EMPIRE telecom

January 22, 2019

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

Regarding:	Notice of Exempt Modification – Antenna Modification
Property Address:	625 Spring Street, Southington, CT 06489 (the "Property")
Applicant:	AT&T Mobility ("AT&T", Site # CT5250)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 160-foot self-support tower at the above-referenced address, latitude 41° 37' 56.9", longitude -72° 53' 39.2". Said self-support and land is owned by Crown Castle.

AT&T desires to modify its existing telecommunications facility by adding three (3) antennas and their associated cabling and ancillary equipment, replacing (3) antennas with (3) new antennas, add (12) remote-radio heads ("RRHs"), add (1) Surge Arrestor (DC squid) and replace the antenna platform. The centerline height of the existing antennas is and will remain at 157' feet.

Please accept this application as notification pursuant to R.C.S.A. §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 Honorable Michael Riccio, Chairman, Town of Southington, Mark J Sciota, Town Manager, Town of Southington, Robert Philips, Director of Planning and Community Development, Town of Southington, as well as the property and land owner Crown Castle.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The added antennas and accessory equipment along with equipment to be swapped will be installed at the existing height of 157 feet on the 160-foot self-support.

2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.

Nora Oliver • Empire Telecom USA, LLC • 16 Esquire Road, Billerica, MA 01862 • 978-808-2111 • noliver@empiretelecomm.com

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

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.

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 AT&T's proposed modifications (please see enclosed structural analysis completed by FDH Infrastructure Services LLC, dated August 29, 2018; stamped on August 29, 2018).

For the foregoing reasons, AT&T respectfully requests that the proposed remote-radio head installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

Nora Oliver

Nora Oliver
Site Acquisition Manager

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc:
Honorable Michael Riccio, Chairman, Town of Southington
Mark J Sciota, Town Manager, Town of Southington
Robert Philips, Director of Planning and Community Development, Town of Southington
Crown Castle as the tower and land owner

625 SPRING ST

Location	625 SPRING ST	**Mblu**	168/ / 020/ /
Acct#	19111	**Owner**	GLOBAL SIGNAL ACQUISITIONS II LLC
Assessment	$160,910	**Appraisal**	$229,870
PID	15908	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$23,750	$206,120	$229,870
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$16,630	$144,280	$160,910

Owner of Record

Owner	GLOBAL SIGNAL ACQUISITIONS II LLC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	4017 WASHINGTON RD PMB 331 CANONSBURG, PA 15317	**Book & Page**	788/ 214
		Sale Date	04/25/2001

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
GLOBAL SIGNAL ACQUISITIONS II LLC	$0		788/ 214	04/25/2001

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Building Percent Good:

Building Attributes	
Field	**Description**
Style	Vacant w/OB
Model	
Grade:	
Stories	

Building Photo

Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Fireplaces	
Whirlpool Tubs	
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Garages	
.	
Attic Type	
Cath Ceiling	

Building Photo

(http://images.vgsi.com/photos2/SouthingtonCTPhotos//\00\05\81/46.jpg)

Building Layout

(http://images.vgsi.com/photos2/SouthingtonCTPhotos//Sketches

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	438
Description	Cell Site
Zone	R-40
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.62
Depth	

Outbuildings

Outbuildings					Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Bldg #**
FN5	Fence-10'Chain			233 L.F.	1
SHD5	Cell Shed			360 units	1
SHD5	Cell Shed			240 units	1
SHD5	Cell Shed			180 units	1

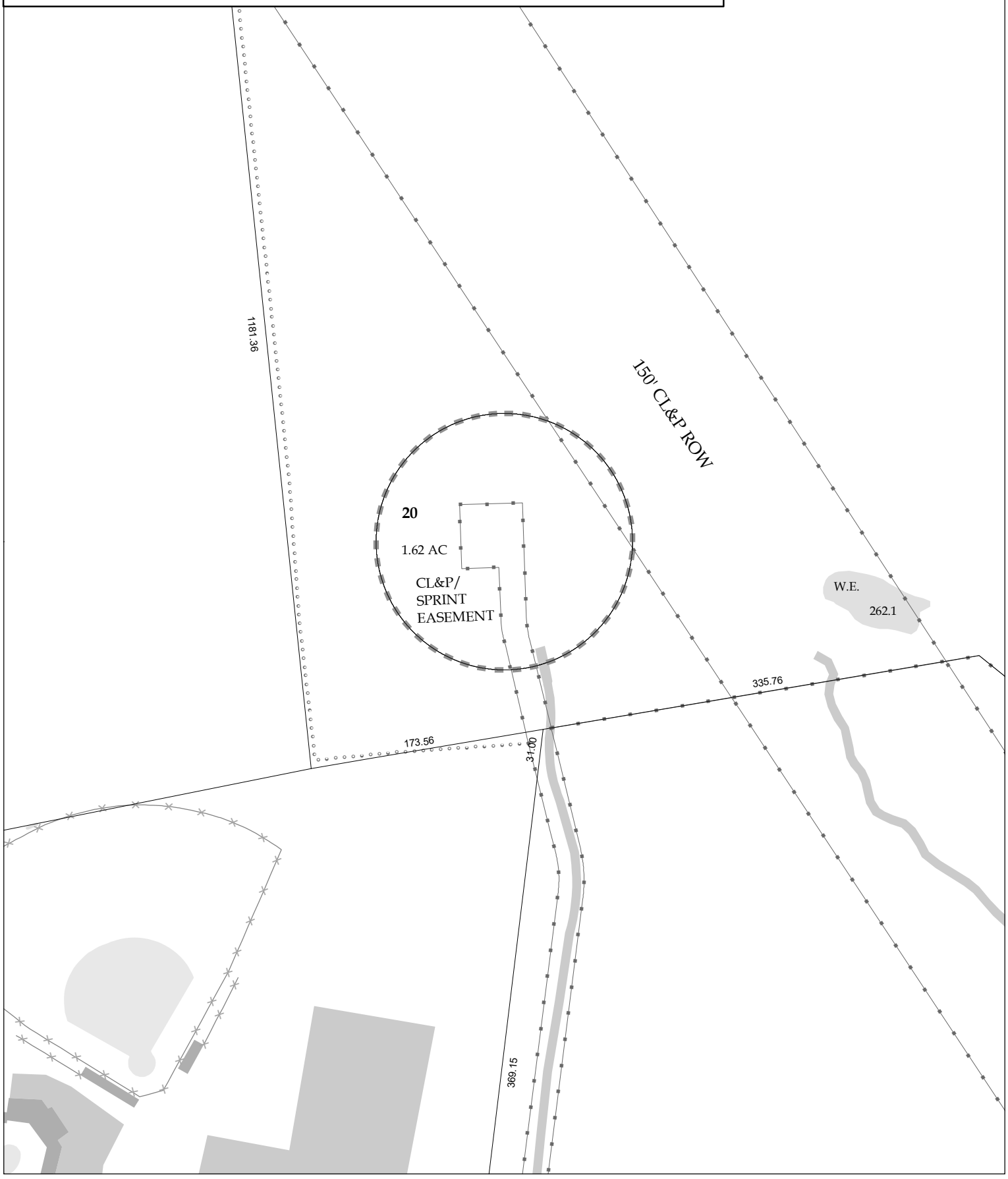
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$3,500	$206,120	$209,620
2016	$3,500	$206,120	$209,620
2015	$3,500	$206,120	$209,620
2014	$3,500	$181,770	$185,270
2013	$3,500	$181,770	$185,270

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$2,450	$144,280	$146,730
2016	$2,450	$144,280	$146,730
2015	$2,450	$144,280	$146,730
2014	$2,450	$127,240	$129,690
2013	$2,450	$127,240	$129,690

Town of Southington, Connecticut - Assessment Parcel Map

Parcel: 168020
Address: 625 SPRING ST



Approximate Scale:

20 0 20 40 60 80 Feet

Disclaimer: This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Southington and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced October 2018

at&t

WIRELESS COMMUNICATIONS FACILITY
CT5250 - LTE 4C/5C/6C/7C FIRSTNET
GSM-SOUTHINGTON FLORIANS POND
CROWN CASTLE SITE NO.: 876334
626 SPRING STREET
SOUTHINGTON, CT 06489

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA–222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2016 CONNECTICUT FIRE SAFETY CODE AND, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1–800–922–4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

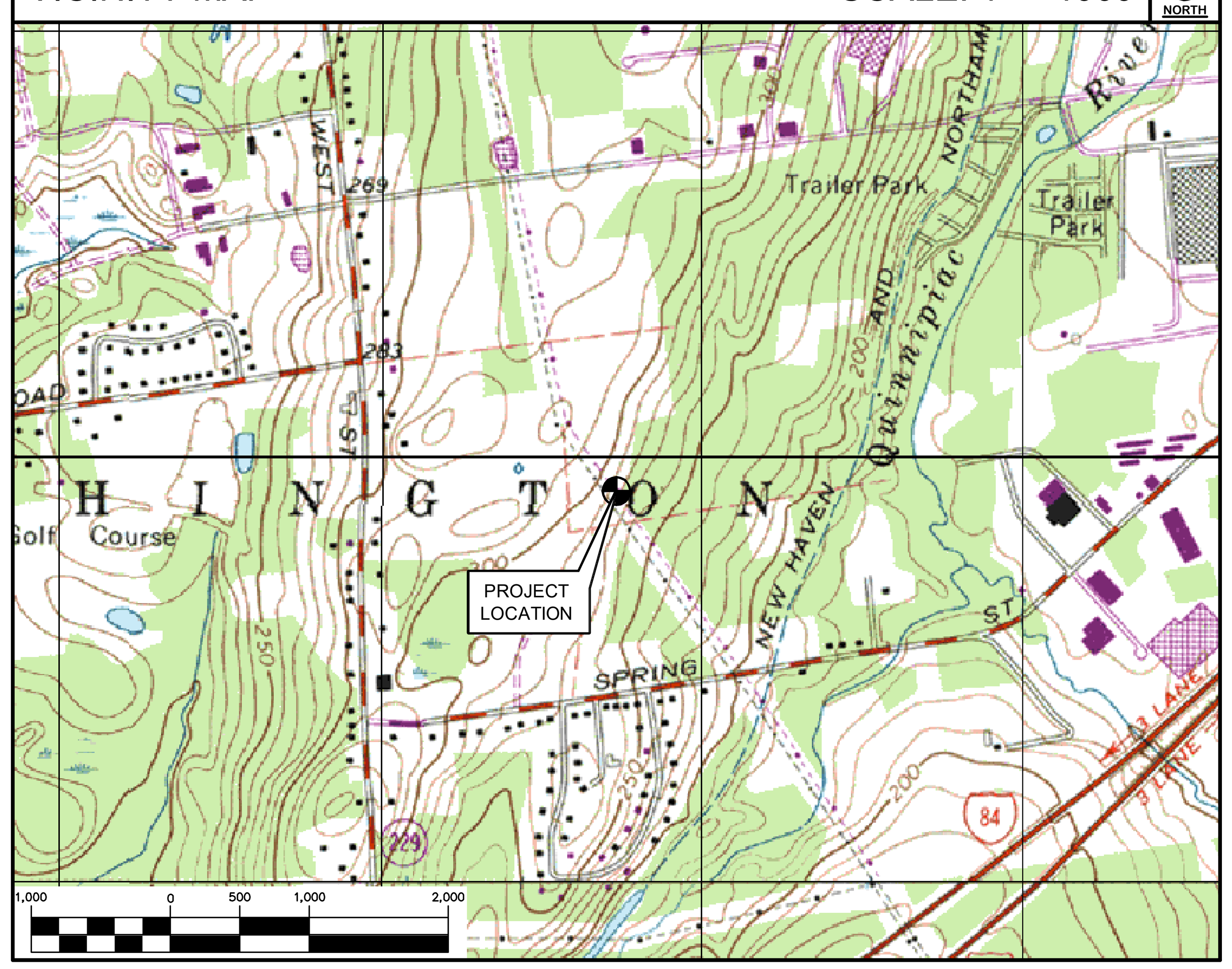
FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT
TO: 626 SPRING STREET, SOUTHINGTON, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.36 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI
3.	TURN LEFT ONTO WEST ST	0.30 MI
4.	TURN LEFT TO MERGE ONTO I–91 S TOWARD NEW HAVEN	1.63 MI
5.	MERGE ONTO CT–9 N VIA EXIT 22N TOWARD NEW BRITAIN.	6.58 MI
6.	MERGE ONTO CT–72 W VIA EXIT 28 ON THE LEFT TOWARD BRISTOL.	3.71 MI
7.	KEEP LEFT TO TAKE I–84 W TOWARD WATERBURY.	3.25 MI
8.	TAKE THE CT–10/QUEEN STREET EXIT, EXIT 32.	0.28 MI
9.	TURN LEFT ONTO QUEEN ST/CT–10.	0.08 MI
10.	TURN LEFT ONTO SPRING ST.	1.20 MI
11.	626 SPRING ST, SOUTHINGTON, CT 06489–1521, 626 SPRING ST IS ON THE LEFT.	

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

A. AT ANTENNA SECTORS:

- INSTALL (3) NEW OCT–PORT ANTENNAS, (1) PER SECTOR AT POSITION 3.
- INSTALL (3) NEW RRUS–B14 4478
- NSTALL (3) NEW RRUS–12
- INSTALL (3) NEW RRUS–32 B66
- INSTALL (3) NEW RRUS–32 B2
- INSTALL (1) NEW DC SQUID ARRESTOR
- INSTALL (9) SWIVEL RRU MOUNTS TO ACCOMMODATE ADDITIONAL/EXISTING RRUS
- REMOVE (3) RRUS–11+RRUS–A2
- REMOVE AND REPLACE (3) EXISTING T–ARMS FOR A NEW PLATFORM MOUNT TO ACCOMMODATE REQUIRED ANTENNA SEPARATIONS AND ADDITIONAL ANTENNAS

B. WORK WITHTIN EXISTING AT&T SHELTER:

- REMOVE AND REPLACE EXISTING DUL DUS AND UPGRADE FOR A PROPOSED 5216 UNIT WITHIN EXISTING LTE RACK
- INSTALL (2) ADDITIONAL XMU UNITS WITHIN EXISTING LTE RACK
- INSTALL A EQUIPMENT RACK WITH (3) ERICSSON RRUS–32, WITH (6) SURGE ARRESTORS
- DECOMMISSION & REMOVE EXISTING GSM EQUIPMENT CABINETS WITHIN EXISTING EQUIPMENT SHELTER

PROJECT INFORMATION

AT&T SITE NUMBER:	CT5250
AT&T SITE NAME:	GSM–SOUTHINGTON FLORIANS POND
SITE ADDRESS:	CROWN CASTLE SITE NO.: 876334 626 SPRING STREET SOUTHINGTON, CT 06489
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
AT&T PACE ID NUMBERS:	1. MRCTB022532 2. MRCTB022826 3. MRCTB024126
AT&T FA LOCATION CODE:	10071248
ENGINEER:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°–37'–46.89" N LONGITUDE: 72°–53'–47.03" W GROUND ELEVATION: ±312' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	0
N–1	NOTES, SPECIFICATIONS AND ANTENNA SCHEDULE	0
C–1	PLANS AND ELEVATION	0
C–2	LTE 4C/5C/6C/7C ANTENNA LAYOUTS	0
C–3	DETAILS	0
C–4	DETAILS	0
E–1	LTE SCHEMATIC DIAGRAM AND NOTES	0
E–2	LTE WIRING DIAGRAM	0
E–3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	04/24/18	KAWJR	DMD	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

at&t

EMPIRE telecom

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
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Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
GSM-SOUTHINGTON FLORIANS POND
CT5250 - LTE 4C/5C/6C/7C FIRSTNET
626 SPRING STREET
SOUTHINGTON, CT 06489

DATE: 08/31/17
SCALE: AS NOTED
JOB NO. 17004.44

TITLE SHEET

T–1

Sheet No. 1 of 8

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED: 97 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:
   A. SHERWIN WILLIAMS POLANE-B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
2. COAXIAL CABLES:
   A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAIR WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

PROPOSED ANTENNA AND APPURTENANCE SCHEDULE

ANTENNAS								APPURTENANCES			
SECTOR	POSITION	AZIMUTH	DOWNTILT (M)	MAKE & MODEL	RAD CENTER (AGL)	TECHNOLOGY	STATUS	TMA (QTY)	DIPLEXER (QTY)	RRU (QTY)	FEEDER TYPE
ALPHA	POS. 1	120°	0°	ANDREW (SBNH-1D6565C)	157'	UMTS 850/LTE 700	REMAIN	CCI DTMABP7819VG12A TWIN PCS W/700-850BP (1)	CCI TRIPLEXER -TPX-070821 (2)	RRUS-E2 (1)	1-5/8"ø COAX (QTY OF 2)
ALPHA	POS. 3	120°	0°	KATHREIN (800-10966)	157'	LTE 700/AWS	NEW			B14 4478 (1), RRUS-32 B66 (1)	FIBER AND DC POWER
ALPHA	POS. 4	120°	0°	CCI (TPA-65R-LCUUUU-H8)	157'	LTE 700/850/WCS/1900	REMAIN			RRUS-11 (1), RRUS-12 (1), RRUS-32 B2 (1), RRUS-32 (1)	FIBER AND DC POWER
BETA	POS. 1	230°	0°	KMW (AM-X-CD-16-65-00T-RET)	157'	UMTS 850/LTE 700	REMAIN	CCI DTMABP7819VG12A TWIN PCS W/700-850BP (1)	CCI TRIPLEXER -TPX-070821 (2)	RRUS-E2 (1)	1-5/8"ø COAX (QTY OF 2)
BETA	POS. 3	230°	0°	KATHREIN (800-10965)	157'	LTE 700/AWS	NEW			B14 4478 (1), RRUS-32 B66 (1)	FIBER AND DC POWER
BETA	POS. 4	230°	0°	KATHREIN (800-10798)	157'	LTE 700/850/WCS/1900	REMAIN			RRUS-11 (1), RRUS-12 (1), RRUS-32 B2 (1), RRUS-32 (1)	FIBER AND DC POWER
GAMMA	POS. 1	350°	0°	ANDREW (SBNH-1D6565C)	157'	LTE 700	REMAIN	CCI DTMABP7819VG12A TWIN PCS W/700-850BP (1)	CCI TRIPLEXER -TPX-070821 (2)	RRUS-E2 (1)	1-5/8"ø COAX (QTY OF 2)
GAMMA	POS. 3	350°	0°	KATHREIN (800-10966)	157'	LTE 700/AWS	NEW			B14 4478 (1), RRUS-32 B66 (1)	FIBER AND DC POWER
GAMMA	POS. 4	350°	0°	CCI (TPA-65R-LCUUUU-H8)	157'	LTE 700/850/WCS/1900	REMAIN			RRUS-11 (1), RRUS-12 (1), RRUS-32 B2 (1), RRUS-32 (1)	FIBER AND DC POWER

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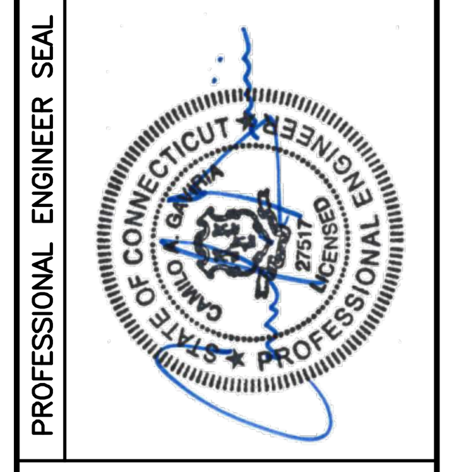

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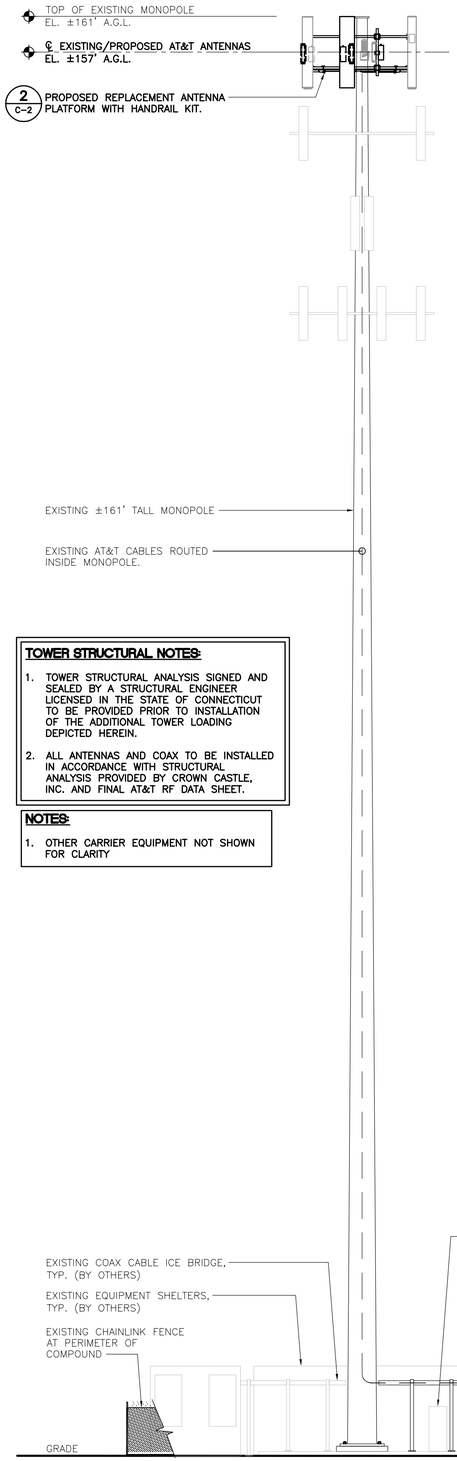
NOTES, SPECIFICATIONS AND SCHEDULE

N-1

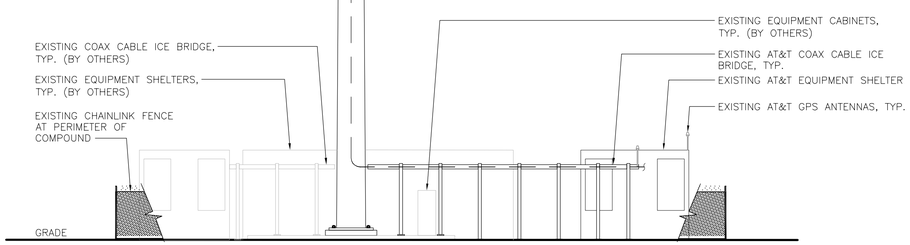


TOWER STRUCTURAL NOTES:

1. TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE ADDITIONAL TOWER LOADING DEPICTED HEREIN.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE, INC. AND FINAL AT&T RF DATA SHEET.

NOTES:

1. OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY



2 C-1 NORTH ELEVATION - PROPOSED

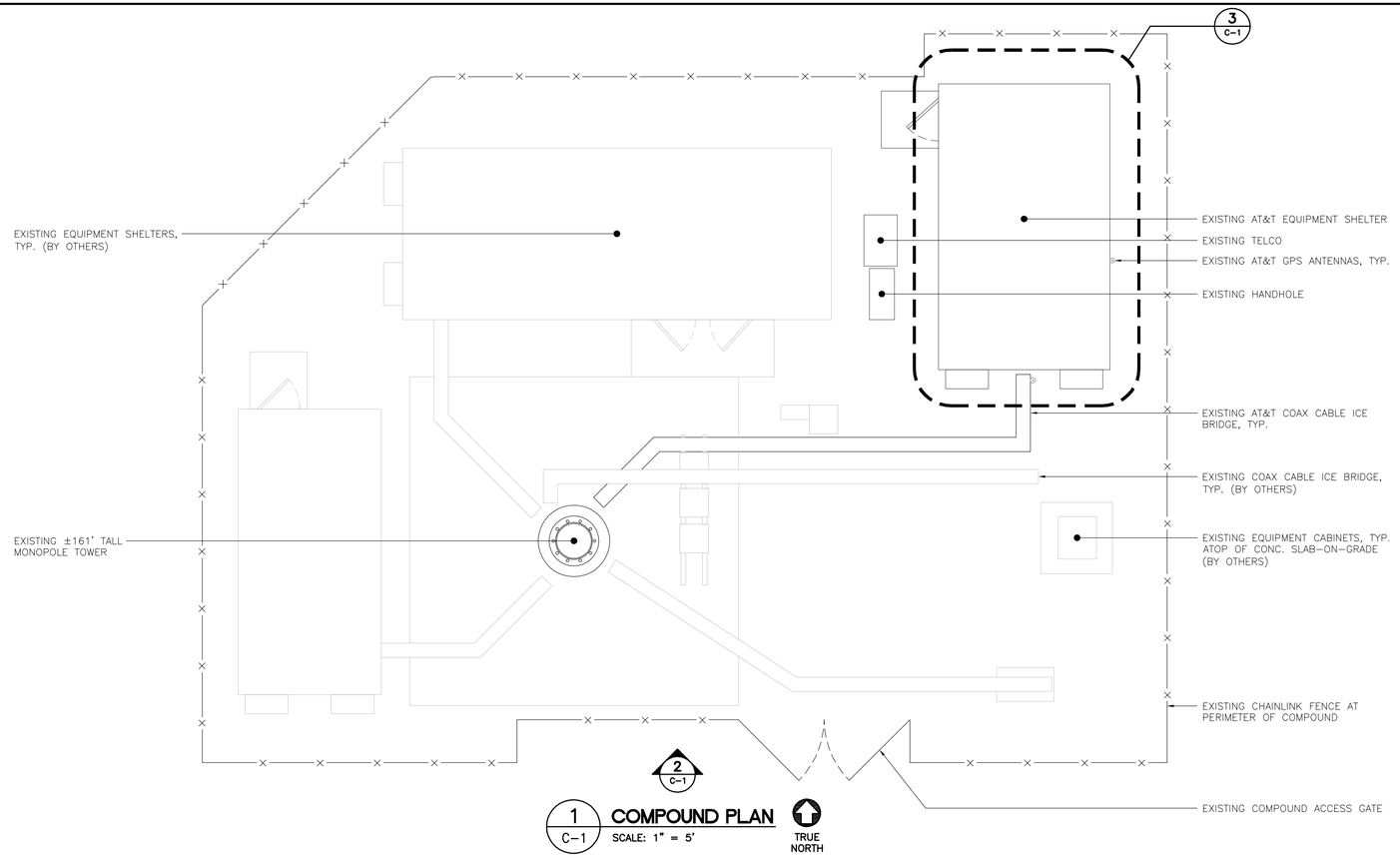
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE

8 0 4 8 16 32

(IN FEET)

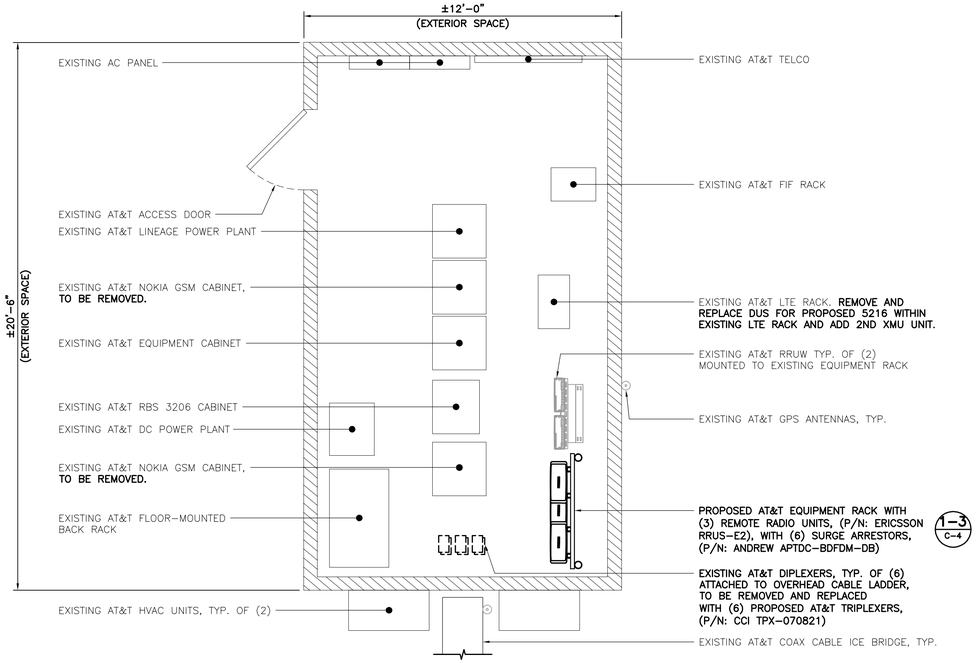
1 inch = 8 ft.



