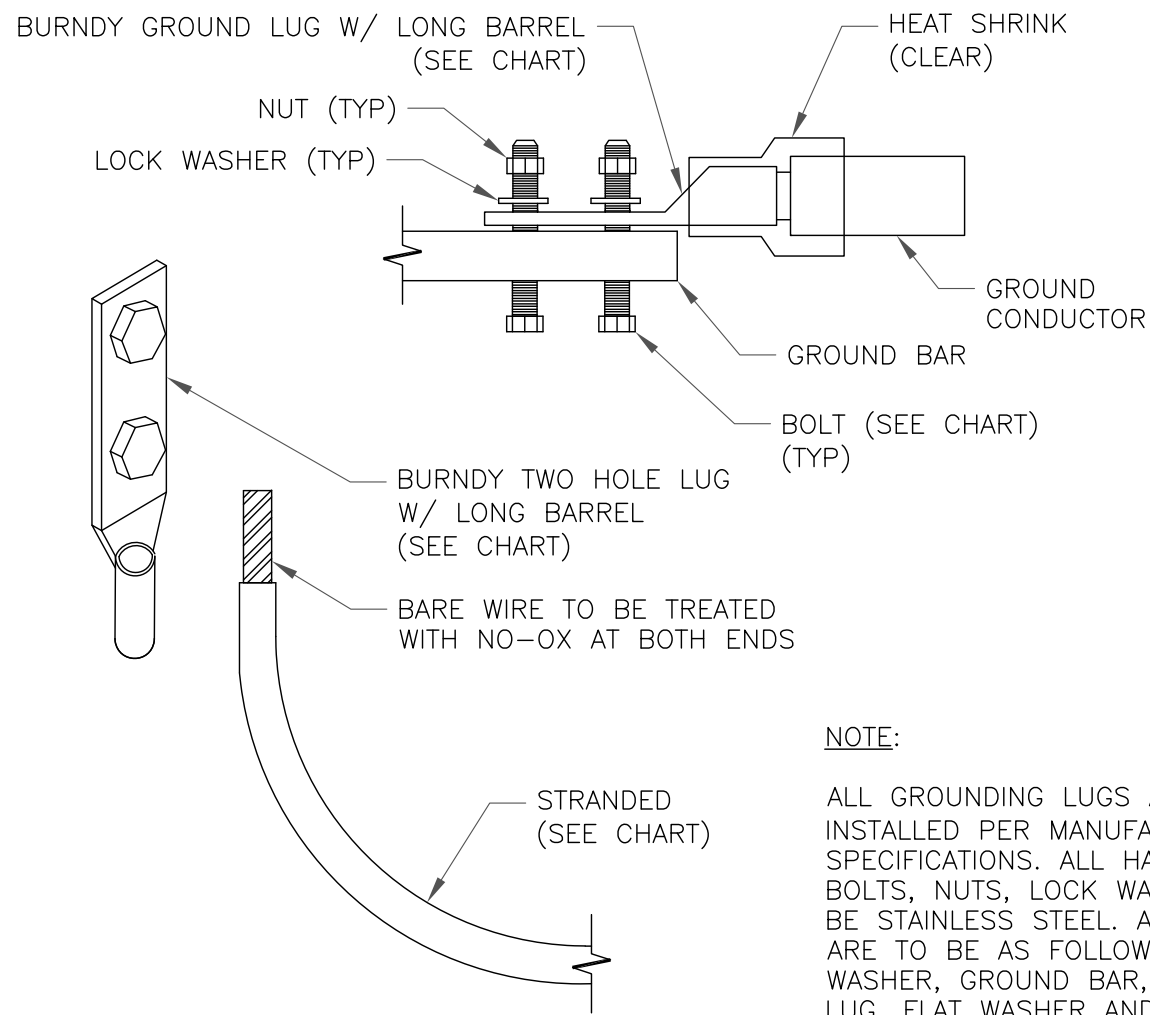


NOTES:

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

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

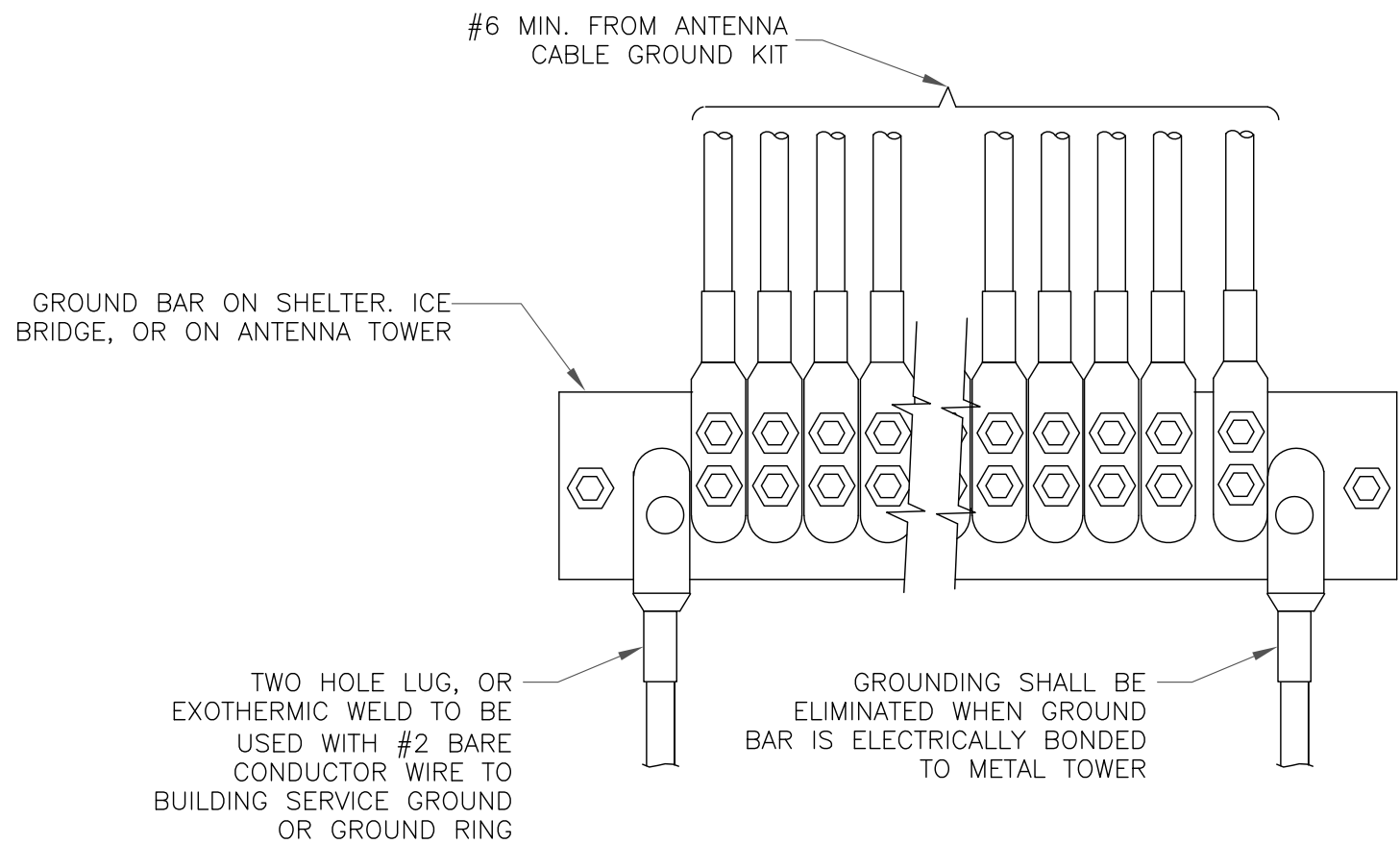
| WIRE SIZE          | BURNDY LUG | BOLT SIZE              |
|--------------------|------------|------------------------|
| #6 GREEN INSULATED | YA6C-2TC38 | 3/8" - 16 NC SS 2 BOLT |
| #2 SOLID TINNED    | YA3C-2TC38 | 3/8" - 16 NC SS 2 BOLT |
| #2 STRANDED        | YA2C-2TC38 | 3/8" - 16 NC SS 2 BOLT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



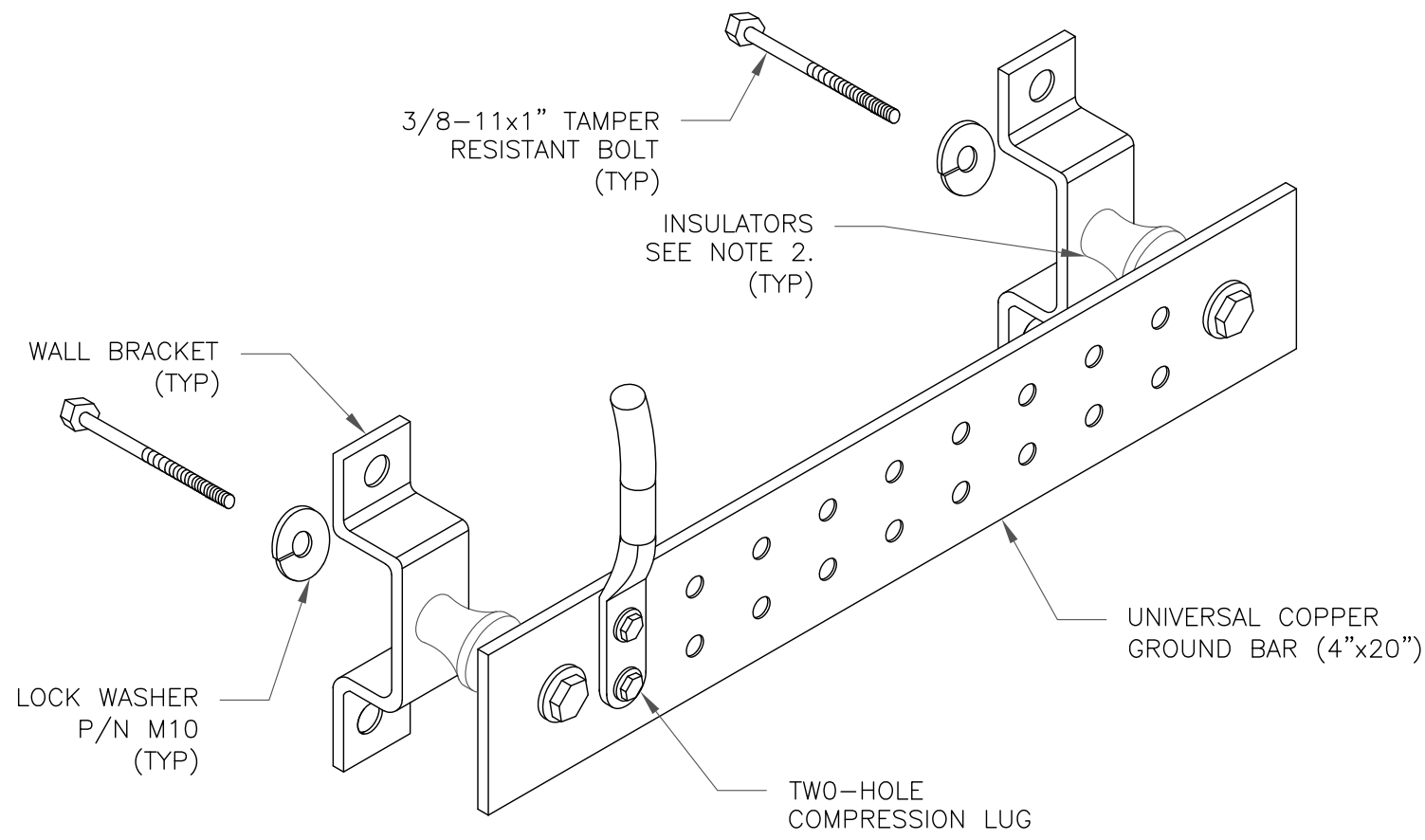
NOTE:

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



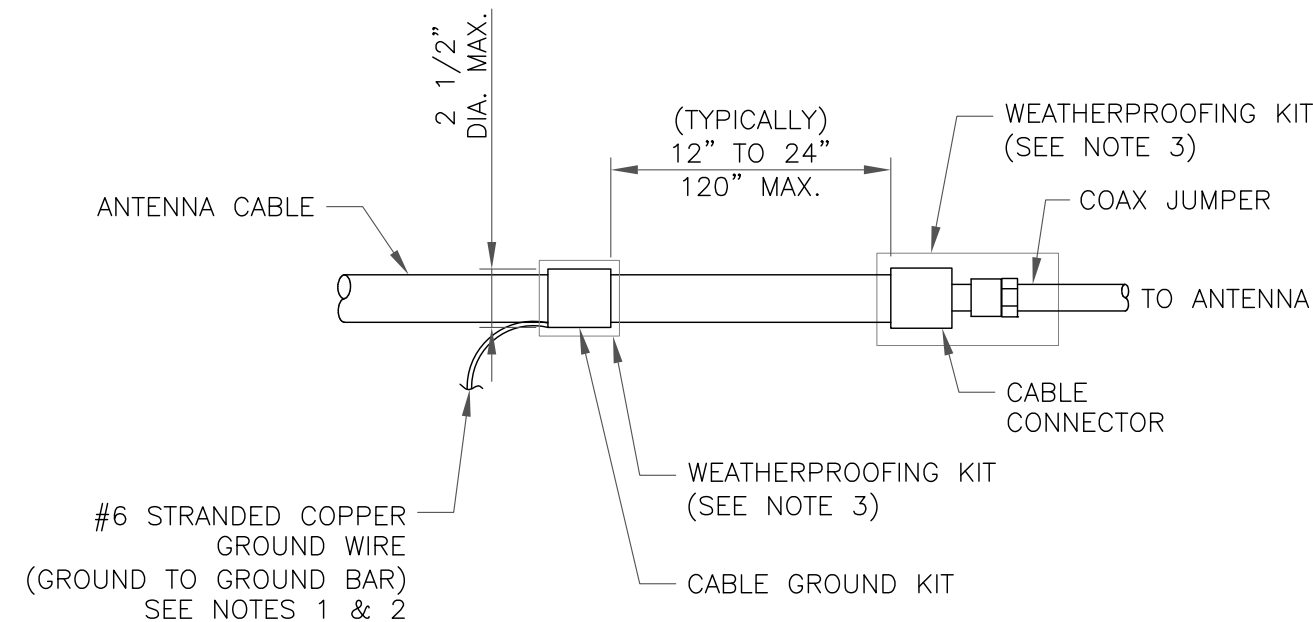
NOTES:

- 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.
- 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

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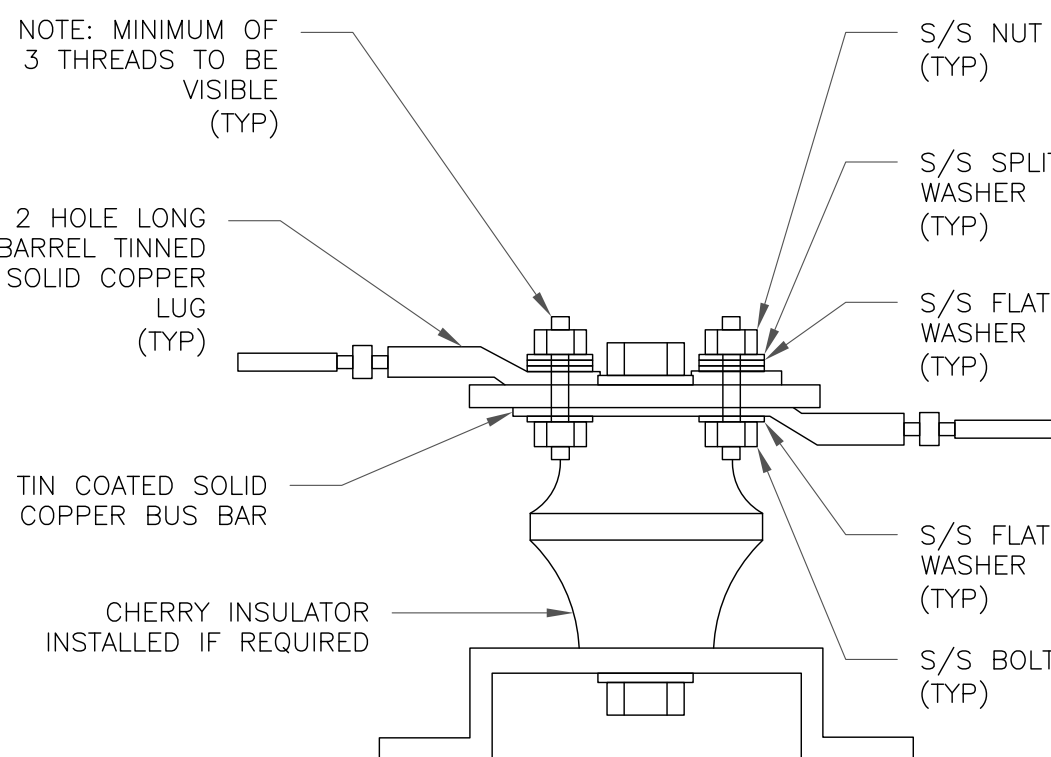
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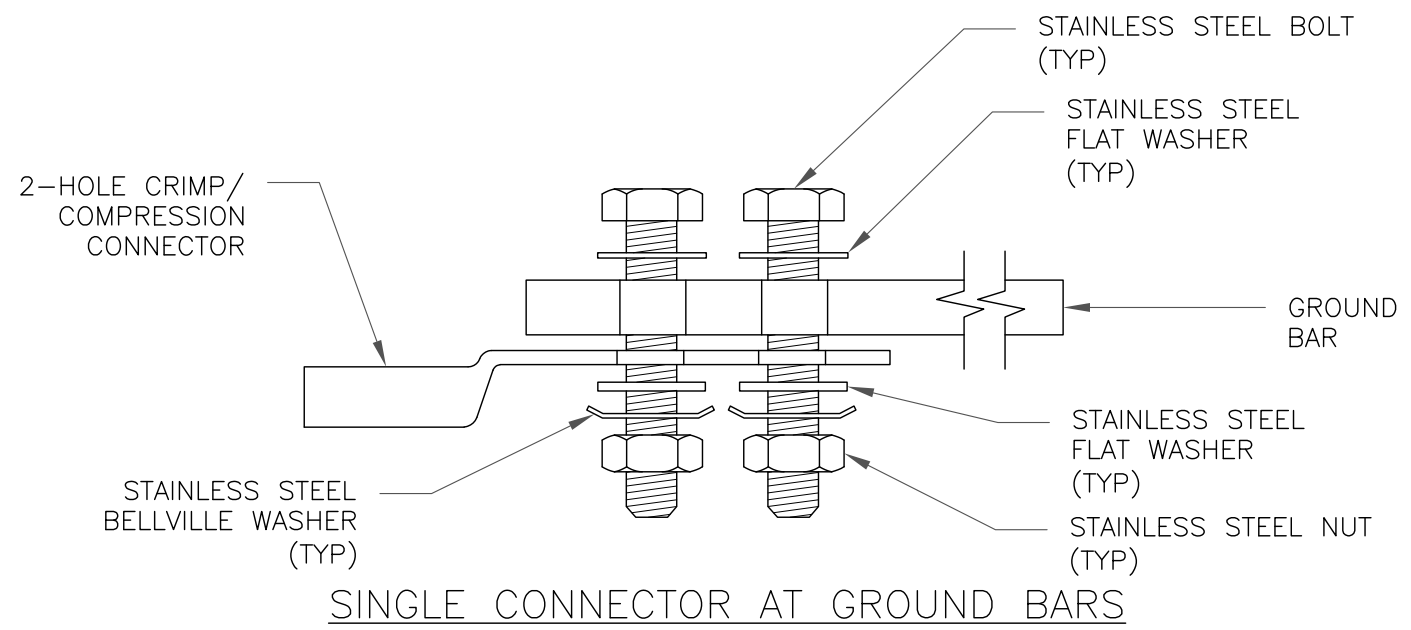
NOTES:

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

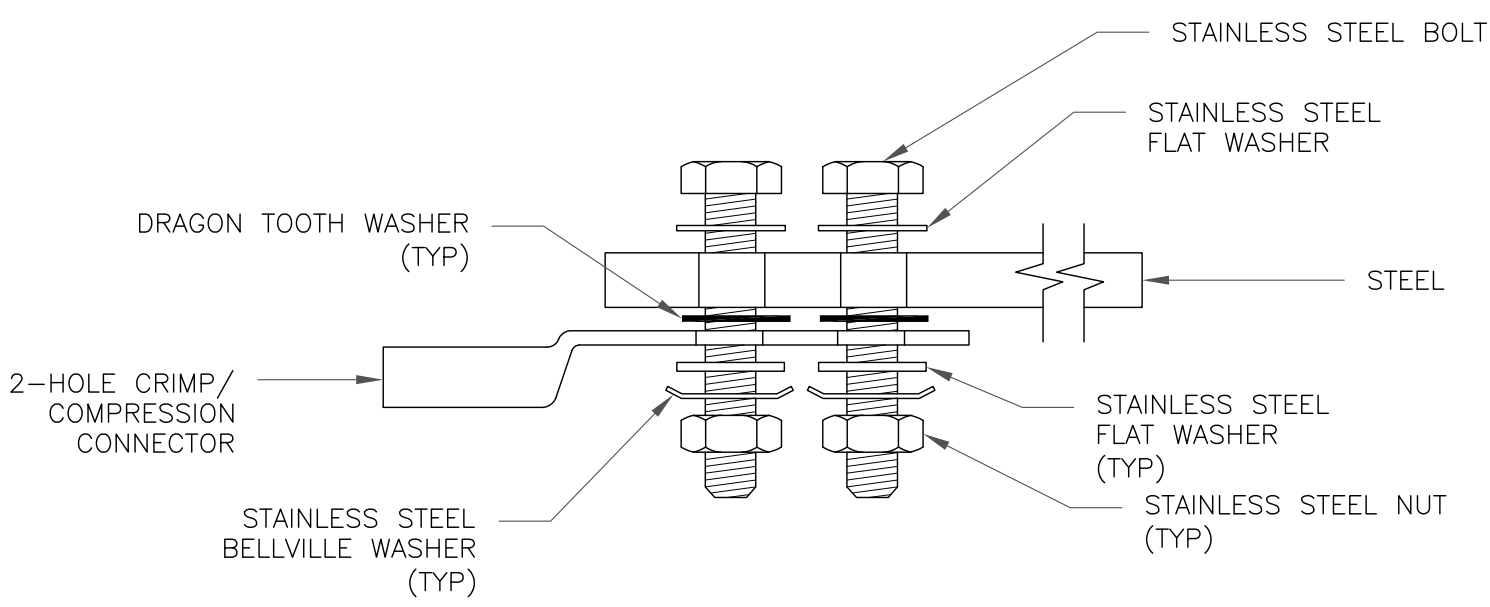
6 CABLE GROUND KIT CONNECTION  
SCALE: NOT TO SCALE



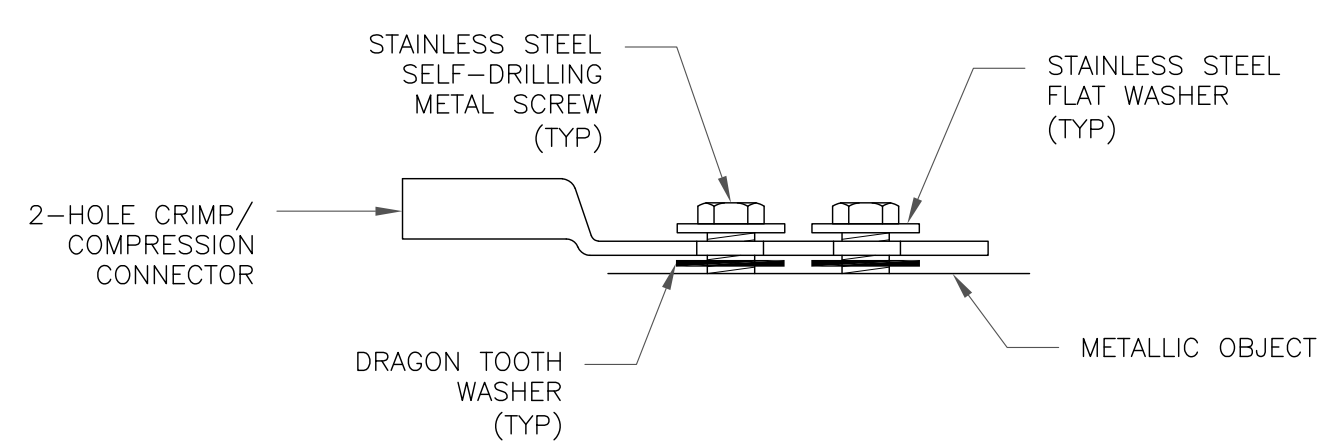
7 LUG DETAIL  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

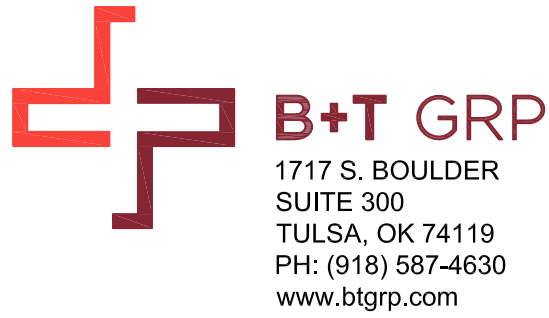


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE



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 |
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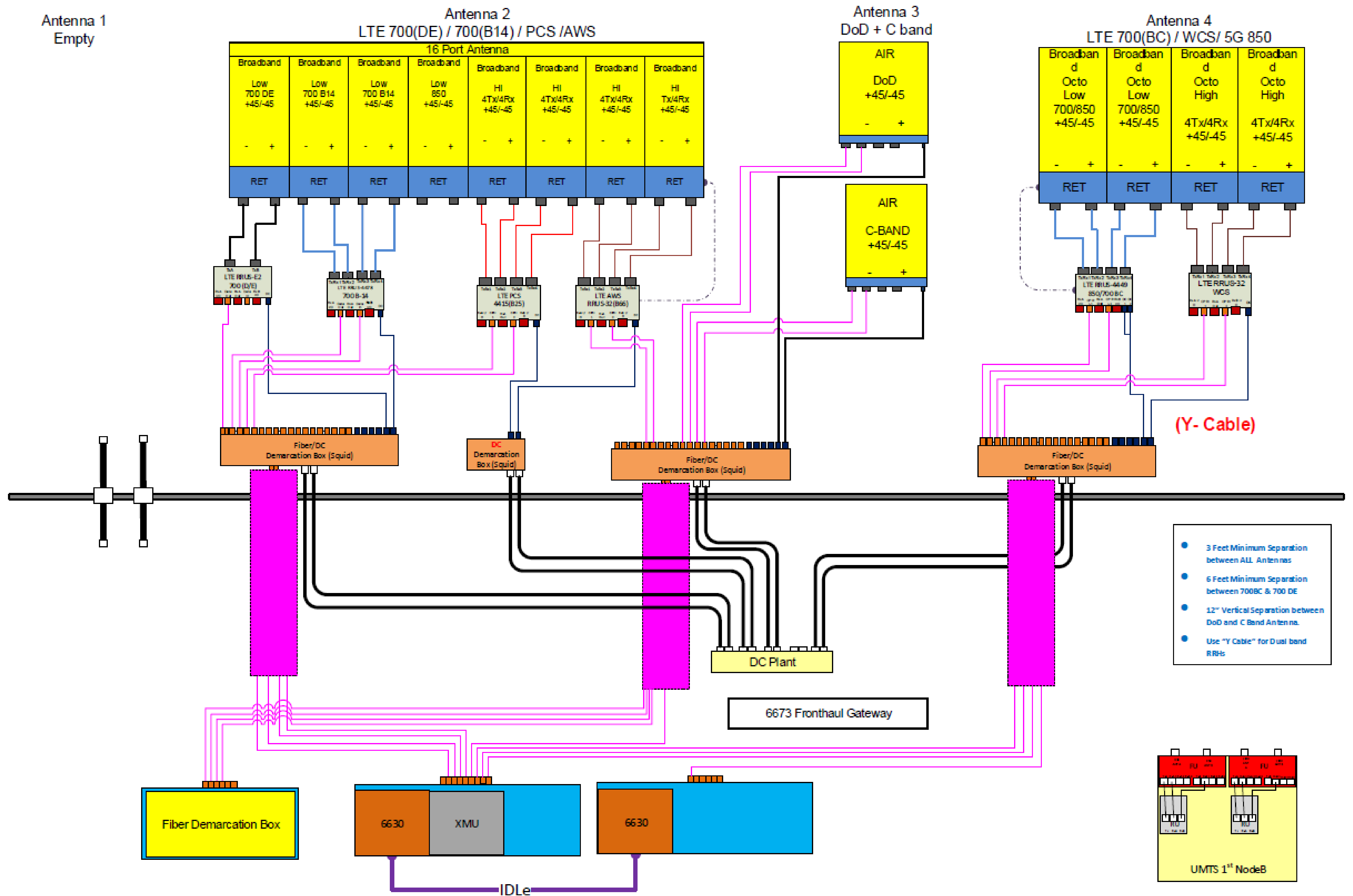
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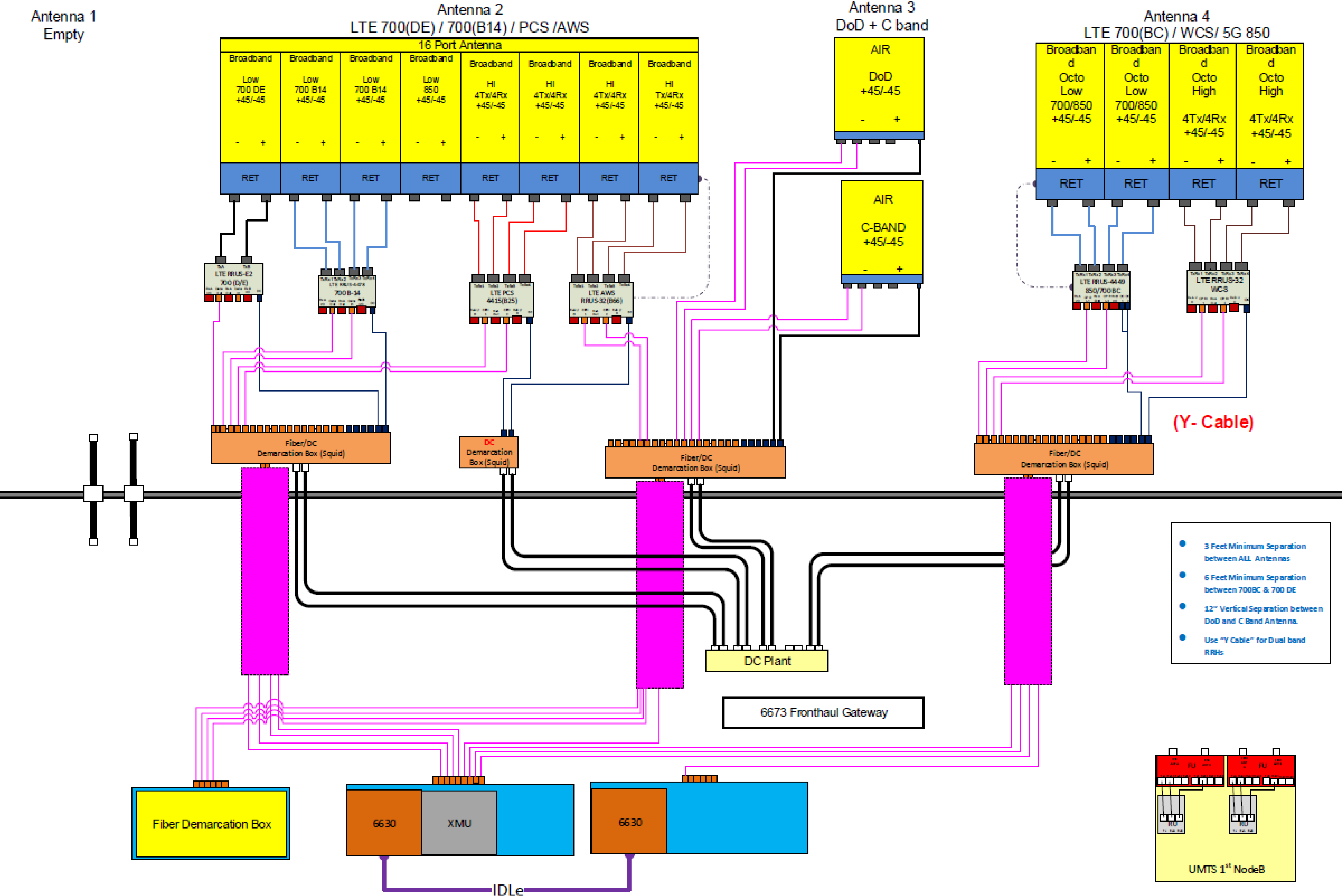
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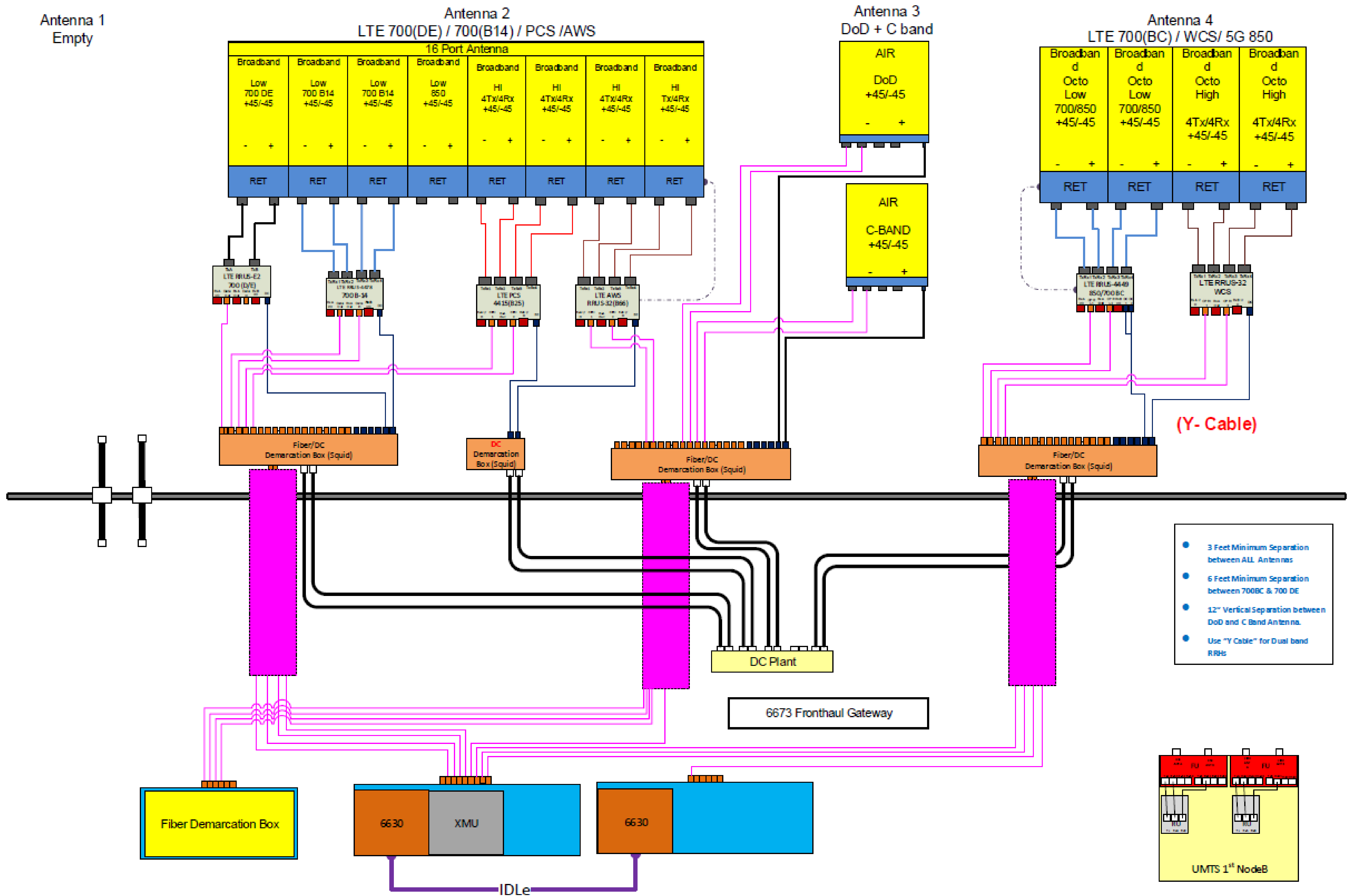












# Exhibit D

## **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:

Ping Jiang, P.E.  
Professional Engineer

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



Sep 13, 2021

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3.2) Assumptions

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Additional Calculations



## 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

|                             |           |
|-----------------------------|-----------|
| <b>TIA-222 Revision:</b>    | TIA-222-H |
| <b>Risk Category:</b>       | II        |
| <b>Wind Speed:</b>          | 117 mph   |
| <b>Exposure Category:</b>   | C         |
| <b>Topographic Factor:</b>  | 1         |
| <b>Ice Thickness:</b>       | 1.5 in    |
| <b>Wind Speed with Ice:</b> | 50 mph    |
| <b>Service Wind Speed:</b>  | 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                    | 7/8<br>13/16<br>3/8<br>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<br>6               | 1-5/8<br>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        |

|                                                     |              |
|-----------------------------------------------------|--------------|
| <b>Structure Rating (max from all components) =</b> | <b>95.2%</b> |
|-----------------------------------------------------|--------------|

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

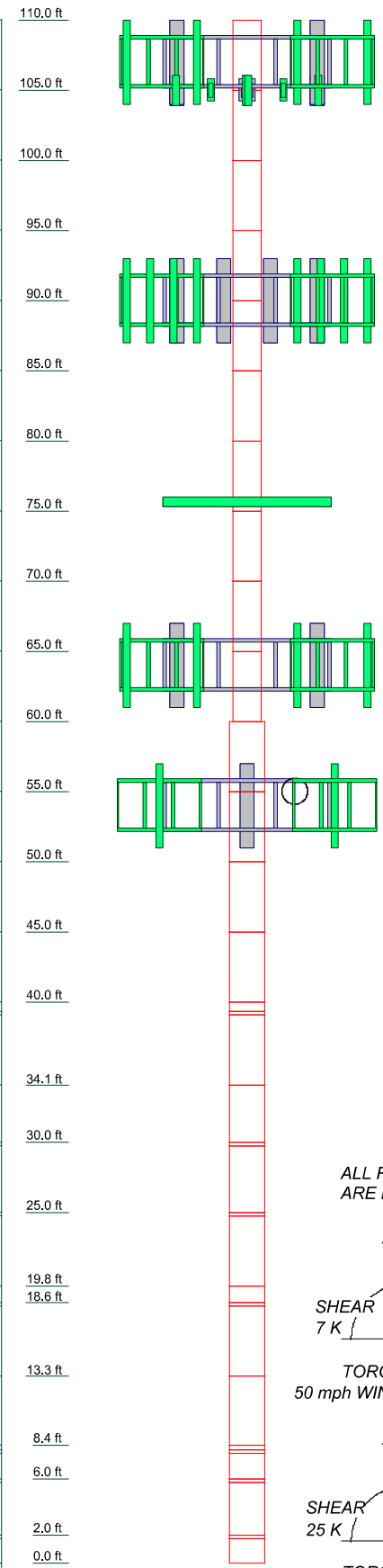
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.



## **APPENDIX A**

### **TNXTOWER OUTPUT**

|             |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |          |          |          |          |  |  |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|--|--|
| Section     | 3332      | 31        | 3029      | 27        | 26        | 25        | 24        | 23        | 22        | 21        | 20        | 19        | 18        | 17        | 16        | 15        | 14        | 13        | 12        | 11        | 10        | 9         | 8         | 7         | 6         | 5         | 4        | 3        | 2        | 1        |  |  |
| Size        | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P30x0.375 | P24x0.375 | P24x0.375 | P24x0.375 | P24x0.375 | P24x0.375 | P24x0.375 | P24x0.25 | P24x0.25 | P24x0.25 | P24x0.25 |  |  |
| Length (ft) | 1.75      | 3.75      | 0.25      | 0.25      | 4.91      | 5.00      | 0.25      | 7         | 5.00      | 0.25      | 4.75      | 0.25      | 4.08      | 5.00      | 0.057     | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00      | 5.00     | 5.00     | 5.00     |          |  |  |
| Grade       | A53-B-42  |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |          |          |          |          |  |  |
| Weight (K)  | 15.6      | 0.01      | 1.2       | 0.0       | 7.00      | 1.4       | 0.1       | 3         | 1.1       | 0.1       | 0.7       | 0.0       | 0.6       | 0.7       | 0.01      | 0.6       | 0.6       | 0.6       | 0.6       | 0.6       | 0.5       | 0.5       | 0.5       | 0.5       | 0.5       | 0.5       | 0.3      | 0.3      | 0.3      | 0.3      |  |  |

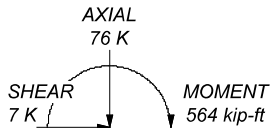


| GRADE    | Fy     | Fu     | GRADE | Fy | Fu |
|----------|--------|--------|-------|----|----|
| A53-B-42 | 42 ksi | 63 ksi |       |    |    |

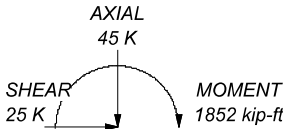
TOWER DESIGN NOTES

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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FAX:

Job: **WESTON SQUARE (BU# 876325)**  
Project: **406642 (876325.2017813)**  
Client: Crown Castle  
Code: TIA-222-H  
Path:

Drawn by: Preechaya Sirisuwan  
Date: 09/10/21  
Scale: NTS  
Dwg No. E-1

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

| Tower<br>Elevation | Gusset<br>Area<br>(per face) | Gusset<br>Thickness | Gusset Grade | Adjust. Factor<br>$A_r$ | Adjust.<br>Factor<br>$A_r$ | Weight Mult. | Double Angle<br>Stitch Bolt<br>Spacing<br>Diagonals<br>in | Double Angle<br>Stitch Bolt<br>Spacing<br>Horizontals<br>in | Double Angle<br>Stitch Bolt<br>Spacing<br>Redundants<br>in |
|--------------------|------------------------------|---------------------|--------------|-------------------------|----------------------------|--------------|-----------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|
| ft                 | ft <sup>2</sup>              | 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<br>or<br>Leg | Allow<br>Shield | Exclude<br>From<br>Torque<br>Calculation | Component<br>Type | Placement<br>ft | Total<br>Number |          | C <sub>A</sub> A <sub>A</sub><br>ft <sup>2</sup> /ft | Weight<br>plf |
|----------------------------------------------|-------------------|-----------------|------------------------------------------|-------------------|-----------------|-----------------|----------|------------------------------------------------------|---------------|
| ***                                          |                   |                 |                                          |                   |                 |                 |          |                                                      |               |
| HB158-21U6S24-<br>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-<br>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<br>9POWER/18FIBE<br>R 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<br>Section<br>n | Tower<br>Elevation<br>ft | Face | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>F</sub><br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>In Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out Face<br>ft <sup>2</sup> | Weight<br>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<br>Sectio<br>n | Tower<br>Elevation<br>ft | Face | $A_R$<br>ft <sup>2</sup> | $A_F$<br>ft <sup>2</sup> | $C_A A_A$<br>In Face<br>ft <sup>2</sup> | $C_A A_A$<br>Out Face<br>ft <sup>2</sup> | Weight<br>K |
|----------------------|--------------------------|------|--------------------------|--------------------------|-----------------------------------------|------------------------------------------|-------------|
| L14                  | 45.00-40.00              | C    | 0.000                    | 0.000                    | 2.682                                   | 0.000                                    | 0.08        |
|                      |                          | A    | 0.000                    | 0.000                    | 6.339                                   | 0.000                                    | 0.04        |
|                      |                          | B    | 0.000                    | 0.000                    | 3.862                                   | 0.000                                    | 0.02        |
| L15                  | 40.00-39.33              | C    | 0.000                    | 0.000                    | 3.020                                   | 0.000                                    | 0.08        |
|                      |                          | A    | 0.000                    | 0.000                    | 1.258                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.926                                   | 0.000                                    | 0.00        |
| L16                  | 39.33-39.08              | C    | 0.000                    | 0.000                    | 0.813                                   | 0.000                                    | 0.01        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.469                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.345                                   | 0.000                                    | 0.00        |
| L17                  | 39.08-34.08              | C    | 0.000                    | 0.000                    | 0.303                                   | 0.000                                    | 0.00        |
|                      |                          | A    | 0.000                    | 0.000                    | 9.385                                   | 0.000                                    | 0.04        |
|                      |                          | B    | 0.000                    | 0.000                    | 6.909                                   | 0.000                                    | 0.02        |
| L18                  | 34.08-30.00              | C    | 0.000                    | 0.000                    | 6.067                                   | 0.000                                    | 0.08        |
|                      |                          | A    | 0.000                    | 0.000                    | 7.320                                   | 0.000                                    | 0.03        |
|                      |                          | B    | 0.000                    | 0.000                    | 5.299                                   | 0.000                                    | 0.02        |
| L19                  | 30.00-29.75              | C    | 0.000                    | 0.000                    | 4.612                                   | 0.000                                    | 0.06        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.300                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.176                                   | 0.000                                    | 0.00        |
| L20                  | 29.75-25.00              | C    | 0.000                    | 0.000                    | 0.134                                   | 0.000                                    | 0.00        |
|                      |                          | A    | 0.000                    | 0.000                    | 6.825                                   | 0.000                                    | 0.04        |
|                      |                          | B    | 0.000                    | 0.000                    | 4.472                                   | 0.000                                    | 0.02        |
| L21                  | 25.00-24.75              | C    | 0.000                    | 0.000                    | 4.797                                   | 0.000                                    | 0.07        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.487                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.364                                   | 0.000                                    | 0.00        |
| L22                  | 24.75-19.75              | C    | 0.000                    | 0.000                    | 0.509                                   | 0.000                                    | 0.00        |
|                      |                          | A    | 0.000                    | 0.000                    | 10.857                                  | 0.000                                    | 0.04        |
|                      |                          | B    | 0.000                    | 0.000                    | 8.380                                   | 0.000                                    | 0.02        |
| L23                  | 19.75-18.58              | C    | 0.000                    | 0.000                    | 11.288                                  | 0.000                                    | 0.08        |
|                      |                          | A    | 0.000                    | 0.000                    | 3.317                                   | 0.000                                    | 0.01        |
|                      |                          | B    | 0.000                    | 0.000                    | 2.738                                   | 0.000                                    | 0.01        |
| L24                  | 18.58-18.33              | C    | 0.000                    | 0.000                    | 3.418                                   | 0.000                                    | 0.02        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.709                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.585                                   | 0.000                                    | 0.00        |
| L25                  | 18.33-13.33              | C    | 0.000                    | 0.000                    | 0.730                                   | 0.000                                    | 0.00        |
|                      |                          | A    | 0.000                    | 0.000                    | 14.177                                  | 0.000                                    | 0.04        |
|                      |                          | B    | 0.000                    | 0.000                    | 11.701                                  | 0.000                                    | 0.02        |
| L26                  | 13.33-8.42               | C    | 0.000                    | 0.000                    | 14.609                                  | 0.000                                    | 0.08        |
|                      |                          | A    | 0.000                    | 0.000                    | 15.641                                  | 0.000                                    | 0.04        |
|                      |                          | B    | 0.000                    | 0.000                    | 13.209                                  | 0.000                                    | 0.02        |
| L27                  | 8.42-8.07                | C    | 0.000                    | 0.000                    | 17.783                                  | 0.000                                    | 0.08        |
|                      |                          | A    | 0.000                    | 0.000                    | 1.282                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 1.108                                   | 0.000                                    | 0.00        |
| L28                  | 8.07-7.83                | C    | 0.000                    | 0.000                    | 1.601                                   | 0.000                                    | 0.01        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.879                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.760                                   | 0.000                                    | 0.00        |
| L29                  | 7.83-6.00                | C    | 0.000                    | 0.000                    | 1.098                                   | 0.000                                    | 0.00        |
|                      |                          | A    | 0.000                    | 0.000                    | 6.701                                   | 0.000                                    | 0.01        |
|                      |                          | B    | 0.000                    | 0.000                    | 5.795                                   | 0.000                                    | 0.01        |
| L30                  | 6.00-5.75                | C    | 0.000                    | 0.000                    | 8.371                                   | 0.000                                    | 0.03        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.694                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.570                                   | 0.000                                    | 0.00        |
| L31                  | 5.75-2.00                | C    | 0.000                    | 0.000                    | 0.922                                   | 0.000                                    | 0.00        |
|                      |                          | A    | 0.000                    | 0.000                    | 8.536                                   | 0.000                                    | 0.03        |
|                      |                          | B    | 0.000                    | 0.000                    | 6.641                                   | 0.000                                    | 0.02        |
| L32                  | 2.00-1.75                | C    | 0.000                    | 0.000                    | 10.084                                  | 0.000                                    | 0.06        |
|                      |                          | A    | 0.000                    | 0.000                    | 0.507                                   | 0.000                                    | 0.00        |
|                      |                          | B    | 0.000                    | 0.000                    | 0.373                                   | 0.000                                    | 0.00        |
| L33                  | 1.75-0.00                | C    | 0.000                    | 0.000                    | 0.547                                   | 0.000                                    | 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<br>Sectio<br>n | Tower<br>Elevation<br>ft | Face<br>or<br>Leg | Ice<br>Thickness<br>in | $A_R$<br>ft <sup>2</sup> | $A_F$<br>ft <sup>2</sup> | $C_A A_A$<br>In Face<br>ft <sup>2</sup> | $C_A A_A$<br>Out Face<br>ft <sup>2</sup> | Weight<br>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<br>Section<br>n | Tower<br>Elevation<br>ft | Face<br>or<br>Leg | Ice<br>Thickness<br>in | $A_R$<br>ft <sup>2</sup> | $A_F$<br>ft <sup>2</sup> | $C_{AA}$<br>In Face<br>ft <sup>2</sup> | $C_{AA}$<br>Out Face<br>ft <sup>2</sup> | Weight<br>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<br>ft | $CP_X$<br>in | $CP_Z$<br>in | $CP_X$<br>Ice<br>in | $CP_Z$<br>Ice<br>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 <sub>x</sub> | CP <sub>z</sub> | CP <sub>x</sub><br>Ice | CP <sub>z</sub><br>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 <sub>a</sub><br>No Ice | K <sub>a</sub><br>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 <sub>a</sub> No Ice | K <sub>a</sub> 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 <sub>a</sub> No Ice | K <sub>a</sub> Ice |
|---------------|----------------------|----------------------------|-------------------------|-----------------------|--------------------|
| L13           | 22                   | 810921-001(7/8)            | 50.00<br>45.00 -        | 1.0000                | 1.0000             |
| L13           | 25                   | HB158-U12S24-160-LI(1-7/8) | 50.00<br>45.00 -        | 1.0000                | 1.0000             |
| L13           | 27                   | CU12PSM9P8XXX(1-3/8)       | 50.00<br>45.00 -        | 1.0000                | 1.0000             |
| L14           | 1                    | Safety Line 3/8            | 50.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 7                    | FB-L98B-034-XXX(3/8)       | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 9                    | PWRT-608-S(13/16)          | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 10                   | PWRT-606-S(7/8)            | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 11                   | 3" Flexible Conduit        | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 22                   | 810921-001(7/8)            | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 25                   | HB158-U12S24-160-LI(1-7/8) | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 27                   | CU12PSM9P8XXX(1-3/8)       | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 35                   | Aero Channel MP303         | 45.00<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 36                   | Aero Channel MP303         | 40.50<br>40.00 -        | 1.0000                | 1.0000             |
| L14           | 37                   | Aero Channel MP303         | 40.50<br>40.00 -        | 1.0000                | 1.0000             |
| L15           | 1                    | Safety Line 3/8            | 40.50<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 7                    | FB-L98B-034-XXX(3/8)       | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 9                    | PWRT-608-S(13/16)          | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 10                   | PWRT-606-S(7/8)            | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 11                   | 3" Flexible Conduit        | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 22                   | 810921-001(7/8)            | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 25                   | HB158-U12S24-160-LI(1-7/8) | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 27                   | CU12PSM9P8XXX(1-3/8)       | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 35                   | Aero Channel MP303         | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 36                   | Aero Channel MP303         | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L15           | 37                   | Aero Channel MP303         | 40.00<br>39.33 -        | 1.0000                | 1.0000             |
| L16           | 1                    | Safety Line 3/8            | 40.00<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 7                    | FB-L98B-034-XXX(3/8)       | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 9                    | PWRT-608-S(13/16)          | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 10                   | PWRT-606-S(7/8)            | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 11                   | 3" Flexible Conduit        | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 22                   | 810921-001(7/8)            | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 25                   | HB158-U12S24-160-LI(1-7/8) | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 27                   | CU12PSM9P8XXX(1-3/8)       | 39.33<br>39.08 -        | 1.0000                | 1.0000             |
| L16           | 35                   | Aero Channel MP303         | 39.33<br>39.08 -        | 1.0000                | 1.0000             |



| Tower Section | Feed Line Record No. | Description                | Feed Line Segment Elev. | K <sub>a</sub> No Ice | K <sub>a</sub> 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 <sub>a</sub> No Ice | K <sub>a</sub> Ice |
|---------------|----------------------|----------------------------|-------------------------|-----------------------|--------------------|
| L20           | 10                   | PWRT-606-S(7/8)            | 29.75<br>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 <sub>a</sub> No Ice | K <sub>a</sub> 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 <sub>a</sub> No Ice | K <sub>a</sub> Ice |
|---------------|----------------------|----------------------------|-------------------------|-----------------------|--------------------|
| L25           | 10                   | PWRT-606-S(7/8)            | 18.33<br>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 <sub>a</sub> No Ice | K <sub>a</sub> 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 <sub>a</sub> No Ice | K <sub>a</sub> 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: Horiz Lateral Vert<br>ft<br>ft<br>ft | Azimuth Adjustment<br>t<br>° | Placement<br>ft |                                           | C <sub>AA</sub><br>Front<br>ft <sup>2</sup> | C <sub>AA</sub><br>Side<br>ft <sup>2</sup> | Weight<br>K                  |
|-----------------------------------------------------------|-------------|-------------|-----------------------------------------------|------------------------------|-----------------|-------------------------------------------|---------------------------------------------|--------------------------------------------|------------------------------|
| Site Pro 1 RMQP-xxx + HRK12 12.5' Platform with Handrails | C           | None        |                                               | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 21.17<br>25.84<br>30.51<br>39.85            | 19.65<br>24.18<br>28.79<br>37.77           | 1.49<br>1.83<br>2.29<br>2.85 |
| AIR6449 B41_T-MOBILE w/ Mount Pipe                        | A           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 5.19<br>5.59<br>6.02<br>6.90                | 2.71<br>3.04<br>3.38<br>4.12               | 0.13<br>0.17<br>0.23<br>0.35 |
| AIR6449 B41_T-MOBILE w/ Mount Pipe                        | B           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 5.19<br>5.59<br>6.02<br>6.90                | 2.71<br>3.04<br>3.38<br>4.12               | 0.13<br>0.17<br>0.23<br>0.35 |
| AIR6449 B41_T-MOBILE w/ Mount Pipe                        | C           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 5.19<br>5.59<br>6.02<br>6.90                | 2.71<br>3.04<br>3.38<br>4.12               | 0.13<br>0.17<br>0.23<br>0.35 |
| APXVAALL24_43-U-NA20_TMO w/ Mount Pipe                    | A           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 14.69<br>15.46<br>16.23<br>17.82            | 6.87<br>7.55<br>8.25<br>9.67               | 0.18<br>0.31<br>0.45<br>0.78 |
| APXVAALL24_43-U-NA20_TMO w/ Mount Pipe                    | B           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 14.69<br>15.46<br>16.23<br>17.82            | 6.87<br>7.55<br>8.25<br>9.67               | 0.18<br>0.31<br>0.45<br>0.78 |
| APXVAALL24_43-U-NA20_TMO w/ Mount Pipe                    | C           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 14.69<br>15.46<br>16.23<br>17.82            | 6.87<br>7.55<br>8.25<br>9.67               | 0.18<br>0.31<br>0.45<br>0.78 |
| Radio 4480_TMOV2                                          | A           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.88<br>3.09<br>3.31<br>3.78                | 1.40<br>1.56<br>1.73<br>2.09               | 0.08<br>0.10<br>0.13<br>0.19 |
| Radio 4480_TMOV2                                          | B           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.88<br>3.09<br>3.31<br>3.78                | 1.40<br>1.56<br>1.73<br>2.09               | 0.08<br>0.10<br>0.13<br>0.19 |
| Radio 4480_TMOV2                                          | C           | From Leg    | 4.00<br>0.00<br>1.00                          | 0.00                         | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.88<br>3.09<br>3.31<br>3.78                | 1.40<br>1.56<br>1.73<br>2.09               | 0.08<br>0.10<br>0.13<br>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<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustmen<br>t<br>° | Placement<br>ft |                                           | C <sub>AA</sub><br>Front<br>ft <sup>2</sup> | C <sub>AA</sub><br>Side<br>ft <sup>2</sup> | Weight<br>K                  |
|--------------------------------------|-------------------|----------------|-------------------------------------------------------|--------------------------------|-----------------|-------------------------------------------|---------------------------------------------|--------------------------------------------|------------------------------|
| B66_TMO                              |                   |                | 0.00<br>1.00                                          |                                |                 | 1/2"<br>Ice<br>1" Ice<br>2" Ice           | 2.32<br>2.51<br>2.91                        | 1.85<br>2.02<br>2.39                       | 0.13<br>0.16<br>0.22         |
| RADIO 4460 B2/B25<br>B66_TMO         | B                 | From Leg       | 4.00<br>0.00<br>1.00                                  | 0.00                           | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.14<br>2.32<br>2.51<br>2.91                | 1.69<br>1.85<br>2.02<br>2.39               | 0.11<br>0.13<br>0.16<br>0.22 |
| RADIO 4460 B2/B25<br>B66_TMO         | C                 | From Leg       | 4.00<br>0.00<br>1.00                                  | 0.00                           | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.14<br>2.32<br>2.51<br>2.91                | 1.69<br>1.85<br>2.02<br>2.39               | 0.11<br>0.13<br>0.16<br>0.22 |
| (2) 6'x2" Mount Pipe                 | A                 | From Leg       | 4.00<br>0.00<br>0.00                                  | 0.00                           | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 1.43<br>1.92<br>2.29<br>3.06                | 1.43<br>1.92<br>2.29<br>3.06               | 0.02<br>0.03<br>0.05<br>0.09 |
| (2) 6'x2" Mount Pipe                 | B                 | From Leg       | 4.00<br>0.00<br>0.00                                  | 0.00                           | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 1.43<br>1.92<br>2.29<br>3.06                | 1.43<br>1.92<br>2.29<br>3.06               | 0.02<br>0.03<br>0.05<br>0.09 |
| (2) 6'x2" Mount Pipe                 | C                 | From Leg       | 4.00<br>0.00<br>0.00                                  | 0.00                           | 107.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 1.43<br>1.92<br>2.29<br>3.06                | 1.43<br>1.92<br>2.29<br>3.06               | 0.02<br>0.03<br>0.05<br>0.09 |
| ***<br>Side Arm Mount [SO 102-<br>3] | C                 | None           |                                                       | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 3.60<br>4.18<br>4.75<br>5.90                | 3.60<br>4.18<br>4.75<br>5.90               | 0.07<br>0.11<br>0.14<br>0.20 |
| (3) 1'x2" Mount Pipe                 | A                 | From Leg       | 2.00<br>0.00<br>0.00                                  | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 0.15<br>0.22<br>0.30<br>0.50                | 0.15<br>0.22<br>0.30<br>0.50               | 0.00<br>0.01<br>0.01<br>0.02 |
| (3) 1'x2" Mount Pipe                 | B                 | From Leg       | 2.00<br>0.00<br>0.00                                  | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 0.15<br>0.22<br>0.30<br>0.50                | 0.15<br>0.22<br>0.30<br>0.50               | 0.00<br>0.01<br>0.01<br>0.02 |
| (3) 1'x2" Mount Pipe                 | C                 | From Leg       | 2.00<br>0.00<br>0.00                                  | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 0.15<br>0.22<br>0.30<br>0.50                | 0.15<br>0.22<br>0.30<br>0.50               | 0.00<br>0.01<br>0.01<br>0.02 |
| 800MHZ 2X50W RRH<br>W/FILTER         | A                 | From Leg       | 2.00<br>0.00<br>0.00                                  | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.06<br>2.24<br>2.43<br>2.83                | 1.93<br>2.11<br>2.29<br>2.68               | 0.06<br>0.09<br>0.11<br>0.17 |
| 800MHZ 2X50W RRH<br>W/FILTER         | B                 | From Leg       | 2.00<br>0.00<br>0.00                                  | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.06<br>2.24<br>2.43<br>2.83                | 1.93<br>2.11<br>2.29<br>2.68               | 0.06<br>0.09<br>0.11<br>0.17 |
| 800MHZ 2X50W RRH<br>W/FILTER         | C                 | From Leg       | 2.00<br>0.00<br>0.00                                  | 0.00                           | 105.00          | No Ice<br>1/2"<br>Ice<br>1" Ice<br>2" Ice | 2.06<br>2.24<br>2.43<br>2.83                | 1.93<br>2.11<br>2.29<br>2.68               | 0.06<br>0.09<br>0.11<br>0.17 |

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

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



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

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

| Description                    | Face<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustmen<br>t<br>° | Placement<br>ft |        | C <sub>AA</sub><br>Front<br>ft <sup>2</sup> | C <sub>AA</sub><br>Side<br>ft <sup>2</sup> | Weight<br>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<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustmen<br>t<br>° | Placement<br>ft |        | C <sub>AA</sub><br>Front<br>ft <sup>2</sup> | C <sub>AA</sub><br>Side<br>ft <sup>2</sup> | Weight<br>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<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustmen<br>t<br>° | Placement<br>ft |        | C <sub>AA</sub><br>Front<br>ft <sup>2</sup> | C <sub>AA</sub><br>Side<br>ft <sup>2</sup> | Weight<br>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"   | 62.95                                       | 62.95                                      | 2.10        |
|                                |                   |                |                                                       |                                |                 | Ice    | 91.66                                       | 91.66                                      | 2.45        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 149.08                                      | 149.08                                     | 3.15        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| (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"   | 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 |                                             |                                            |             |
| (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"   | 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 |                                             |                                            |             |
| (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"   | 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 |                                             |                                            |             |
| MX08FRO665-21 w/<br>Mount Pipe | A                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 8.01                                        | 4.23                                       | 0.11        |
|                                |                   |                | 0.00                                                  |                                |                 | 1/2"   | 8.52                                        | 4.69                                       | 0.19        |
|                                |                   |                | 0.00                                                  |                                |                 | Ice    | 9.04                                        | 5.16                                       | 0.29        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 10.11                                       | 6.12                                       | 0.52        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| MX08FRO665-21 w/<br>Mount Pipe | B                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 8.01                                        | 4.23                                       | 0.11        |
|                                |                   |                | 0.00                                                  |                                |                 | 1/2"   | 8.52                                        | 4.69                                       | 0.19        |
|                                |                   |                | 0.00                                                  |                                |                 | Ice    | 9.04                                        | 5.16                                       | 0.29        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 10.11                                       | 6.12                                       | 0.52        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| MX08FRO665-21 w/<br>Mount Pipe | C                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 8.01                                        | 4.23                                       | 0.11        |
|                                |                   |                | 0.00                                                  |                                |                 | 1/2"   | 8.52                                        | 4.69                                       | 0.19        |
|                                |                   |                | 0.00                                                  |                                |                 | Ice    | 9.04                                        | 5.16                                       | 0.29        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 10.11                                       | 6.12                                       | 0.52        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| TA08025-B605                   | A                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 1.96                                        | 1.13                                       | 0.08        |
|                                |                   |                | 0.00                                                  |                                |                 | 1/2"   | 2.14                                        | 1.27                                       | 0.09        |
|                                |                   |                | 0.00                                                  |                                |                 | Ice    | 2.32                                        | 1.41                                       | 0.11        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 2.71                                        | 1.72                                       | 0.16        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| TA08025-B605                   | B                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 1.96                                        | 1.13                                       | 0.08        |
|                                |                   |                | 0.00                                                  |                                |                 | 1/2"   | 2.14                                        | 1.27                                       | 0.09        |
|                                |                   |                | 0.00                                                  |                                |                 | Ice    | 2.32                                        | 1.41                                       | 0.11        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 2.71                                        | 1.72                                       | 0.16        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| TA08025-B605                   | C                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 1.96                                        | 1.13                                       | 0.08        |
|                                |                   |                | 0.00                                                  |                                |                 | 1/2"   | 2.14                                        | 1.27                                       | 0.09        |
|                                |                   |                | 0.00                                                  |                                |                 | Ice    | 2.32                                        | 1.41                                       | 0.11        |
|                                |                   |                |                                                       |                                |                 | 1" Ice | 2.71                                        | 1.72                                       | 0.16        |
|                                |                   |                |                                                       |                                |                 | 2" Ice |                                             |                                            |             |
| TA08025-B604                   | A                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 1.96                                        | 0.98                                       | 0.06        |
|                                |                   |                | 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 |                                             |                                            |             |
| TA08025-B604                   | B                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 1.96                                        | 0.98                                       | 0.06        |
|                                |                   |                | 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 |                                             |                                            |             |
| TA08025-B604                   | C                 | From Leg       | 4.00                                                  | 0.00                           | 54.00           | No Ice | 1.96                                        | 0.98                                       | 0.06        |