1 C-1 COMPOUND PLAN

SCALE: 1" = 5'

TRUE NORTH



3 C-1 PROPOSED EQUIPMENT LAYOUT PLAN

SCALE: 3/8" = 1'-0"

TRUE NORTH

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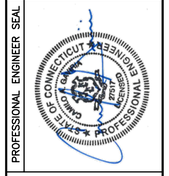

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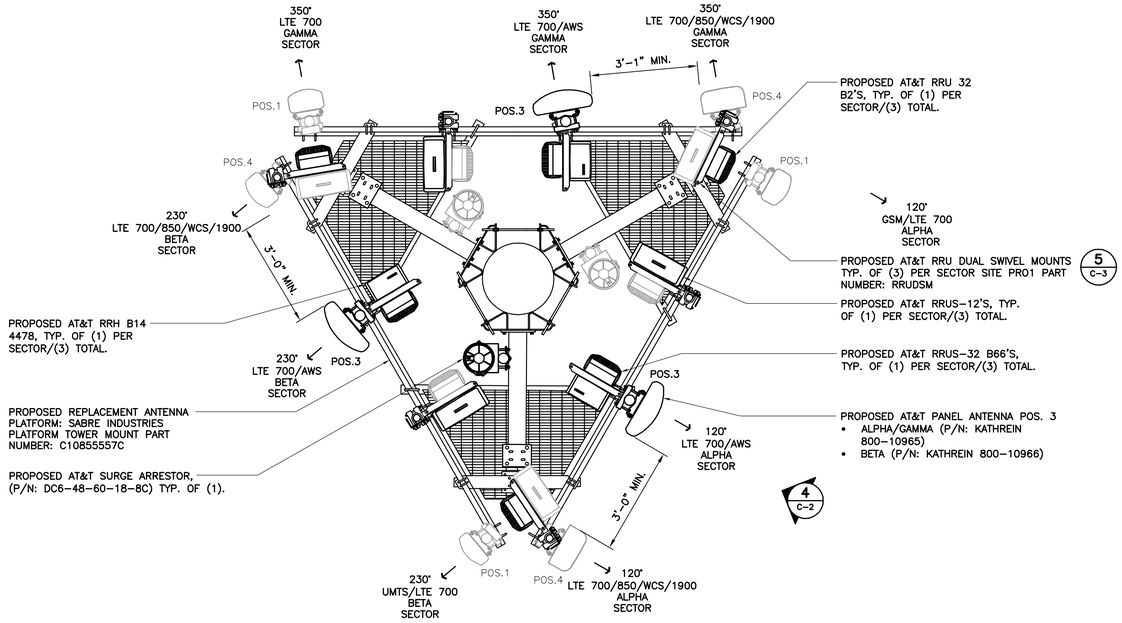
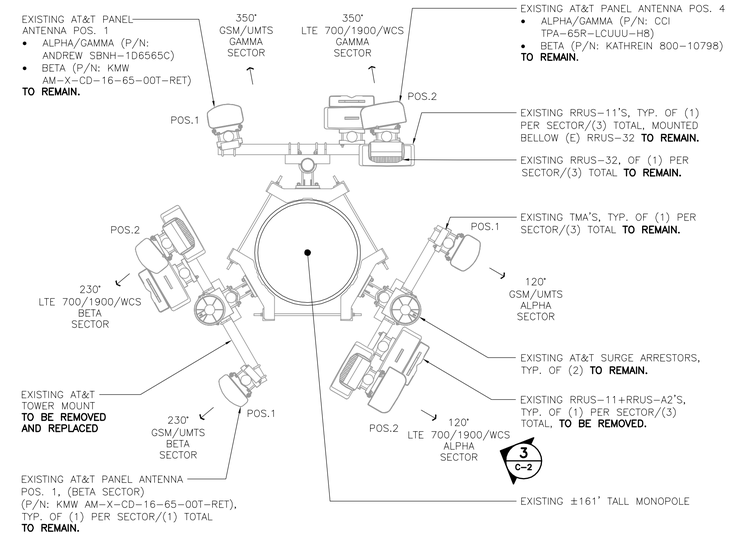
PLANS AND ELEVATION

C-1

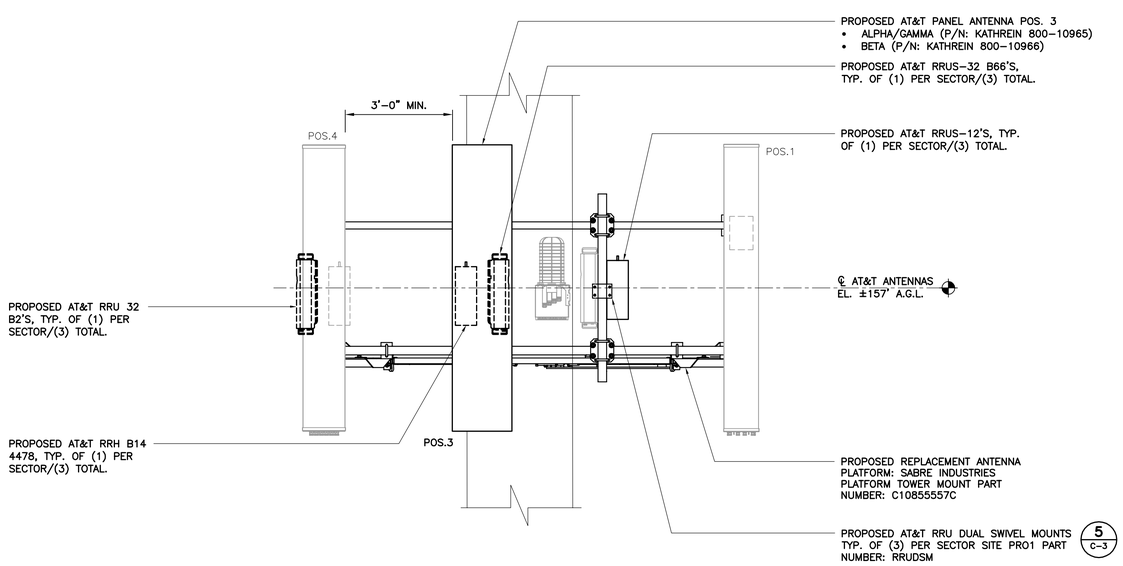
Sheet No. 3 of 8



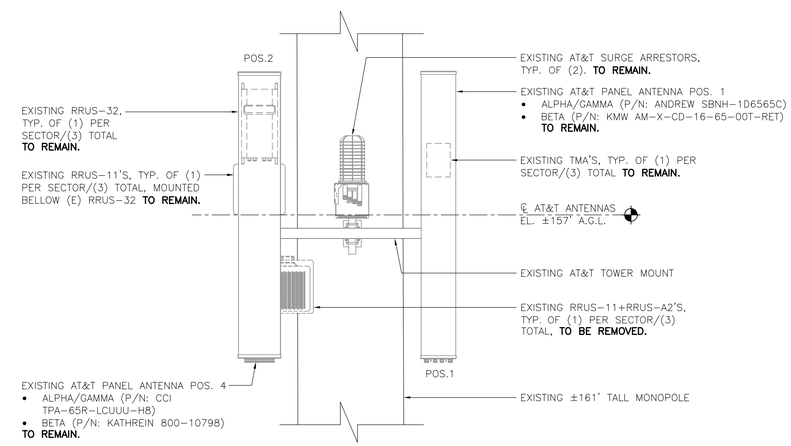
2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 1/2" = 1'-0" NORTH



1 C-2 **EXISTING ANTENNA PLAN**
SCALE: 1/2" = 1'-0" NORTH



4 C-2 **PROPOSED ANTENNA ELEVATION**
SCALE: 1/2" = 1'-0"



3 C-2 **EXISTING ANTENNA ELEVATION**
SCALE: 1/2" = 1'-0"

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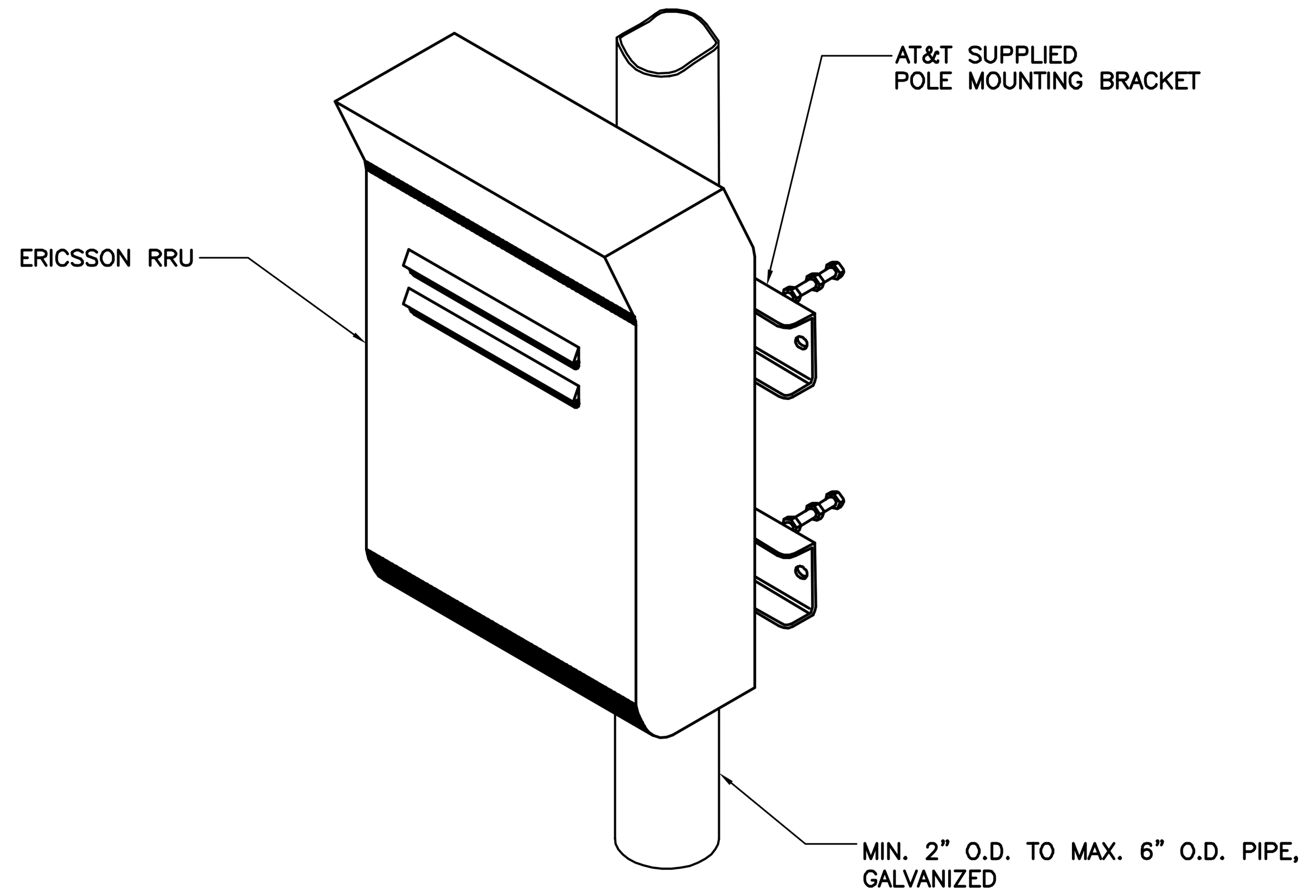
LTE 4C/5C/6C /7C
ANTENNA
LAYOUTS

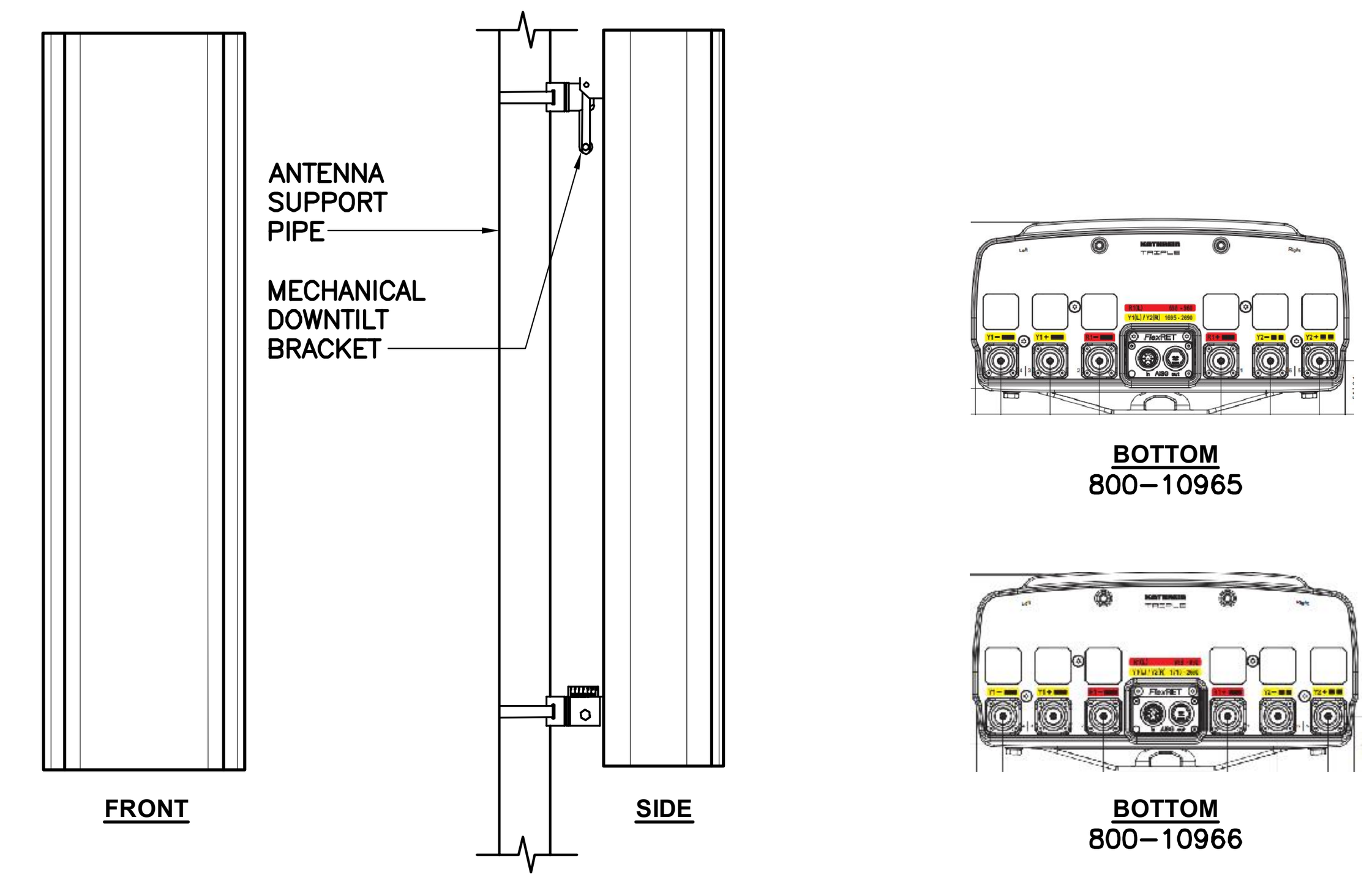
C-2
Sheet No. 4 of 8



NOTES:

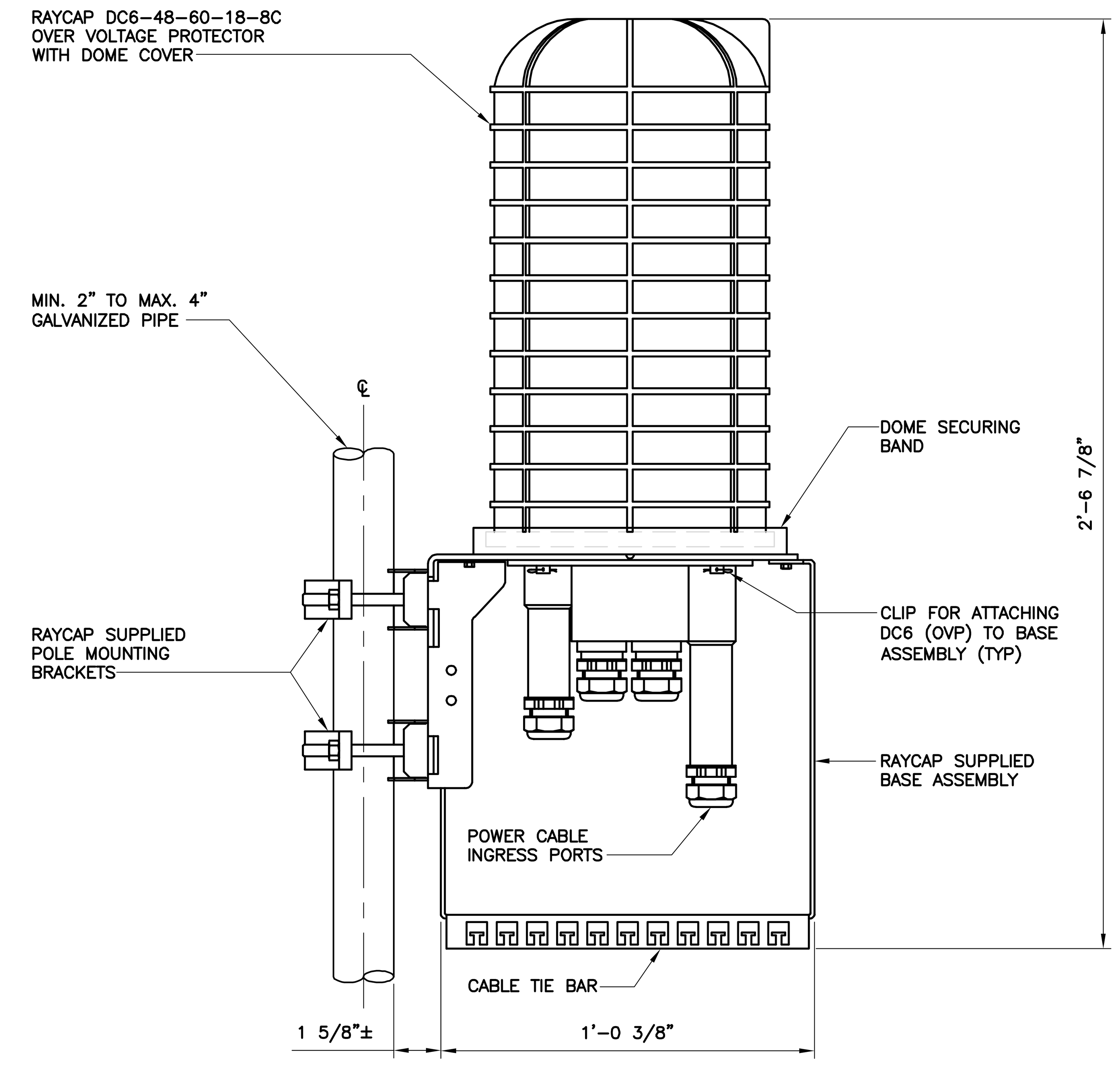
1. AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 (C-3) TYPICAL RRUS MOUNTING DETAILS
SCALE: NTS



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KATHREIN MODEL: 800-10966	96.0"L x 20.0"W x 6.9"D	114.6 LBS.
MAKE: KATHREIN MODEL: 800-10965	78.7"L x 20.0"W x 6.9"D	108.6 LBS.

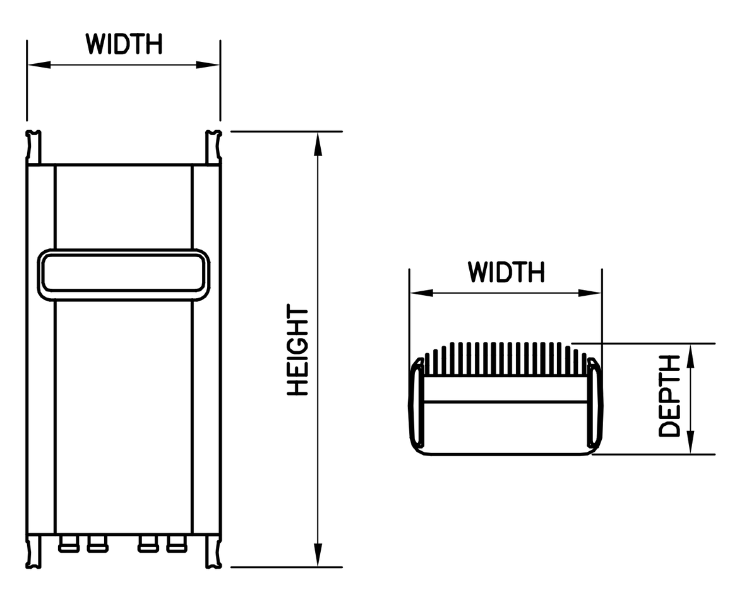
2 (C-3) PROPOSED ANTENNA DETAIL
SCALE: 1/2" = 1'-0"



NOTES:

1. RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

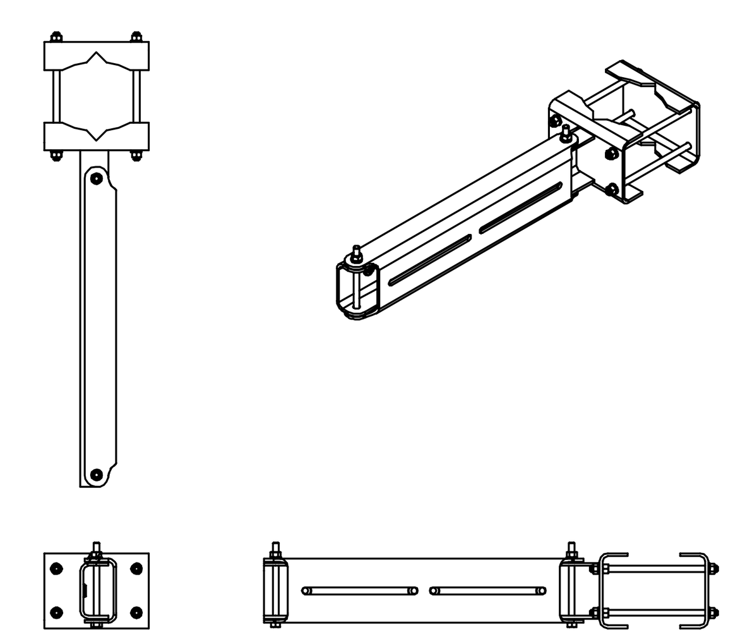
3 (C-3) RAYCAP DC6 MOUNTING DETAIL
SCALE: 3" = 1'-0"



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 32 B66	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.
MAKE: ERICSSON MODEL: RRUS-32 B2	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

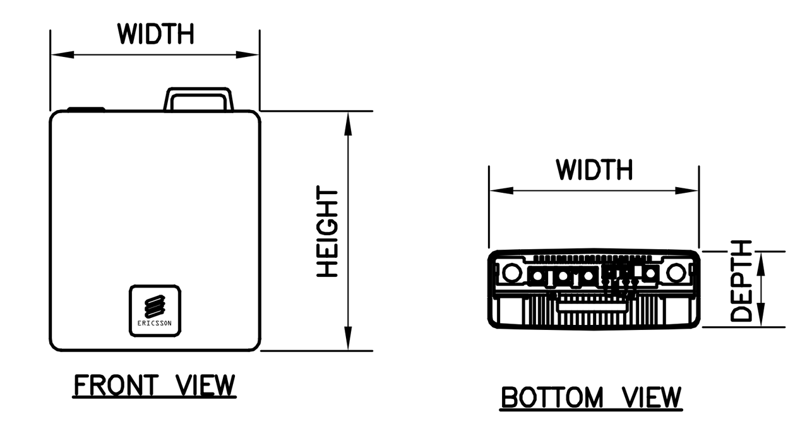
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

4 (C-3) ERICSSON REMOTE RADIO UNITS
SCALE: 1" = 1'-0"



RRU DUAL SWIVEL MOUNT		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: SITE PRO 1 PART NO.: RRUDSM	27.75"L x 6.5"W x 4.7"D	39.4 LBS.