| Description                           | Face<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustmen<br>t<br>° | Placement<br>ft |        | C <sub>A</sub> A <sub>A</sub><br>Front<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Side<br>ft <sup>2</sup> | Weight<br>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"<br>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"<br>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"<br>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<br>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<br>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<br>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.<br>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                     |
|             |              |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
| L2          | 105 - 100    | Pole           | 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                     |
|             |              |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |              |                | Max. Compression | 26              | -11.12  | -0.04                    | 0.04                     |
| L3          | 100 - 95     | Pole           | 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                     |
|             |              |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |              |                | Max. Compression | 26              | -11.79  | -0.05                    | 0.05                     |
|             |              |                | 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 |
|-------------|--------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| L5          | 90 - 85      | Pole           | 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                     |
|             |              |                | 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                     |
| L6          | 85 - 80      | Pole           | Max. Vx          | 14              | 11.53   | 0.03                     | -151.63                  |
|             |              |                | Max. Torque      | 8               |         |                          | 0.17                     |
|             |              |                | 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                     |
|             |              |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
| L7          | 80 - 75      | Pole           | 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                     |
|             |              |                | 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                   |
| L8          | 75 - 70      | Pole           | Max. Vy          | 20              | -14.46  | 343.47                   | 0.21                     |
|             |              |                | Max. Vx          | 14              | 14.54   | 0.13                     | -343.99                  |
|             |              |                | Max. Torque      | 8               |         |                          | 0.17                     |
|             |              |                | 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                     |
| L9          | 70 - 65      | 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                     |
|             |              |                | 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                     |
| L10         | 65 - 60      | Pole           | 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                     |
|             |              |                | 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                  |
| L11         | 60 - 55      | Pole           | Max. Torque      | 18              |         |                          | 0.38                     |
|             |              |                | 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                     |
|             |              |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |              |                | Max. Compression | 26              | -51.14  | 0.61                     | 0.35                     |
| L12         | 55 - 50      | Pole           | 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                     |
|             |              |                | 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                     |
| L13         | 50 - 45      | Pole           | Max. Vx          | 14              | 21.20   | 0.07                     | -799.48                  |
|             |              |                | Max. Torque      | 18              |         |                          | 0.38                     |
|             |              |                | 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                     |
|             |              |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
| L14         | 45 - 40      | Pole           | 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                     |
|             |              |                | 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                  |
| L15         | 40 - 35      | Pole           | Max. Vy          | 20              | -21.14  | 796.82                   | 0.06                     |
|             |              |                | Max. Vx          | 14              | 21.20   | 0.07                     | -799.48                  |
|             |              |                | Max. Torque      | 18              |         |                          | 0.38                     |
|             |              |                | 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                     |

| Section No. | Elevation ft  | Component Type | Condition        | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|---------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| L15         | 40 - 39.33    | Pole           | 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                     |
|             |               |                | 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                  |
| L16         | 39.33 - 39.08 | Pole           | Max. Vy          | 20              | -21.32  | 917.17                   | 0.10                     |
|             |               |                | Max. Vx          | 14              | 21.42   | 0.04                     | -920.21                  |
|             |               |                | Max. Torque      | 18              |         |                          | 0.38                     |
|             |               |                | 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                     |
|             |               |                | 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                     |
| L18         | 34.08 - 30    | Pole           | 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                     |
|             |               |                | 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                 |
| L19         | 30 - 29.75    | Pole           | Max. Torque      | 18              |         |                          | 0.38                     |
|             |               |                | 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                     |
|             |               |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |               |                | Max. Compression | 26              | -63.24  | 1.02                     | 0.40                     |
| L20         | 29.75 - 25    | Pole           | 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                     |
|             |               |                | 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                     |
| L21         | 25 - 24.75    | Pole           | Max. Vx          | 14              | 22.57   | -0.06                    | -1351.83                 |
|             |               |                | Max. Torque      | 18              |         |                          | 0.38                     |
|             |               |                | 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                     |
|             |               |                | Max. My          | 14              |         |                          |                          |
|             |               |                | Max. Vy          | 20              |         |                          |                          |
|             |               |                | Max. Vx          | 14              |         |                          |                          |
|             |               |                | Max. Torque      | 18              |         |                          |                          |
|             |               |                | Max Tension      | 1               |         |                          |                          |
| L22         | 24.75 - 19.75 | Pole           | 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                     |
|             |               |                | 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                     |
|             |               |                | Max. My          | 14              |         |                          |                          |
| L23         | 19.75 - 18.58 | Pole           | Max. Vy          | 20              |         |                          |                          |
|             |               |                | Max. Vx          | 14              |         |                          |                          |
|             |               |                | Max. Torque      | 18              |         |                          |                          |
|             |               |                | Max Tension      | 1               |         |                          |                          |
|             |               |                | Max. Compression | 26              |         |                          |                          |
|             |               |                | Max. Mx          | 20              |         |                          |                          |
|             |               |                | Max. My          | 14              |         |                          |                          |
|             |               |                | Max. Vy          | 20              |         |                          |                          |
|             |               |                | Max. Vx          | 14              |         |                          |                          |
|             |               |                | Max. Torque      | 18              |         |                          |                          |

| Section No. | Elevation ft  | Component Type | Condition        | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|---------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| L24         | 18.58 - 18.33 | Pole           | 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                     |
|             |               |                | 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                 |
| L25         | 18.33 - 13.33 | Pole           | Max. Torque      | 18              |         |                          | 0.38                     |
|             |               |                | 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                     |
|             |               |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
|             |               |                | Max. Compression | 26              | -71.10  | 1.33                     | 0.28                     |
| L26         | 13.33 - 8.42  | Pole           | 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                     |
|             |               |                | 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                     |
| L27         | 8.42 - 8.07   | Pole           | Max. Vx          | 14              | 23.27   | -0.12                    | -1619.49                 |
|             |               |                | Max. Torque      | 18              |         |                          | 0.38                     |
|             |               |                | 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                     |
|             |               |                | Max Tension      | 1               | 0.00    | 0.00                     | 0.00                     |
| L28         | 8.07 - 7.83   | Pole           | 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                     |
|             |               |                | 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                 |
| L29         | 7.83 - 6      | Pole           | Max. Vy          | 20              | -23.23  | 1652.65                  | 0.30                     |
|             |               |                | Max. Vx          | 14              | 23.45   | -0.13                    | -1667.82                 |
|             |               |                | Max. Torque      | 18              |         |                          | 0.38                     |
|             |               |                | 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                     |
|             |               |                | 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                     |
| L31         | 5.75 - 2      | Pole           | 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                     |
|             |               |                | 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                 |
| L32         | 2 - 1.75      | Pole           | Max. Torque      | 20              |         |                          | 0.41                     |
|             |               |                | 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                     |



| 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. M <sub>x</sub> | 20              | -45.39  | 1793.31                  | 0.34                     |
|             |              |                | Max. M <sub>y</sub> | 14              | -45.39  | -0.16                    | -1809.46                 |
|             |              |                | Max. V <sub>y</sub> | 20              | -23.62  | 1793.31                  | 0.34                     |
|             |              |                | Max. V <sub>x</sub> | 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 <sub>x</sub> | 20              | 45.41      | 23.58           | 0.01            |
|          | Max. H <sub>z</sub> | 2               | 45.41      | 0.01            | 23.45           |
|          | Max. M <sub>x</sub> | 2               | 1796.83    | 0.01            | 23.45           |
|          | Max. M <sub>z</sub> | 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 <sub>x</sub> | 8               | 45.41      | -23.58          | -0.01           |
|          | Min. H <sub>z</sub> | 14              | 45.41      | -0.01           | -23.76          |
|          | Min. M <sub>x</sub> | 14              | -1809.46   | -0.01           | -23.76          |
|          | Min. M <sub>z</sub> | 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 <sub>x</sub> K | Shear <sub>z</sub> K | Overturning Moment, M <sub>x</sub> kip-ft | Overturning Moment, M <sub>z</sub> 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<br>Combination         | Vertical<br>K | Shear <sub>x</sub><br>K | Shear <sub>z</sub><br>K | Overturing<br>Moment, M <sub>x</sub><br>kip-ft | Overturing<br>Moment, M <sub>z</sub><br>kip-ft | Torque<br>kip-ft |
|-----------------------------|---------------|-------------------------|-------------------------|------------------------------------------------|------------------------------------------------|------------------|
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 0.9 Dead+1.0 Wind 210 deg   | 34.06         | -12.62                  | 21.82                   | 1580.79                                        | 914.24                                         | -0.22            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 240 deg   | 45.41         | -19.84                  | 11.42                   | 890.20                                         | 1545.47                                        | -0.38            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 0.9 Dead+1.0 Wind 240 deg   | 34.06         | -19.84                  | 11.42                   | 877.96                                         | 1524.24                                        | -0.38            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 270 deg   | 45.41         | -23.58                  | -0.01                   | -0.34                                          | 1793.31                                        | -0.41            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 0.9 Dead+1.0 Wind 270 deg   | 34.06         | -23.58                  | -0.01                   | -0.41                                          | 1768.77                                        | -0.40            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 300 deg   | 45.41         | -20.61                  | -11.88                  | -901.00                                        | 1563.91                                        | -0.21            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 0.9 Dead+1.0 Wind 300 deg   | 34.06         | -20.61                  | -11.88                  | -888.84                                        | 1542.58                                        | -0.21            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 330 deg   | 45.41         | -12.07                  | -20.85                  | -1570.80                                       | 909.64                                         | -0.08            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 0.9 Dead+1.0 Wind 330 deg   | 34.06         | -12.07                  | -20.85                  | -1549.56                                       | 897.19                                         | -0.08            |
| - No Ice                    |               |                         |                         |                                                |                                                |                  |
| 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         | 75.59         | -0.00                   | -6.98                   | -556.66                                        | 1.76                                           | 0.05             |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 30        | 75.59         | 3.68                    | -6.37                   | -488.65                                        | -280.65                                        | 0.03             |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 60        | 75.59         | 6.07                    | -3.50                   | -278.45                                        | -481.01                                        | 0.08             |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 90        | 75.59         | 7.13                    | 0.00                    | -0.10                                          | -557.06                                        | 0.08             |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 120       | 75.59         | 6.03                    | 3.48                    | 277.94                                         | -480.67                                        | 0.03             |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 150       | 75.59         | 3.56                    | 6.15                    | 483.13                                         | -277.88                                        | 0.01             |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 180       | 75.59         | 0.00                    | 6.98                    | 556.19                                         | 1.49                                           | -0.05            |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 210       | 75.59         | -3.67                   | 6.35                    | 487.91                                         | 283.74                                         | -0.03            |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 240       | 75.59         | -6.03                   | 3.47                    | 277.71                                         | 483.79                                         | -0.08            |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 270       | 75.59         | -7.13                   | -0.00                   | -0.37                                          | 560.30                                         | -0.08            |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 300       | 75.59         | -6.07                   | -3.50                   | -278.68                                        | 484.38                                         | -0.03            |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 1.2 Dead+1.0 Wind 330       | 75.59         | -3.57                   | -6.18                   | -483.87                                        | 281.29                                         | -0.01            |
| deg+1.0 Ice+1.0 Temp        |               |                         |                         |                                                |                                                |                  |
| 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 |         |         | Sum of Reactions |         |         | % Error |
|------------|-----------------------|---------|---------|------------------|---------|---------|---------|
|            | PX<br>K               | PY<br>K | PZ<br>K | PX<br>K          | PY<br>K | PZ<br>K |         |
| 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<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| 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<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| 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<br>ft | Appurtenance                                                 | Gov.<br>Load<br>Comb. | Deflection<br>in | Tilt<br>° | Twist<br>° | Radius of<br>Curvature<br>ft |
|-----------------|--------------------------------------------------------------|-----------------------|------------------|-----------|------------|------------------------------|
| 107.00          | Site Pro 1 RMQP-xxx + HRK12<br>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<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| 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<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| 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<br>ft | Appurtenance                                                 | Gov.<br>Load<br>Comb. | Deflection<br>in | Tilt<br>° | Twist<br>° | Radius of<br>Curvature<br>ft |
|-----------------|--------------------------------------------------------------|-----------------------|------------------|-----------|------------|------------------------------|
| 107.00          | Site Pro 1 RMQP-xxx + HRK12<br>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<br>ft    | Size      | L<br>ft | L <sub>u</sub><br>ft | KI/r | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|--------------------|-----------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| L1          | 110 - 105 (1)      | P24x0.25  | 5.00    | 0.00                 | 0.0  | 18,653<br>2          | -3.80               | 662.26               | 0.006                           |
| L2          | 105 - 100 (2)      | P24x0.25  | 5.00    | 0.00                 | 0.0  | 18,653<br>2          | -5.04               | 662.26               | 0.008                           |
| L3          | 100 - 95 (3)       | P24x0.25  | 5.00    | 0.00                 | 0.0  | 18,653<br>2          | -5.45               | 662.26               | 0.008                           |
| L4          | 95 - 90 (4)        | P24x0.25  | 5.00    | 0.00                 | 0.0  | 18,653<br>2          | -5.86               | 662.26               | 0.009                           |
| L5          | 90 - 85 (5)        | P24x0.375 | 5.00    | 0.00                 | 0.0  | 27,832<br>5          | -10.77              | 1052.07              | 0.010                           |
| L6          | 85 - 80 (6)        | P24x0.375 | 5.00    | 0.00                 | 0.0  | 27,832<br>5          | -11.43              | 1052.07              | 0.011                           |
| L7          | 80 - 75 (7)        | P24x0.375 | 5.00    | 0.00                 | 0.0  | 27,832<br>5          | -15.08              | 1052.07              | 0.014                           |
| L8          | 75 - 70 (8)        | P24x0.375 | 5.00    | 0.00                 | 0.0  | 27,832<br>5          | -15.80              | 1052.07              | 0.015                           |
| L9          | 70 - 65 (9)        | P24x0.375 | 5.00    | 0.00                 | 0.0  | 27,832<br>5          | -16.54              | 1052.07              | 0.016                           |
| L10         | 65 - 60 (10)       | P24x0.375 | 5.00    | 0.00                 | 0.0  | 27,832<br>5          | -20.48              | 1052.07              | 0.019                           |
| L11         | 60 - 55 (11)       | P30x0.375 | 5.00    | 0.00                 | 0.0  | 34,901<br>1          | -21.39              | 1311.06              | 0.016                           |
| L12         | 55 - 50 (12)       | P30x0.375 | 5.00    | 0.00                 | 0.0  | 34,901<br>1          | -25.42              | 1311.06              | 0.019                           |
| L13         | 50 - 45 (13)       | P30x0.375 | 5.00    | 0.00                 | 0.0  | 34,901<br>1          | -26.37              | 1311.06              | 0.020                           |
| L14         | 45 - 40 (14)       | P30x0.375 | 5.00    | 0.00                 | 0.0  | 34,901<br>1          | -27.35              | 1311.06              | 0.021                           |
| L15         | 40 - 39.33<br>(15) | P30x0.375 | 0.67    | 0.00                 | 0.0  | 34,901<br>1          | -27.49              | 1311.06              | 0.021                           |

| Section No. | Elevation<br>ft       | Size        | L<br>ft | L <sub>u</sub><br>ft | KI/r | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------------|-------------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| L16         | 39.33 - 39.08<br>(16) | P30x0.4875  | 0.25    | 0.00                 | 0.0  | 45.199<br>2          | -27.55              | 1708.53              | 0.016                           |
| L17         | 39.08 - 34.08<br>(17) | P30x0.4875  | 5.00    | 0.00                 | 0.0  | 45.199<br>2          | -28.68              | 1708.53              | 0.017                           |
| L18         | 34.08 - 30<br>(18)    | P30x0.4875  | 4.08    | 0.00                 | 0.0  | 45.199<br>2          | -29.62              | 1708.53              | 0.017                           |
| L19         | 30 - 29.75<br>(19)    | P30x0.5     | 0.25    | 0.00                 | 0.0  | 46.338<br>5          | -34.56              | 1751.60              | 0.020                           |
| L20         | 29.75 - 25<br>(20)    | P30x0.5     | 4.75    | 0.00                 | 0.0  | 46.338<br>5          | -35.72              | 1751.60              | 0.020                           |
| L21         | 25 - 24.75<br>(21)    | P30x0.55625 | 0.25    | 0.00                 | 0.0  | 51.453<br>3          | -35.81              | 1944.93              | 0.018                           |
| L22         | 24.75 - 19.75<br>(22) | P30x0.55625 | 5.00    | 0.00                 | 0.0  | 51.453<br>3          | -37.40              | 1944.93              | 0.019                           |
| L23         | 19.75 - 18.58<br>(23) | P30x0.55625 | 1.17    | 0.00                 | 0.0  | 51.453<br>3          | -37.78              | 1944.93              | 0.019                           |
| L24         | 18.58 - 18.33<br>(24) | P30x0.6875  | 0.25    | 0.00                 | 0.0  | 63.310<br>5          | -37.89              | 2393.14              | 0.016                           |
| L25         | 18.33 - 13.33<br>(25) | P30x0.6875  | 5.00    | 0.00                 | 0.0  | 63.310<br>5          | -39.82              | 2393.14              | 0.017                           |
| L26         | 13.33 - 8.42<br>(26)  | P30x0.6875  | 4.91    | 0.00                 | 0.0  | 63.310<br>5          | -41.74              | 2393.14              | 0.017                           |
| L27         | 8.42 - 8.07<br>(27)   | P30x1.3     | 0.35    | 0.00                 | 0.0  | 117.21<br>30         | -41.93              | 4430.64              | 0.009                           |
| L28         | 8.07 - 7.83<br>(28)   | P30x1.2     | 0.24    | 0.00                 | 0.0  | 108.57<br>30         | -42.05              | 4104.08              | 0.010                           |
| L29         | 7.83 - 6 (29)         | P30x1.2     | 1.83    | 0.00                 | 0.0  | 108.57<br>30         | -42.94              | 4104.08              | 0.010                           |
| L30         | 6 - 5.75 (30)         | P30x1.15    | 0.25    | 0.00                 | 0.0  | 104.23<br>00         | -43.06              | 3939.90              | 0.011                           |
| L31         | 5.75 - 2 (31)         | P30x1.15    | 3.75    | 0.00                 | 0.0  | 104.23<br>00         | -44.64              | 3939.90              | 0.011                           |
| L32         | 2 - 1.75 (32)         | P30x1.6     | 0.25    | 0.00                 | 0.0  | 142.75<br>40         | -44.78              | 5396.10              | 0.008                           |
| L33         | 1.75 - 0 (33)         | P30x0.875   | 1.75    | 0.00                 | 0.0  | 80.061<br>5          | -45.39              | 3026.33              | 0.015                           |