5 (C-3) RRH DUAL SWIVEL MOUNT DETAIL
NOT TO SCALE

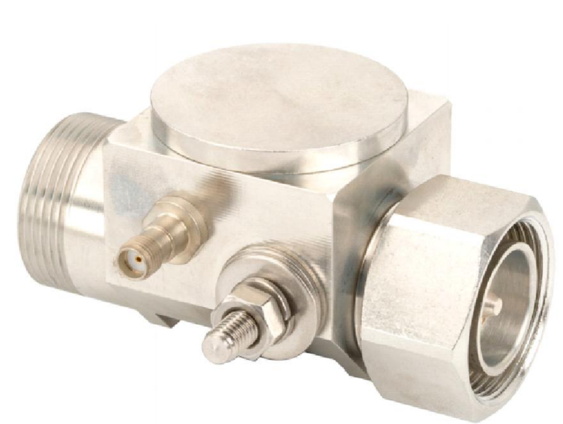


B14 4478

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: B14 4478	14.9"L x 13.1"W x 7.3"D	60 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

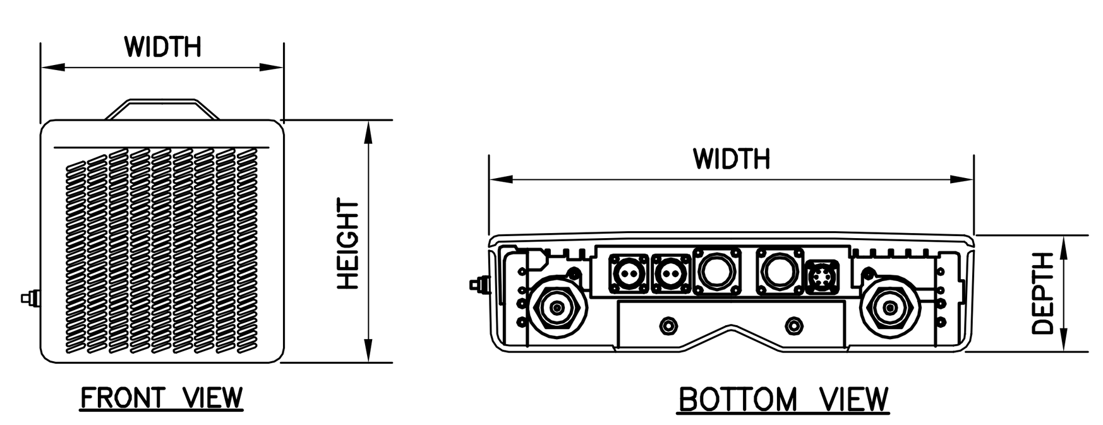
6 (C-3) ERICSSON B14 4478 DETAIL
SCALE: 1" = 1'-0"



SURGE ARRESTOR		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ANDREW MODEL: ABT-DFDM-ADBH	1.65"H x 3.23"W x 1.57"D	1.14 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

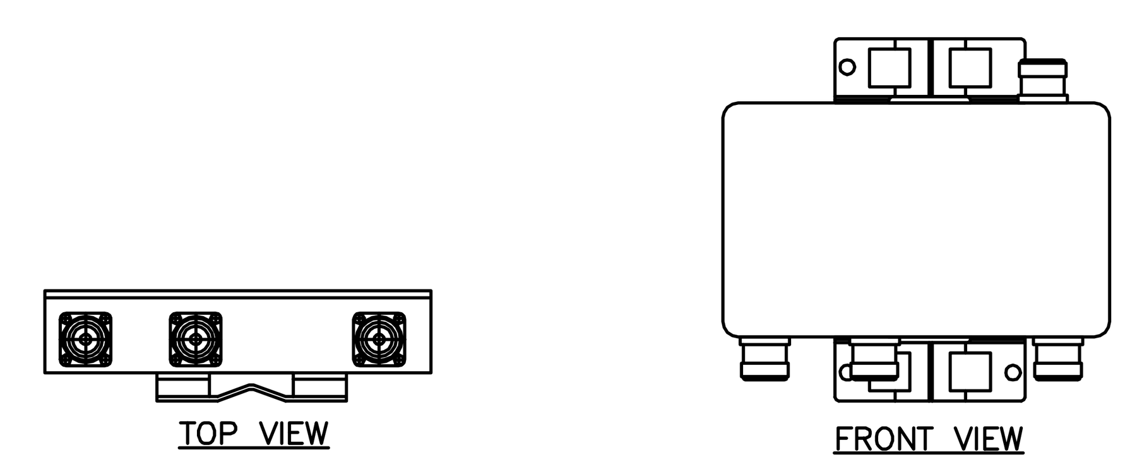
7 (C-3) ANDREW ABT-DFDM-ADBH DETAIL
SCALE: NOT TO SCALE



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS E2	20.4"L x 18.5"W x 7.5"D	59.52 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

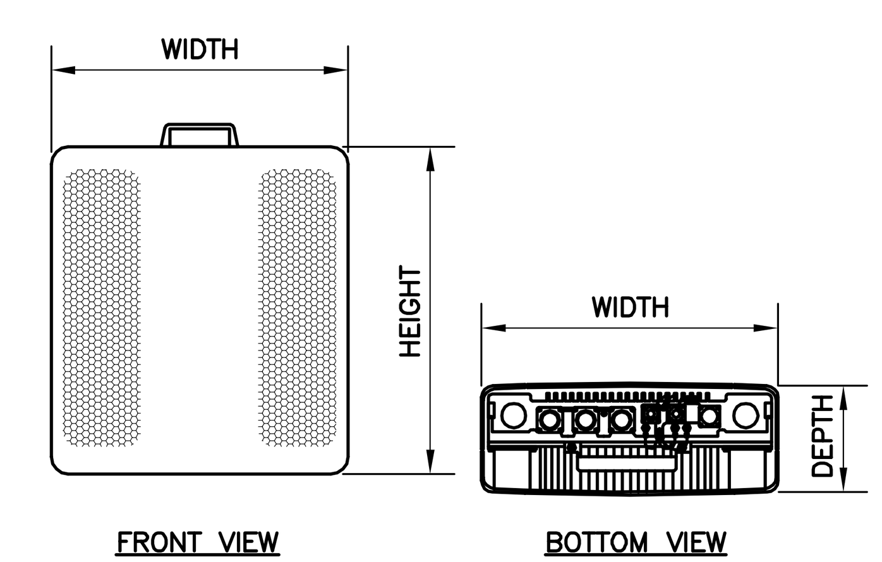
8 (C-3) ERICSSON RRUS E2 DETAIL
SCALE: 1" = 1'-0"



TRIPLEXER		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: TPX-070821	5.83"H x 9.65"W x 2.05"D	7.5 LBS.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

9 (C-3) TRIPLEXER DETAIL
SCALE: NONE



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 12	20.4"L x 18.5"W x 7.5"D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

10 (C-3) ERICSSON RRUS 12 DETAIL
SCALE: 1" = 1'-0"

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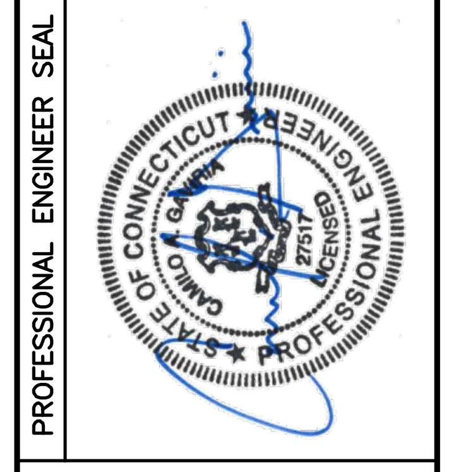

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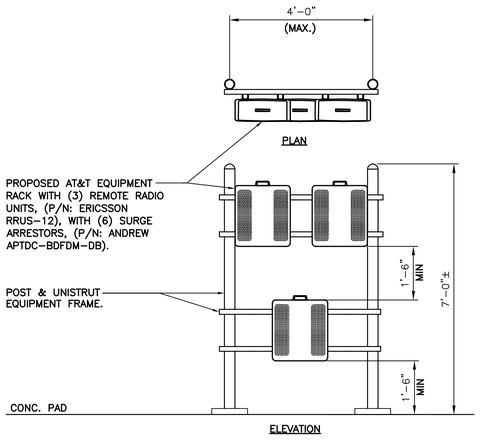
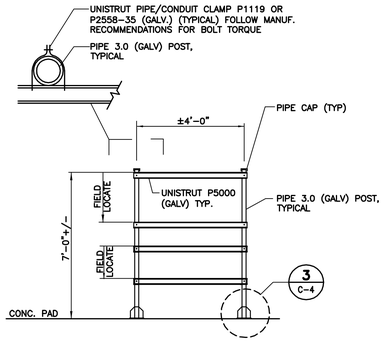
DETAILS

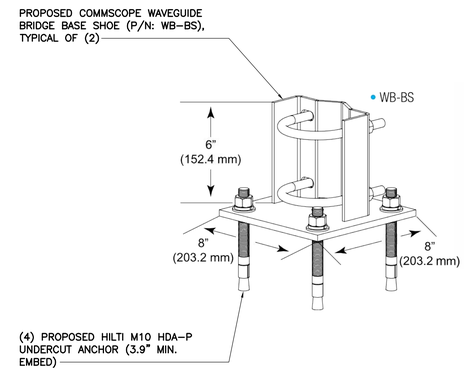
C-3



1 C-4 **PROPOSED EQUIPMENT RACK**
SCALE: 1/2" = 1'-0"



2 C-4 **PROPOSED EQUIPMENT MOUNTING FRAME DETAIL**
SCALE: NOT TO SCALE



3 C-4 **EQUIPMENT FRAME POST ATTACHMENT DETAIL**
SCALE: NOT TO SCALE

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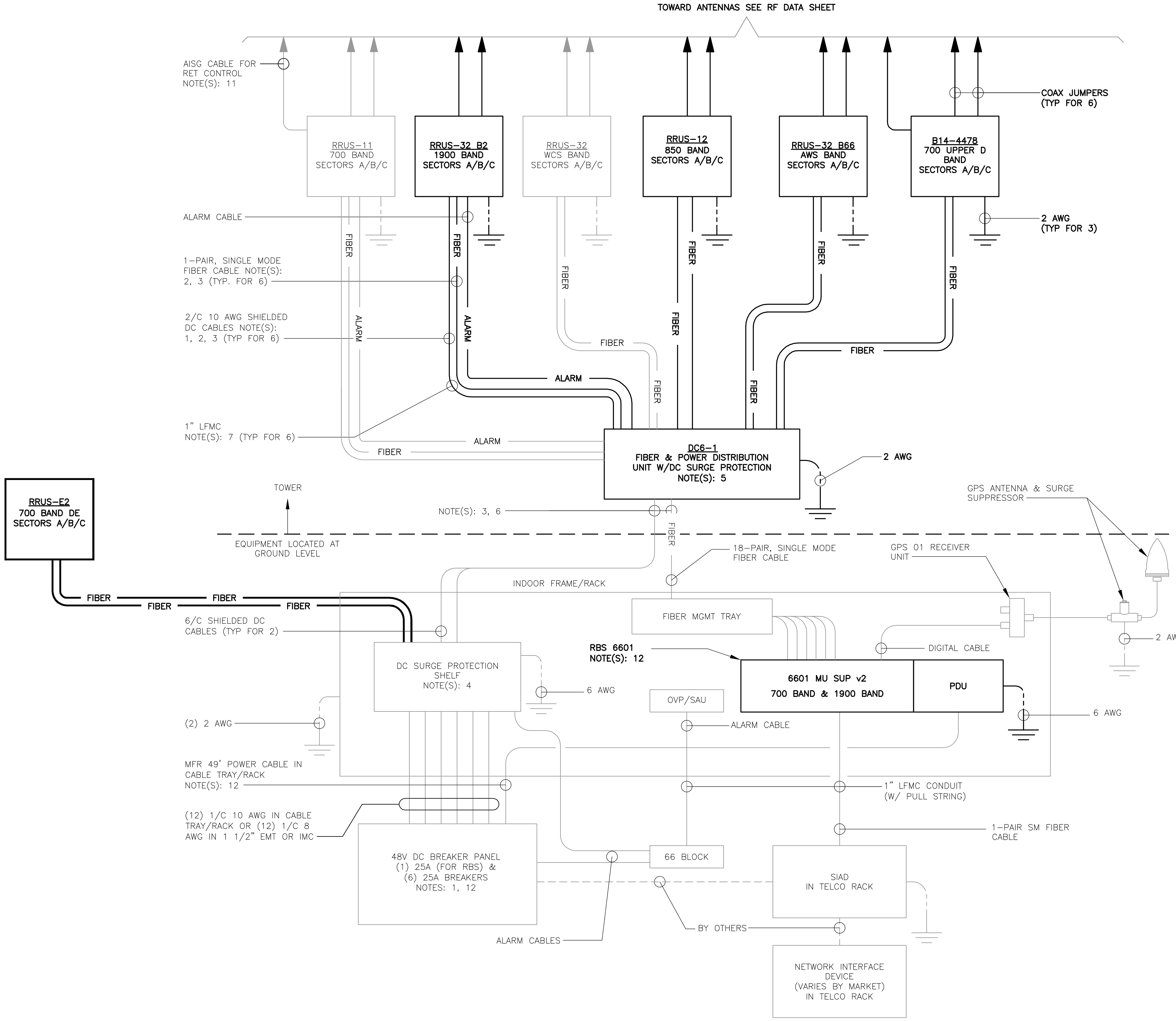
DATE: 08/31/17
SCALE: AS NOTED
JOB NO. 17004.44

DETAILS

C-4

Sheet No. 6 of 8



1 / E-1

LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx-48-60-RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6-48-60-18-8F.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP-IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

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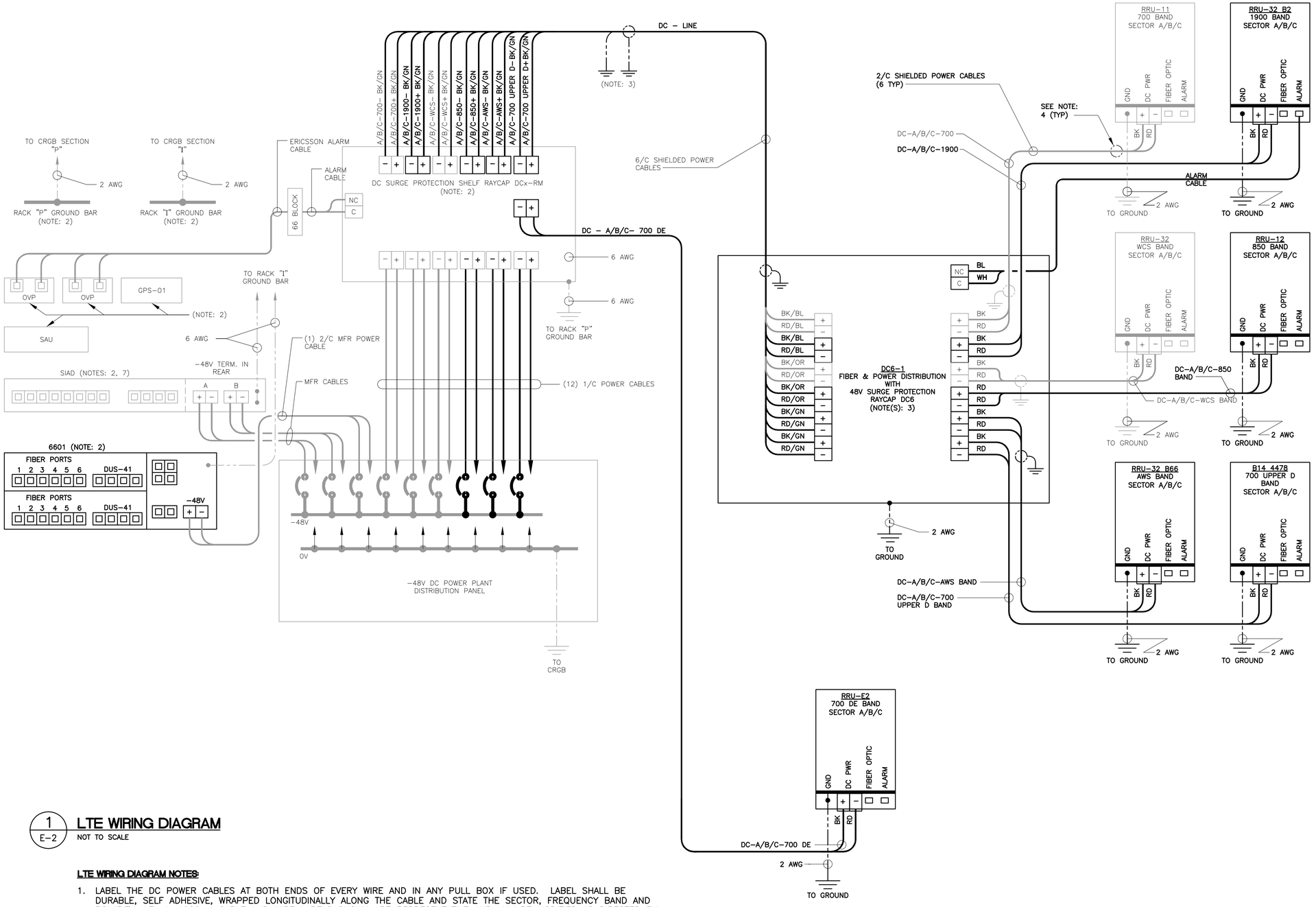
LTE SCHEMATIC DIAGRAM AND NOTES

E-1



1 / E–2 LTE WIRING DIAGRAM

NOT TO SCALE

LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A–1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI–CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN–TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E–1 FOR BREAKER RATING.

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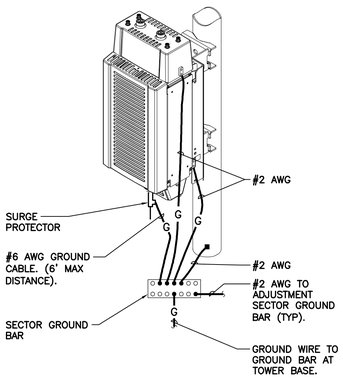
LTE WIRING DIAGRAM

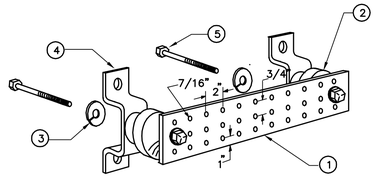
E–2

Sheet No. 8 of 8

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



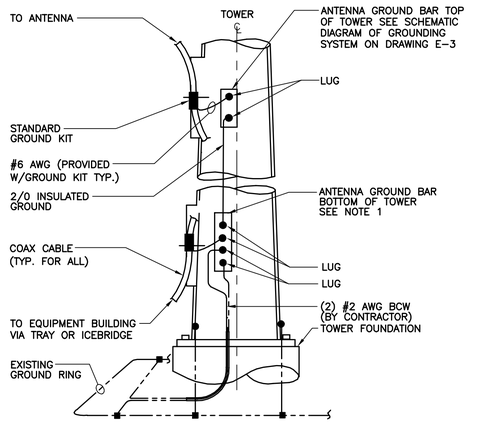
4 E-3 **RRU POLE MOUNT GROUNDING**
NOT TO SCALE



LEGEND

1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. 4. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

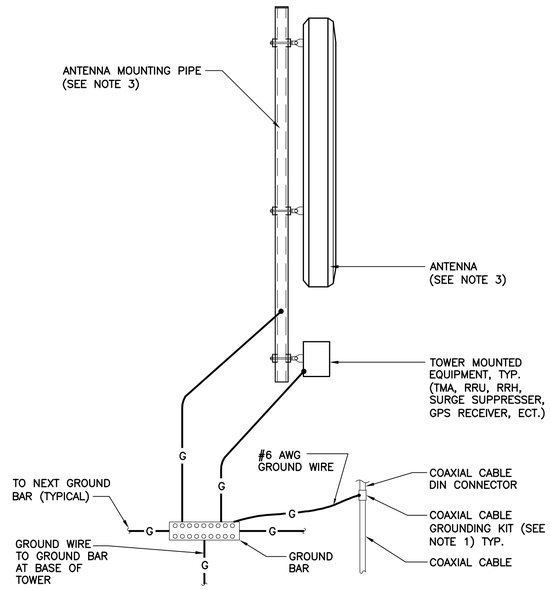
3 E-3 **GROUND BAR DETAIL**
NOT TO SCALE



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

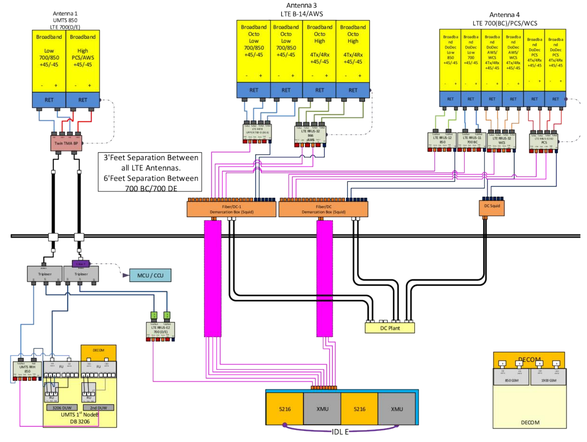
2 E-3 **ANTENNA CABLE GROUNDING - TOWER**
NOT TO SCALE



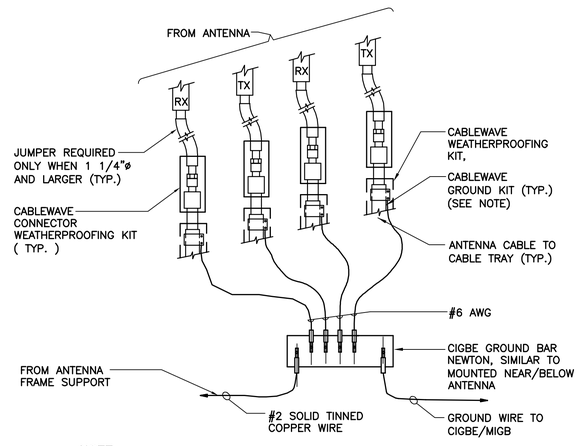
NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 E-3 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE



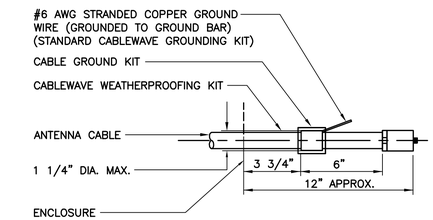
6 E-3 **RF PLUMBING DIAGRAM**
NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

6 E-3 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

5 E-3 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 9 of 8

Date: **August 29, 2018**

Cheryl Schultz
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

FDH Infrastructure Services, LLC
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
(919) 755-1012

Subject:	**Structural Modification Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5250
	Carrier Site Name:	10071248
Crown Castle Designation:	**Crown Castle BU Number:**	876334
	Crown Castle Site Name:	SOUTHINGTON, SMORON
	Crown Castle JDE Job Number:	478172
	Crown Castle Work Order Number:	1606423
	Crown Castle Application Number:	421254 Rev. 2
Engineering Firm Designation:	**FDH-IS Project Number:**	18SUXX1400
Site Data:	**625 Spring Street, SOUTHINGTON, Hartford County, CT** **Latitude *41° 37' 56.9"*, Longitude *-72° 53' 39.3"*** **160 Foot - Monopole Tower**	

Dear Cheryl Schultz,

FDH Infrastructure Services, LLC is pleased to submit this **"Structural Modification 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 including the proposed modifications as outlined in the attached drawings, "Appendix D". Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4: Modified Structure w/ Proposed Equipment Configuration **Sufficient Capacity**

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor, K_{zt}, of 1.000 and Risk Category II were used in this analysis.

Respectfully submitted by:

Drew Alexander, EI
Project Engineer II

Reviewed by:

Dennis D. Abel, PE
Director, Engineering
CT PE License No. 23247

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED
PROFESSIONAL ENGINEER

08-29-2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 146 ft Monopole tower designed by PAUL J. FORD AND COMPANY in March of 1998 and mapped by FDH VELOCITEL in March of 2016. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F. The tower has been modified multiple times in the past to accommodate additional loading, including an extension to bring the tower height to 160 ft.

The modification drawings designed by FDH-IS and attached in Appendix D, have been considered in this analysis.

2) ANALYSIS CRITERIA

Building Code:	2016 CSBC
TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	97 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Seismic Ss:	NA
Seismic S1:	NA
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
156.0	157.0	2	andrew	SBNH-1D6565C	8 6 2 3	1-5/8 3/4 3/8 Cond.
		2	cci antennas	TPA-65R-LCUUUU-H8		
		1	kmw comm	AM-X-CD-16-65-00T-RET		
		1	kathrein	80010798		
		1	kathrein	80010965		
		2	kathrein	80010966		
		3	ericsson	RRUS 12		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B66		
		3	ericsson	RRUS 4478 B14		
		3	cci antennas	DTMABP7819VG12A		
		3	ericsson	RRUS 11		
		1	raycap	DC6-48-60-0-8F		
		2	raycap	DC6-48-60-18-8F		
	156.0	3	sabre	C10-857-801		

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)
148.0	148.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-
		6	alcatel lucent	PCS 1900MHz 4x45W-65MHz		
		1	crown mounts	Side Arm Mount [SO 103-3]		
146.0	147.0	3	alcatel lucent	TD-RRH8x20-25	4	1-1/4
		1	rfs celwave	APXV9ERR18-C-A20		
		2	rfs celwave	APXVSPP18-C-A20		
		3	rfs celwave	APXVTM14-C-120		
	146.0	3	rfs celwave	IBC1900BB-1		
		3	rfs celwave	IBC1900HG-2A		
		1	crown mounts	Miscellaneous [NA 510-1]		
		1	crown mounts	Platform Mount [LP 1201-1]		
139.0	139.0	3	rfs celwave	APXV18-206517S-C	6	1-5/8
		1	crown mounts	Pipe Mount [PM 501-3]		
132.0	134.0	3	antel	BXA-80080-6CF-EDIN-X	20	1-5/8
	133.0	3	alcatel lucent	RRH2X60-AWS		
		3	alcatel lucent	RRH2X60-PCS		
		3	alcatel lucent	RRH2x60-700		
		6	andrew	SBNHH-1D65B		
		3	antel	BXA-70063/6CFx2		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
	132.0	1	crown mounts	Platform Mount [LP 712-1]		
129.0	129.0	1	crown mounts	Side Arm Mount [SO 104-3]	3	1/2
	127.0	1	andrew	VHLP2-18		
		2	andrew	VHLP800-11		
		3	dragonwave	HORIZON COMPACT		
101.0	102.0	1	symmetricom	58532A	1	1/2
	101.0	1	crown mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER MANUFACTURER DRAWINGS	Paul J. Ford and Company/ FDH Velocitel (Mapping)	1614569	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford and Company/ TEP (Mapping)	1999756	CCISITES
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc.	1530919	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company	2588177	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Paul J. Ford and Company	3363885	CCISITES

Document	Remarks	Reference	Source
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Engineering, Inc.	5288062	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Velocitel	5755362	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Velocitel	6249238	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Jacobs Engineering	6962729	CCISITES
4-POST-MODIFICATION INSPECTION	Paul J. Ford and Company	2588175	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	3794196	CCISITES
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	5570676	CCISITES
4-POST-MODIFICATION INSPECTION	FDH Velocitel	5888770	CCISITES
4-POST-MODIFICATION INSPECTION	Engineered Tower Solutions, PLLC	6544953	CCISITES
4-POST-MODIFICATION INSPECTION	Engineered Tower Solutions, PLLC	7104038	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	FDH Infrastructure Services, LLC	Appendix D	ON FILE

3.1) Analysis Method

tnxTower (version 8.0.4.0), 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.

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 included in Appendix C.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) 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. FDH Infrastructure Services, LLC should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity
160 - 155	Pole	TP16x16x0.375	Pole	8.4%
155 - 150	Pole	TP16x16x0.375	Pole	29.1%
150 - 146	Pole	TP16x16x0.375	Pole	47.8%
146 - 141	Pole	TP17.634x16x0.25	Pole	60.0%
141 - 136	Pole	TP19.268x17.634x0.25	Pole	72.2%
136 - 131	Pole	TP20.902x19.268x0.25	Pole	83.5%
131 - 125.9	Pole + Reinf.	TP22.569x20.902x0.55	Reinf. 26 Tension Rupture	65.0%
125.9 - 125.67	Pole + Reinf.	TP22.644x22.569x0.55	Reinf. 26 Tension Rupture	65.5%
125.67 - 120.67	Pole + Reinf.	TP24.278x22.644x0.525	Reinf. 26 Tension Rupture	74.5%
120.67 - 120.1	Pole + Reinf.	TP24.465x24.278x0.525	Reinf. 26 Tension Rupture	75.5%
120.1 - 119.85	Pole + Reinf.	TP24.546x24.465x0.525	Reinf. 21 Tension Rupture	75.9%
119.85 - 117.5	Pole + Reinf.	TP25.314x24.546x0.5125	Reinf. 21 Tension Rupture	79.5%
117.5 - 117.25	Pole + Reinf.	TP25.396x25.314x0.525	Reinf. 22 Tension Rupture	73.7%
117.25 - 115.5	Pole + Reinf.	TP25.968x25.396x0.5125	Reinf. 22 Tension Rupture	76.1%
115.5 - 115.25	Pole + Reinf.	TP26.05x25.968x0.7	Reinf. 1 Tension Rupture	66.5%
115.25 - 110.25	Pole + Reinf.	TP27.684x26.05x0.6625	Reinf. 1 Tension Rupture	72.2%
110.25 - 107.5	Pole + Reinf.	TP29.808x27.684x0.65	Reinf. 1 Tension Rupture	75.1%
107.5 - 102.5	Pole + Reinf.	TP29.074x28.082x0.7125	Reinf. 1 Tension Rupture	76.6%
102.5 - 100.5	Pole + Reinf.	TP29.471x29.074x0.7	Reinf. 1 Tension Rupture	79.1%
100.5 - 100.25	Pole + Reinf.	TP29.521x29.471x0.6375	Reinf. 21 Tension Rupture	80.9%
100.25 - 98.5	Pole + Reinf.	TP29.868x29.521x0.6375	Reinf. 21 Tension Rupture	83.0%
98.5 - 98.25	Pole + Reinf.	TP29.917x29.868x0.6625	Reinf. 23 Tension Rupture	79.4%
98.25 - 93.25	Pole + Reinf.	TP30.909x29.917x0.65	Reinf. 23 Tension Rupture	85.0%
93.25 - 90.5	Pole + Reinf.	TP31.455x30.909x0.65	Reinf. 23 Tension Rupture	87.9%
90.5 - 90.25	Pole + Reinf.	TP31.504x31.455x0.6875	Reinf. 23 Tension Rupture	86.7%
90.25 - 85.25	Pole + Reinf.	TP32.496x31.504x0.675	Reinf. 23 Tension Rupture	91.7%
85.25 - 83.5	Pole + Reinf.	TP32.843x32.496x0.6625	Reinf. 23 Tension Rupture	93.4%
83.5 - 83.25	Pole + Reinf.	TP32.893x32.843x0.9125	Reinf. 6 Tension Rupture	70.7%
83.25 - 80.75	Pole + Reinf.	TP33.389x32.893x0.9	Reinf. 6 Tension Rupture	72.7%
80.75 - 80.5	Pole + Reinf.	TP33.439x33.389x1.0625	Reinf. 6 Tension Rupture	59.7%
80.5 - 80.25	Pole + Reinf.	TP33.488x33.439x0.9875	Reinf. 11 Tension Rupture	64.3%
80.25 - 77.5	Pole + Reinf.	TP34.034x33.488x0.9625	Reinf. 11 Tension Rupture	66.1%
77.5 - 77.25	Pole + Reinf.	TP34.083x34.034x0.6875	Reinf. 11 Tension Rupture	92.6%
77.25 - 73	Pole + Reinf.	TP35.819x34.083x0.6875	Reinf. 11 Tension Rupture	96.2%
73 - 68	Pole + Reinf.	TP35.233x34.301x0.75	Reinf. 11 Tension Rupture	94.1%
68 - 64.25	Pole + Reinf.	TP35.932x35.233x0.7375	Reinf. 11 Tension Rupture	96.9%
64.25 - 64	Pole + Reinf.	TP35.978x35.932x0.95	Reinf. 7 Tension Rupture	77.1%
64 - 60.5	Pole + Reinf.	TP36.63x35.978x0.95	Reinf. 7 Tension Rupture	79.2%
60.5 - 60.25	Pole + Reinf.	TP36.677x36.63x1	Reinf. 7 Tension Rupture	75.3%
60.25 - 60.1	Pole + Reinf.	TP36.705x36.677x1	Reinf. 7 Tension Rupture	75.4%
60.1 - 59.85	Pole + Reinf.	TP36.751x36.705x1.05	Reinf. 7 Tension Rupture	73.1%

Elevation (ft)	Component Type	Size	Critical Element	% Capacity
59.85 - 59.1	Pole + Reinf.	TP36.891x36.751x1.05	Reinf. 7 Tension Rupture	73.5%
59.1 - 58.85	Pole + Reinf.	TP36.938x36.891x1.125	Reinf. 7 Tension Rupture	67.4%
58.85 - 55.4	Pole + Reinf.	TP37.581x36.938x1.1	Reinf. 7 Tension Rupture	69.2%
55.4 - 55.15	Pole + Reinf.	TP37.627x37.581x1.1	Reinf. 7 Tension Rupture	69.4%
55.15 - 54.75	Pole + Reinf.	TP37.702x37.627x1.1	Reinf. 7 Tension Rupture	69.6%
54.75 - 54.5	Pole + Reinf.	TP37.748x37.702x0.825	Reinf. 10 Tension Rupture	92.0%
54.5 - 49.5	Pole + Reinf.	TP38.68x37.748x0.8125	Reinf. 10 Tension Rupture	95.0%
49.5 - 44.5	Pole + Reinf.	TP39.612x38.68x0.8	Reinf. 10 Tension Rupture	97.9%
44.5 - 41.3	Pole + Reinf.	TP40.208x39.612x0.7875	Reinf. 10 Tension Rupture	99.7%
41.3 - 41.05	Pole + Reinf.	TP40.254x40.208x0.875	Reinf. 10 Tension Rupture	87.5%
41.05 - 39	Pole + Reinf.	TP41.568x40.254x0.875	Reinf. 10 Tension Rupture	88.5%
39 - 33	Pole + Reinf.	TP40.996x39.886x1.175	Reinf. 10 Tension Rupture	69.4%
33 - 31.5	Pole + Reinf.	TP41.274x40.996x1.175	Reinf. 10 Tension Rupture	70.0%
31.5 - 31.25	Pole + Reinf.	TP41.32x41.274x1.175	Reinf. 10 Tension Rupture	69.7%
31.25 - 30.5	Pole + Reinf.	TP41.459x41.32x1.175	Reinf. 10 Tension Rupture	70.0%
30.5 - 30.25	Pole + Reinf.	TP41.505x41.459x1.125	Reinf. 9 Tension Rupture	73.5%
30.25 - 25.75	Pole + Reinf.	TP42.337x41.505x1.1	Reinf. 9 Tension Rupture	75.3%
25.75 - 25.5	Pole + Reinf.	TP42.383x42.337x1.075	Reinf. 9 Tension Rupture	79.5%
25.5 - 24.7	Pole + Reinf.	TP42.531x42.383x1.075	Reinf. 9 Tension Rupture	79.9%
24.7 - 24.45	Pole + Reinf.	TP42.578x42.531x0.95	Reinf. 9 Tension Rupture	87.5%
24.45 - 24	Pole + Reinf.	TP42.661x42.578x0.95	Reinf. 9 Tension Rupture	87.7%
24 - 23.75	Pole + Reinf.	TP42.707x42.661x1.2	Reinf. 9 Tension Rupture	70.5%
23.75 - 18.75	Pole + Reinf.	TP43.632x42.707x1.175	Reinf. 9 Tension Rupture	72.5%
18.75 - 14.1	Pole + Reinf.	TP44.492x43.632x1.15	Reinf. 9 Tension Rupture	74.3%
14.1 - 13.8	Pole + Reinf.	TP44.547x44.492x1.175	Reinf. 9 Tension Rupture	72.5%
13.8 - 13.65	Pole + Reinf.	TP44.575x44.547x1.175	Reinf. 9 Tension Rupture	72.5%
13.65 - 10.5	Pole + Reinf.	TP45.158x44.575x1.175	Reinf. 9 Tension Rupture	73.7%
10.5 - 10.25	Pole + Reinf.	TP45.204x45.158x1.175	Reinf. 9 Tension Rupture	73.8%
10.25 - 5.25	Pole + Reinf.	TP46.129x45.204x1.15	Reinf. 9 Tension Rupture	75.6%
5.25 - 3	Pole + Reinf.	TP46.545x46.129x1.15	Reinf. 9 Tension Rupture	76.4%
3 - 2.9	Pole + Reinf.	TP46.564x46.545x1.1	Reinf. 9 Tension Rupture	78.8%
2.9 - 2.75	Pole + Reinf.	TP46.591x46.564x0.95	Reinf. 18 Compression	87.1%
2.75 - 2.65	Pole + Reinf.	TP46.61x46.591x0.95	Reinf. 18 Compression	87.1%
2.65 - 2.5	Pole + Reinf.	TP46.638x46.61x0.95	Reinf. 18 Compression	87.1%
2.5 - 2.25	Pole + Reinf.	TP46.684x46.638x1	Reinf. 18 Compression	79.6%
2.25 - 1.9	Pole + Reinf.	TP46.749x46.684x1	Reinf. 18 Compression	79.7%
1.9 - 1.65	Pole + Reinf.	TP46.795x46.749x0.95	Reinf. 18 Compression	81.6%
1.65 - 0	Pole + Reinf.	TP47.1x46.795x0.95	Reinf. 18 Compression	82.1%
				Summary
			Pole	83.5%
			Reinforcement	99.7%
			Overall	99.7%

Table 6 - Tower Component Stresses vs. Capacity - LC4

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	91.9	Pass
1	Base Plate	0	73.1	Pass
1	Base Transfer Stiffener	0	99.7	Pass
1	Base Foundation	0	35.2	Pass
1	Base Foundation Soil Interaction	0	48.2	Pass

Structure Rating (max from all components) =	99.7%

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

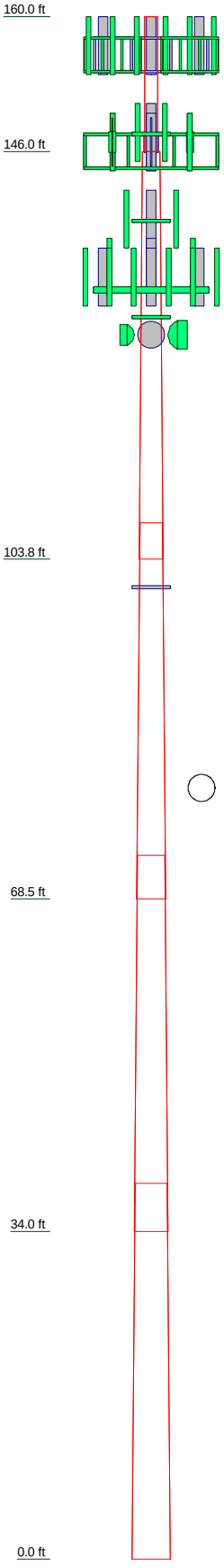
4.1) Recommendations

Perform the modifications detailed in “Appendix D” to remedy the deficiencies identified in Crown Castle Work Order No. 1569723.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	14.0000	1	0.3750		16.0000	16.0000	A53-B-35	0.9
2	42.2500	12	0.2500	3.7500	22.0000	29.8080		3.0
3	39.0000	12	0.3125	4.5000	28.0824	35.8190		4.2
4	39.0000	12	0.3750	5.0000	34.3013	41.5680	A607-60	6.0
5	39.0000	12	0.3750		39.8864	47.1000		6.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	156	IBC1900BB-1	146
TPA-65R-LCUUUU-H8 w/ Mount Pipe	156	IBC1900BB-1	146
TPA-65R-LCUUUU-H8 w/ Mount Pipe	156	IBC1900BB-1	146
80010798 w/ Mount Pipe	156	IBC1900HG-2A	146
80010965 w/ Mount Pipe	156	IBC1900HG-2A	146
80010966 w/ Mount Pipe	156	IBC1900HG-2A	146
80010966 w/ Mount Pipe	156	TD-RRH8x20-25	146
RRUS 12	156	TD-RRH8x20-25	146
RRUS 12	156	TD-RRH8x20-25	146
RRUS 12	156	5' x 2.4" Pipe Mount	146
RRUS 4478 B14	156	5' x 2.4" Pipe Mount	146
RRUS 4478 B14	156	5' x 2.4" Pipe Mount	146
RRUS 4478 B14	156	Platform Mount [LP 1201-1]	146
RRUS 32	156	Miscellaneous [NA 510-1]	146
RRUS 32	156	APXV18-206517S-C	139
RRUS 32	156	APXV18-206517S-C	139
RRUS 32 B2	156	APXV18-206517S-C	139
RRUS 32 B2	156	Pipe Mount [PM 501-3]	139
RRUS 32 B2	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
RRUS 32 B66	156		
RRUS 32 B66	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
RRUS 32 B66	156	BXA-80080-6CF-EDIN-X w/ Mount Pipe	132
DC6-48-60-18-8F	156		
DC6-48-60-0-8F	156	BXA-70063/6CFx2 w/ Mount Pipe	132
SBNH-1D6565C w/ Mount Pipe	156	BXA-70063/6CFx2 w/ Mount Pipe	132
SBNH-1D6565C w/ Mount Pipe	156	BXA-70063/6CFx2 w/ Mount Pipe	132
AM-X-CD-16-65-00T-RET w/ Mount Pipe	156	(2) SBNHH-1D65B w/ Mount Pipe	132
DTMABP7819VG12A	156	(2) SBNHH-1D65B w/ Mount Pipe	132
DTMABP7819VG12A	156	(2) SBNHH-1D65B w/ Mount Pipe	132
DTMABP7819VG12A	156	RRH2X60-AWS	132
RRUS 11	156	RRH2X60-AWS	132
RRUS 11	156	RRH2X60-AWS	132
RRUS 11	156	RRH2x60-700	132
DC6-48-60-18-8F	156	RRH2x60-700	132
Pipe Mount	156	RRH2x60-700	132
Pipe Mount	156	RRH2X60-PCS	132
Pipe Mount	156	RRH2X60-PCS	132
(3) Sabre P/N C10-857-111	156	RRH2X60-PCS	132
(2) PCS 1900MHz 4x45W-65MHz	148	DB-T1-6Z-8AB-0Z	132
(2) PCS 1900MHz 4x45W-65MHz	148	DB-T1-6Z-8AB-0Z	132
(2) PCS 1900MHz 4x45W-65MHz	148	Platform Mount [LP 712-1]	132
800MHz 2X50W RRH W/FILTER	148	HORIZON COMPACT	129
800MHz 2X50W RRH W/FILTER	148	HORIZON COMPACT	129
800MHz 2X50W RRH W/FILTER	148	HORIZON COMPACT	129
(2) 4'x2.4" Pipe Mount	148	7' x 3.5" Pipe Mount	129
(2) 4'x2.4" Pipe Mount	148	7' x 3.5" Pipe Mount	129
(2) 4'x2.4" Pipe Mount	148	7' x 3.5" Pipe Mount	129
Side Arm Mount [SO 103-3]	148	Side Arm Mount [SO 104-3]	129
APXV9ERR18-C-A20 w/ Mount Pipe	146	VHLP800-11	129
APXVSPP18-C-A20 w/ Mount Pipe	146	VHLP800-11	129
APXVSPP18-C-A20 w/ Mount Pipe	146	VHLP2-18	129
APXVTM14-C-120 w/ Mount Pipe	146	Side Arm Mount [SO 701-1]	101
APXVTM14-C-120 w/ Mount Pipe	146	58532A	101
APXVTM14-C-120 w/ Mount Pipe	146		

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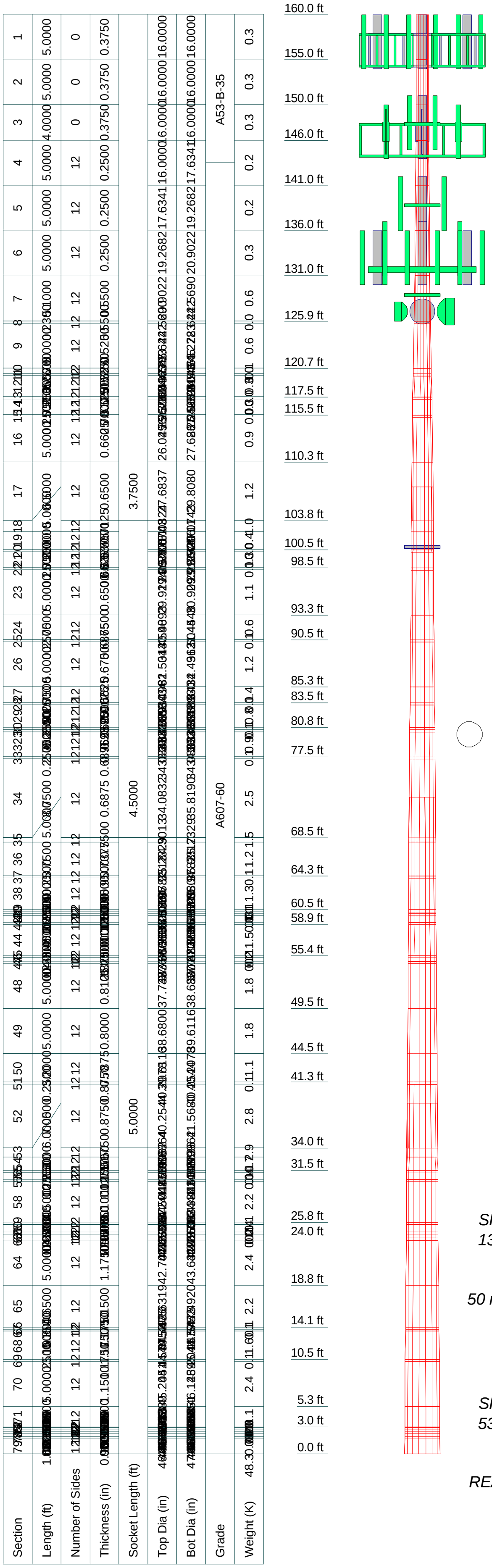
Tower Analysis

Job: ***BU #876334, SOUTHINGTON, SMORON***			
Project: ***18SUXX1400***			
Client: Crown Castle	Drawn by: DAlexander		App'd:
Code: TIA-222-G	Date: 08/28/18		Scale: NTS
Path:			Dwg No. E-1

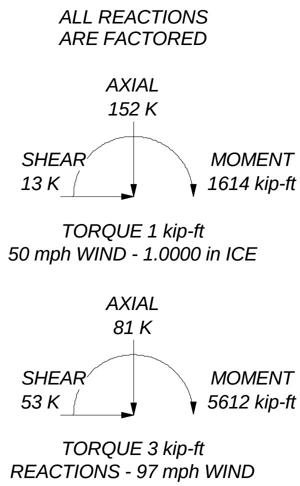


MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A607-60	60 ksi	75 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.0000 ft



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Tower Analysis

Job: **BU #876334, SOUTHINGTON, SMORON**		
Project: **18SUXX1400**		
Client: Crown Castle	Drawn by: DAlexander	App'd:
Code: TIA-222-G	Date: 08/28/18	Scale: NTS
Path:		Dwg No. E-1

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.0000 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
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.
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-G Bracing Resist. Exemption
Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	√ Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	160.0000-155.0	5.0000	0.00	Round	16.0000	16.0000	0.3750		A53-B-35

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
	000								(35 ksi)
L2	155.0000-150.0000	5.0000	0.00	Round	16.0000	16.0000	0.3750		A53-B-35 (35 ksi)
L3	150.0000-146.0000	4.0000	0.00	Round	16.0000	16.0000	0.3750		A53-B-35 (35 ksi)
L4	146.0000-141.0000	5.0000	0.00	12	16.0000	17.6341	0.2500	1.0000	A607-60 (60 ksi)
L5	141.0000-136.0000	5.0000	0.00	12	17.6341	19.2682	0.2500	1.0000	A607-60 (60 ksi)
L6	136.0000-131.0000	5.0000	0.00	12	19.2682	20.9022	0.2500	1.0000	A607-60 (60 ksi)
L7	131.0000-125.9000	5.1000	0.00	12	20.9022	22.5690	0.5500	2.2000	A607-60 (60 ksi)
L8	125.9000-125.6700	0.2300	0.00	12	22.5690	22.6442	0.5500	2.2000	A607-60 (60 ksi)
L9	125.6700-120.6700	5.0000	0.00	12	22.6442	24.2783	0.5250	2.1000	A607-60 (60 ksi)
L10	120.6700-120.1000	0.5700	0.00	12	24.2783	24.4645	0.5250	2.1000	A607-60 (60 ksi)
L11	120.1000-119.8500	0.2500	0.00	12	24.4645	24.5463	0.5250	2.1000	A607-60 (60 ksi)
L12	119.8500-117.5000	2.3500	0.00	12	24.5463	25.3143	0.5125	2.0500	A607-60 (60 ksi)
L13	117.5000-117.2500	0.2500	0.00	12	25.3143	25.3960	0.5250	2.1000	A607-60 (60 ksi)
L14	117.2500-115.5000	1.7500	0.00	12	25.3960	25.9679	0.5125	2.0500	A607-60 (60 ksi)
L15	115.5000-115.2500	0.2500	0.00	12	25.9679	26.0496	0.7000	2.8000	A607-60 (60 ksi)
L16	115.2500-110.2500	5.0000	0.00	12	26.0496	27.6837	0.6625	2.6500	A607-60 (60 ksi)
L17	110.2500-103.7500	6.5000	3.75	12	27.6837	29.8080	0.6500	2.6000	A607-60 (60 ksi)
L18	103.7500-102.5000	5.0000	0.00	12	28.0824	29.0743	0.7125	2.8500	A607-60 (60 ksi)
L19	102.5000-100.5000	2.0000	0.00	12	29.0743	29.4711	0.7000	2.8000	A607-60 (60 ksi)
L20	100.5000-100.2500	0.2500	0.00	12	29.4711	29.5206	0.6375	2.5500	A607-60 (60 ksi)
L21	100.2500-98.5000	1.7500	0.00	12	29.5206	29.8678	0.6375	2.5500	A607-60 (60 ksi)
L22	98.5000-98.2500	0.2500	0.00	12	29.8678	29.9174	0.6625	2.6500	A607-60 (60 ksi)
L23	98.2500-93.2500	5.0000	0.00	12	29.9174	30.9093	0.6500	2.6000	A607-60 (60 ksi)
L24	93.2500-90.5000	2.7500	0.00	12	30.9093	31.4548	0.6500	2.6000	A607-60 (60 ksi)
L25	90.5000-90.2500	0.2500	0.00	12	31.4548	31.5044	0.6875	2.7500	A607-60 (60 ksi)
L26	90.2500-85.2500	5.0000	0.00	12	31.5044	32.4962	0.6750	2.7000	A607-60 (60 ksi)
L27	85.2500-83.5000	1.7500	0.00	12	32.4962	32.8434	0.6625	2.6500	A607-60 (60 ksi)
L28	83.5000-83.2500	0.2500	0.00	12	32.8434	32.8930	0.9125	3.6500	A607-60 (60 ksi)
L29	83.2500-80.7500	2.5000	0.00	12	32.8930	33.3889	0.9000	3.6000	A607-60 (60 ksi)
L30	80.7500-80.5000	0.2500	0.00	12	33.3889	33.4385	1.0625	4.2500	A607-60 (60 ksi)
L31	80.5000-80.2500	0.2500	0.00	12	33.4385	33.4881	0.9875	3.9500	A607-60 (60 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L32	80.2500-77.5000	2.7500	0.00	12	33.4881	34.0336	0.9625	3.8500	A607-60 (60 ksi)
L33	77.5000-77.2500	0.2500	0.00	12	34.0336	34.0832	0.6875	2.7500	A607-60 (60 ksi)
L34	77.2500-68.5000	8.7500	4.50	12	34.0832	35.8190	0.6875	2.7500	A607-60 (60 ksi)
L35	68.5000-68.0000	5.0000	0.00	12	34.3013	35.2329	0.7500	3.0000	A607-60 (60 ksi)
L36	68.0000-64.2500	3.7500	0.00	12	35.2329	35.9317	0.7375	2.9500	A607-60 (60 ksi)
L37	64.2500-64.0000	0.2500	0.00	12	35.9317	35.9782	0.9500	3.8000	A607-60 (60 ksi)
L38	64.0000-60.5000	3.5000	0.00	12	35.9782	36.6304	0.9500	3.8000	A607-60 (60 ksi)
L39	60.5000-60.2500	0.2500	0.00	12	36.6304	36.6770	1.0000	4.0000	A607-60 (60 ksi)
L40	60.2500-60.1000	0.1500	0.00	12	36.6770	36.7049	1.0000	4.0000	A607-60 (60 ksi)
L41	60.1000-59.8500	0.2500	0.00	12	36.7049	36.7515	1.0500	4.2000	A607-60 (60 ksi)
L42	59.8500-59.1000	0.7500	0.00	12	36.7515	36.8912	1.0500	4.2000	A607-60 (60 ksi)
L43	59.1000-58.8500	0.2500	0.00	12	36.8912	36.9378	1.1250	4.5000	A607-60 (60 ksi)
L44	58.8500-55.4000	3.4500	0.00	12	36.9378	37.5806	1.1000	4.4000	A607-60 (60 ksi)
L45	55.4000-55.1500	0.2500	0.00	12	37.5806	37.6272	1.1000	4.4000	A607-60 (60 ksi)
L46	55.1500-54.7500	0.4000	0.00	12	37.6272	37.7018	1.1000	4.4000	A607-60 (60 ksi)
L47	54.7500-54.5000	0.2500	0.00	12	37.7018	37.7483	0.8250	3.3000	A607-60 (60 ksi)
L48	54.5000-49.5000	5.0000	0.00	12	37.7483	38.6800	0.8125	3.2500	A607-60 (60 ksi)
L49	49.5000-44.5000	5.0000	0.00	12	38.6800	39.6116	0.8000	3.2000	A607-60 (60 ksi)
L50	44.5000-41.3000	3.2000	0.00	12	39.6116	40.2078	0.7875	3.1500	A607-60 (60 ksi)
L51	41.3000-41.0500	0.2500	0.00	12	40.2078	40.2544	0.8750	3.5000	A607-60 (60 ksi)
L52	41.0500-34.0000	7.0500	5.00	12	40.2544	41.5680	0.8750	3.5000	A607-60 (60 ksi)
L53	34.0000-33.0000	6.0000	0.00	12	39.8864	40.9962	1.1750	4.7000	A607-60 (60 ksi)
L54	33.0000-31.5000	1.5000	0.00	12	40.9962	41.2736	1.1750	4.7000	A607-60 (60 ksi)
L55	31.5000-31.2500	0.2500	0.00	12	41.2736	41.3199	1.1750	4.7000	A607-60 (60 ksi)
L56	31.2500-30.5000	0.7500	0.00	12	41.3199	41.4586	1.1750	4.7000	A607-60 (60 ksi)
L57	30.5000-30.2500	0.2500	0.00	12	41.4586	41.5048	1.1250	4.5000	A607-60 (60 ksi)
L58	30.2500-25.7500	4.5000	0.00	12	41.5048	42.3372	1.1000	4.4000	A607-60 (60 ksi)
L59	25.7500-25.5000	0.2500	0.00	12	42.3372	42.3834	1.0750	4.3000	A607-60 (60 ksi)
L60	25.5000-24.7000	0.8000	0.00	12	42.3834	42.5314	1.0750	4.3000	A607-60 (60 ksi)
L61	24.7000-24.4500	0.2500	0.00	12	42.5314	42.5776	0.9500	3.8000	A607-60 (60 ksi)
L62	24.4500-24.000	0.4500	0.00	12	42.5776	42.6608	0.9500	3.8000	A607-60