### Pole Bending Design Data

| Section No. | Elevation<br>ft       | Size       | M <sub>ux</sub><br>kip-ft | φM <sub>nx</sub><br>kip-ft | Ratio<br>$\frac{M_{ux}}{\phi M_{nx}}$ | M <sub>uy</sub><br>kip-ft | φM <sub>ny</sub><br>kip-ft | Ratio<br>$\frac{M_{uy}}{\phi M_{ny}}$ |
|-------------|-----------------------|------------|---------------------------|----------------------------|---------------------------------------|---------------------------|----------------------------|---------------------------------------|
| 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<br>(15)    | P30x0.375  | 924.59                    | 947.86                     | 0.975                                 | 0.00                      | 947.86                     | 0.000                                 |
| L16         | 39.33 - 39.08<br>(16) | P30x0.4875 | 930.02                    | 1273.78                    | 0.730                                 | 0.00                      | 1273.78                    | 0.000                                 |
| L17         | 39.08 - 34.08<br>(17) | P30x0.4875 | 1040.30                   | 1273.78                    | 0.817                                 | 0.00                      | 1273.78                    | 0.000                                 |
| L18         | 34.08 - 30<br>(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<br>ft       | Size        | $M_{ux}$<br>kip-ft | $\phi M_{nx}$<br>kip-ft | Ratio<br>$\frac{M_{ux}}{\phi M_{nx}}$ | $M_{uy}$<br>kip-ft | $\phi M_{ny}$<br>kip-ft | Ratio<br>$\frac{M_{uy}}{\phi M_{ny}}$ |
|-------------|-----------------------|-------------|--------------------|-------------------------|---------------------------------------|--------------------|-------------------------|---------------------------------------|
| L20         | (19)<br>29.75 - 25    | P30x0.5     | 1247.37            | 1311.10                 | 0.951                                 | 0.00               | 1311.10                 | 0.000                                 |
| L21         | (20)<br>25 - 24.75    | P30x0.55625 | 1253.13            | 1481.77                 | 0.846                                 | 0.00               | 1481.77                 | 0.000                                 |
| L22         | (21)<br>24.75 - 19.75 | P30x0.55625 | 1369.60            | 1481.77                 | 0.924                                 | 0.00               | 1481.77                 | 0.000                                 |
| L23         | (22)<br>19.75 - 18.58 | P30x0.55625 | 1397.17            | 1481.77                 | 0.943                                 | 0.00               | 1481.77                 | 0.000                                 |
| L24         | (23)<br>18.58 - 18.33 | P30x0.6875  | 1403.07            | 1861.09                 | 0.754                                 | 0.00               | 1861.09                 | 0.000                                 |
| L25         | (24)<br>18.33 - 13.33 | P30x0.6875  | 1522.34            | 1861.09                 | 0.818                                 | 0.00               | 1861.09                 | 0.000                                 |
| L26         | (25)<br>13.33 - 8.42  | P30x0.6875  | 1641.57            | 1861.09                 | 0.882                                 | 0.00               | 1861.09                 | 0.000                                 |
| L27         | (26)<br>8.42 - 8.07   | P30x1.3     | 1650.14            | 3375.32                 | 0.489                                 | 0.00               | 3375.32                 | 0.000                                 |
| L28         | (27)<br>8.07 - 7.83   | P30x1.2     | 1656.03            | 3137.10                 | 0.528                                 | 0.00               | 3137.10                 | 0.000                                 |
| L29         | (28)<br>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<br>ft    | Size        | Actual<br>$V_u$<br>K | $\phi V_n$<br>K | Ratio<br>$\frac{V_u}{\phi V_n}$ | Actual<br>$T_u$<br>kip-ft | $\phi T_n$<br>kip-ft | Ratio<br>$\frac{T_u}{\phi T_n}$ |
|-------------|--------------------|-------------|----------------------|-----------------|---------------------------------|---------------------------|----------------------|---------------------------------|
| 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 (15)    | P30x0.375   | 21.74                | 395.78          | 0.055                           | 0.32                      | 994.73               | 0.000                           |
| L16         | 39.33 - 39.08 (16) | P30x0.4875  | 21.76                | 512.56          | 0.042                           | 0.31                      | 1329.93              | 0.000                           |
| L17         | 39.08 - 34.08 (17) | P30x0.4875  | 22.35                | 512.56          | 0.044                           | 0.29                      | 1329.93              | 0.000                           |
| L18         | 34.08 - 30 (18)    | P30x0.4875  | 22.79                | 512.56          | 0.044                           | 0.26                      | 1329.93              | 0.000                           |
| L19         | 30 - 29.75 (19)    | P30x0.5     | 22.94                | 525.48          | 0.044                           | 0.25                      | 1362.88              | 0.000                           |
| L20         | 29.75 - 25 (20)    | P30x0.5     | 23.09                | 525.48          | 0.044                           | 0.25                      | 1362.88              | 0.000                           |
| L21         | 25 - 24.75 (21)    | P30x0.55625 | 23.07                | 583.48          | 0.040                           | 0.25                      | 1510.43              | 0.000                           |
| L22         | 24.75 - 19.75 (22) | P30x0.55625 | 23.52                | 583.48          | 0.040                           | 0.25                      | 1510.43              | 0.000                           |
| L23         | 19.75 - 18.58 (23) | P30x0.55625 | 23.63                | 583.48          | 0.040                           | 0.24                      | 1510.43              | 0.000                           |
| L24         | 18.58 - 18.33 (24) | P30x0.6875  | 23.63                | 717.94          | 0.033                           | 0.24                      | 1850.21              | 0.000                           |
| L25         | 18.33 - 13.33      | P30x0.6875  | 24.09                | 717.94          | 0.034                           | 0.23                      | 1850.21              | 0.000                           |

| Section No. | Elevation<br>ft       | Size       | Actual<br>$V_u$<br>K | $\phi V_n$<br>K | Ratio<br>$\frac{V_u}{\phi V_n}$ | Actual<br>$T_u$<br>kip-ft | $\phi T_n$<br>kip-ft | Ratio<br>$\frac{T_u}{\phi T_n}$ |
|-------------|-----------------------|------------|----------------------|-----------------|---------------------------------|---------------------------|----------------------|---------------------------------|
| L26         | (25)<br>13.33 - 8.42  | P30x0.6875 | 24.51                | 717.94          | 0.034                           | 0.23                      | 1850.21              | 0.000                           |
| L27         | (26)<br>8.42 - 8.07   | P30x1.3    | 24.52                | 1329.19         | 0.018                           | 0.23                      | 3353.90              | 0.000                           |
| L28         | (27)<br>8.07 - 7.83   | P30x1.2    | 24.55                | 1231.22         | 0.020                           | 0.23                      | 3117.52              | 0.000                           |
| L29         | (28)<br>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<br>ft    | Ratio<br>$P_u$<br>$\phi P_n$ | Ratio<br>$M_{ux}$<br>$\phi M_{nx}$ | Ratio<br>$M_{uy}$<br>$\phi M_{ny}$ | Ratio<br>$V_u$<br>$\phi V_n$ | Ratio<br>$T_u$<br>$\phi T_n$ | Comb.<br>Stress<br>Ratio | Allow.<br>Stress<br>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 (15)    | 0.021                        | 0.975                              | 0.000                              | 0.055                        | 0.000                        | 0.999                    | 1.050                     | 4.8.2    |
| L16         | 39.33 - 39.08 (16) | 0.016                        | 0.730                              | 0.000                              | 0.042                        | 0.000                        | 0.748                    | 1.050                     | 4.8.2    |
| L17         | 39.08 - 34.08 (17) | 0.017                        | 0.817                              | 0.000                              | 0.044                        | 0.000                        | 0.835                    | 1.050                     | 4.8.2    |
| L18         | 34.08 - 30 (18)    | 0.017                        | 0.889                              | 0.000                              | 0.044                        | 0.000                        | 0.908                    | 1.050                     | 4.8.2    |
| L19         | 30 - 29.75 (19)    | 0.020                        | 0.868                              | 0.000                              | 0.044                        | 0.000                        | 0.890                    | 1.050                     | 4.8.2    |
| L20         | 29.75 - 25 (20)    | 0.020                        | 0.951                              | 0.000                              | 0.044                        | 0.000                        | 0.974                    | 1.050                     | 4.8.2    |
| L21         | 25 - 24.75 (21)    | 0.018                        | 0.846                              | 0.000                              | 0.040                        | 0.000                        | 0.866                    | 1.050                     | 4.8.2    |
| L22         | 24.75 - 19.75 (22) | 0.019                        | 0.924                              | 0.000                              | 0.040                        | 0.000                        | 0.945                    | 1.050                     | 4.8.2    |
| L23         | 19.75 - 18.58 (23) | 0.019                        | 0.943                              | 0.000                              | 0.040                        | 0.000                        | 0.964                    | 1.050                     | 4.8.2    |
| L24         | 18.58 - 18.33 (24) | 0.016                        | 0.754                              | 0.000                              | 0.033                        | 0.000                        | 0.771                    | 1.050                     | 4.8.2    |
| L25         | 18.33 - 13.33 (25) | 0.017                        | 0.818                              | 0.000                              | 0.034                        | 0.000                        | 0.836                    | 1.050                     | 4.8.2    |
| L26         | 13.33 - 8.42 (26)  | 0.017                        | 0.882                              | 0.000                              | 0.034                        | 0.000                        | 0.901                    | 1.050                     | 4.8.2    |
| L27         | 8.42 - 8.07 (27)   | 0.009                        | 0.489                              | 0.000                              | 0.018                        | 0.000                        | 0.499                    | 1.050                     | 4.8.2    |
| L28         | 8.07 - 7.83 (28)   | 0.010                        | 0.528                              | 0.000                              | 0.020                        | 0.000                        | 0.539                    | 1.050                     | 4.8.2    |
| 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<br>ft | Ratio<br>$P_u$ | Ratio<br>$M_{ux}$ | Ratio<br>$M_{uy}$ | Ratio<br>$V_u$ | Ratio<br>$T_u$ | Comb.<br>Stress<br>Ratio | Allow.<br>Stress<br>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    |

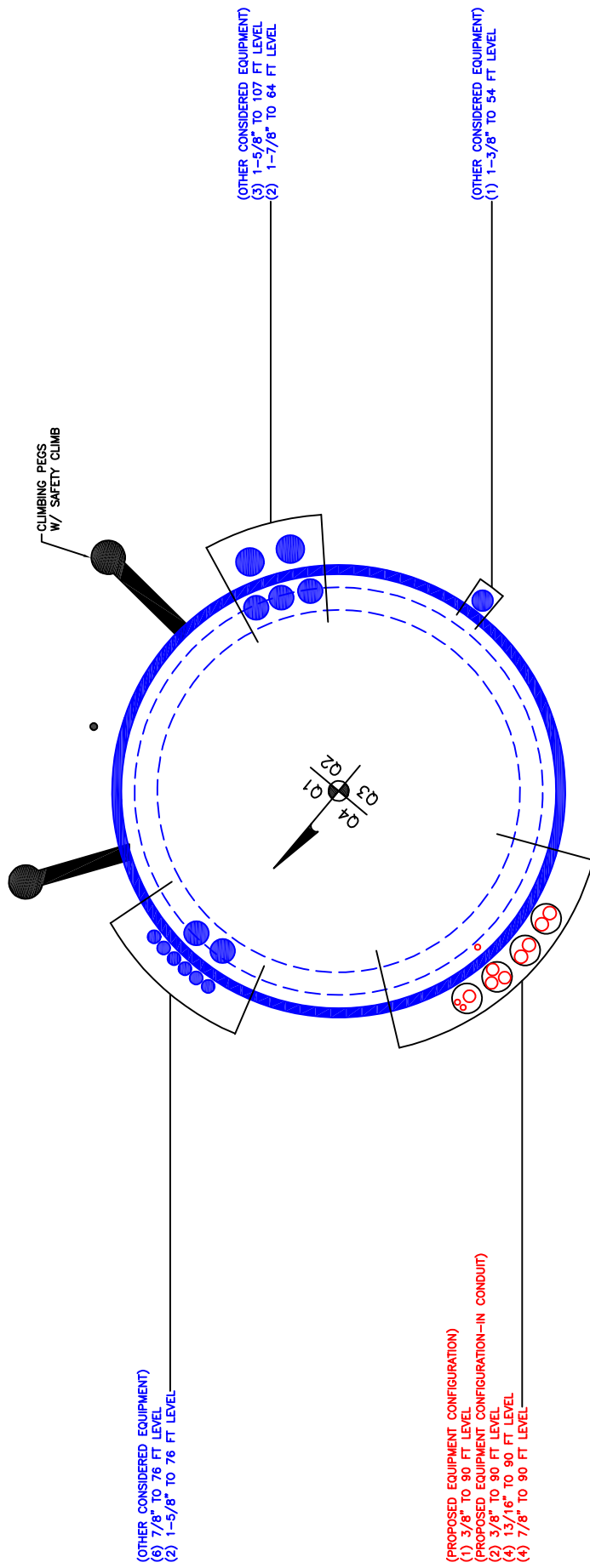
## Section Capacity Table

| Section No. | Elevation<br>ft | Component<br>Type | Size        | Critical<br>Element | P<br>K | $\phi P_{allow}$<br>K | %<br>Capacity   | Pass<br>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        |
|             |                 |                   |             |                     |        |                       | <b>RATING =</b> | <b>95.2 Pass</b> |

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

**APPENDIX B**  
**BASE LEVEL DRAWING**





## **APPENDIX C**

### **ADDITIONAL CALCULATIONS**

Site BU: 876325  
Work Order: 2017813

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### Pole Geometry

|   | Pole Height Above Base (ft) | Section Length (ft) | Lap Splice Length (ft) | Number of Sides | Top Diameter (in) | Bottom Diameter (in) | Wall Thickness (in) | Bend Radius (in) | Pole Material |
|---|-----------------------------|---------------------|------------------------|-----------------|-------------------|----------------------|---------------------|------------------|---------------|
| 1 | 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 <sup>2</sup> ) | Pole Face to Centroid (in) | Bottom Termination Type | Bottom Termination Length (in) | Top Termination Type | Top Termination Length (in) | Lu (in) | Net Area (in <sup>2</sup> ) | 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): |                     | TNX Output         |                          |                    |
|-----------------|---------------------|--------------------|--------------------------|--------------------|
|                 | Section Height (ft) | P <sub>u</sub> (K) | M <sub>ux</sub> (kip-ft) | V <sub>u</sub> (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<br>Elevation (ft) | Moment of Inertia (in <sup>4</sup> ) |        |       | Area (in <sup>2</sup> ) |        |        | % 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.



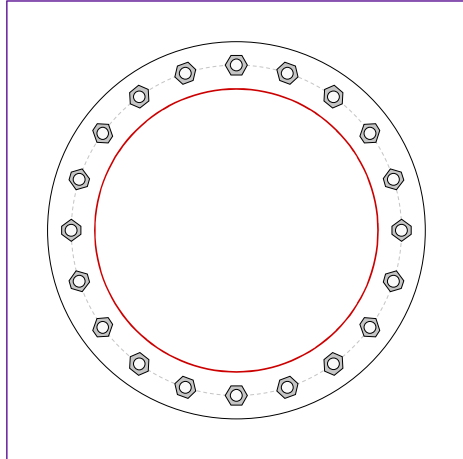
|           |               |
|-----------|---------------|
| BU #      | 876325        |
| Site Name | WESTON SQUARE |
| Order #   | 556509 Rev.0  |

|                  |   |
|------------------|---|
| TIA-222 Revision | H |
|------------------|---|

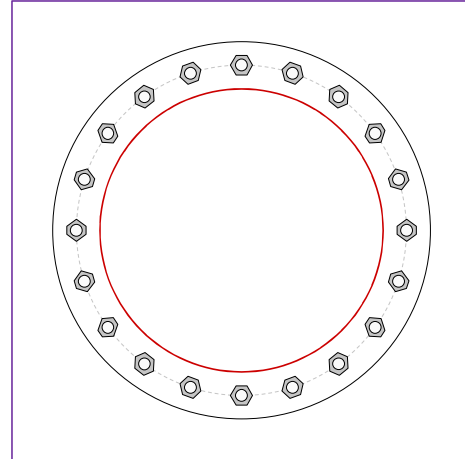
| Applied Loads      |       |
|--------------------|-------|
| Moment (kip-ft)    | 94.25 |
| Axial Force (kips) | 5.86  |
| Shear Force (kips) | 6.03  |

\*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



### Connection Properties

#### Bolt Data

(20) 1"  $\phi$  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)

#### Top Stiffener Data

N/A

#### Top Pole Data

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

#### Bottom Plate Data

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

#### Bottom Stiffener Data

N/A

#### Bottom Pole Data

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

### Analysis Results

#### Bolt Capacity

|                  |            |
|------------------|------------|
| Max Load (kips)  | 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.

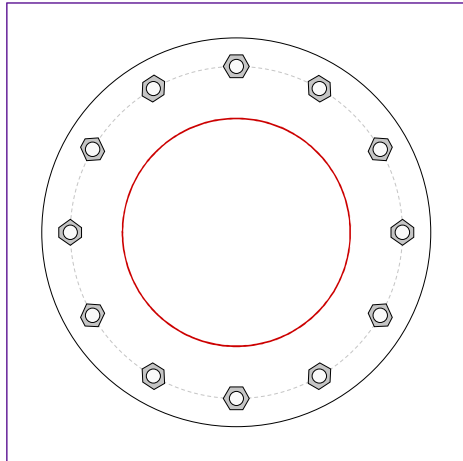


|                  |               |
|------------------|---------------|
| BU #             | 876325        |
| Site Name        | WESTON SQUARE |
| Order #          | 556509 Rev.0  |
| TIA-222 Revision | H             |

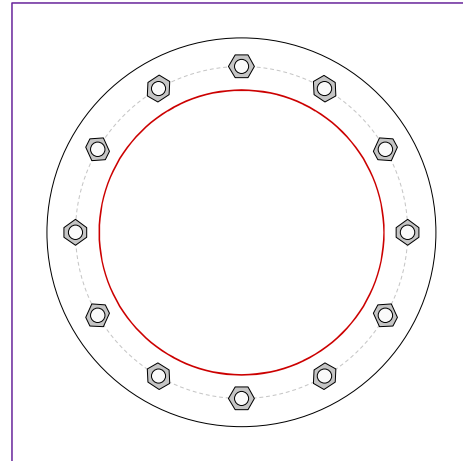
| Applied Loads      |        |
|--------------------|--------|
| Moment (kip-ft)    | 504.29 |
| Axial Force (kips) | 20.48  |
| Shear Force (kips) | 17.84  |

\*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



## Connection Properties

### Bolt Data

(12) 1-1/2"  $\phi$  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)

### Top Stiffener Data

N/A

### Top Pole Data

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

### Bottom Plate Data

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

### Bottom Stiffener Data

N/A

### 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:   | <b>41.9%</b> <span style="color: green;">Pass</span> |

### Top Plate Capacity

|                             |                |
|-----------------------------|----------------|
| Max Stress (ksi):           | -              |
| Allowable Stress (ksi):     | -              |
| Stress Rating:              | <b>Rohn OK</b> |
| Tension Side Stress Rating: | <b>Rohn OK</b> |

### Bottom Plate Capacity

|                             |                |
|-----------------------------|----------------|
| Max Stress (ksi):           | -              |
| Allowable Stress (ksi):     | -              |
| Stress Rating:              | <b>Rohn OK</b> |
| Tension Side Stress Rating: | <b>Rohn OK</b> |

# Monopole Flange Plate Connection

Elevation = 30 ft.



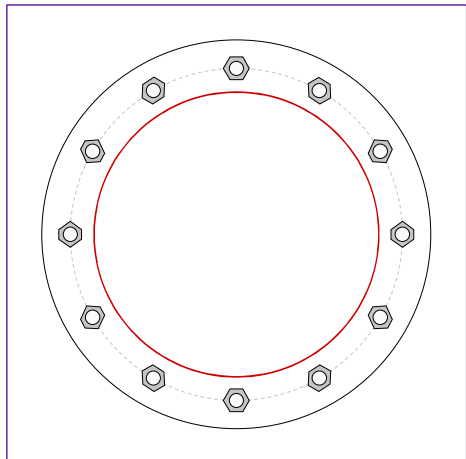
|           |               |
|-----------|---------------|
| BU #      | 876325        |
| Site Name | WESTON SQUARE |
| Order #   | 556509 Rev.0  |

|                  |   |
|------------------|---|
| TIA-222 Revision | H |
|------------------|---|

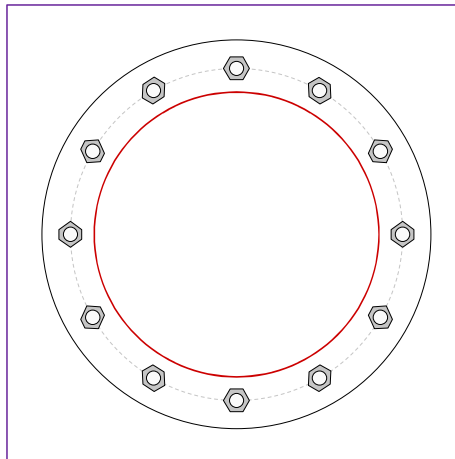
| Applied Loads to Flange Connections |        | Applied Loads to Bridge Stiffeners |        |
|-------------------------------------|--------|------------------------------------|--------|
| Moment (kip-ft)                     | 193.03 | Moment (kip-ft)                    | 939.32 |
| Axial Force (kips)                  | 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"  $\phi$  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)

### Top Stiffener Data

N/A

### Top Pole Data

30" x 0.375" 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

### Bottom Plate Data

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

### Bottom Stiffener Data

N/A

### Bottom Pole Data

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

### 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       |

### 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    |

### 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 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.

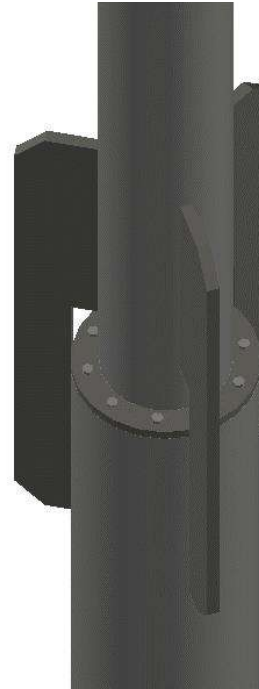
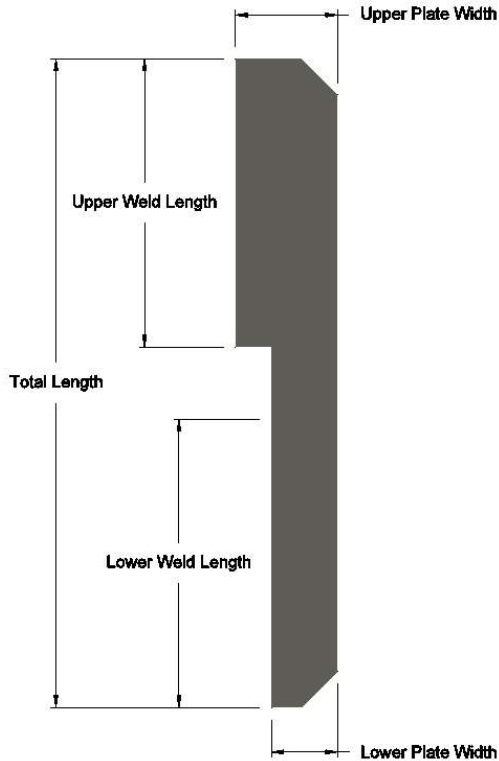


|           |               |
|-----------|---------------|
| BU #      | 876325        |
| Site Name | WESTON SQUARE |
| Order #   | 556509 Rev.0  |

|                  |   |
|------------------|---|
| 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              | Upper Weld Size:                                | <b>Good</b>   |
| Weld Type:                      | Fillet (both sides) |                 | Upper Weld Rating:                              | <b>40.90%</b> |
| Weld Size:                      | 0.375               | in              | Lower Weld Size:                                | <b>Good</b>   |
| Exx:                            | 80                  | ksi             | Lower Weld Rating:                              | <b>43.20%</b> |
| Upper Weld Length:              | 34.75               | in              | Top Plate Lateral-Torsional Buckling Rating:    | <b>6.55%</b>  |
| Upper Plate Width:              | 11                  | in              | Top Plate Tension Yield Rating:                 | <b>14.17%</b> |
| Lower Weld Length:              | 33.125              | in              | Top Plate Tension Rupture Rating:               | <b>15.35%</b> |
| Lower Plate Width:              | 11                  | in              | Top Plate Interaction Rating:                   | <b>9.02%</b>  |
| Stiffener Front EPA (No Ice):   | 6.63                | ft <sup>2</sup> | Bottom Plate Lateral-Torsional Buckling Rating: | <b>7.17%</b>  |
| Stiffener Side EPA (No Ice):    | 1.25                | ft <sup>2</sup> | Bottom Plate Tension Yield Rating:              | <b>14.86%</b> |
| Stiffener Front EPA (1/2" Ice): | 7.00                | ft <sup>2</sup> | Bottom Plate Tension Rupture Rating:            | <b>16.10%</b> |
| Stiffener Side EPA (1/2" Ice):  | 2.28                | ft <sup>2</sup> | Bottom Plate Interaction Rating:                | <b>9.89%</b>  |
| Stiffener Weight (No Ice):      | 0.245               | kip             | Top Pole Punching Shear Rating:                 | <b>23.14%</b> |
| Stiffener Weight (1/2" Ice):    | 0.271               | kip             | Bottom Pole Punching Shear Rating:              | <b>19.10%</b> |