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
	0								(60 ksi)
L63	24.0000-23.750	0.2500	0.00	12	42.6608	42.7071	1.2000	4.8000	A607-60
	0								(60 ksi)
L64	23.7500-18.750	5.0000	0.00	12	42.7071	43.6319	1.1750	4.7000	A607-60
	0								(60 ksi)
L65	18.7500-14.100	4.6500	0.00	12	43.6319	44.4920	1.1500	4.6000	A607-60
	0								(60 ksi)
L66	14.1000-13.800	0.3000	0.00	12	44.4920	44.5475	1.1750	4.7000	A607-60
	0								(60 ksi)
L67	13.8000-13.650	0.1500	0.00	12	44.5475	44.5752	1.1750	4.7000	A607-60
	0								(60 ksi)
L68	13.6500-10.500	3.1500	0.00	12	44.5752	45.1579	1.1750	4.7000	A607-60
	0								(60 ksi)
L69	10.5000-10.250	0.2500	0.00	12	45.1579	45.2041	1.1750	4.7000	A607-60
	0								(60 ksi)
L70	10.2500-5.2500	5.0000	0.00	12	45.2041	46.1289	1.1500	4.6000	A607-60
									(60 ksi)
L71	5.2500-3.0000	2.2500	0.00	12	46.1289	46.5451	1.1500	4.6000	A607-60
									(60 ksi)
L72	3.0000-2.9000	0.1000	0.00	12	46.5451	46.5636	1.1000	4.4000	A607-60
									(60 ksi)
L73	2.9000-2.7500	0.1500	0.00	12	46.5636	46.5913	0.9500	3.8000	A607-60
									(60 ksi)
L74	2.7500-2.6500	0.1000	0.00	12	46.5913	46.6098	0.9500	3.8000	A607-60
									(60 ksi)
L75	2.6500-2.5000	0.1500	0.00	12	46.6098	46.6376	0.9500	3.8000	A607-60
									(60 ksi)
L76	2.5000-2.2500	0.2500	0.00	12	46.6376	46.6838	1.0000	4.0000	A607-60
									(60 ksi)
L77	2.2500-1.9000	0.3500	0.00	12	46.6838	46.7486	1.0000	4.0000	A607-60
									(60 ksi)
L78	1.9000-1.6500	0.2500	0.00	12	46.7486	46.7948	0.9500	3.8000	A607-60
									(60 ksi)
L79	1.6500-0.0000	1.6500		12	46.7948	47.1000	0.9500	3.8000	A607-60
									(60 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L2	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L3	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
	16.0000	18.4078	562.0841	5.5259	8.0000	70.2605	1124.1682	9.1984	0.0000	0
L4	16.4762	12.6788	401.4426	5.6385	8.2880	48.4366	813.4316	6.2401	3.6180	14.472
	18.1680	13.9942	539.8053	6.2235	9.1345	59.0955	1093.7920	6.8875	4.0559	16.224
L5	18.1680	13.9942	539.8053	6.2235	9.1345	59.0955	1093.7920	6.8875	4.0559	16.224
	19.8597	15.3096	706.7856	6.8085	9.9809	70.8137	1432.1393	7.5349	4.4939	17.975
L6	19.8597	15.3096	706.7856	6.8085	9.9809	70.8137	1432.1393	7.5349	4.4939	17.975
	21.5514	16.6251	905.0735	7.3935	10.8274	83.5913	1833.9243	8.1823	4.9318	19.727
L7	21.4456	36.0438	1905.6437	7.2861	10.8274	176.0025	3861.3508	17.7397	4.1278	7.505
	23.1711	38.9957	2413.2263	7.8828	11.6907	206.4219	4889.8508	19.1925	4.5745	8.317
L8	23.1711	38.9957	2413.2263	7.8828	11.6907	206.4219	4889.8508	19.1925	4.5745	8.317
	23.2490	39.1288	2438.0254	7.9097	11.7297	207.8509	4940.1004	19.2580	4.5946	8.354

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L9	23.2578	37.3925	2335.1148	7.9187	11.7297	199.0774	4731.5757	18.4034	4.6616	8.879
	24.9495	40.1549	2891.8182	8.5037	12.5761	229.9448	5859.6078	19.7630	5.0996	9.713
L10	24.9495	40.1549	2891.8182	8.5037	12.5761	229.9448	5859.6078	19.7630	5.0996	9.713
	25.1424	40.4698	2960.3907	8.5704	12.6726	233.6050	5998.5541	19.9180	5.1495	9.809
L11	25.1424	40.4698	2960.3907	8.5704	12.6726	233.6050	5998.5541	19.9180	5.1495	9.809
	25.2270	40.6079	2990.8051	8.5996	12.7150	235.2194	6060.1820	19.9860	5.1714	9.85
L12	25.2314	39.6617	2924.1556	8.6041	12.7150	229.9776	5925.1321	19.5203	5.2049	10.156
	26.0265	40.9291	3213.5409	8.8790	13.1128	245.0691	6511.5051	20.1441	5.4107	10.558
L13	26.0221	41.9063	3286.9451	8.8746	13.1128	250.6670	6660.2420	20.6250	5.3772	10.242
	26.1066	42.0444	3319.5532	8.9038	13.1551	252.3393	6726.3147	20.6930	5.3991	10.284
L14	26.1111	41.0640	3245.4046	8.9083	13.1551	246.7029	6576.0696	20.2104	5.4326	10.6
	26.7032	42.0078	3474.3674	9.1130	13.4514	258.2909	7040.0103	20.6750	5.5859	10.899
L15	26.6370	56.9539	4641.3849	9.0459	13.4514	345.0491	9404.7041	28.0310	5.0834	7.262
	26.7216	57.1380	4686.5546	9.0752	13.4937	347.3143	9496.2302	28.1216	5.1053	7.293
L16	26.7348	54.1571	4455.2027	9.0886	13.4937	330.1692	9027.4486	26.6545	5.2058	7.858
	28.4266	57.6430	5372.0646	9.6736	14.3402	374.6170	10885.2594	28.3701	5.6437	8.519
L17	28.4310	56.5815	5278.0230	9.6781	14.3402	368.0591	10694.7055	27.8477	5.6772	8.734
	30.6302	61.0277	6622.5977	10.4386	15.4405	428.9096	13419.1784	30.0360	6.2465	9.61
L18	29.5919	62.7935	6004.1029	9.7984	14.5467	412.7467	12165.9402	30.9050	5.6166	7.883
	29.8486	65.0691	6680.7971	10.1535	15.0605	443.5976	13537.1062	32.0250	5.8824	8.256
L19	29.8530	63.9557	6572.2723	10.1580	15.0605	436.3917	13317.2056	31.4770	5.9159	8.451
	30.2637	64.8500	6851.8377	10.3000	15.2660	448.8298	13883.6809	31.9172	6.0222	8.603
L20	30.2858	59.1881	6280.8212	10.3224	15.2660	411.4253	12726.6466	29.1306	6.1897	9.709
	30.3371	59.2899	6313.2858	10.3402	15.2917	412.8572	12792.4286	29.1807	6.2030	9.73
L21	30.3371	59.2899	6313.2858	10.3402	15.2917	412.8572	12792.4286	29.1807	6.2030	9.73
	30.6965	60.0025	6543.6755	10.4644	15.4715	422.9498	13259.2607	29.5314	6.2961	9.876
L22	30.6877	62.3022	6782.8568	10.4555	15.4715	438.4092	13743.9067	30.6632	6.2291	9.402
	30.7391	62.4080	6817.4693	10.4733	15.4972	439.9159	13814.0410	30.7153	6.2424	9.422
L23	30.7435	61.2567	6697.4154	10.4777	15.4972	432.1691	13570.7794	30.1487	6.2759	9.655
	31.7703	63.3326	7401.6753	10.8328	16.0110	462.2870	14997.8009	31.1704	6.5417	10.064
L24	31.7703	63.3326	7401.6753	10.8328	16.0110	462.2870	14997.8009	31.1704	6.5417	10.064
	32.3351	64.4744	7809.2575	11.0281	16.2936	479.2844	15823.6729	31.7323	6.6879	10.289
L25	32.3219	68.1111	8229.6633	11.0147	16.2936	505.0863	16675.5290	33.5222	6.5874	9.582
	32.3732	68.2209	8269.5233	11.0324	16.3193	506.7337	16756.2962	33.5762	6.6007	9.601
L26	32.3776	67.0077	8129.0523	11.0369	16.3193	498.1260	16471.6638	32.9791	6.6342	9.828
	33.4045	69.1635	8939.1686	11.3920	16.8331	531.0485	18113.1791	34.0402	6.9000	10.222
L27	33.4089	67.9093	8783.9718	11.3965	16.8331	521.8287	17798.7084	33.4229	6.9335	10.466
	33.7683	68.6499	9074.4900	11.5208	17.0129	533.3894	18387.3771	33.7874	7.0265	10.606
L28	33.6801	93.8210	12209.7885	11.4313	17.0129	717.6791	24740.3417	46.1758	6.3565	6.966
	33.7314	93.9667	12266.7676	11.4490	17.0386	719.9411	24855.7969	46.2475	6.3698	6.981
L29	33.7358	92.7157	12112.9221	11.4535	17.0386	710.9119	24544.0642	45.6318	6.4033	7.115
	34.2493	94.1529	12684.9978	11.6310	17.2955	733.4292	25703.2446	46.3392	6.5362	7.262
L30	34.1920	110.5968	14751.7599	11.5729	17.2955	852.9265	29891.0650	54.4324	6.1007	5.742
	34.2433	110.7665	14819.7580	11.5906	17.3212	855.5873	30028.8476	54.5159	6.1140	5.754
L31	34.2698	103.1861	13869.6006	11.6175	17.3212	800.7320	28103.5711	50.7851	6.3150	6.395
	34.3211	103.3438	13933.2866	11.6352	17.3468	803.2175	28232.6162	50.8627	6.3283	6.408
L32	34.3299	100.8050	13611.9084	11.6442	17.3468	784.6908	27581.4168	49.6132	6.3953	6.644
	34.8947	102.4957	14308.3659	11.8395	17.6294	811.6184	28992.6285	50.4453	6.5415	6.796
L33	34.9917	73.8200	10477.3442	11.9379	17.6294	594.3100	21229.9400	36.3320	7.2785	10.587
	35.0430	73.9298	10524.1604	11.9557	17.6551	596.0970	21324.8022	36.3860	7.2918	10.606
L34	35.0430	73.9298	10524.1604	11.9557	17.6551	596.0970	21324.8022	36.3860	7.2918	10.606
	36.8400	77.7724	12251.9327	12.5771	18.5542	660.3305	24825.7374	38.2772	7.7570	11.283
L35	36.1148	81.0264	11642.1157	12.0114	17.7681	655.2263	23590.0826	39.8787	7.1828	9.577
	36.2113	83.2763	12639.1000	12.3449	18.2507	692.5282	25610.2432	40.9861	7.4324	9.91
L36	36.2157	81.9181	12441.9691	12.3494	18.2507	681.7269	25210.8026	40.3176	7.4659	10.123
	36.9390	83.5773	13213.4380	12.5995	18.6126	709.9189	26774.0078	41.1342	7.6532	10.377
L37	36.8641	107.0089	16714.2481	12.5234	18.6126	898.0071	33867.5981	52.6665	7.0837	7.457
	36.9123	107.1514	16781.1067	12.5401	18.6367	900.4319	34003.0718	52.7367	7.0962	7.47
L38	36.9123	107.1514	16781.1067	12.5401	18.6367	900.4319	34003.0718	52.7367	7.0962	7.47
	37.5874	109.1463	17735.9307	12.7736	18.9745	934.7226	35937.8041	53.7185	7.2709	7.654
L39	37.5698	114.7298	18591.0247	12.7557	18.9745	979.7880	37670.4564	56.4665	7.1369	7.137
	37.6180	114.8798	18664.0349	12.7724	18.9987	982.3865	37818.3947	56.5404	7.1494	7.149

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L40	37.6180	114.8798	18664.0349	12.7724	18.9987	982.3865	37818.3947	56.5404	7.1494	7.149
	37.6470	114.9698	18707.9326	12.7824	19.0131	983.9473	37907.3433	56.5846	7.1569	7.157
L41	37.6293	120.5493	19560.9211	12.7645	19.0131	1028.8104	39635.7293	59.3307	7.0229	6.688
	37.6775	120.7068	19637.6872	12.7811	19.0373	1031.5388	39791.2784	59.4082	7.0354	6.7
L42	37.6775	120.7068	19637.6872	12.7811	19.0373	1031.5388	39791.2784	59.4082	7.0354	6.7
	37.8222	121.1792	19869.1903	12.8312	19.1097	1039.7458	40260.3663	59.6407	7.0729	6.736
L43	37.7958	129.5632	21155.0556	12.8043	19.1097	1107.0345	42865.8781	63.7671	6.8719	6.108
	37.8440	129.7319	21237.8192	12.8210	19.1338	1109.9640	43033.5795	63.8501	6.8843	6.119
L44	37.8528	126.9376	20809.3863	12.8299	19.1338	1087.5726	42165.4584	62.4748	6.9513	6.319
	38.5183	129.2144	21949.3634	13.0601	19.4668	1127.5297	44475.3610	63.5954	7.1236	6.476
L45	38.5183	129.2144	21949.3634	13.0601	19.4668	1127.5297	44475.3610	63.5954	7.1236	6.476
	38.5665	129.3794	22033.5507	13.0767	19.4909	1130.4531	44645.9473	63.6766	7.1361	6.487
L46	38.5665	129.3794	22033.5507	13.0767	19.4909	1130.4531	44645.9473	63.6766	7.1361	6.487
	38.6437	129.6434	22168.6977	13.1034	19.5295	1135.1385	44919.7918	63.8065	7.1561	6.506
L47	38.7407	97.9631	17004.1062	13.2019	19.5295	870.6879	34454.9293	48.2145	7.8931	9.567
	38.7889	98.0868	17068.6245	13.2186	19.5536	872.9130	34585.6607	48.2754	7.9056	9.582
L48	38.7933	96.6334	16827.0873	13.2230	19.5536	860.5605	34096.2408	47.5600	7.9391	9.771
	39.7578	99.0707	18132.7524	13.5566	20.0362	904.9987	36741.8724	48.7596	8.1887	10.078
L49	39.7622	97.5788	17871.4734	13.5610	20.0362	891.9584	36212.4502	48.0253	8.2222	10.278
	40.7267	99.9786	19222.7706	13.8945	20.5188	936.8369	38950.5447	49.2064	8.4719	10.59
L50	40.7311	98.4482	18940.7036	13.8990	20.5188	923.0901	38379.0006	48.4532	8.5054	10.801
	41.3484	99.9601	19826.8187	14.1125	20.8277	951.9468	40174.5101	49.1973	8.6652	11.003
L51	41.3175	110.8202	21883.4275	14.0812	20.8277	1050.6909	44341.7570	54.5424	8.4307	9.635
	41.3658	110.9515	21961.2683	14.0978	20.8518	1053.2082	44499.4835	54.6069	8.4432	9.649
L52	41.3658	110.9515	21961.2683	14.0978	20.8518	1053.2082	44499.4835	54.6069	8.4432	9.649
	42.7257	114.6525	24233.1014	14.5681	21.5322	1125.4342	49102.8334	56.4285	8.7952	10.052
L53	41.8364	146.4645	28015.3117	13.8587	20.6611	1355.9421	56766.6167	72.0854	7.5405	6.417
	42.0279	150.6634	30494.4991	14.2560	21.2360	1435.9805	61790.1226	74.1519	7.8380	6.671
L54	42.0279	150.6634	30494.4991	14.2560	21.2360	1435.9805	61790.1226	74.1519	7.8380	6.671
	42.3151	151.7131	31136.3460	14.3553	21.3797	1456.3489	63090.6784	74.6686	7.9123	6.734
L55	42.3151	151.7131	31136.3460	14.3553	21.3797	1456.3489	63090.6784	74.6686	7.9123	6.734
	42.3630	151.8880	31244.1883	14.3719	21.4037	1459.7576	63309.1963	74.7547	7.9247	6.744
L56	42.3630	151.8880	31244.1883	14.3719	21.4037	1459.7576	63309.1963	74.7547	7.9247	6.744
	42.5066	152.4129	31569.2088	14.4215	21.4755	1470.0076	63967.7759	75.0130	7.9619	6.776
L57	42.5242	146.1084	30338.5270	14.4394	21.4755	1412.7014	61474.0809	71.9101	8.0959	7.196
	42.5721	146.2759	30442.9932	14.4560	21.4995	1415.9865	61685.7577	71.9925	8.1083	7.207
L58	42.5809	143.1139	29821.8037	14.4649	21.4995	1387.0932	60427.0593	70.4363	8.1753	7.432
	43.4426	146.0620	31703.0225	14.7629	21.9306	1445.6036	64238.9187	71.8873	8.3984	7.635
L59	43.4514	142.8290	31038.8828	14.7719	21.9306	1415.3199	62893.1915	70.2961	8.4654	7.875
	43.4993	142.9890	31143.3526	14.7884	21.9546	1418.5342	63104.8758	70.3748	8.4778	7.886
L60	43.4993	142.9890	31143.3526	14.7884	21.9546	1418.5342	63104.8758	70.3748	8.4778	7.886
	43.6525	143.5012	31479.2310	14.8414	22.0312	1428.8445	63785.4564	70.6269	8.5174	7.923
L61	43.6966	127.1974	28071.2545	14.8861	22.0312	1274.1562	56879.9722	62.6027	8.8524	9.318
	43.7445	127.3389	28165.0099	14.9027	22.0552	1277.0234	57069.9460	62.6723	8.8648	9.331
L62	43.7445	127.3389	28165.0099	14.9027	22.0552	1277.0234	57069.9460	62.6723	8.8648	9.331
	43.8306	127.5935	28334.2952	14.9325	22.0983	1282.1924	57412.9639	62.7976	8.8871	9.355
L63	43.7424	160.2047	35150.9882	14.8430	22.0983	1590.6635	71225.4319	78.8479	8.2171	6.848
	43.7903	160.3834	35268.7308	14.8595	22.1223	1594.2636	71464.0105	78.9358	8.2295	6.858
L64	43.7991	157.1367	34596.4033	14.8685	22.1223	1563.8721	70101.6927	77.3379	8.2965	7.061
	44.7566	160.6357	36959.3956	15.1996	22.6013	1635.2753	74889.7557	79.0600	8.5444	7.272
L65	44.7654	157.3105	36236.9626	15.2085	22.6013	1603.3111	73425.9107	77.4235	8.6114	7.488
	45.6558	160.4954	38482.7777	15.5164	23.0469	1669.7627	77976.5407	78.9910	8.8419	7.689
L66	45.6470	163.8899	39251.3599	15.5075	23.0469	1703.1114	79533.8967	80.6616	8.7749	7.468
	45.7045	164.0998	39402.3971	15.5274	23.0756	1707.5353	79839.9391	80.7649	8.7897	7.481
L67	45.7045	164.0998	39402.3971	15.5274	23.0756	1707.5353	79839.9391	80.7649	8.7897	7.481
	45.7332	164.2048	39478.0609	15.5373	23.0900	1709.7494	79993.2543	80.8166	8.7972	7.487
L68	45.7332	164.2048	39478.0609	15.5373	23.0900	1709.7494	79993.2543	80.8166	8.7972	7.487
	46.3364	166.4092	41089.4552	15.7459	23.3918	1756.5769	83258.3762	81.9015	8.9533	7.62
L69	46.3364	166.4092	41089.4552	15.7459	23.3918	1756.5769	83258.3762	81.9015	8.9533	7.62
	46.3842	166.5841	41219.1892	15.7624	23.4157	1760.3205	83521.2523	81.9876	8.9657	7.63
L70	46.3931	163.1324	40410.9438	15.7714	23.4157	1725.8033	81883.5281	80.2888	9.0327	7.855
	47.3505	166.5570	43009.7746	16.1025	23.8948	1799.9647	87149.4639	81.9743	9.2806	8.07

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L71	47.3505	166.5570	43009.7746	16.1025	23.8948	1799.9647	87149.4639	81.9743	9.2806	8.07
	47.7814	168.0981	44214.7076	16.2514	24.1104	1833.8465	89590.9849	82.7328	9.3921	8.167
L72	47.7990	160.9666	42432.2305	16.2693	24.1104	1759.9166	85979.2029	79.2228	9.5261	8.66
	47.8182	161.0321	42484.0622	16.2760	24.1199	1761.3664	86084.2280	79.2551	9.5310	8.665
L73	47.8711	139.5320	37055.1469	16.3297	24.1199	1536.2865	75083.7737	68.6734	9.9330	10.456
	47.8998	139.6169	37122.8050	16.3396	24.1343	1538.1750	75220.8674	68.7152	9.9405	10.464
L74	47.8998	139.6169	37122.8050	16.3396	24.1343	1538.1750	75220.8674	68.7152	9.9405	10.464
	47.9189	139.6735	37167.9561	16.3462	24.1439	1539.4347	75312.3558	68.7430	9.9454	10.469
L75	47.9189	139.6735	37167.9561	16.3462	24.1439	1539.4347	75312.3558	68.7430	9.9454	10.469
	47.9477	139.7583	37235.7514	16.3562	24.1583	1541.3252	75449.7275	68.7848	9.9529	10.477
L76	47.9300	146.9530	39066.9831	16.3383	24.1583	1617.1266	79160.2994	72.3258	9.8189	9.819
	47.9779	147.1019	39185.8545	16.3548	24.1822	1620.4405	79401.1651	72.3991	9.8313	9.831
L77	47.9779	147.1019	39185.8545	16.3548	24.1822	1620.4405	79401.1651	72.3991	9.8313	9.831
	48.0449	147.3104	39352.6792	16.3780	24.2158	1625.0856	79739.1972	72.5017	9.8486	9.849
L78	48.0626	140.0978	37507.7571	16.3959	24.2158	1548.8988	76000.8847	68.9519	9.9826	10.508
	48.1104	140.2393	37621.4826	16.4124	24.2397	1552.0599	76231.3234	69.0215	9.9950	10.521
L79	48.1104	140.2393	37621.4826	16.4124	24.2397	1552.0599	76231.3234	69.0215	9.9950	10.521
	48.4264	141.1729	38377.8414	16.5217	24.3978	1573.0042	77763.9113	69.4810	10.0768	10.607

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 160.0000-155.0000				1	1	1			
L2 155.0000-150.0000				1	1	1			
L3 150.0000-146.0000				1	1	1			
L4 146.0000-141.0000				1	1	1			
L5 141.0000-136.0000				1	1	1			
L6 136.0000-131.0000				1	1	1			
L7 131.0000-125.9000				1	1	0.92299			
L8 125.9000-125.6700				1	1	0.921396			
L9 125.6700-120.6700				1	1	0.93061			
L10 120.6700-120.1000				1	1	0.927074			
L11 120.1000-119.8500				1	1	0.925541			
L12 119.8500-117.5000				1	1	0.933383			
L13				1	1	1.01737			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
117.5000-117.2500 L14				1	1	1.02922			
117.2500-115.5000 L15				1	1	0.91557			
115.5000-115.2500 L16				1	1	0.93037			
115.2500-110.2500 L17				1	1	0.929702			
110.2500-103.7500 L18				1	1	0.929577			
103.7500-102.5000 L19				1	1	0.938874			
102.5000-100.5000 L20				1	1	0.987647			
100.5000-100.2500 L21				1	1	0.981739			
100.2500-98.5000 L22				1	1	0.992837			
98.5000-98.2500 L23				1	1	0.994101			
98.2500-93.2500 L24				1	1	0.985011			
93.2500-90.5000 L25				1	1	1.06743			
90.5000-90.2500 L26				1	1	1.06731			
90.2500-85.2500 L27				1	1	1.08039			
85.2500-83.5000 L28				1	1	0.98167			
83.5000-83.2500 L29				1	1	0.985028			
83.2500-80.7500 L30				1	1	0.933797			
80.7500-80.5000 L31				1	1	0.980758			
80.5000-80.2500 L32				1	1	0.994229			
80.2500-77.5000									

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L33 77.5000-77.2500				1	1	1.13524			
L34 77.2500-68.5000				1	1	1.11848			
L35 68.5000-68.0000				1	1	1.10521			
L36 68.0000-64.2500				1	1	1.11132			
L37 64.2500-64.0000				1	1	0.995854			
L38 64.0000-60.5000				1	1	0.984867			
L39 60.5000-60.2500				1	1	0.991775			
L40 60.2500-60.1000				1	1	0.991293			
L41 60.1000-59.8500				1	1	0.978909			
L42 59.8500-59.1000				1	1	0.976484			
L43 59.1000-58.8500				1	1	0.976303			
L44 58.8500-55.4000				1	1	0.986221			
L45 55.4000-55.1500				1	1	0.985398			
L46 55.1500-54.7500				1	1	0.984085			
L47 54.7500-54.5000				1	1	1.0524			
L48 54.5000-49.5000				1	1	1.0533			
L49 49.5000-44.5000				1	1	1.05499			
L50 44.5000-41.3000				1	1	1.06239			
L51 41.3000-41.0500				1	1	1.05355			
L52 41.0500-34.0000				1	1	1.04754			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
00									
L53				1	1	0.943815			
34.0000-33.00									
00									
L54				1	1	0.939493			
33.0000-31.50									
00									
L55				1	1	0.9488			
31.5000-31.25									
00									
L56				1	1	0.946632			
31.2500-30.50									
00									
L57				1	1	0.963898			
30.5000-30.25									
00									
L58				1	1	0.97219			
30.2500-25.75									
00									
L59				1	1	0.977059			
25.7500-25.50									
00									
L60				1	1	0.974817			
25.5000-24.70									
00									
L61				1	1	0.931867			
24.7000-24.45									
00									
L62				1	1	0.930795			
24.4500-24.00									
00									
L63				1	1	0.878408			
24.0000-23.75									
00									
L64				1	1	0.88398			
23.7500-18.75									
00									
L65				1	1	0.891223			
18.7500-14.10									
00									
L66				1	1	0.887984			
14.1000-13.80									
00									
L67				1	1	0.887621			
13.8000-13.65									
00									
L68				1	1	0.88009			
13.6500-10.50									
00									
L69				1	1	0.851697			
10.5000-10.25									
00									
L70				1	1	0.858541			
10.2500-5.250									
0									
L71				1	1	0.85366			
5.2500-3.0000									
L72				1	1	0.853943			
3.0000-2.9000									

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L73 2.9000-2.7500				1	1	0.904114			
L74 2.7500-2.6500				1	1	0.903908			
L75 2.6500-2.5000				1	1	0.903598			
L76 2.5000-2.2500				1	1	0.872484			
L77 2.2500-1.9000				1	1	0.87178			
L78 1.9000-1.6500				1	1	0.857151			
L79 1.6500-0.0000				1	1	0.854093			

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 klf
LDF7-50A(1-5/8")	B	No	Surface Ar (CaAa)	156.0000 - 0.0000	2	2	0.350 0.450	1.9800		0.00
2" Rigid Conduit	B	No	Surface Ar (CaAa)	156.0000 - 0.0000	1	1	-0.100 -0.050	2.0000		0.00
*** *** **132**										
561(1-5/8")	A	No	Surface Ar (CaAa)	132.0000 - 0.0000	12	6	-0.200 0.100	1.6250		0.00
*** *										
Aero MP305	A	No	Surface Af (CaAa)	31.5000 - 11.5000	1	1	0.500 0.500	5.3300	14.8400	0.00
Aero MP305	B	No	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.500 0.500	5.3300	14.8400	0.00
Aero MP305	C	No	Surface Af (CaAa)	30.5000 - 0.0000	1	1	0.500 0.500	5.3300	14.8400	0.00
Aero MP304	A	No	Surface Af (CaAa)	15.5000 - 0.0000	1	1	0.400 0.400	4.7800	12.7800	0.00
Aero MP304	B	No	Surface Af (CaAa)	15.5000 - 0.0000	1	1	-0.400 -0.400	4.7800	12.7800	0.00
Aero MP304	A	No	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	4.7800	12.7800	0.00
Aero MP304	B	No	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	4.7800	12.7800	0.00
Aero MP304	A	No	Surface Af (CaAa)	61.5000 - 31.0000	1	1	0.500 0.500	4.7800	12.7800	0.00
*										
6" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	30.5000 - 0.5000	1	1	0.400 0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	30.5000 - 0.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	30.5000 - 0.5000	1	1	0.500 0.500	6.0000	14.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
6.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	60.5000 - 30.5000	1	1	0.500 0.500	6.5000	15.5000	0.00
6" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	100.5000 - 60.5000	1	1	0.400 0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	100.5000 - 60.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	100.5000 - 60.5000	1	1	0.500 0.500	6.0000	14.0000	0.00
*										
6.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	38.0000 - 23.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	38.0000 - 23.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	38.0000 - 23.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	67.0000 - 52.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	67.0000 - 52.0000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	67.0000 - 52.0000	1	1	0.000 0.000	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	85.5000 - 72.5000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	85.5000 - 72.5000	1	1	0.400 0.400	6.5000	15.5000	0.00
6.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	85.5000 - 72.5000	1	1	0.000 0.000	6.5000	15.5000	0.00
*										
6" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	10.5000 - 0.5000	1	1	0.400 0.400	6.0000	14.0000	0.00
8.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	45.5000 - 10.5000	1	1	0.400 0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	C	No	Surface Af (CaAa)	85.0000 - 60.0000	1	1	0.400 0.400	8.5000	19.5000	0.00
4.5" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	117.0000 - 97.0000	1	1	0.400 0.400	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	117.0000 - 97.0000	1	1	0.400 0.400	4.5000	11.0000	0.00
4.5" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	119.0000 - 99.0000	1	1	0.400 0.400	4.5000	11.0000	0.00
*										
8.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	55.4000 - 20.4000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	55.4000 - 20.4000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	A	No	Surface Af (CaAa)	90.5000 - 55.5000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
8.5" x 1.25" Flat Plate (G)	B	No	Surface Af (CaAa)	90.5000 - 55.5000	1	1	-0.400 -0.400	8.5000	19.5000	0.00
6" x 1" Flat Plate (G)	A	No	Surface Af (CaAa)	122.6000 - 90.6000	1	1	-0.400 -0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	B	No	Surface Af (CaAa)	122.6000 - 90.6000	1	1	-0.400 -0.400	6.0000	14.0000	0.00
6" x 1" Flat Plate (G)	C	No	Surface Af (CaAa)	122.6000 - 100.6000	1	1	-0.400 -0.400	6.0000	14.0000	0.00
*										

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
CCI-SFP-060100	B	No	Surface Af (CaAa)	127.9200 - 117.9200	1	1	0.500 0.500	6.0000	14.0000	0.00
CCI-SFP-060100	A	No	Surface Af (CaAa)	127.9200 - 117.9200	1	1	0.500 0.500	6.0000	14.0000	0.00
CCI-SFP-060100	C	No	Surface Af (CaAa)	127.9200 - 117.9200	1	1	0.500 0.500	6.0000	14.0000	0.00
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
156									
LDF7-50A(1-5/8")	B	No	No	Inside Pole	156.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
FB-L98B-002-75000 (3/8")	B	No	No	Inside Pole	156.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
WR-VG86ST-BRD(3/4")	B	No	No	Inside Pole	156.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
*									
FB-L98B-002-75000 (3/8")	B	No	No	Inside Pole	156.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
WR-VG86ST-BRD(3/4")	B	No	No	Inside Pole	156.0000 - 0.0000	4	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
2" Rigid Conduit	B	No	No	Inside Pole	156.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
2" Rigid Conduit	B	No	No	Inside Pole	156.0000 - 0.0000	1	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
146									
HB114-1-08U4-M5J (1-1/4")	B	No	No	Inside Pole	146.0000 - 0.0000	4	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
*** ***									
139									
AVA7-50(1-5/8")	B	No	No	Inside Pole	139.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
*									
561(1-5/8")	A	No	No	Inside Pole	132.0000 - 0.0000	6	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
HB158-1-08U8-S8J 18(1-5/8")	A	No	No	Inside Pole	132.0000 - 0.0000	2	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.00 0.00 0.00
121									
FSJ4-50B(1/2")	A	No	No	Inside Pole	129.0000 - 0.0000	3	No Ice 1/2" Ice	0.0000 0.0000	0.00 0.00

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
							1" Ice	0.0000	0.00
101									
LDF4-50A(1/2")	B	No	No	Inside Pole	101.0000 - 0.0000	1	No Ice	0.0000	0.00
							1/2" Ice	0.0000	0.00
							1" Ice	0.0000	0.00
***									
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.0000-155.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	0.596	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L2	155.0000-150.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	2.980	0.000	0.09
		C	0.000	0.000	0.000	0.000	0.00
L3	150.0000-146.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	2.384	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.00
L4	146.0000-141.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	2.980	0.000	0.11
		C	0.000	0.000	0.000	0.000	0.00
L5	141.0000-136.000	A	0.000	0.000	0.000	0.000	0.00
	0	B	0.000	0.000	2.980	0.000	0.13
		C	0.000	0.000	0.000	0.000	0.00
L6	136.0000-131.000	A	0.000	0.000	0.975	0.000	0.03
	0	B	0.000	0.000	2.980	0.000	0.14
		C	0.000	0.000	0.000	0.000	0.00
L7	131.0000-125.900	A	0.000	0.000	6.815	0.000	0.14
	0	B	0.000	0.000	4.882	0.000	0.14
		C	0.000	0.000	1.843	0.000	0.00
L8	125.9000-125.670	A	0.000	0.000	0.434	0.000	0.01
	0	B	0.000	0.000	0.347	0.000	0.01
		C	0.000	0.000	0.210	0.000	0.00
L9	125.6700-120.670	A	0.000	0.000	11.366	0.000	0.14
	0	B	0.000	0.000	9.471	0.000	0.14
		C	0.000	0.000	6.491	0.000	0.00
L10	120.6700-120.100	A	0.000	0.000	1.646	0.000	0.02
	0	B	0.000	0.000	1.430	0.000	0.02
		C	0.000	0.000	1.090	0.000	0.00
L11	120.1000-119.850	A	0.000	0.000	0.722	0.000	0.01
	0	B	0.000	0.000	0.627	0.000	0.01
		C	0.000	0.000	0.478	0.000	0.00
L12	119.8500-117.500	A	0.000	0.000	6.402	0.000	0.06
	0	B	0.000	0.000	5.511	0.000	0.06
		C	0.000	0.000	5.235	0.000	0.00
L13	117.5000-117.250	A	0.000	0.000	0.494	0.000	0.01
	0	B	0.000	0.000	0.399	0.000	0.01
		C	0.000	0.000	0.438	0.000	0.00
L14	117.2500-115.500	A	0.000	0.000	4.581	0.000	0.05
	0	B	0.000	0.000	3.918	0.000	0.05

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	3.063	0.000	0.00
L15	115.5000-115.250	A	0.000	0.000	0.681	0.000	0.01
	0	B	0.000	0.000	0.587	0.000	0.01
		C	0.000	0.000	0.438	0.000	0.00
L16	115.2500-110.250	A	0.000	0.000	13.625	0.000	0.14
	0	B	0.000	0.000	11.730	0.000	0.14
		C	0.000	0.000	8.750	0.000	0.00
L17	110.2500-103.750	A	0.000	0.000	17.712	0.000	0.18
	0	B	0.000	0.000	15.249	0.000	0.18
		C	0.000	0.000	11.375	0.000	0.00
L18	103.7500-102.500	A	0.000	0.000	3.406	0.000	0.03
	0	B	0.000	0.000	2.933	0.000	0.03
		C	0.000	0.000	2.188	0.000	0.00
L19	102.5000-100.500	A	0.000	0.000	5.450	0.000	0.05
	0	B	0.000	0.000	4.692	0.000	0.05
		C	0.000	0.000	3.400	0.000	0.00
L20	100.5000-100.250	A	0.000	0.000	0.931	0.000	0.01
	0	B	0.000	0.000	0.837	0.000	0.01
		C	0.000	0.000	0.438	0.000	0.00
L21	100.2500-98.5000	A	0.000	0.000	6.519	0.000	0.05
		B	0.000	0.000	5.856	0.000	0.05
		C	0.000	0.000	2.688	0.000	0.00
L22	98.5000-98.2500	A	0.000	0.000	0.931	0.000	0.01
		B	0.000	0.000	0.837	0.000	0.01
		C	0.000	0.000	0.250	0.000	0.00
L23	98.2500-93.2500	A	0.000	0.000	15.813	0.000	0.14
		B	0.000	0.000	13.917	0.000	0.14
		C	0.000	0.000	5.000	0.000	0.00
L24	93.2500-90.5000	A	0.000	0.000	8.081	0.000	0.08
		B	0.000	0.000	7.039	0.000	0.07
		C	0.000	0.000	2.750	0.000	0.00
L25	90.5000-90.2500	A	0.000	0.000	0.848	0.000	0.01
		B	0.000	0.000	0.753	0.000	0.01
		C	0.000	0.000	0.250	0.000	0.00
L26	90.2500-85.2500	A	0.000	0.000	17.223	0.000	0.14
		B	0.000	0.000	15.328	0.000	0.14
		C	0.000	0.000	5.264	0.000	0.00
L27	85.2500-83.5000	A	0.000	0.000	7.786	0.000	0.05
		B	0.000	0.000	7.123	0.000	0.05
		C	0.000	0.000	5.726	0.000	0.00
L28	83.5000-83.2500	A	0.000	0.000	1.112	0.000	0.01
		B	0.000	0.000	1.018	0.000	0.01
		C	0.000	0.000	0.869	0.000	0.00
L29	83.2500-80.7500	A	0.000	0.000	11.123	0.000	0.07
		B	0.000	0.000	10.175	0.000	0.07
		C	0.000	0.000	8.685	0.000	0.00
L30	80.7500-80.5000	A	0.000	0.000	1.112	0.000	0.01
		B	0.000	0.000	1.018	0.000	0.01
		C	0.000	0.000	0.869	0.000	0.00
L31	80.5000-80.2500	A	0.000	0.000	1.112	0.000	0.01
		B	0.000	0.000	1.018	0.000	0.01
		C	0.000	0.000	0.869	0.000	0.00
L32	80.2500-77.5000	A	0.000	0.000	12.235	0.000	0.08
		B	0.000	0.000	11.193	0.000	0.07
		C	0.000	0.000	9.554	0.000	0.00
L33	77.5000-77.2500	A	0.000	0.000	1.112	0.000	0.01
		B	0.000	0.000	1.018	0.000	0.01
		C	0.000	0.000	0.869	0.000	0.00
L34	77.2500-68.5000	A	0.000	0.000	34.700	0.000	0.24
		B	0.000	0.000	31.384	0.000	0.24
		C	0.000	0.000	26.169	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L35	68.5000-68.0000	A	0.000	0.000	1.696	0.000	0.01
		B	0.000	0.000	1.506	0.000	0.01
		C	0.000	0.000	1.208	0.000	0.00
L36	68.0000-64.2500	A	0.000	0.000	15.698	0.000	0.10
		B	0.000	0.000	14.277	0.000	0.10
		C	0.000	0.000	12.042	0.000	0.00
L37	64.2500-64.0000	A	0.000	0.000	1.119	0.000	0.01
		B	0.000	0.000	1.024	0.000	0.01
		C	0.000	0.000	0.875	0.000	0.00
L38	64.0000-60.5000	A	0.000	0.000	16.459	0.000	0.10
		B	0.000	0.000	14.336	0.000	0.10
		C	0.000	0.000	12.250	0.000	0.00
L39	60.5000-60.2500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.244	0.000	0.01
		C	0.000	0.000	0.896	0.000	0.00
L40	60.2500-60.1000	A	0.000	0.000	0.923	0.000	0.00
		B	0.000	0.000	0.746	0.000	0.00
		C	0.000	0.000	0.537	0.000	0.00
L41	60.1000-59.8500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.244	0.000	0.01
		C	0.000	0.000	0.683	0.000	0.00
L42	59.8500-59.1000	A	0.000	0.000	4.614	0.000	0.02
		B	0.000	0.000	3.732	0.000	0.02
		C	0.000	0.000	1.625	0.000	0.00
L43	59.1000-58.8500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.244	0.000	0.01
		C	0.000	0.000	0.542	0.000	0.00
L44	58.8500-55.4000	A	0.000	0.000	21.082	0.000	0.09
		B	0.000	0.000	17.026	0.000	0.09
		C	0.000	0.000	7.475	0.000	0.00
L45	55.4000-55.1500	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.244	0.000	0.01
		C	0.000	0.000	0.542	0.000	0.00
L46	55.1500-54.7500	A	0.000	0.000	2.461	0.000	0.01
		B	0.000	0.000	1.990	0.000	0.01
		C	0.000	0.000	0.867	0.000	0.00
L47	54.7500-54.5000	A	0.000	0.000	1.538	0.000	0.01
		B	0.000	0.000	1.244	0.000	0.01
		C	0.000	0.000	0.542	0.000	0.00
L48	54.5000-49.5000	A	0.000	0.000	28.050	0.000	0.14
		B	0.000	0.000	22.172	0.000	0.14
		C	0.000	0.000	8.125	0.000	0.00
L49	49.5000-44.5000	A	0.000	0.000	25.342	0.000	0.14
		B	0.000	0.000	19.463	0.000	0.14
		C	0.000	0.000	6.833	0.000	0.00
L50	44.5000-41.3000	A	0.000	0.000	16.219	0.000	0.09
		B	0.000	0.000	12.457	0.000	0.09
		C	0.000	0.000	8.000	0.000	0.00
L51	41.3000-41.0500	A	0.000	0.000	1.267	0.000	0.01
		B	0.000	0.000	0.973	0.000	0.01
		C	0.000	0.000	0.625	0.000	0.00
L52	41.0500-34.0000	A	0.000	0.000	40.065	0.000	0.19
		B	0.000	0.000	31.777	0.000	0.19
		C	0.000	0.000	21.958	0.000	0.00
L53	34.0000-33.0000	A	0.000	0.000	6.152	0.000	0.03
		B	0.000	0.000	4.976	0.000	0.03
		C	0.000	0.000	3.583	0.000	0.00
L54	33.0000-31.5000	A	0.000	0.000	9.227	0.000	0.04
		B	0.000	0.000	7.464	0.000	0.04
		C	0.000	0.000	5.375	0.000	0.00
L55	31.5000-31.2500	A	0.000	0.000	1.760	0.000	0.01

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	1.244	0.000	0.01
		C	0.000	0.000	0.896	0.000	0.00
L56	31.2500-30.5000	A	0.000	0.000	4.882	0.000	0.02
		B	0.000	0.000	3.732	0.000	0.02
		C	0.000	0.000	2.688	0.000	0.00
L57	30.5000-30.2500	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.246	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L58	30.2500-25.7500	A	0.000	0.000	24.135	0.000	0.12
		B	0.000	0.000	22.430	0.000	0.12
		C	0.000	0.000	19.747	0.000	0.00
L59	25.7500-25.5000	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.246	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L60	25.5000-24.7000	A	0.000	0.000	4.291	0.000	0.02
		B	0.000	0.000	3.987	0.000	0.02
		C	0.000	0.000	3.511	0.000	0.00
L61	24.7000-24.4500	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.246	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L62	24.4500-24.0000	A	0.000	0.000	2.414	0.000	0.01
		B	0.000	0.000	2.243	0.000	0.01
		C	0.000	0.000	1.975	0.000	0.00
L63	24.0000-23.7500	A	0.000	0.000	1.341	0.000	0.01
		B	0.000	0.000	1.246	0.000	0.01
		C	0.000	0.000	1.097	0.000	0.00
L64	23.7500-18.7500	A	0.000	0.000	19.875	0.000	0.14
		B	0.000	0.000	17.980	0.000	0.14
		C	0.000	0.000	17.337	0.000	0.00
L65	18.7500-14.1000	A	0.000	0.000	14.430	0.000	0.13
		B	0.000	0.000	12.667	0.000	0.13
		C	0.000	0.000	15.368	0.000	0.00
L66	14.1000-13.8000	A	0.000	0.000	1.098	0.000	0.01
		B	0.000	0.000	0.984	0.000	0.01
		C	0.000	0.000	0.992	0.000	0.00
L67	13.8000-13.6500	A	0.000	0.000	0.549	0.000	0.00
		B	0.000	0.000	0.492	0.000	0.00
		C	0.000	0.000	0.496	0.000	0.00
L68	13.6500-10.5000	A	0.000	0.000	10.641	0.000	0.09
		B	0.000	0.000	10.335	0.000	0.09
		C	0.000	0.000	10.411	0.000	0.00
L69	10.5000-10.2500	A	0.000	0.000	0.693	0.000	0.01
		B	0.000	0.000	0.820	0.000	0.01
		C	0.000	0.000	0.700	0.000	0.00
L70	10.2500-5.2500	A	0.000	0.000	13.858	0.000	0.14
		B	0.000	0.000	16.405	0.000	0.14
		C	0.000	0.000	14.002	0.000	0.00
L71	5.2500-3.0000	A	0.000	0.000	6.236	0.000	0.06
		B	0.000	0.000	7.382	0.000	0.06
		C	0.000	0.000	6.301	0.000	0.00
L72	3.0000-2.9000	A	0.000	0.000	0.277	0.000	0.00
		B	0.000	0.000	0.328	0.000	0.00
		C	0.000	0.000	0.280	0.000	0.00
L73	2.9000-2.7500	A	0.000	0.000	0.416	0.000	0.00
		B	0.000	0.000	0.492	0.000	0.00
		C	0.000	0.000	0.420	0.000	0.00
L74	2.7500-2.6500	A	0.000	0.000	0.277	0.000	0.00
		B	0.000	0.000	0.328	0.000	0.00
		C	0.000	0.000	0.280	0.000	0.00
L75	2.6500-2.5000	A	0.000	0.000	0.416	0.000	0.00
		B	0.000	0.000	0.492	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.420	0.000	0.00
L76	2.5000-2.2500	A	0.000	0.000	0.693	0.000	0.01
		B	0.000	0.000	0.820	0.000	0.01
		C	0.000	0.000	0.700	0.000	0.00
L77	2.2500-1.9000	A	0.000	0.000	0.970	0.000	0.01
		B	0.000	0.000	1.148	0.000	0.01
		C	0.000	0.000	0.980	0.000	0.00
L78	1.9000-1.6500	A	0.000	0.000	0.693	0.000	0.01
		B	0.000	0.000	0.820	0.000	0.01
		C	0.000	0.000	0.700	0.000	0.00
L79	1.6500-0.0000	A	0.000	0.000	4.073	0.000	0.05
		B	0.000	0.000	4.914	0.000	0.04
		C	0.000	0.000	3.665	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	160.0000-155.000	A	2.338	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	1.747	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
L2	155.0000-150.000	A	2.331	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	8.719	0.000	0.24
		C		0.000	0.000	0.000	0.000	0.00
L3	150.0000-146.000	A	2.324	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	6.963	0.000	0.19
		C		0.000	0.000	0.000	0.000	0.00
L4	146.0000-141.000	A	2.317	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	8.687	0.000	0.26
		C		0.000	0.000	0.000	0.000	0.00
L5	141.0000-136.000	A	2.308	0.000	0.000	0.000	0.000	0.00
	0	B		0.000	0.000	8.669	0.000	0.27
		C		0.000	0.000	0.000	0.000	0.00
L6	136.0000-131.000	A	2.300	0.000	0.000	1.794	0.000	0.07
	0	B		0.000	0.000	8.650	0.000	0.28
		C		0.000	0.000	0.000	0.000	0.00
L7	131.0000-125.900	A	2.291	0.000	0.000	11.466	0.000	0.38
	0	B		0.000	0.000	11.132	0.000	0.32
		C		0.000	0.000	2.329	0.000	0.04
L8	125.9000-125.670	A	2.286	0.000	0.000	0.677	0.000	0.02
	0	B		0.000	0.000	0.662	0.000	0.02
		C		0.000	0.000	0.265	0.000	0.00
L9	125.6700-120.670	A	2.281	0.000	0.000	17.516	0.000	0.47
	0	B		0.000	0.000	17.179	0.000	0.41
		C		0.000	0.000	8.571	0.000	0.14
L10	120.6700-120.100	A	2.276	0.000	0.000	2.505	0.000	0.06
	0	B		0.000	0.000	2.466	0.000	0.05
		C		0.000	0.000	1.486	0.000	0.02
L11	120.1000-119.850	A	2.276	0.000	0.000	1.099	0.000	0.03
	0	B		0.000	0.000	1.081	0.000	0.02
		C		0.000	0.000	0.652	0.000	0.01
L12	119.8500-117.500	A	2.273	0.000	0.000	9.839	0.000	0.24
	0	B		0.000	0.000	9.677	0.000	0.21
		C		0.000	0.000	7.447	0.000	0.11
L13	117.5000-117.250	A	2.271	0.000	0.000	0.810	0.000	0.02
	0	B		0.000	0.000	0.793	0.000	0.02
		C		0.000	0.000	0.665	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L14	117.2500-115.500	A	2.269	0.000	0.000	7.475	0.000	0.18
	0	B		0.000	0.000	7.352	0.000	0.16
		C		0.000	0.000	4.651	0.000	0.07
L15	115.5000-115.250	A	2.267	0.000	0.000	1.111	0.000	0.03
	0	B		0.000	0.000	1.093	0.000	0.02
		C		0.000	0.000	0.664	0.000	0.01
L16	115.2500-110.250	A	2.261	0.000	0.000	22.193	0.000	0.52
	0	B		0.000	0.000	21.836	0.000	0.46
		C		0.000	0.000	13.273	0.000	0.19
L17	110.2500-103.750	A	2.250	0.000	0.000	28.801	0.000	0.67
	0	B		0.000	0.000	28.321	0.000	0.59
		C		0.000	0.000	17.224	0.000	0.24
L18	103.7500-102.500	A	2.241	0.000	0.000	5.539	0.000	0.13
	0	B		0.000	0.000	5.446	0.000	0.11
		C		0.000	0.000	3.312	0.000	0.05
L19	102.5000-100.500	A	2.238	0.000	0.000	8.847	0.000	0.21
	0	B		0.000	0.000	8.694	0.000	0.18
		C		0.000	0.000	5.145	0.000	0.07
L20	100.5000-100.250	A	2.235	0.000	0.000	1.467	0.000	0.03
	0	B		0.000	0.000	1.448	0.000	0.03
		C		0.000	0.000	0.661	0.000	0.01
L21	100.2500-98.5000	A	2.233	0.000	0.000	10.267	0.000	0.21
		B		0.000	0.000	10.132	0.000	0.19
		C		0.000	0.000	4.027	0.000	0.06
L22	98.5000-98.2500	A	2.231	0.000	0.000	1.466	0.000	0.03
		B		0.000	0.000	1.447	0.000	0.03
		C		0.000	0.000	0.362	0.000	0.00
L23	98.2500-93.2500	A	2.225	0.000	0.000	24.818	0.000	0.55
		B		0.000	0.000	24.424	0.000	0.48
		C		0.000	0.000	7.225	0.000	0.10
L24	93.2500-90.5000	A	2.216	0.000	0.000	12.668	0.000	0.29
		B		0.000	0.000	12.446	0.000	0.25
		C		0.000	0.000	3.969	0.000	0.05
L25	90.5000-90.2500	A	2.212	0.000	0.000	1.268	0.000	0.03
		B		0.000	0.000	1.248	0.000	0.02
		C		0.000	0.000	0.361	0.000	0.00
L26	90.2500-85.2500	A	2.205	0.000	0.000	25.667	0.000	0.55
		B		0.000	0.000	25.253	0.000	0.49
		C		0.000	0.000	7.527	0.000	0.10
L27	85.2500-83.5000	A	2.197	0.000	0.000	11.113	0.000	0.23
		B		0.000	0.000	10.965	0.000	0.20
		C		0.000	0.000	7.536	0.000	0.10
L28	83.5000-83.2500	A	2.194	0.000	0.000	1.587	0.000	0.03
		B		0.000	0.000	1.566	0.000	0.03
		C		0.000	0.000	1.142	0.000	0.02
L29	83.2500-80.7500	A	2.191	0.000	0.000	15.864	0.000	0.32
		B		0.000	0.000	15.650	0.000	0.29
		C		0.000	0.000	11.417	0.000	0.16
L30	80.7500-80.5000	A	2.187	0.000	0.000	1.586	0.000	0.03
		B		0.000	0.000	1.564	0.000	0.03
		C		0.000	0.000	1.141	0.000	0.02
L31	80.5000-80.2500	A	2.186	0.000	0.000	1.586	0.000	0.03
		B		0.000	0.000	1.564	0.000	0.03
		C		0.000	0.000	1.141	0.000	0.02
L32	80.2500-77.5000	A	2.182	0.000	0.000	17.433	0.000	0.35
		B		0.000	0.000	17.193	0.000	0.32
		C		0.000	0.000	12.548	0.000	0.17
L33	77.5000-77.2500	A	2.178	0.000	0.000	1.584	0.000	0.03
		B		0.000	0.000	1.562	0.000	0.03
		C		0.000	0.000	1.140	0.000	0.02
L34	77.2500-68.5000	A	2.165	0.000	0.000	50.220	0.000	1.03