## 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:

$$P := 114.55 \text{ kip}$$

### 1.2 Shaft Properties at the Flange

Upper Shaft Diameter:

$$D_{\text{shaft1}} := 30 \text{ in}$$

Upper Shaft Thickness:  
(inches)

$$t_1 := 0.375$$

Lower Shaft Diameter:

$$D_{\text{shaft2}} := 30 \text{ in}$$

Lower Shaft Thickness:  
(inches)

$$t_2 := 0.5$$

Shaft Grade:

$$F_{y_{\text{shaft}}} := 42 \text{ ksi}$$

$$F_{u_{\text{shaft}}} := 60 \text{ ksi}$$

### 1.3 Existing Bridge Stiffeners Properties

Number of Existing Bridge  
Stiffeners:

$$N_{\text{new}} := 3$$

Thickness of Existing Bridge  
Stiffeners:

$$t_{\text{new}} := 1 \text{ in}$$

Width of Existing Bridge  
Stiffeners:

$$w_{\text{new}} := 6.25 \text{ in}$$

Diameter to the centroid of  
Existing Bridge Stiffeners:

$$BC_{\text{new}} := 43 \text{ in}$$

Gross Area of One Existing  
Bridge Stiffener:

$$A_{g\_new} := w_{\text{new}} \cdot t_{\text{new}} = 6.25 \cdot \text{in}^2$$

Radius of Gyration about x-axis:

$$r_x := \frac{t_{\text{new}}}{\sqrt{12}} = 0.289 \cdot \text{in}$$

Moment of Inertia of Proposed  
Bridge Stiffeners:

$$I_{\text{new}} := \frac{N_{\text{new}} \cdot BC_{\text{new}}^2 \cdot A_{g\_new}}{8} = 4333.594 \cdot \text{in}^4$$

## 2. Bolt Checks

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

### 2.1 Blind Bolt Properties

[ENG-STD-10183]

Number of Bolts in the  
Eccentric Bolt Group:

$$N_{be} := 14$$

Number of Bolts in  
Shear-Only Group:

$$N_{bs} := 14$$

Intermediate Bolt Spacing:

$$L_b := 3 \text{ in}$$

Eccentricity:

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

Bolt Diameter:

$$D_b := 20 \text{ mm}$$

Bolt Hole Diameter:

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

Sleeve Diameter:

$$D_s := 1.14173 \text{ in}$$

Washer Diameter:

$$D_w := 42 \text{ mm} = 1.654 \cdot \text{in}$$

Ultimate Strength:

$$F_{u\text{bolt}} := 120 \text{ ksi}$$

Gross Area:

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

Allowable Shear:

$$\phi R_{nv} = 53.98 \cdot \text{kip}$$

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



## 2.2 Eccentric Connection

Bolt Shear Capacity:

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

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

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

Applied Bolt Shear:

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

$$\text{Check}_{ecc1} := \begin{cases} \text{"OK"} & \text{if } \text{Capacity}_{\text{shear.eccentric}} \leq 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

$$\text{Check}_{ecc1} = \text{"OK"}$$





### 3. Pole/ Shaft Checks

#### 3.1 Shaft Bearing

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

Minimum Thickness to Bear On:  $t := \min(t_1, t_2) \cdot \text{in} = 0.375 \cdot \text{in}$

Clear Distance from Edge of Hole to Edge of Adjacent Hole:  $L_c := L_b - D_h = 1.812 \cdot \text{in}$

Bearing By Tear-out:  $R_{n_{\text{shaft}1}} := 1.2 \cdot L_c \cdot t \cdot F_{u_{\text{shaft}}} = 48.937 \cdot \text{kip}$

Bearing By Hole Deformation:  $R_{n_{\text{shaft}2}} := 2.4 \cdot D_s \cdot t \cdot F_{u_{\text{shaft}}} = 61.653 \cdot \text{kip}$

Bearing Capacity:  $\phi R_{n_{\text{shaft}}} := 0.75 \cdot \min(R_{n_{\text{shaft}1}}, R_{n_{\text{shaft}2}}) = 36.703 \cdot \text{kip}$

$$\text{Check}_{\text{bearing}} := \begin{cases} \text{"OK"} & \text{if Capacity}_{\text{shaft.bearing}} \leq 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

**Check<sub>bearing</sub> = "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:  $\phi R_n := \phi \cdot (0.6 \cdot \pi D_w \cdot t) \cdot F_{u_{\text{shaft}}} = 46.987 \cdot \text{kip}$

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

$$\text{Check}_{\text{pull}} := \begin{cases} \text{"OK"} & \text{if Capacity}_{\text{pullout}} \leq 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

**Check<sub>pull</sub> = "OK"**





## 4 Weld Connection to Filler Plates

### 4.1 Weld Sizing

Thickness of Filler Plate:

6" 

Interpolation per AISC SCM Table 8-4:

Length of Filler Plate:

$$L_{be} := N_{be} \cdot L_b = 42 \cdot \text{in}$$

13th Edition  
14th Edition  
15th Edition

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:

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

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

Minimum Fillet Size per Material  
Thickness (In sixteenths of an inch):

$$D_{\min2} = 5 \cdot \text{in}$$

[AISC 15th Edition Table J2.3]

Design Weld Size  
(In sixteenths of an inch):

$$D := \max(D_{\min1}, D_{\min2}) = 5 \cdot \text{in}$$

### 4.2 Weld Capacity

Weld Capacity:

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

Check Weld Does Not Control:

$$\text{Check}_{\text{weld}} := \begin{cases} \text{"OK"} & \text{if Capacity}_{\text{weld}} \leq 100\% \\ \text{"N/G"} & \text{otherwise} \end{cases}$$

Check<sub>weld</sub> = "OK"

Weld Size Used:

$$D = \frac{5}{16} \cdot \text{in}$$

# Monopole Base Plate Connection

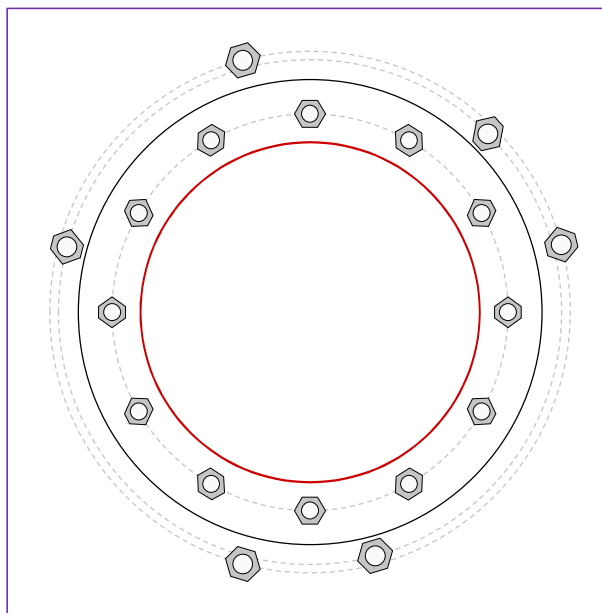


| Site Info |               |
|-----------|---------------|
| BU #      | 876325        |
| Site Name | WESTON SQUARE |
| Order #   | 556509 Rev.0  |

| Analysis Considerations |                  |
|-------------------------|------------------|
| TIA-222 Revision        | H                |
| Grout Considered:       | See Custom Sheet |
| $I_{gr}$ (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

## Analysis Results

### Anchor Rod Data

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

### Base Plate Data

41" OD x 2" Plate (A36;  $F_y=36$  ksi,  $F_u=58$  ksi)

### Stiffener Data

N/A

### Pole Data

30" x 0.5" round pole (A53-B-42;  $F_y=42$  ksi,  $F_u=63$  ksi)

### Anchor Rod Summary

(units of kips, kip-in)

#### GROUP 1:

|                   |                         |                      |
|-------------------|-------------------------|----------------------|
| $P_{u,t} = 98.08$ | $\phi P_{n,t} = 132.19$ | <b>Stress Rating</b> |
| $V_u = 2.12$      | $\phi V_n = 82.83$      | <b>70.7%</b>         |
| $M_u = n/a$       | $\phi M_n = n/a$        | <b>Pass</b>          |

#### GROUP 2:

|                    |                         |                      |
|--------------------|-------------------------|----------------------|
| $P_{u,t} = 238.28$ | $\phi P_{n,t} = 243.75$ | <b>Stress Rating</b> |
| $V_u = 0$          | $\phi V_n = 121.88$     | <b>93.1%</b>         |
| $M_u = 0$          | $\phi M_n = 108.42$     | <b>Pass</b>          |

#### GROUP 3:

|                    |                         |                      |
|--------------------|-------------------------|----------------------|
| $P_{u,t} = 164.68$ | $\phi P_{n,t} = 178.13$ | <b>Stress Rating</b> |
| $V_u = 0$          | $\phi V_n = 112.75$     | <b>88.0%</b>         |
| $M_u = n/a$        | $\phi M_n = n/a$        | <b>Pass</b>          |

### Base Plate Summary

|                         |              |             |
|-------------------------|--------------|-------------|
| Max Stress (ksi):       | 21.68        | (Flexural)  |
| Allowable Stress (ksi): | 32.4         |             |
| Stress Rating:          | <b>63.7%</b> | <b>Pass</b> |

# CClplate

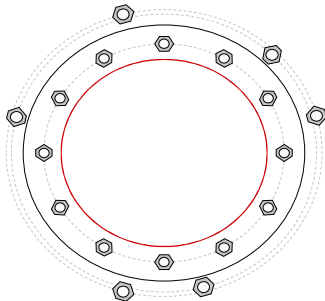
Elevation (ft) 0 (Base)

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, $\eta$ | $I_{br}$ (in) | Thread Type | Area Override, in <sup>2</sup> | 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 Revision: | H             |
| Tower Type:       | Monopole      |



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

[Go to Soil Calculations](#)

| Analysis Results   |                                |             |        |
|--------------------|--------------------------------|-------------|--------|
| Soil Lateral Check |                                | Compression | Uplift |
|                    | D <sub>ult</sub> (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%       | -      |

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

\*Rating per TIA-222-H Section 15.5

| Material Properties     |        |
|-------------------------|--------|
| Concrete Strength, f'c: | 3 ksi  |
| Rebar Strength, Fy:     | 60 ksi |
| Tie Yield Strength, Fy: | 60 ksi |

Rebar & Pier Options

Embedded Pole Inputs

Belled Pier Inputs

| 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 |

| Soil Profile      |    |             |   |  |  |  |  |  |  |
|-------------------|----|-------------|---|--|--|--|--|--|--|
| Groundwater Depth | 15 | # of Layers | 8 |  |  |  |  |  |  |

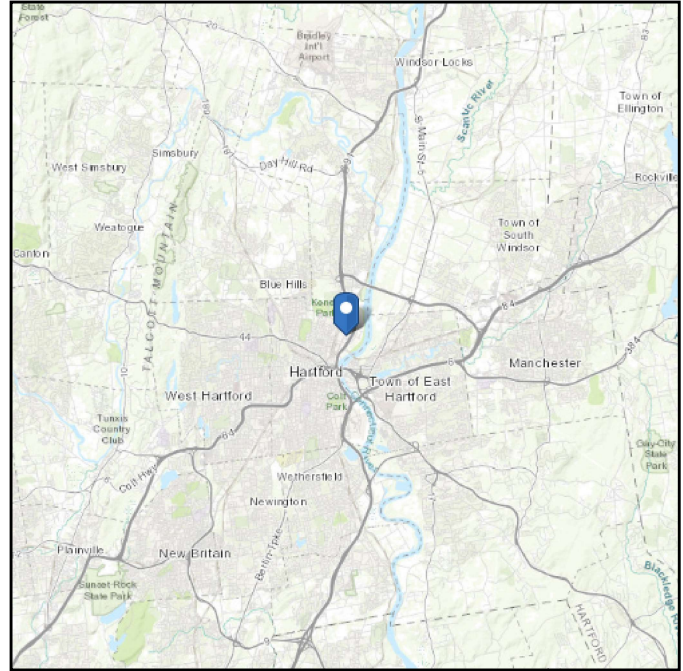
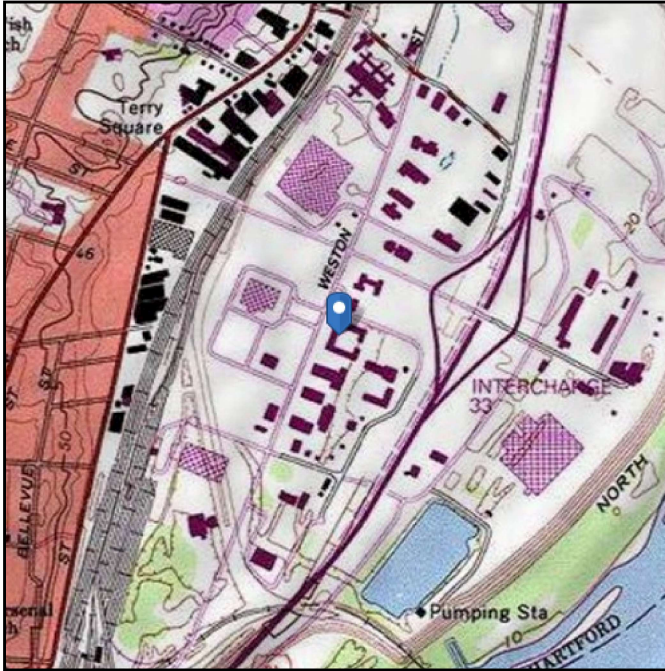
| Layer | Top (ft) | Bottom (ft) | Thickness (ft) | γ <sub>soil</sub> (pcf) | γ <sub>concrete</sub> (pcf) | Cohesion (ksf) | Angle of Friction (degrees) | Calculated Ultimate Skin Friction Comp (ksf) | Calculated Ultimate Skin Friction Uplift (ksf) | Ultimate Skin Friction Comp Override (ksf) | Ultimate 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  
**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: Mon Sep 06 2021

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

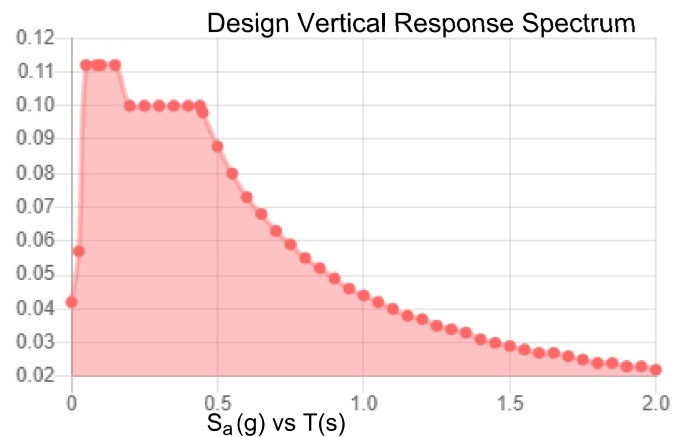
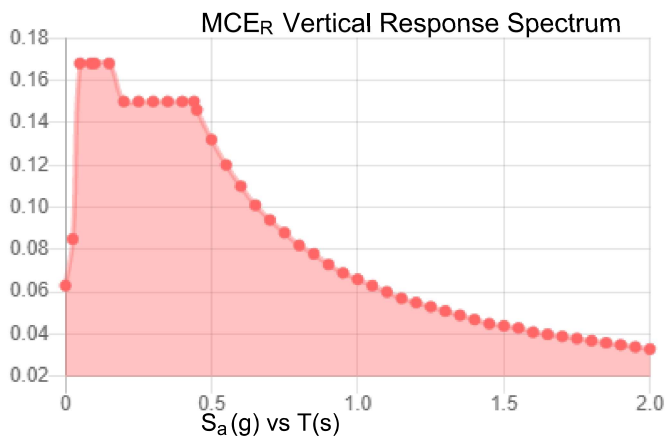
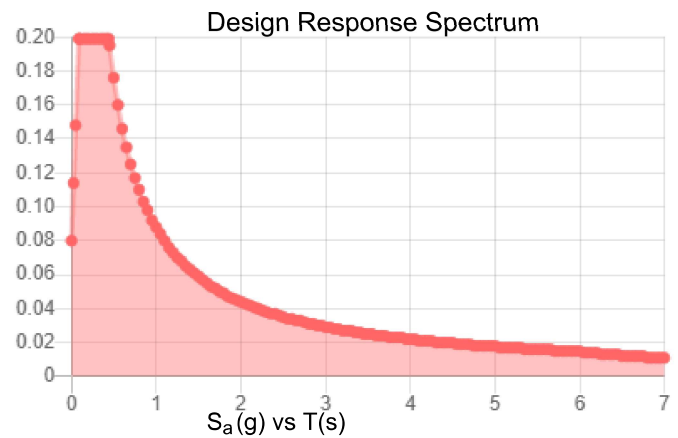
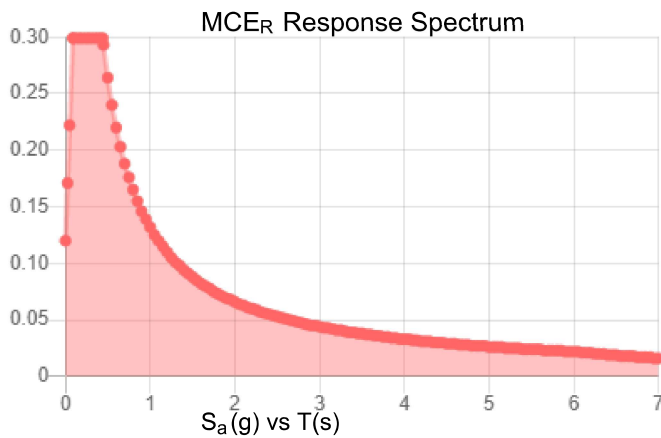
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** D - 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 <sub>M</sub> : | 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.

---

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

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# Exhibit E

## **Mount Analysis**

Date: 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**

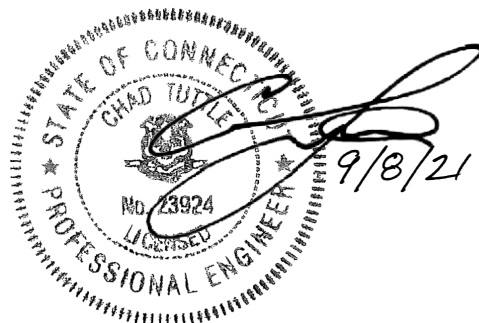
**Sufficient**

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.