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	49.425	0.000	0.93
		C		0.000	0.000	34.719	0.000	0.46
L35	68.5000-68.0000	A	2.151	0.000	0.000	2.521	0.000	0.05
		B		0.000	0.000	2.476	0.000	0.05
		C		0.000	0.000	1.636	0.000	0.02
L36	68.0000-64.2500	A	2.144	0.000	0.000	22.557	0.000	0.45
		B		0.000	0.000	22.201	0.000	0.41
		C		0.000	0.000	15.936	0.000	0.21
L37	64.2500-64.0000	A	2.137	0.000	0.000	1.592	0.000	0.03
		B		0.000	0.000	1.568	0.000	0.03
		C		0.000	0.000	1.151	0.000	0.02
L38	64.0000-60.5000	A	2.131	0.000	0.000	23.497	0.000	0.46
		B		0.000	0.000	21.933	0.000	0.40
		C		0.000	0.000	16.107	0.000	0.21
L39	60.5000-60.2500	A	2.125	0.000	0.000	2.221	0.000	0.04
		B		0.000	0.000	1.891	0.000	0.03
		C		0.000	0.000	1.171	0.000	0.02
L40	60.2500-60.1000	A	2.124	0.000	0.000	1.333	0.000	0.02
		B		0.000	0.000	1.135	0.000	0.02
		C		0.000	0.000	0.702	0.000	0.01
L41	60.1000-59.8500	A	2.123	0.000	0.000	2.221	0.000	0.04
		B		0.000	0.000	1.891	0.000	0.03
		C		0.000	0.000	0.896	0.000	0.01
L42	59.8500-59.1000	A	2.121	0.000	0.000	6.661	0.000	0.12
		B		0.000	0.000	5.671	0.000	0.10
		C		0.000	0.000	2.138	0.000	0.03
L43	59.1000-58.8500	A	2.120	0.000	0.000	2.220	0.000	0.04
		B		0.000	0.000	1.890	0.000	0.03
		C		0.000	0.000	0.712	0.000	0.01
L44	58.8500-55.4000	A	2.113	0.000	0.000	30.425	0.000	0.55
		B		0.000	0.000	25.870	0.000	0.45
		C		0.000	0.000	9.824	0.000	0.13
L45	55.4000-55.1500	A	2.106	0.000	0.000	2.216	0.000	0.04
		B		0.000	0.000	1.886	0.000	0.03
		C		0.000	0.000	0.711	0.000	0.01
L46	55.1500-54.7500	A	2.105	0.000	0.000	3.545	0.000	0.06
		B		0.000	0.000	3.017	0.000	0.05
		C		0.000	0.000	1.138	0.000	0.02
L47	54.7500-54.5000	A	2.103	0.000	0.000	2.215	0.000	0.04
		B		0.000	0.000	1.885	0.000	0.03
		C		0.000	0.000	0.711	0.000	0.01
L48	54.5000-49.5000	A	2.093	0.000	0.000	40.898	0.000	0.74
		B		0.000	0.000	34.296	0.000	0.60
		C		0.000	0.000	10.859	0.000	0.14
L49	49.5000-44.5000	A	2.072	0.000	0.000	37.438	0.000	0.69
		B		0.000	0.000	30.836	0.000	0.54
		C		0.000	0.000	9.320	0.000	0.12
L50	44.5000-41.3000	A	2.053	0.000	0.000	23.897	0.000	0.44
		B		0.000	0.000	19.672	0.000	0.34
		C		0.000	0.000	10.628	0.000	0.13
L51	41.3000-41.0500	A	2.045	0.000	0.000	1.865	0.000	0.03
		B		0.000	0.000	1.535	0.000	0.03
		C		0.000	0.000	0.829	0.000	0.01
L52	41.0500-34.0000	A	2.026	0.000	0.000	57.777	0.000	1.02
		B		0.000	0.000	48.468	0.000	0.82
		C		0.000	0.000	28.669	0.000	0.35
L53	34.0000-33.0000	A	2.003	0.000	0.000	8.774	0.000	0.15
		B		0.000	0.000	7.453	0.000	0.12
		C		0.000	0.000	4.645	0.000	0.06
L54	33.0000-31.5000	A	1.995	0.000	0.000	13.106	0.000	0.23
		B		0.000	0.000	11.125	0.000	0.18

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	6.942	0.000	0.09
L55	31.5000-31.2500	A	1.990	0.000	0.000	2.504	0.000	0.04
		B		0.000	0.000	1.853	0.000	0.03
		C		0.000	0.000	1.156	0.000	0.01
L56	31.2500-30.5000	A	1.987	0.000	0.000	6.913	0.000	0.12
		B		0.000	0.000	5.555	0.000	0.09
		C		0.000	0.000	3.468	0.000	0.04
L57	30.5000-30.2500	A	1.983	0.000	0.000	1.885	0.000	0.03
		B		0.000	0.000	1.853	0.000	0.03
		C		0.000	0.000	1.456	0.000	0.02
L58	30.2500-25.7500	A	1.967	0.000	0.000	33.854	0.000	0.60
		B		0.000	0.000	33.267	0.000	0.55
		C		0.000	0.000	26.156	0.000	0.32
L59	25.7500-25.5000	A	1.950	0.000	0.000	1.877	0.000	0.03
		B		0.000	0.000	1.843	0.000	0.03
		C		0.000	0.000	1.450	0.000	0.02
L60	25.5000-24.7000	A	1.946	0.000	0.000	6.002	0.000	0.11
		B		0.000	0.000	5.895	0.000	0.10
		C		0.000	0.000	4.638	0.000	0.06
L61	24.7000-24.4500	A	1.942	0.000	0.000	1.875	0.000	0.03
		B		0.000	0.000	1.841	0.000	0.03
		C		0.000	0.000	1.449	0.000	0.02
L62	24.4500-24.0000	A	1.939	0.000	0.000	3.373	0.000	0.06
		B		0.000	0.000	3.312	0.000	0.05
		C		0.000	0.000	2.607	0.000	0.03
L63	24.0000-23.7500	A	1.936	0.000	0.000	1.873	0.000	0.03
		B		0.000	0.000	1.839	0.000	0.03
		C		0.000	0.000	1.448	0.000	0.02
L64	23.7500-18.7500	A	1.914	0.000	0.000	28.775	0.000	0.55
		B		0.000	0.000	28.070	0.000	0.48
		C		0.000	0.000	23.258	0.000	0.27
L65	18.7500-14.1000	A	1.865	0.000	0.000	21.690	0.000	0.45
		B		0.000	0.000	20.989	0.000	0.39
		C		0.000	0.000	20.572	0.000	0.23
L66	14.1000-13.8000	A	1.835	0.000	0.000	1.632	0.000	0.03
		B		0.000	0.000	1.585	0.000	0.03
		C		0.000	0.000	1.322	0.000	0.01
L67	13.8000-13.6500	A	1.832	0.000	0.000	0.816	0.000	0.02
		B		0.000	0.000	0.792	0.000	0.01
		C		0.000	0.000	0.661	0.000	0.01
L68	13.6500-10.5000	A	1.809	0.000	0.000	15.824	0.000	0.31
		B		0.000	0.000	16.564	0.000	0.29
		C		0.000	0.000	13.829	0.000	0.15
L69	10.5000-10.2500	A	1.781	0.000	0.000	1.038	0.000	0.02
		B		0.000	0.000	1.308	0.000	0.02
		C		0.000	0.000	0.925	0.000	0.01
L70	10.2500-5.2500	A	1.730	0.000	0.000	20.613	0.000	0.43
		B		0.000	0.000	25.896	0.000	0.44
		C		0.000	0.000	18.377	0.000	0.21
L71	5.2500-3.0000	A	1.624	0.000	0.000	9.131	0.000	0.18
		B		0.000	0.000	11.413	0.000	0.19
		C		0.000	0.000	8.150	0.000	0.09
L72	3.0000-2.9000	A	1.571	0.000	0.000	0.403	0.000	0.01
		B		0.000	0.000	0.502	0.000	0.01
		C		0.000	0.000	0.360	0.000	0.00
L73	2.9000-2.7500	A	1.564	0.000	0.000	0.603	0.000	0.01
		B		0.000	0.000	0.752	0.000	0.01
		C		0.000	0.000	0.539	0.000	0.01
L74	2.7500-2.6500	A	1.557	0.000	0.000	0.402	0.000	0.01
		B		0.000	0.000	0.500	0.000	0.01
		C		0.000	0.000	0.359	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L75	2.6500-2.5000	A	1.550	0.000	0.000	0.602	0.000	0.01
		B		0.000	0.000	0.750	0.000	0.01
		C		0.000	0.000	0.538	0.000	0.01
L76	2.5000-2.2500	A	1.537	0.000	0.000	1.001	0.000	0.02
		B		0.000	0.000	1.246	0.000	0.02
		C		0.000	0.000	0.895	0.000	0.01
L77	2.2500-1.9000	A	1.517	0.000	0.000	1.397	0.000	0.03
		B		0.000	0.000	1.737	0.000	0.03
		C		0.000	0.000	1.249	0.000	0.01
L78	1.9000-1.6500	A	1.493	0.000	0.000	0.994	0.000	0.02
		B		0.000	0.000	1.235	0.000	0.02
		C		0.000	0.000	0.889	0.000	0.01
L79	1.6500-0.0000	A	1.383	0.000	0.000	5.813	0.000	0.12
		B		0.000	0.000	7.328	0.000	0.11
		C		0.000	0.000	4.608	0.000	0.04

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	160.0000-155.0000	1.0410	-0.0071	1.0761	-0.0606
L2	155.0000-150.0000	3.4274	-0.0234	2.9899	-0.1679
L3	150.0000-146.0000	3.4274	-0.0234	2.9886	-0.1675
L4	146.0000-141.0000	2.4526	-0.0167	3.0362	-0.1697
L5	141.0000-136.0000	2.4934	-0.0169	3.1849	-0.1775
L6	136.0000-131.0000	1.3661	-0.4017	2.2678	-0.5015
L7	131.0000-125.9000	-1.1341	-1.0887	-0.3994	-1.1664
L8	125.9000-125.6700	-0.8595	-0.8288	-0.3279	-0.9735
L9	125.6700-120.6700	-0.7428	-0.7192	-0.2879	-0.8680
L10	120.6700-120.1000	-0.6129	-0.5958	-0.2416	-0.7394
L11	120.1000-119.8500	-0.6144	-0.5977	-0.2419	-0.7421
L12	119.8500-117.5000	-1.4161	-0.5426	-1.0250	-0.6830
L13	117.5000-117.2500	-2.3493	-0.6412	-1.7399	-0.7716
L14	117.2500-115.5000	-0.8684	-0.6457	-0.4291	-0.7611
L15	115.5000-115.2500	-0.6647	-0.6506	-0.2439	-0.7654
L16	115.2500-110.2500	-0.6745	-0.6624	-0.2465	-0.7824
L17	110.2500-103.7500	-0.6955	-0.6877	-0.2521	-0.8191
L18	103.7500-102.5000	-0.6979	-0.6905	-0.2526	-0.8231
L19	102.5000-100.5000	-0.8032	-0.7056	-0.3413	-0.8391
L20	100.5000-100.2500	-2.7452	-0.8797	-2.1324	-0.9744
L21	100.2500-98.5000	-2.4512	-0.9262	-1.8331	-1.0227
L22	98.5000-98.2500	-1.6456	-1.0443	-1.0155	-1.1439
L23	98.2500-93.2500	-2.9600	-1.0905	-2.2263	-1.2036
L24	93.2500-90.5000	-3.4555	-1.1226	-2.6809	-1.2455
L25	90.5000-90.2500	-4.0654	-1.1079	-3.1342	-1.2349
L26	90.2500-85.2500	-3.9445	-1.0276	-3.0574	-1.1765
L27	85.2500-83.5000	-3.1791	0.3972	-2.7192	0.0451
L28	83.5000-83.2500	-3.4345	0.4160	-2.9515	0.0646
L29	83.2500-80.7500	-3.4552	0.4191	-2.9715	0.0660
L30	80.7500-80.5000	-3.4771	0.4223	-2.9923	0.0673
L31	80.5000-80.2500	-3.4803	0.4228	-2.9956	0.0676
L32	80.2500-77.5000	-3.5026	0.4261	-3.0172	0.0690
L33	77.5000-77.2500	-3.5227	0.4291	-3.0377	0.0705
L34	77.2500-68.5000	-4.7477	-0.0834	-4.0121	-0.3843
L35	68.5000-68.0000	-6.4792	-0.8475	-5.3207	-1.0314
L36	68.0000-64.2500	-4.2370	0.1769	-3.5907	-0.1415

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L37	64.2500-64.0000	-3.6089	0.4757	-3.0877	0.1272
L38	64.0000-60.5000	-3.3229	0.2019	-2.7910	-0.1591
L39	60.5000-60.2500	-1.2732	-0.1504	-0.6994	-0.4794
L40	60.2500-60.1000	-1.2742	-0.1505	-0.7001	-0.4797
L41	60.1000-59.8500	-0.1818	-0.2440	0.2917	-0.5768
L42	59.8500-59.1000	0.6085	-0.3118	1.0035	-0.6469
L43	59.1000-58.8500	0.6100	-0.3121	1.0056	-0.6478
L44	58.8500-55.4000	0.6771	-0.3102	1.0698	-0.6496
L45	55.4000-55.1500	0.6203	-0.3141	1.0205	-0.6537
L46	55.1500-54.7500	0.6212	-0.3143	1.0218	-0.6542
L47	54.7500-54.5000	0.6217	-0.3143	1.0227	-0.6544
L48	54.5000-49.5000	-0.1752	-0.9736	0.3954	-1.2387
L49	49.5000-44.5000	-1.6621	-1.7357	-0.7981	-1.8894
L50	44.5000-41.3000	-3.4600	-1.4923	-2.4148	-1.6713
L51	41.3000-41.0500	-3.4826	-1.5016	-2.4328	-1.6809
L52	41.0500-34.0000	-2.2043	-0.6774	-1.4446	-0.9696
L53	34.0000-33.0000	-1.3814	-0.1543	-0.7857	-0.5003
L54	33.0000-31.5000	-1.3876	-0.1545	-0.7975	-0.4998
L55	31.5000-31.2500	-0.4000	-1.1240	0.1799	-1.4694
L56	31.2500-30.5000	-0.9840	-0.5624	-0.4182	-0.8878
L57	30.5000-30.2500	-3.4532	0.4639	-2.9857	0.1463
L58	30.2500-25.7500	-3.4834	0.4686	-3.0130	0.1497
L59	25.7500-25.5000	-3.5134	0.4732	-3.0405	0.1533
L60	25.5000-24.7000	-3.5201	0.4742	-3.0466	0.1541
L61	24.7000-24.4500	-3.5263	0.4752	-3.0522	0.1549
L62	24.4500-24.0000	-3.5307	0.4759	-3.0562	0.1555
L63	24.0000-23.7500	-3.5361	0.4767	-3.0613	0.1561
L64	23.7500-18.7500	-5.2788	-0.5585	-4.3909	-0.7732
L65	18.7500-14.1000	-4.4633	-1.6924	-3.5520	-1.8596
L66	14.1000-13.8000	-4.1529	-3.5876	-3.3209	-3.6828
L67	13.8000-13.6500	-4.1559	-3.5902	-3.3241	-3.6853
L68	13.6500-10.5000	-4.7073	-3.2137	-3.8368	-3.3278
L69	10.5000-10.2500	-5.0400	-2.5023	-4.1319	-2.6523
L70	10.2500-5.2500	-5.0809	-2.5227	-4.1790	-2.6718
L71	5.2500-3.0000	-5.1374	-2.5508	-4.2553	-2.6975
L72	3.0000-2.9000	-5.1552	-2.5596	-4.2859	-2.7047
L73	2.9000-2.7500	-5.1560	-2.5600	-4.2884	-2.7046
L74	2.7500-2.6500	-5.1579	-2.5610	-4.2921	-2.7054
L75	2.6500-2.5000	-5.1598	-2.5619	-4.2960	-2.7061
L76	2.5000-2.2500	-5.1633	-2.5637	-4.3028	-2.7074
L77	2.2500-1.9000	-5.1680	-2.5660	-4.3131	-2.7090
L78	1.9000-1.6500	-5.1722	-2.5681	-4.3239	-2.7101
L79	1.6500-0.0000	-4.7449	-2.7913	-3.9480	-2.9112