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### **2) ANALYSIS CRITERIA**

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Table 2 - Documents Provided

### **3) ANALYSIS PROCEDURE**

3.1) Analysis Method

3.2) Assumptions

### **4) ANALYSIS RESULTS**

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4.1) Recommendations

### **5) APPENDIX A**

Wire Frame and Rendered Models

### **6) APPENDIX B**

Software Input Calculations

### **7) APPENDIX C**

Software Analysis Output

### **8) APPENDIX D**

Additional Calculations



## 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        |

|                                                     |              |
|-----------------------------------------------------|--------------|
| <b>Structure Rating (max from all components) =</b> | <b>92.8%</b> |
|-----------------------------------------------------|--------------|

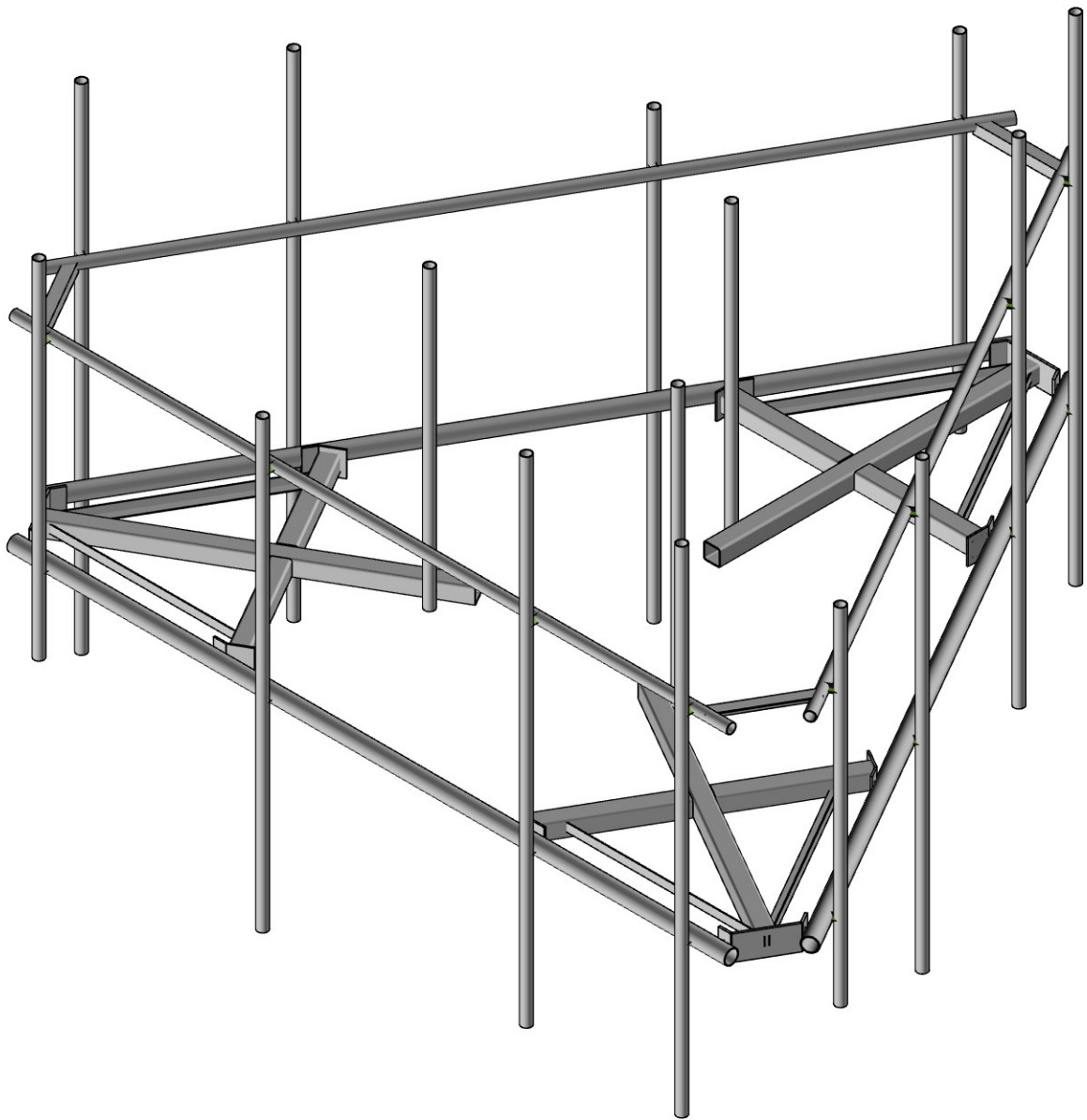
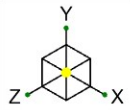
Notes:

- 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

B+T Group

APK

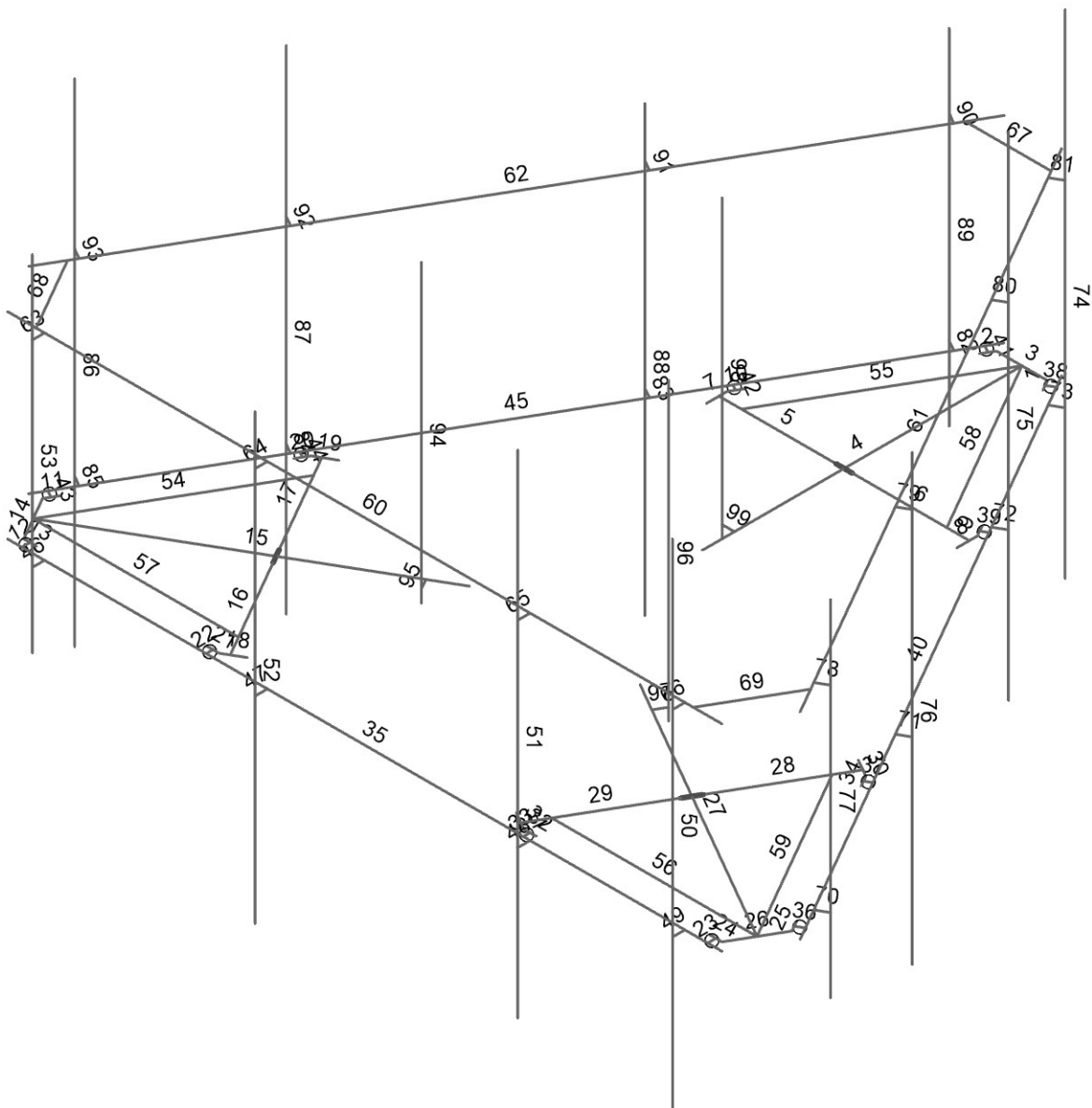
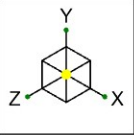
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876325 - Weston Square

SK-1

Sep 07, 2021

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Envelope Only Solution

B+T Group

APK

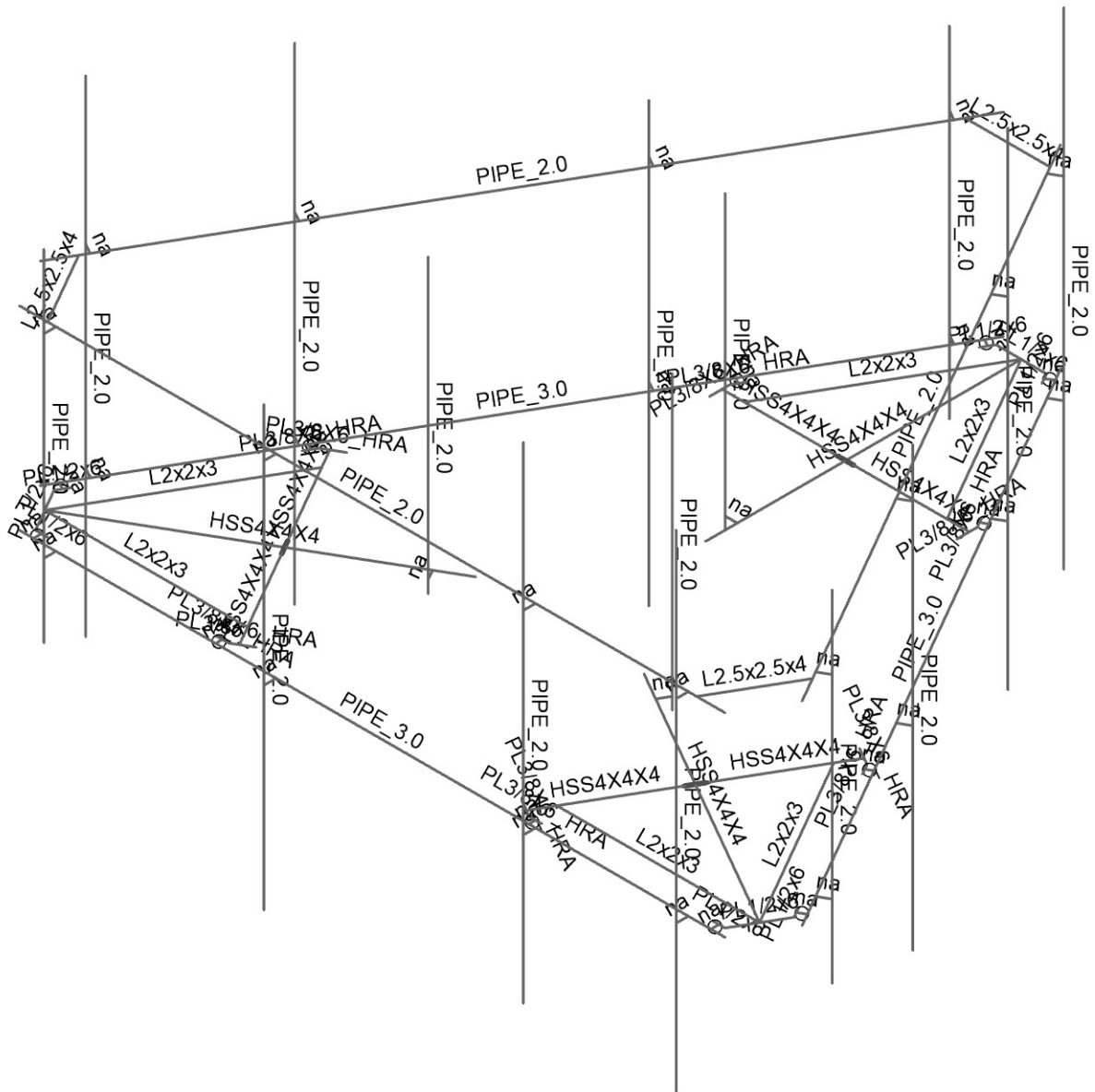
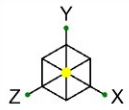
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Sep 07, 2021

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Envelope Only Solution

B+T Group

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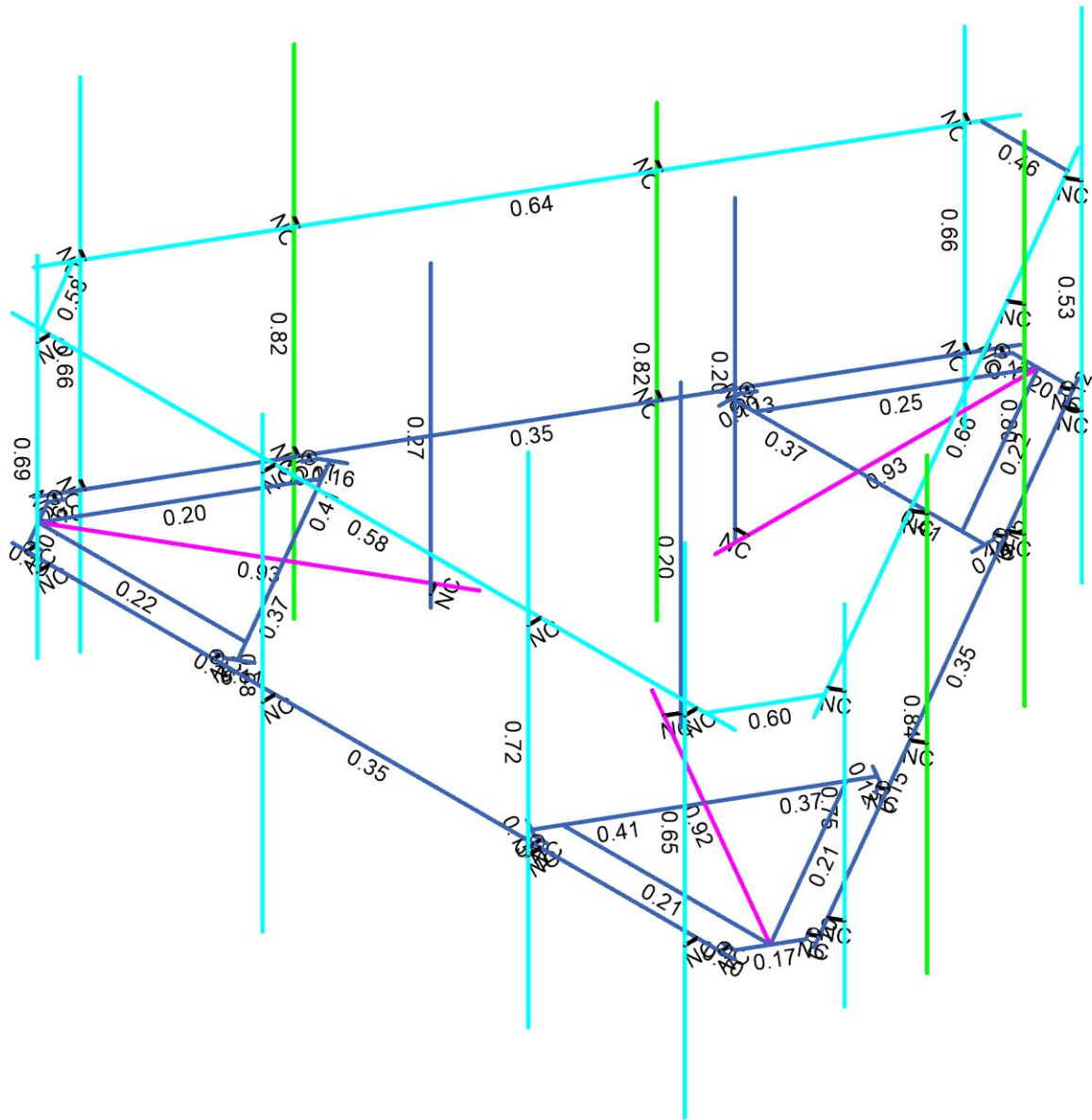
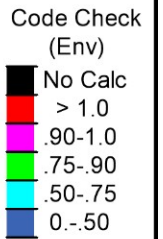
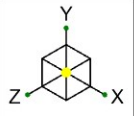
876325 - Weston Square

SK-3

Sep 07, 2021

136350\_008\_01\_Weston Square\_...





Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group

APK

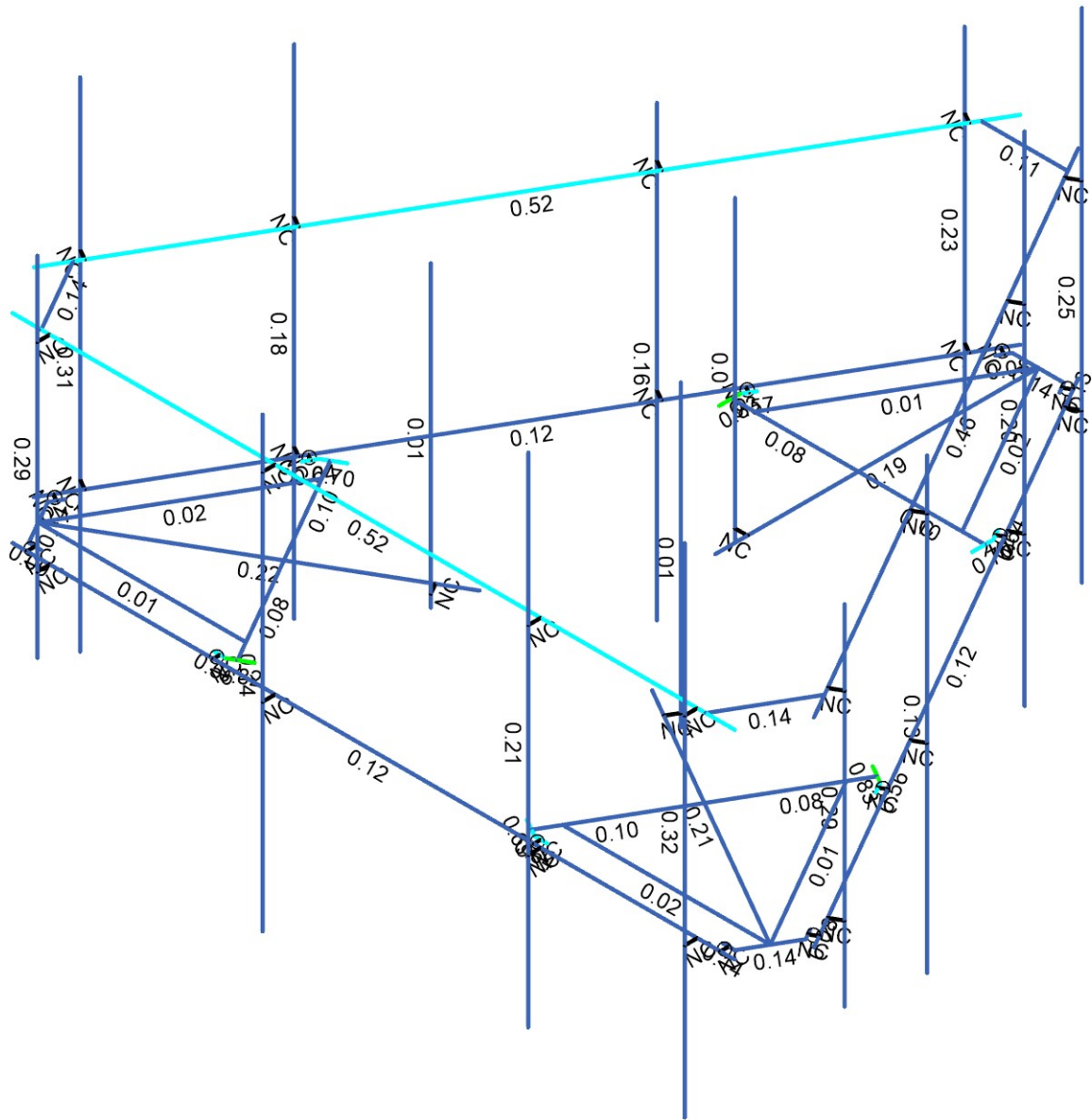
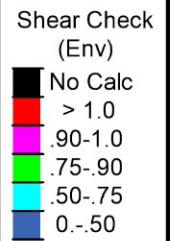
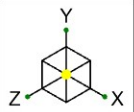
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876325 - Weston Square

SK-4

Sep 07, 2021

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Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

B+T Group

APK

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876325 - Weston Square

SK-5

Sep 07, 2021

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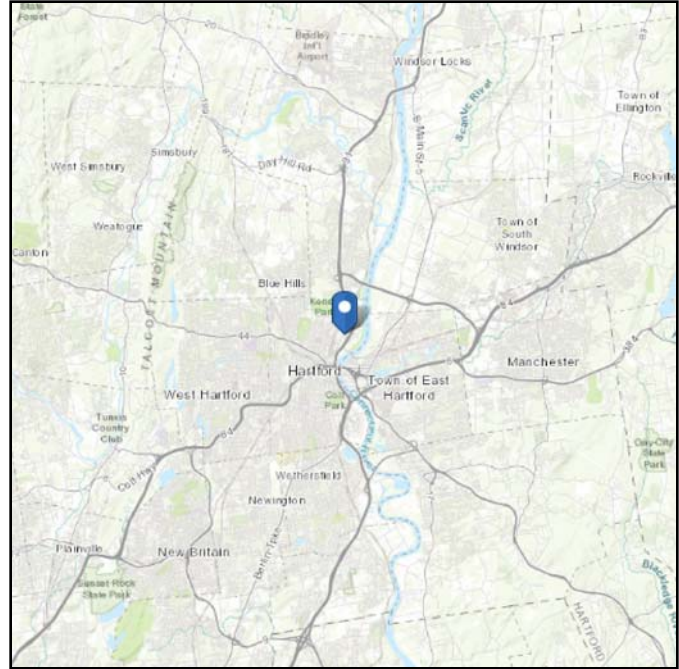
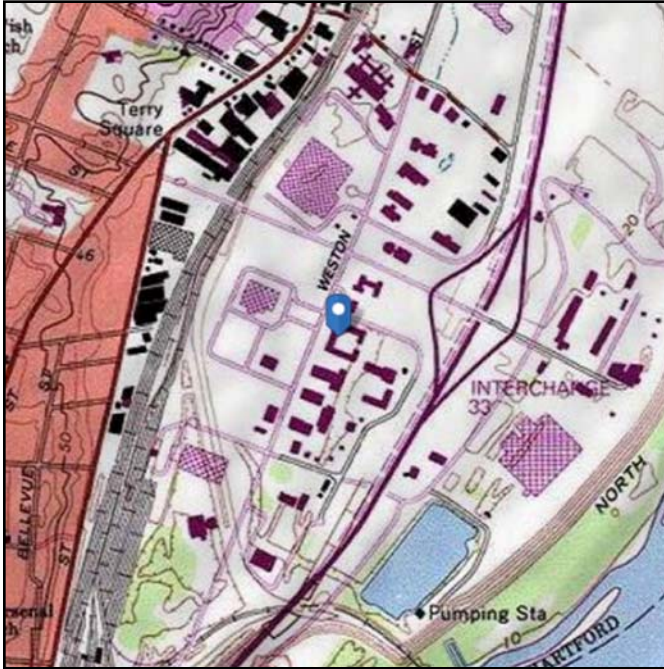
**APPENDIX B**  
**SOFTWARE INPUT CALCULATIONS**

# ASCE 7 Hazards Report

**Address:**  
No Address at This  
Location

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Section 11.4.3)

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## Wind

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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).

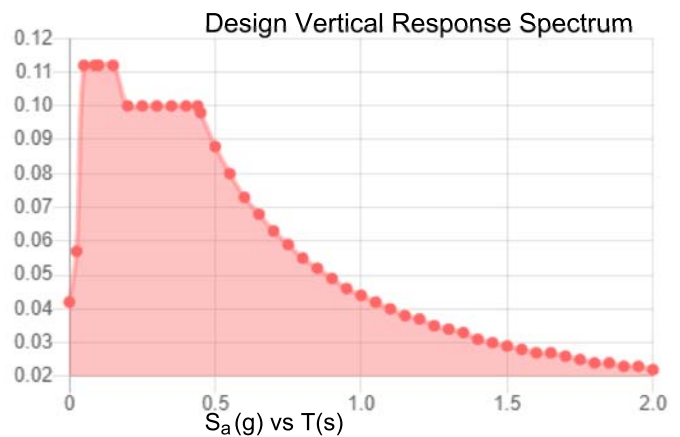
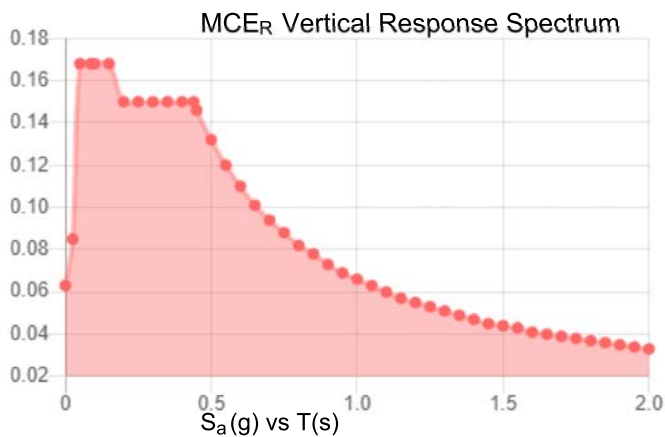
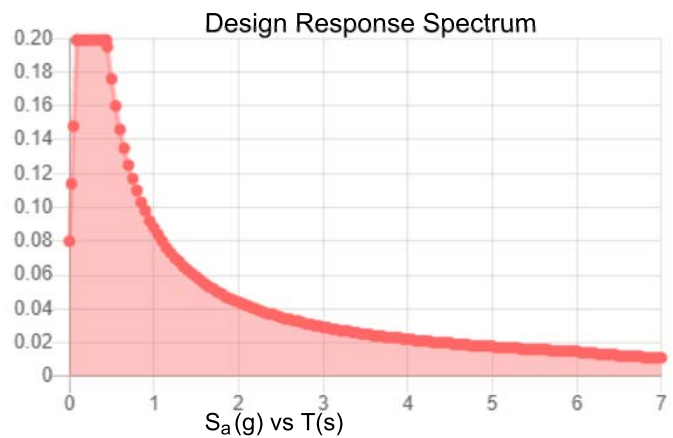
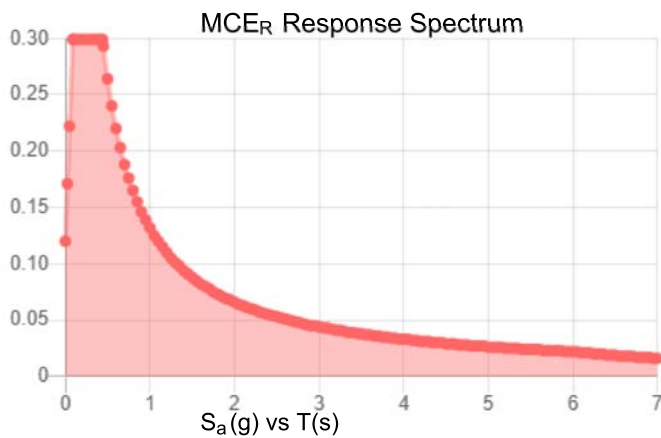
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**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 <sub>M</sub> : | 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

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**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.

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|         |                                    |      |            |
|---------|------------------------------------|------|------------|
| PROJECT | <b>136350.008.01 - Weston Squ.</b> |      | <b>KSC</b> |
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|                       |            |           |                     |
|-----------------------|------------|-----------|---------------------|
| 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 |                     |



|         |                                    |      |            |
|---------|------------------------------------|------|------------|
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| Manufacturer     | Model               | Qty | Aspect Ratio | C <sub>a</sub><br>flat/round | EPA <sub>N</sub> (ft <sup>2</sup> ) | EPA <sub>T</sub> (ft <sup>2</sup> ) | EPA <sub>N-Ice</sub> (ft <sup>2</sup> ) | EPA <sub>T-Ice</sub> (ft <sup>2</sup> ) | F <sub>A</sub> No Ice (N) | F <sub>A</sub> No Ice (T) | F <sub>A</sub> Ice (N) | F <sub>A</sub> Ice (T) |
|------------------|---------------------|-----|--------------|------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-----------------------------------------|---------------------------|---------------------------|------------------------|------------------------|
| QINTEL 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                   |
| QINTEL 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                   |
| QINTEL 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                   |
| QINTEL 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 | <b>136350.008.01 - Weston Squ.</b> |      |   | <b>KSC</b> |
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| Manufacturer      | Model               | Qty | Aspect Ratio | C <sub>a</sub><br>flat/round | EPA <sub>N</sub> (ft <sup>2</sup> ) | EPA <sub>T</sub> (ft <sup>2</sup> ) | EPA <sub>N-Ice</sub> (ft <sup>2</sup> ) | EPA <sub>T-Ice</sub> (ft <sup>2</sup> ) | F <sub>A</sub> No Ice (N) | F <sub>A</sub> No Ice (T) | F <sub>A</sub> Ice (N) | F <sub>A</sub> 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                   |
|                   |                     |     |              |                              |                                     |                                     |                                         |                                         |                           |                           |                        |                        |
| QUINTEL 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                   |
| QUINTEL 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 | <b>136350.008.01 - Weston Squi</b> |      |   | <b>KSC</b> |
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[illegible]

**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 <sup>-6</sup> F <sup>-1</sup> ] | Density [k/ft <sup>3</sup> ] | 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 <sup>2</sup> ] | Iyy [in <sup>4</sup> ] | Izz [in <sup>4</sup> ] | J [in <sup>4</sup> ] |
|---|----------|-------------|--------|--------------|-----------|-------------|-------------------------|------------------------|------------------------|----------------------|
| 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*s <sup>2</sup> /ft, k*s <sup>2</sup> *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*s <sup>2</sup> /ft, k*s <sup>2</sup> *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*s <sup>2</sup> /ft, k*s <sup>2</sup> *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 | <b>136350.008.01 - Weston Square, CT KSC</b> |      |        |
| SUBJECT | <b>Platform Mount Analysis</b>               |      |        |
| DATE    | <b>09/08/21</b>                              | PAGE | 1 OF 1 |



**B+T Group**  
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[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 <sup>2</sup> |
| 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, $\Phi R_{nt}$ | : | 20.72         | k/bolt | [Eq. J3-1]        |
| Unity Check, Bolt Tension               | : | <b>54.92%</b> |        | <b>OKAY</b>       |
| Nominal Shear Stress, $F_{nv}$          | : | 48.00         | ksi    | [AISC Table J3.2] |
| Available Shear Stress, $\Phi R_{nv}$   | : | 11.05         | k/bolt | [Eq. J3-1]        |
| Unity Check, Bolt Shear                 | : | <b>18.64%</b> |        | <b>OKAY</b>       |
| Unity Check, Combined                   | : | <b>73.56%</b> |        | <b>OKAY</b>       |
| Available Bearing Strength, $\Phi R_n$  | : | 18.35         | k/bolt |                   |
| Unity Check, Bolt Bearing               | : | <b>5.82%</b>  |        | <b>OKAY</b>       |

|         |                                          |      |   |            |
|---------|------------------------------------------|------|---|------------|
| PROJECT | <b>136350.008.01 - Weston Square, CT</b> |      |   | <b>KSC</b> |
| SUBJECT | <b>Platform Mount Analysis</b>           |      |   |            |
| DATE    | <b>09/08/21</b>                          | 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 <sup>2</sup> |                  |
| Gross Shear Area, $A_{gv}$     | : | 0.5   | in <sup>2</sup> |                  |
| Net Area for tension, $A_{nt}$ | : | 4.16  | in <sup>2</sup> |                  |
| Net Area for shear, $A_{nt}$   | : | 3.00  | in <sup>2</sup> |                  |

### **Plate Check**

|                                   |   |               |   |             |
|-----------------------------------|---|---------------|---|-------------|
| Available Tensile Yield           | : | 145.80        | k | [Eq. J4-1]  |
| Available Tensile Rupture         | : | 180.80        | k | [Eq. J4-2]  |
| Unity Check, Plate Tension        | : | <b>7.81%</b>  |   | <b>OKAY</b> |
| Available Shear Yield             | : | 10.80         | k | [Eq. J4-3]  |
| Available Shear Rupture           | : | 104.40        | k | [Eq. J4-4]  |
| Unity Check, Plate Shear          | : | <b>39.58%</b> |   | <b>OKAY</b> |
| Available Block Shear, $\Phi R_n$ | : | 73.35         | k | [Eq. J4-5]  |
| Unity Check, Block Shear          | : | <b>5.83%</b>  |   | <b>OKAY</b> |

# Exhibit F

## **Power Density/RF Emissions Report**





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

AT&T Existing Facility

Site ID: CTL05152

876325

92 Weston Street

Hartford, Connecticut 06120

**February 21, 2022**

**EBI Project Number: 6222000319**

| Site Compliance Summary                                             |                  |
|---------------------------------------------------------------------|------------------|
| Compliance Status:                                                  | <b>COMPLIANT</b> |
| Site total MPE% of<br>FCC general<br>population<br>allowable limit: | <b>94.88%</b>    |

February 21, 2022

AT&T

## Emissions Analysis for Site: CTL05152 - 876325

EBI Consulting was directed to analyze the proposed AT&T facility located at **92 Weston Street** in **Hartford, Connecticut** for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed AT&T Wireless antenna facility located at 92 Weston Street in Hartford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

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

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



- 7) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.
- 8) 2 C-Band Channels (3700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 144.58 Watts per Channel.
- 9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antennas used in this modeling are the Quintel QD6616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the CCI DMP65R-BU6DA for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector A, the Quintel QD6616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the CCI DMP65R-BU6DA for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector B, the Quintel QD6616-7 for the 700 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 3700 MHz channel(s), the Ericsson AIR 6449 for the 3700 MHz channel(s), the CCI DMP65R-BU6DA for the 700 MHz / 850 MHz / 2300 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 12) The antenna mounting height centerlines of the proposed antennas are 90 and 91 feet above ground level (AGL).



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- 13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 14) All calculations were done with respect to uncontrolled / general population threshold limits.



## AT&T Site Inventory and Power Data

|                     |                                               |                     |                                               |                     |                                               |
|---------------------|-----------------------------------------------|---------------------|-----------------------------------------------|---------------------|-----------------------------------------------|
| Sector:             | A                                             | Sector:             | B                                             | Sector:             | C                                             |
| Antenna #:          | 1                                             | Antenna #:          | 1                                             | Antenna #:          | 1                                             |
| Make / Model:       | Quintel QD6616-7                              | Make / Model:       | Quintel QD6616-7                              | Make / Model:       | Quintel QD6616-7                              |
| Frequency Bands:    | 700 MHz / 700 MHz / 1900 MHz / 2100 MHz       | Frequency Bands:    | 700 MHz / 700 MHz / 1900 MHz / 2100 MHz       | Frequency Bands:    | 700 MHz / 700 MHz / 1900 MHz / 2100 MHz       |
| Gain:               | 11.97 dBd / 11.97 dBd / 15.11 dBd / 15.33 dBd | Gain:               | 11.97 dBd / 11.97 dBd / 15.11 dBd / 15.33 dBd | Gain:               | 11.97 dBd / 11.97 dBd / 15.11 dBd / 15.33 dBd |
| Height (AGL):       | 90 feet                                       | Height (AGL):       | 90 feet                                       | Height (AGL):       | 90 feet                                       |
| Channel Count:      | 14                                            | Channel Count:      | 14                                            | Channel Count:      | 14                                            |
| Total TX Power (W): | 560.00 Watts                                  | Total TX Power (W): | 560.00 Watts                                  | Total TX Power (W): | 560.00 Watts                                  |
| ERP (W):            | 14,426.08                                     | ERP (W):            | 14,426.08                                     | ERP (W):            | 14,426.08                                     |
| Antenna A1 MPE %:   | 9.55%                                         | Antenna B1 MPE %:   | 9.55%                                         | Antenna C1 MPE %:   | 9.55%                                         |
| Antenna #:          | 2                                             | Antenna #:          | 2                                             | Antenna #:          | 2                                             |
| Make / Model:       | Ericsson AIR 6419                             | Make / Model:       | Ericsson AIR 6419                             | Make / Model:       | Ericsson AIR 6419                             |
| Frequency Bands:    | 3700 MHz                                      | Frequency Bands:    | 3700 MHz                                      | Frequency Bands:    | 3700 MHz                                      |
| Gain:               | 23.45 dBd                                     | Gain:               | 23.45 dBd                                     | Gain:               | 23.45 dBd                                     |
| Height (AGL):       | 91 feet                                       | Height (AGL):       | 91 feet                                       | Height (AGL):       | 91 feet                                       |
| Channel Count:      | 1                                             | Channel Count:      | 1                                             | Channel Count:      | 1                                             |
| Total TX Power (W): | 144.58 Watts                                  | Total TX Power (W): | 144.58 Watts                                  | Total TX Power (W): | 144.58 Watts                                  |
| ERP (W):            | 31,996.92                                     | ERP (W):            | 31,996.92                                     | ERP (W):            | 31,996.92                                     |
| Antenna A2 MPE %:   | 15.92%                                        | Antenna B2 MPE %:   | 15.92%                                        | Antenna C2 MPE %:   | 15.92%                                        |
| Antenna #:          | 3                                             | Antenna #:          | 3                                             | Antenna #:          | 3                                             |
| Make / Model:       | Ericsson AIR 6449                             | Make / Model:       | Ericsson AIR 6449                             | Make / Model:       | Ericsson AIR 6449                             |
| Frequency Bands:    | 3700 MHz                                      | Frequency Bands:    | 3700 MHz                                      | Frequency Bands:    | 3700 MHz                                      |
| Gain:               | 23.45 dBd                                     | Gain:               | 23.45 dBd                                     | Gain:               | 23.45 dBd                                     |
| Height (AGL):       | 91 feet                                       | Height (AGL):       | 91 feet                                       | Height (AGL):       | 91 feet                                       |
| Channel Count:      | 1                                             | Channel Count:      | 1                                             | Channel Count:      | 1                                             |
| Total TX Power (W): | 144.58 Watts                                  | Total TX Power (W): | 144.58 Watts                                  | Total TX Power (W): | 144.58 Watts                                  |
| ERP (W):            | 31,996.92                                     | ERP (W):            | 31,996.92                                     | ERP (W):            | 31,996.92                                     |
| Antenna A3 MPE %:   | 15.92%                                        | Antenna B3 MPE %:   | 15.92%                                        | Antenna C3 MPE %:   | 15.92%                                        |
| Antenna #:          | 4                                             | Antenna #:          | 4                                             | Antenna #:          | 4                                             |
| Make / Model:       | CCI DMP65R-BU6DA                              | Make / Model:       | CCI DMP65R-BU6DA                              | Make / Model:       | CCI DMP65R-BU6DA                              |
| Frequency Bands:    | 700 MHz / 850 MHz / 2300 MHz                  | Frequency Bands:    | 700 MHz / 850 MHz / 2300 MHz                  | Frequency Bands:    | 700 MHz / 850 MHz / 2300 MHz                  |
| Gain:               | 11.85 dBd / 12.45 dBd / 16.25 dBd             | Gain:               | 11.85 dBd / 12.45 dBd / 16.25 dBd             | Gain:               | 11.85 dBd / 12.45 dBd / 16.25 dBd             |
| Height (AGL):       | 90 feet                                       | Height (AGL):       | 90 feet                                       | Height (AGL):       | 90 feet                                       |
| Channel Count:      | 12                                            | Channel Count:      | 12                                            | Channel Count:      | 12                                            |
| Total TX Power (W): | 420.00 Watts                                  | Total TX Power (W): | 420.00 Watts                                  | Total TX Power (W): | 420.00 Watts                                  |
| ERP (W):            | 9,479.38                                      | ERP (W):            | 9,479.38                                      | ERP (W):            | 9,479.38                                      |
| Antenna A4 MPE %:   | 7.35%                                         | Antenna B4 MPE %:   | 7.35%                                         | Antenna C4 MPE %:   | 7.35%                                         |

- An adjusted power reduction factor of 0.32 was applied to the AIR 6449 antennas per guidance from AT&T.



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- Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.



| Site Composite MPE %    |        |
|-------------------------|--------|
| Carrier                 | MPE %  |
| AT&T (Max at Sector A): | 48.74% |
| Verizon                 | 27.67% |
| T-Mobile                | 13.36% |
| Sprint                  | 5.11%  |
| Site Total MPE % :      | 94.88% |

| AT&T MPE % Per Sector |        |
|-----------------------|--------|
| AT&T Sector A Total:  | 48.74% |
| AT&T Sector B Total:  | 48.74% |
| AT&T Sector C Total:  | 48.74% |
|                       |        |
| Site Total MPE % :    | 94.88% |

## AT&T Maximum MPE Power Values (Sector A)

| AT&T Frequency Band / Technology (Sector A) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density ( $\mu\text{W}/\text{cm}^2$ ) | Frequency (MHz) | Allowable MPE ( $\mu\text{W}/\text{cm}^2$ ) | Calculated % MPE |
|---------------------------------------------|------------|-------------------------|---------------|---------------------------------------------------|-----------------|---------------------------------------------|------------------|
| AT&T 700 MHz LTE FN                         | 4          | 629.59                  | 90.0          | 12.83                                             | 700 MHz LTE FN  | 467                                         | 2.75%            |
| AT&T 700 MHz LTE DE                         | 2          | 629.59                  | 90.0          | 6.42                                              | 700 MHz LTE DE  | 467                                         | 1.37%            |
| AT&T 1900 MHz LTE/5G                        | 4          | 1297.36                 | 90.0          | 26.44                                             | 1900 MHz LTE/5G | 1000                                        | 2.64%            |
| AT&T 2100 MHz LTE/5G                        | 4          | 1364.77                 | 90.0          | 27.81                                             | 2100 MHz LTE/5G | 1000                                        | 2.78%            |
| AT&T 3700 MHz C-Band                        | 1          | 31996.92                | 91.0          | 159.22                                            | 3700 MHz C-Band | 1000                                        | 15.92%           |
| AT&T 3700 MHz C-Band                        | 1          | 31996.92                | 91.0          | 159.22                                            | 3700 MHz C-Band | 1000                                        | 15.92%           |
| AT&T 700 MHz LTE                            | 4          | 612.43                  | 90.0          | 12.48                                             | 700 MHz LTE     | 467                                         | 2.67%            |
| AT&T 850 MHz 5G                             | 4          | 703.17                  | 90.0          | 14.33                                             | 850 MHz 5G      | 567                                         | 2.53%            |
| AT&T 2300 MHz LTE                           | 4          | 1054.24                 | 90.0          | 21.49                                             | 2300 MHz LTE    | 1000                                        | 2.15%            |
|                                             |            |                         |               |                                                   |                 | <b>Total:</b>                               | <b>48.74%</b>    |

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





## Summary

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

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

| AT&T Sector                       | Power Density Value (%) |
|-----------------------------------|-------------------------|
| Sector A:                         | 48.74%                  |
| Sector B:                         | 48.74%                  |
| Sector C:                         | 48.74%                  |
| AT&T Maximum MPE<br>% (Sector A): | 48.74%                  |
|                                   |                         |
| Site Total:                       | 94.88%                  |
|                                   |                         |
| Site Compliance Status:           | <b>COMPLIANT</b>        |

The anticipated composite MPE value for this site assuming all carriers present is **94.88%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

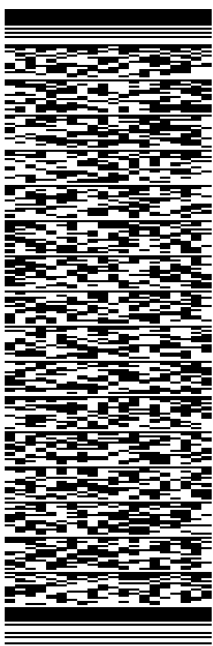
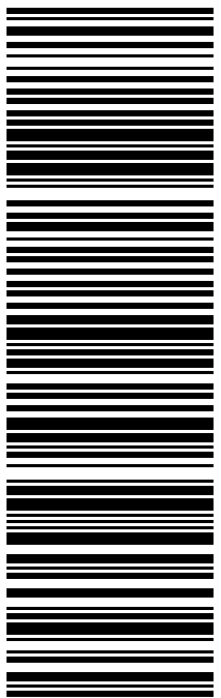
FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100%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

|                                                                                                                                         |                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| ORIGIN ID: QFMA (551) 804-0667<br>ERSILIA DAVIS<br>1777 SENTRY PARKWAY<br>VEVA 17, SUITE 210<br>BLUE BELL, PA 19422<br>UNITED STATES US | SHIP DATE: 28FEB22<br>ACTWGT: 0.50 LB<br>CAD: 108980334/INET4460<br>BILL SENDER |
|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|

|                                                                                                                                                                        |                 |
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| <b>TO</b> MELANIE A. BACHMAN<br>CONNECTICUT SITING COUNCIL<br>10 FRANKLIN SQUARE<br>NEW BRITAIN CT 06051<br>(860) 827-2935<br>REF: 100788/CSC HARTFORD<br>DEPT: 876325 | 56DJ3:90B8/FE4A |
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|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                |
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| <br><br> | TRK# 7761 6092 5456<br>0201<br>TUE - 01 MAR 10:30A<br>PRIORITY OVERNIGHT<br>EB BDLA<br>06051<br>CT-US BDL<br> |
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