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	3	LDF7-50A(1-5/8")	155.00 - 156.00	1.0000	1.0000
L1	9	2" Rigid Conduit	155.00 - 156.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	3	LDF7-50A(1-5/8")	150.00 - 155.00	1.0000	1.0000
L2	9	2" Rigid Conduit	150.00 - 155.00	1.0000	1.0000
L3	3	LDF7-50A(1-5/8")	146.00 - 150.00	1.0000	1.0000
L3	9	2" Rigid Conduit	146.00 - 150.00	1.0000	1.0000
L4	3	LDF7-50A(1-5/8")	141.00 - 146.00	1.0000	1.0000
L4	9	2" Rigid Conduit	141.00 - 146.00	1.0000	1.0000
L5	3	LDF7-50A(1-5/8")	136.00 - 141.00	1.0000	1.0000
L5	9	2" Rigid Conduit	136.00 - 141.00	1.0000	1.0000
L6	3	LDF7-50A(1-5/8")	131.00 - 136.00	1.0000	1.0000
L6	9	2" Rigid Conduit	131.00 - 136.00	1.0000	1.0000
L6	19	561(1-5/8")	131.00 - 132.00	1.0000	1.0000
L7	3	LDF7-50A(1-5/8")	125.90 - 131.00	1.0000	1.0000
L7	9	2" Rigid Conduit	125.90 - 131.00	1.0000	1.0000
L7	19	561(1-5/8")	125.90 - 131.00	1.0000	1.0000
L7	76	CCI-SFP-060100	125.90 - 127.92	1.0000	1.0000
L7	77	CCI-SFP-060100	125.90 - 127.92	1.0000	1.0000
L7	78	CCI-SFP-060100	125.90 - 127.92	1.0000	1.0000
L8	3	LDF7-50A(1-5/8")	125.67 - 125.90	1.0000	1.0000
L8	9	2" Rigid Conduit	125.67 - 125.90	1.0000	1.0000
L8	19	561(1-5/8")	125.67 - 125.90	1.0000	1.0000
L8	76	CCI-SFP-060100	125.67 - 125.90	1.0000	1.0000
L8	77	CCI-SFP-060100	125.67 - 125.90	1.0000	1.0000
L8	78	CCI-SFP-060100	125.67 - 125.90	1.0000	1.0000
L9	3	LDF7-50A(1-5/8")	120.67 - 125.67	1.0000	1.0000
L9	9	2" Rigid Conduit	120.67 - 125.67	1.0000	1.0000
L9	19	561(1-5/8")	120.67 - 125.67	1.0000	1.0000
L9	72	6" x 1" Flat Plate (G)	120.67 - 122.60	1.0000	1.0000
L9	73	6" x 1" Flat Plate (G)	120.67 - 122.60	1.0000	1.0000
L9	74	6" x 1" Flat Plate (G)	120.67 - 122.60	1.0000	1.0000
L9	76	CCI-SFP-060100	120.67 - 125.67	1.0000	1.0000
L9	77	CCI-SFP-060100	120.67 - 125.67	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L9	78	CCI-SFP-060100	120.67 - 125.67	1.0000	1.0000
L10	3	LDF7-50A(1-5/8")	120.10 - 120.67	1.0000	1.0000
L10	9	2" Rigid Conduit	120.10 - 120.67	1.0000	1.0000
L10	19	561(1-5/8")	120.10 - 120.67	1.0000	1.0000
L10	72	6" x 1" Flat Plate (G)	120.10 - 120.67	1.0000	1.0000
L10	73	6" x 1" Flat Plate (G)	120.10 - 120.67	1.0000	1.0000
L10	74	6" x 1" Flat Plate (G)	120.10 - 120.67	1.0000	1.0000
L10	76	CCI-SFP-060100	120.10 - 120.67	1.0000	1.0000
L10	77	CCI-SFP-060100	120.10 - 120.67	1.0000	1.0000
L10	78	CCI-SFP-060100	120.10 - 120.67	1.0000	1.0000
L11	3	LDF7-50A(1-5/8")	119.85 - 120.10	1.0000	1.0000
L11	9	2" Rigid Conduit	119.85 - 120.10	1.0000	1.0000
L11	19	561(1-5/8")	119.85 - 120.10	1.0000	1.0000
L11	72	6" x 1" Flat Plate (G)	119.85 - 120.10	1.0000	1.0000
L11	73	6" x 1" Flat Plate (G)	119.85 - 120.10	1.0000	1.0000
L11	74	6" x 1" Flat Plate (G)	119.85 - 120.10	1.0000	1.0000
L11	76	CCI-SFP-060100	119.85 - 120.10	1.0000	1.0000
L11	77	CCI-SFP-060100	119.85 - 120.10	1.0000	1.0000
L11	78	CCI-SFP-060100	119.85 - 120.10	1.0000	1.0000
L12	3	LDF7-50A(1-5/8")	117.50 - 119.85	1.0000	1.0000
L12	9	2" Rigid Conduit	117.50 - 119.85	1.0000	1.0000
L12	19	561(1-5/8")	117.50 - 119.85	1.0000	1.0000
L12	66	4.5" x 1" Flat Plate (G)	117.50 - 119.00	1.0000	1.0000
L12	72	6" x 1" Flat Plate (G)	117.50 - 119.85	1.0000	1.0000
L12	73	6" x 1" Flat Plate (G)	117.50 - 119.85	1.0000	1.0000
L12	74	6" x 1" Flat Plate (G)	117.50 - 119.85	1.0000	1.0000
L12	76	CCI-SFP-060100	117.92 - 119.85	1.0000	1.0000
L12	77	CCI-SFP-060100	117.92 - 119.85	1.0000	1.0000
L12	78	CCI-SFP-060100	117.92 - 119.85	1.0000	1.0000
L13	3	LDF7-50A(1-5/8")	117.25 - 117.50	1.0000	1.0000
L13	9	2" Rigid Conduit	117.25 - 117.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L13	19	561(1-5/8")	117.25 - 117.50	1.0000	1.0000
L13	66	4.5" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L13	72	6" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L13	73	6" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L13	74	6" x 1" Flat Plate (G)	117.25 - 117.50	1.0000	1.0000
L14	3	LDF7-50A(1-5/8")	115.50 - 117.25	1.0000	1.0000
L14	9	2" Rigid Conduit	115.50 - 117.25	1.0000	1.0000
L14	19	561(1-5/8")	115.50 - 117.25	1.0000	1.0000
L14	64	4.5" x 1" Flat Plate (G)	115.50 - 117.00	1.0000	1.0000
L14	65	4.5" x 1" Flat Plate (G)	115.50 - 117.00	1.0000	1.0000
L14	66	4.5" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L14	72	6" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L14	73	6" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L14	74	6" x 1" Flat Plate (G)	115.50 - 117.25	1.0000	1.0000
L15	3	LDF7-50A(1-5/8")	115.25 - 115.50	1.0000	1.0000
L15	9	2" Rigid Conduit	115.25 - 115.50	1.0000	1.0000
L15	19	561(1-5/8")	115.25 - 115.50	1.0000	1.0000
L15	64	4.5" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L15	65	4.5" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L15	66	4.5" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L15	72	6" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L15	73	6" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L15	74	6" x 1" Flat Plate (G)	115.25 - 115.50	1.0000	1.0000
L16	3	LDF7-50A(1-5/8")	110.25 - 115.25	1.0000	1.0000
L16	9	2" Rigid Conduit	110.25 - 115.25	1.0000	1.0000
L16	19	561(1-5/8")	110.25 - 115.25	1.0000	1.0000
L16	64	4.5" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L16	65	4.5" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L16	66	4.5" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L16	72	6" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L16	73	6" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	74	6" x 1" Flat Plate (G)	110.25 - 115.25	1.0000	1.0000
L17	3	LDF7-50A(1-5/8")	103.75 - 110.25	1.0000	1.0000
L17	9	2" Rigid Conduit	103.75 - 110.25	1.0000	1.0000
L17	19	561(1-5/8")	103.75 - 110.25	1.0000	1.0000
L17	64	4.5" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L17	65	4.5" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L17	66	4.5" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L17	72	6" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L17	73	6" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L17	74	6" x 1" Flat Plate (G)	103.75 - 110.25	1.0000	1.0000
L19	3	LDF7-50A(1-5/8")	100.50 - 102.50	1.0000	1.0000
L19	9	2" Rigid Conduit	100.50 - 102.50	1.0000	1.0000
L19	19	561(1-5/8")	100.50 - 102.50	1.0000	1.0000
L19	64	4.5" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L19	65	4.5" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L19	66	4.5" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L19	72	6" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L19	73	6" x 1" Flat Plate (G)	100.50 - 102.50	1.0000	1.0000
L19	74	6" x 1" Flat Plate (G)	100.60 - 102.50	1.0000	1.0000
L20	3	LDF7-50A(1-5/8")	100.25 - 100.50	1.0000	1.0000
L20	9	2" Rigid Conduit	100.25 - 100.50	1.0000	1.0000
L20	19	561(1-5/8")	100.25 - 100.50	1.0000	1.0000
L20	47	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	48	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	49	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	64	4.5" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	65	4.5" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	66	4.5" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	72	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L20	73	6" x 1" Flat Plate (G)	100.25 - 100.50	1.0000	1.0000
L21	3	LDF7-50A(1-5/8")	98.50 - 100.25	1.0000	1.0000
L21	9	2" Rigid Conduit	98.50 - 100.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	19	561(1-5/8")	98.50 - 100.25	1.0000	1.0000
L21	47	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	48	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	49	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	64	4.5" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	65	4.5" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	66	4.5" x 1" Flat Plate (G)	99.00 - 100.25	1.0000	1.0000
L21	72	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L21	73	6" x 1" Flat Plate (G)	98.50 - 100.25	1.0000	1.0000
L22	3	LDF7-50A(1-5/8")	98.25 - 98.50	1.0000	1.0000
L22	9	2" Rigid Conduit	98.25 - 98.50	1.0000	1.0000
L22	19	561(1-5/8")	98.25 - 98.50	1.0000	1.0000
L22	47	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	48	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	49	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	64	4.5" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	65	4.5" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	72	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L22	73	6" x 1" Flat Plate (G)	98.25 - 98.50	1.0000	1.0000
L23	3	LDF7-50A(1-5/8")	93.25 - 98.25	1.0000	1.0000
L23	9	2" Rigid Conduit	93.25 - 98.25	1.0000	1.0000
L23	19	561(1-5/8")	93.25 - 98.25	1.0000	1.0000
L23	47	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L23	48	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L23	49	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L23	64	4.5" x 1" Flat Plate (G)	97.00 - 98.25	1.0000	1.0000
L23	65	4.5" x 1" Flat Plate (G)	97.00 - 98.25	1.0000	1.0000
L23	72	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L23	73	6" x 1" Flat Plate (G)	93.25 - 98.25	1.0000	1.0000
L24	3	LDF7-50A(1-5/8")	90.50 - 93.25	1.0000	1.0000
L24	9	2" Rigid Conduit	90.50 - 93.25	1.0000	1.0000
L24	19	561(1-5/8")	90.50 - 93.25	1.0000	1.0000
L24	47	6" x 1" Flat Plate (G)	90.50 - 93.25	1.0000	1.0000
L24	48	6" x 1" Flat Plate (G)	90.50 - 93.25	1.0000	1.0000
L24	49	6" x 1" Flat Plate (G)	90.50 - 93.25	1.0000	1.0000
L24	72	6" x 1" Flat Plate (G)	90.60 - 93.25	1.0000	1.0000
L24	73	6" x 1" Flat Plate (G)	90.60 - 93.25	1.0000	1.0000
L25	3	LDF7-50A(1-5/8")	90.25 - 90.50	1.0000	1.0000
L25	9	2" Rigid Conduit	90.25 - 90.50	1.0000	1.0000
L25	19	561(1-5/8")	90.25 - 90.50	1.0000	1.0000
L25	47	6" x 1" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L25	48	6" x 1" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L25	49	6" x 1" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L25	70	8.5" x 1.25" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L25	71	8.5" x 1.25" Flat Plate (G)	90.25 - 90.50	1.0000	1.0000
L26	3	LDF7-50A(1-5/8")	85.25 - 90.25	1.0000	1.0000
L26	9	2" Rigid Conduit	85.25 - 90.25	1.0000	1.0000
L26	19	561(1-5/8")	85.25 - 90.25	1.0000	1.0000
L26	47	6" x 1" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L26	48	6" x 1" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L26	49	6" x 1" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L26	57	6.5" x 1.25" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L26	58	6.5" x 1.25" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L26	59	6.5" x 1.25" Flat Plate (G)	85.25 - 85.50	1.0000	1.0000
L26	70	8.5" x 1.25" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L26	71	8.5" x 1.25" Flat Plate (G)	85.25 - 90.25	1.0000	1.0000
L27	3	LDF7-50A(1-5/8")	83.50 - 85.25	1.0000	1.0000
L27	9	2" Rigid Conduit	83.50 - 85.25	1.0000	1.0000
L27	19	561(1-5/8")	83.50 - 85.25	1.0000	1.0000
L27	47	6" x 1" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	48	6" x 1" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	49	6" x 1" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	57	6.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	58	6.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	59	6.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	63	8.5" x 1.25" Flat Plate (G)	83.50 - 85.00	1.0000	1.0000
L27	70	8.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L27	71	8.5" x 1.25" Flat Plate (G)	83.50 - 85.25	1.0000	1.0000
L28	3	LDF7-50A(1-5/8")	83.25 - 83.50	1.0000	1.0000
L28	9	2" Rigid Conduit	83.25 - 83.50	1.0000	1.0000
L28	19	561(1-5/8")	83.25 - 83.50	1.0000	1.0000
L28	47	6" x 1" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	48	6" x 1" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	49	6" x 1" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	57	6.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	58	6.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	59	6.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	63	8.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	70	8.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L28	71	8.5" x 1.25" Flat Plate (G)	83.25 - 83.50	1.0000	1.0000
L29	3	LDF7-50A(1-5/8")	80.75 - 83.25	1.0000	1.0000
L29	9	2" Rigid Conduit	80.75 - 83.25	1.0000	1.0000
L29	19	561(1-5/8")	80.75 - 83.25	1.0000	1.0000
L29	47	6" x 1" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	48	6" x 1" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	49	6" x 1" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	57	6.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	58	6.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	59	6.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	63	8.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	70	8.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L29	71	8.5" x 1.25" Flat Plate (G)	80.75 - 83.25	1.0000	1.0000
L30	3	LDF7-50A(1-5/8")	80.50 - 80.75	1.0000	1.0000
L30	9	2" Rigid Conduit	80.50 - 80.75	1.0000	1.0000
L30	19	561(1-5/8")	80.50 - 80.75	1.0000	1.0000
L30	47	6" x 1" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	48	6" x 1" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	49	6" x 1" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	57	6.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	58	6.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	59	6.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	63	8.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	70	8.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L30	71	8.5" x 1.25" Flat Plate (G)	80.50 - 80.75	1.0000	1.0000
L31	3	LDF7-50A(1-5/8")	80.25 - 80.50	1.0000	1.0000
L31	9	2" Rigid Conduit	80.25 - 80.50	1.0000	1.0000
L31	19	561(1-5/8")	80.25 - 80.50	1.0000	1.0000
L31	47	6" x 1" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	48	6" x 1" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	49	6" x 1" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	57	6.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	58	6.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	59	6.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	63	8.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	70	8.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L31	71	8.5" x 1.25" Flat Plate (G)	80.25 - 80.50	1.0000	1.0000
L32	3	LDF7-50A(1-5/8")	77.50 - 80.25	1.0000	1.0000
L32	9	2" Rigid Conduit	77.50 - 80.25	1.0000	1.0000
L32	19	561(1-5/8")	77.50 - 80.25	1.0000	1.0000
L32	47	6" x 1" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	48	6" x 1" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	49	6" x 1" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	57	6.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	58	6.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	59	6.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	63	8.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	70	8.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L32	71	8.5" x 1.25" Flat Plate (G)	77.50 - 80.25	1.0000	1.0000
L33	3	LDF7-50A(1-5/8")	77.25 - 77.50	1.0000	1.0000
L33	9	2" Rigid Conduit	77.25 - 77.50	1.0000	1.0000
L33	19	561(1-5/8")	77.25 - 77.50	1.0000	1.0000
L33	47	6" x 1" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	48	6" x 1" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	49	6" x 1" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	57	6.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	58	6.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	59	6.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	63	8.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	70	8.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L33	71	8.5" x 1.25" Flat Plate (G)	77.25 - 77.50	1.0000	1.0000
L34	3	LDF7-50A(1-5/8")	68.50 - 77.25	1.0000	1.0000
L34	9	2" Rigid Conduit	68.50 - 77.25	1.0000	1.0000
L34	19	561(1-5/8")	68.50 - 77.25	1.0000	1.0000
L34	47	6" x 1" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L34	48	6" x 1" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L34	49	6" x 1" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L34	57	6.5" x 1.25" Flat Plate (G)	72.50 - 77.25	1.0000	1.0000
L34	58	6.5" x 1.25" Flat Plate (G)	72.50 - 77.25	1.0000	1.0000
L34	59	6.5" x 1.25" Flat Plate (G)	72.50 - 77.25	1.0000	1.0000
L34	63	8.5" x 1.25" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L34	70	8.5" x 1.25" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L34	71	8.5" x 1.25" Flat Plate (G)	68.50 - 77.25	1.0000	1.0000
L36	3	LDF7-50A(1-5/8")	64.25 - 68.00	1.0000	1.0000
L36	9	2" Rigid Conduit	64.25 - 68.00	1.0000	1.0000
L36	19	561(1-5/8")	64.25 - 68.00	1.0000	1.0000
L36	47	6" x 1" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L36	48	6" x 1" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L36	49	6" x 1" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L36	54	6.5" x 1.25" Flat Plate (G)	64.25 - 67.00	1.0000	1.0000
L36	55	6.5" x 1.25" Flat Plate (G)	64.25 - 67.00	1.0000	1.0000
L36	56	6.5" x 1.25" Flat Plate (G)	64.25 - 67.00	1.0000	1.0000
L36	63	8.5" x 1.25" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L36	70	8.5" x 1.25" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L36	71	8.5" x 1.25" Flat Plate (G)	64.25 - 68.00	1.0000	1.0000
L37	3	LDF7-50A(1-5/8")	64.00 - 64.25	1.0000	1.0000
L37	9	2" Rigid Conduit	64.00 - 64.25	1.0000	1.0000
L37	19	561(1-5/8")	64.00 - 64.25	1.0000	1.0000
L37	47	6" x 1" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	48	6" x 1" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	49	6" x 1" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	54	6.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	55	6.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	56	6.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	63	8.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	70	8.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L37	71	8.5" x 1.25" Flat Plate (G)	64.00 - 64.25	1.0000	1.0000
L38	3	LDF7-50A(1-5/8")	60.50 - 64.00	1.0000	1.0000
L38	9	2" Rigid Conduit	60.50 - 64.00	1.0000	1.0000
L38	19	561(1-5/8")	60.50 - 64.00	1.0000	1.0000
L38	39	Aero MP304	60.50 - 61.50	1.0000	1.0000
L38	47	6" x 1" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	48	6" x 1" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	49	6" x 1" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	54	6.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	55	6.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	56	6.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L38	63	8.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	70	8.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L38	71	8.5" x 1.25" Flat Plate (G)	60.50 - 64.00	1.0000	1.0000
L39	3	LDF7-50A(1-5/8")	60.25 - 60.50	1.0000	1.0000
L39	9	2" Rigid Conduit	60.25 - 60.50	1.0000	1.0000
L39	19	561(1-5/8")	60.25 - 60.50	1.0000	1.0000
L39	37	Aero MP304	60.25 - 60.50	1.0000	1.0000
L39	38	Aero MP304	60.25 - 60.50	1.0000	1.0000
L39	39	Aero MP304	60.25 - 60.50	1.0000	1.0000
L39	44	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	45	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	46	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	54	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	55	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	56	6.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	63	8.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	70	8.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L39	71	8.5" x 1.25" Flat Plate (G)	60.25 - 60.50	1.0000	1.0000
L40	3	LDF7-50A(1-5/8")	60.10 - 60.25	1.0000	1.0000
L40	9	2" Rigid Conduit	60.10 - 60.25	1.0000	1.0000
L40	19	561(1-5/8")	60.10 - 60.25	1.0000	1.0000
L40	37	Aero MP304	60.10 - 60.25	1.0000	1.0000
L40	38	Aero MP304	60.10 - 60.25	1.0000	1.0000
L40	39	Aero MP304	60.10 - 60.25	1.0000	1.0000
L40	44	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	45	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	46	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	54	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	55	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	56	6.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	63	8.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	70	8.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L40	71	8.5" x 1.25" Flat Plate (G)	60.10 - 60.25	1.0000	1.0000
L41	3	LDF7-50A(1-5/8")	59.85 - 60.10	1.0000	1.0000
L41	9	2" Rigid Conduit	59.85 - 60.10	1.0000	1.0000
L41	19	561(1-5/8")	59.85 - 60.10	1.0000	1.0000
L41	37	Aero MP304	59.85 - 60.10	1.0000	1.0000
L41	38	Aero MP304	59.85 - 60.10	1.0000	1.0000
L41	39	Aero MP304	59.85 - 60.10	1.0000	1.0000
L41	44	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	45	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	46	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	54	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	55	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	56	6.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	63	8.5" x 1.25" Flat Plate (G)	60.00 - 60.10	1.0000	1.0000
L41	70	8.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L41	71	8.5" x 1.25" Flat Plate (G)	59.85 - 60.10	1.0000	1.0000
L42	3	LDF7-50A(1-5/8")	59.10 - 59.85	1.0000	1.0000
L42	9	2" Rigid Conduit	59.10 - 59.85	1.0000	1.0000
L42	19	561(1-5/8")	59.10 - 59.85	1.0000	1.0000
L42	37	Aero MP304	59.10 - 59.85	1.0000	1.0000
L42	38	Aero MP304	59.10 - 59.85	1.0000	1.0000
L42	39	Aero MP304	59.10 - 59.85	1.0000	1.0000
L42	44	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	45	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	46	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	54	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	55	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	56	6.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	70	8.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000
L42	71	8.5" x 1.25" Flat Plate (G)	59.10 - 59.85	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L43	3	LDF7-50A(1-5/8")	58.85 - 59.10	1.0000	1.0000
L43	9	2" Rigid Conduit	58.85 - 59.10	1.0000	1.0000
L43	19	561(1-5/8")	58.85 - 59.10	1.0000	1.0000
L43	37	Aero MP304	58.85 - 59.10	1.0000	1.0000
L43	38	Aero MP304	58.85 - 59.10	1.0000	1.0000
L43	39	Aero MP304	58.85 - 59.10	1.0000	1.0000
L43	44	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	45	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	46	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	54	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	55	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	56	6.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	70	8.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L43	71	8.5" x 1.25" Flat Plate (G)	58.85 - 59.10	1.0000	1.0000
L44	3	LDF7-50A(1-5/8")	55.40 - 58.85	1.0000	1.0000
L44	9	2" Rigid Conduit	55.40 - 58.85	1.0000	1.0000
L44	19	561(1-5/8")	55.40 - 58.85	1.0000	1.0000
L44	37	Aero MP304	55.40 - 58.85	1.0000	1.0000
L44	38	Aero MP304	55.40 - 58.85	1.0000	1.0000
L44	39	Aero MP304	55.40 - 58.85	1.0000	1.0000
L44	44	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L44	45	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L44	46	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L44	54	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L44	55	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L44	56	6.5" x 1.25" Flat Plate (G)	55.40 - 58.85	1.0000	1.0000
L44	70	8.5" x 1.25" Flat Plate (G)	55.50 - 58.85	1.0000	1.0000
L44	71	8.5" x 1.25" Flat Plate (G)	55.50 - 58.85	1.0000	1.0000
L45	3	LDF7-50A(1-5/8")	55.15 - 55.40	1.0000	1.0000
L45	9	2" Rigid Conduit	55.15 - 55.40	1.0000	1.0000
L45	19	561(1-5/8")	55.15 - 55.40	1.0000	1.0000
L45	37	Aero MP304	55.15 - 55.40	1.0000	1.0000
L45	38	Aero MP304	55.15 - 55.40	1.0000	1.0000
L45	39	Aero MP304	55.15 - 55.40	1.0000	1.0000
L45	44	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	45	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	46	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	54	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	55	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	56	6.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	68	8.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L45	69	8.5" x 1.25" Flat Plate (G)	55.15 - 55.40	1.0000	1.0000
L46	3	LDF7-50A(1-5/8")	54.75 - 55.15	1.0000	1.0000
L46	9	2" Rigid Conduit	54.75 - 55.15	1.0000	1.0000
L46	19	561(1-5/8")	54.75 - 55.15	1.0000	1.0000
L46	37	Aero MP304	54.75 - 55.15	1.0000	1.0000
L46	38	Aero MP304	54.75 - 55.15	1.0000	1.0000
L46	39	Aero MP304	54.75 - 55.15	1.0000	1.0000
L46	44	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	45	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	46	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	54	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	55	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	56	6.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	68	8.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L46	69	8.5" x 1.25" Flat Plate (G)	54.75 - 55.15	1.0000	1.0000
L47	3	LDF7-50A(1-5/8")	54.50 - 54.75	1.0000	1.0000
L47	9	2" Rigid Conduit	54.50 - 54.75	1.0000	1.0000
L47	19	561(1-5/8")	54.50 - 54.75	1.0000	1.0000
L47	37	Aero MP304	54.50 - 54.75	1.0000	1.0000
L47	38	Aero MP304	54.50 - 54.75	1.0000	1.0000
L47	39	Aero MP304	54.50 - 54.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L47	44	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	45	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	46	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	54	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	55	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	56	6.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	68	8.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L47	69	8.5" x 1.25" Flat Plate (G)	54.50 - 54.75	1.0000	1.0000
L48	3	LDF7-50A(1-5/8")	49.50 - 54.50	1.0000	1.0000
L48	9	2" Rigid Conduit	49.50 - 54.50	1.0000	1.0000
L48	19	561(1-5/8")	49.50 - 54.50	1.0000	1.0000
L48	37	Aero MP304	49.50 - 54.50	1.0000	1.0000
L48	38	Aero MP304	49.50 - 54.50	1.0000	1.0000
L48	39	Aero MP304	49.50 - 54.50	1.0000	1.0000
L48	44	6.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L48	45	6.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L48	46	6.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L48	54	6.5" x 1.25" Flat Plate (G)	52.00 - 54.50	1.0000	1.0000
L48	55	6.5" x 1.25" Flat Plate (G)	52.00 - 54.50	1.0000	1.0000
L48	56	6.5" x 1.25" Flat Plate (G)	52.00 - 54.50	1.0000	1.0000
L48	68	8.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L48	69	8.5" x 1.25" Flat Plate (G)	49.50 - 54.50	1.0000	1.0000
L49	3	LDF7-50A(1-5/8")	44.50 - 49.50	1.0000	1.0000
L49	9	2" Rigid Conduit	44.50 - 49.50	1.0000	1.0000
L49	19	561(1-5/8")	44.50 - 49.50	1.0000	1.0000
L49	37	Aero MP304	44.50 - 49.50	1.0000	1.0000
L49	38	Aero MP304	44.50 - 49.50	1.0000	1.0000
L49	39	Aero MP304	44.50 - 49.50	1.0000	1.0000
L49	44	6.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L49	45	6.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L49	46	6.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L49	62	8.5" x 1.25" Flat Plate (G)	44.50 - 45.50	1.0000	1.0000
L49	68	8.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L49	69	8.5" x 1.25" Flat Plate (G)	44.50 - 49.50	1.0000	1.0000
L50	3	LDF7-50A(1-5/8")	41.30 - 44.50	1.0000	1.0000
L50	9	2" Rigid Conduit	41.30 - 44.50	1.0000	1.0000
L50	19	561(1-5/8")	41.30 - 44.50	1.0000	1.0000
L50	37	Aero MP304	41.30 - 44.50	1.0000	1.0000
L50	38	Aero MP304	41.30 - 44.50	1.0000	1.0000
L50	39	Aero MP304	41.30 - 44.50	1.0000	1.0000
L50	44	6.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L50	45	6.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L50	46	6.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L50	62	8.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L50	68	8.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L50	69	8.5" x 1.25" Flat Plate (G)	41.30 - 44.50	1.0000	1.0000
L51	3	LDF7-50A(1-5/8")	41.05 - 41.30	1.0000	1.0000
L51	9	2" Rigid Conduit	41.05 - 41.30	1.0000	1.0000
L51	19	561(1-5/8")	41.05 - 41.30	1.0000	1.0000
L51	37	Aero MP304	41.05 - 41.30	1.0000	1.0000
L51	38	Aero MP304	41.05 - 41.30	1.0000	1.0000
L51	39	Aero MP304	41.05 - 41.30	1.0000	1.0000
L51	44	6.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L51	45	6.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L51	46	6.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L51	62	8.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L51	68	8.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L51	69	8.5" x 1.25" Flat Plate (G)	41.05 - 41.30	1.0000	1.0000
L52	3	LDF7-50A(1-5/8")	34.00 - 41.05	1.0000	1.0000
L52	9	2" Rigid Conduit	34.00 - 41.05	1.0000	1.0000
L52	19	561(1-5/8")	34.00 - 41.05	1.0000	1.0000
L52	37	Aero MP304	34.00 - 41.05	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L52	38	Aero MP304	34.00 - 41.05	1.0000	1.0000
L52	39	Aero MP304	34.00 - 41.05	1.0000	1.0000
L52	44	6.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L52	45	6.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L52	46	6.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L52	51	6.5" x 1.25" Flat Plate (G)	34.00 - 38.00	1.0000	1.0000
L52	52	6.5" x 1.25" Flat Plate (G)	34.00 - 38.00	1.0000	1.0000
L52	53	6.5" x 1.25" Flat Plate (G)	34.00 - 38.00	1.0000	1.0000
L52	62	8.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L52	68	8.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L52	69	8.5" x 1.25" Flat Plate (G)	34.00 - 41.05	1.0000	1.0000
L54	3	LDF7-50A(1-5/8")	31.50 - 33.00	1.0000	1.0000
L54	9	2" Rigid Conduit	31.50 - 33.00	1.0000	1.0000
L54	19	561(1-5/8")	31.50 - 33.00	1.0000	1.0000
L54	37	Aero MP304	31.50 - 33.00	1.0000	1.0000
L54	38	Aero MP304	31.50 - 33.00	1.0000	1.0000
L54	39	Aero MP304	31.50 - 33.00	1.0000	1.0000
L54	44	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	45	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	46	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	51	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	52	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	53	6.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	62	8.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	68	8.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L54	69	8.5" x 1.25" Flat Plate (G)	31.50 - 33.00	1.0000	1.0000
L55	3	LDF7-50A(1-5/8")	31.25 - 31.50	1.0000	1.0000
L55	9	2" Rigid Conduit	31.25 - 31.50	1.0000	1.0000
L55	19	561(1-5/8")	31.25 - 31.50	1.0000	1.0000
L55	32	Aero MP305	31.25 - 31.50	1.0000	1.0000
L55	37	Aero MP304	31.25 - 31.50	1.0000	1.0000
L55	38	Aero MP304	31.25 - 31.50	1.0000	1.0000
L55	39	Aero MP304	31.25 - 31.50	1.0000	1.0000
L55	44	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	45	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	46	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	51	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	52	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	53	6.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	62	8.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	68	8.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L55	69	8.5" x 1.25" Flat Plate (G)	31.25 - 31.50	1.0000	1.0000
L56	3	LDF7-50A(1-5/8")	30.50 - 31.25	1.0000	1.0000
L56	9	2" Rigid Conduit	30.50 - 31.25	1.0000	1.0000
L56	19	561(1-5/8")	30.50 - 31.25	1.0000	1.0000
L56	32	Aero MP305	30.50 - 31.25	1.0000	1.0000
L56	37	Aero MP304	30.50 - 31.25	1.0000	1.0000
L56	38	Aero MP304	30.50 - 31.25	1.0000	1.0000
L56	39	Aero MP304	31.00 - 31.25	1.0000	1.0000
L56	44	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	45	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	46	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	51	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	52	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	53	6.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	62	8.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	68	8.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L56	69	8.5" x 1.25" Flat Plate (G)	30.50 - 31.25	1.0000	1.0000
L57	3	LDF7-50A(1-5/8")	30.25 - 30.50	1.0000	1.0000
L57	9	2" Rigid Conduit	30.25 - 30.50	1.0000	1.0000
L57	19	561(1-5/8")	30.25 - 30.50	1.0000	1.0000
L57	32	Aero MP305	30.25 - 30.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L57	33	Aero MP305	30.25 - 30.50	1.0000	1.0000
L57	34	Aero MP305	30.25 - 30.50	1.0000	1.0000
L57	41	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	42	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	43	6" x 1" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	51	6.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	52	6.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	53	6.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	62	8.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	68	8.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L57	69	8.5" x 1.25" Flat Plate (G)	30.25 - 30.50	1.0000	1.0000
L58	3	LDF7-50A(1-5/8")	25.75 - 30.25	1.0000	1.0000
L58	9	2" Rigid Conduit	25.75 - 30.25	1.0000	1.0000
L58	19	561(1-5/8")	25.75 - 30.25	1.0000	1.0000
L58	32	Aero MP305	25.75 - 30.25	1.0000	1.0000
L58	33	Aero MP305	25.75 - 30.25	1.0000	1.0000
L58	34	Aero MP305	25.75 - 30.25	1.0000	1.0000
L58	41	6" x 1" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	42	6" x 1" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	43	6" x 1" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	51	6.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	52	6.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	53	6.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	62	8.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	68	8.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L58	69	8.5" x 1.25" Flat Plate (G)	25.75 - 30.25	1.0000	1.0000
L59	3	LDF7-50A(1-5/8")	25.50 - 25.75	1.0000	1.0000
L59	9	2" Rigid Conduit	25.50 - 25.75	1.0000	1.0000
L59	19	561(1-5/8")	25.50 - 25.75	1.0000	1.0000
L59	32	Aero MP305	25.50 - 25.75	1.0000	1.0000
L59	33	Aero MP305	25.50 - 25.75	1.0000	1.0000
L59	34	Aero MP305	25.50 - 25.75	1.0000	1.0000
L59	41	6" x 1" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	42	6" x 1" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	43	6" x 1" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	51	6.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	52	6.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	53	6.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	62	8.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	68	8.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L59	69	8.5" x 1.25" Flat Plate (G)	25.50 - 25.75	1.0000	1.0000
L60	3	LDF7-50A(1-5/8")	24.70 - 25.50	1.0000	1.0000
L60	9	2" Rigid Conduit	24.70 - 25.50	1.0000	1.0000
L60	19	561(1-5/8")	24.70 - 25.50	1.0000	1.0000
L60	32	Aero MP305	24.70 - 25.50	1.0000	1.0000
L60	33	Aero MP305	24.70 - 25.50	1.0000	1.0000
L60	34	Aero MP305	24.70 - 25.50	1.0000	1.0000
L60	41	6" x 1" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	42	6" x 1" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	43	6" x 1" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	51	6.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	52	6.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	53	6.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	62	8.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	68	8.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L60	69	8.5" x 1.25" Flat Plate (G)	24.70 - 25.50	1.0000	1.0000
L61	3	LDF7-50A(1-5/8")	24.45 - 24.70	1.0000	1.0000
L61	9	2" Rigid Conduit	24.45 - 24.70	1.0000	1.0000
L61	19	561(1-5/8")	24.45 - 24.70	1.0000	1.0000
L61	32	Aero MP305	24.45 - 24.70	1.0000	1.0000
L61	33	Aero MP305	24.45 - 24.70	1.0000	1.0000
L61	34	Aero MP305	24.45 - 24.70	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L61	41	6" x 1" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	42	6" x 1" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	43	6" x 1" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	51	6.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	52	6.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	53	6.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	62	8.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	68	8.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L61	69	8.5" x 1.25" Flat Plate (G)	24.45 - 24.70	1.0000	1.0000
L62	3	LDF7-50A(1-5/8")	24.00 - 24.45	1.0000	1.0000
L62	9	2" Rigid Conduit	24.00 - 24.45	1.0000	1.0000
L62	19	561(1-5/8")	24.00 - 24.45	1.0000	1.0000
L62	32	Aero MP305	24.00 - 24.45	1.0000	1.0000
L62	33	Aero MP305	24.00 - 24.45	1.0000	1.0000
L62	34	Aero MP305	24.00 - 24.45	1.0000	1.0000
L62	41	6" x 1" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	42	6" x 1" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	43	6" x 1" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	51	6.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	52	6.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	53	6.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	62	8.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	68	8.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L62	69	8.5" x 1.25" Flat Plate (G)	24.00 - 24.45	1.0000	1.0000
L63	3	LDF7-50A(1-5/8")	23.75 - 24.00	1.0000	1.0000
L63	9	2" Rigid Conduit	23.75 - 24.00	1.0000	1.0000
L63	19	561(1-5/8")	23.75 - 24.00	1.0000	1.0000
L63	32	Aero MP305	23.75 - 24.00	1.0000	1.0000
L63	33	Aero MP305	23.75 - 24.00	1.0000	1.0000
L63	34	Aero MP305	23.75 - 24.00	1.0000	1.0000
L63	41	6" x 1" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	42	6" x 1" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	43	6" x 1" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	51	6.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	52	6.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	53	6.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	62	8.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	68	8.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L63	69	8.5" x 1.25" Flat Plate (G)	23.75 - 24.00	1.0000	1.0000
L64	3	LDF7-50A(1-5/8")	18.75 - 23.75	1.0000	1.0000
L64	9	2" Rigid Conduit	18.75 - 23.75	1.0000	1.0000
L64	19	561(1-5/8")	18.75 - 23.75	1.0000	1.0000
L64	32	Aero MP305	18.75 - 23.75	1.0000	1.0000
L64	33	Aero MP305	18.75 - 23.75	1.0000	1.0000
L64	34	Aero MP305	18.75 - 23.75	1.0000	1.0000
L64	41	6" x 1" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L64	42	6" x 1" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L64	43	6" x 1" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L64	51	6.5" x 1.25" Flat Plate (G)	23.00 - 23.75	1.0000	1.0000
L64	52	6.5" x 1.25" Flat Plate (G)	23.00 - 23.75	1.0000	1.0000
L64	53	6.5" x 1.25" Flat Plate (G)	23.00 - 23.75	1.0000	1.0000
L64	62	8.5" x 1.25" Flat Plate (G)	18.75 - 23.75	1.0000	1.0000
L64	68	8.5" x 1.25" Flat Plate (G)	20.40 - 23.75	1.0000	1.0000
L64	69	8.5" x 1.25" Flat Plate (G)	20.40 - 23.75	1.0000	1.0000
L65	3	LDF7-50A(1-5/8")	14.10 - 18.75	1.0000	1.0000
L65	9	2" Rigid Conduit	14.10 - 18.75	1.0000	1.0000
L65	19	561(1-5/8")	14.10 - 18.75	1.0000	1.0000
L65	32	Aero MP305	14.10 - 18.75	1.0000	1.0000
L65	33	Aero MP305	14.10 - 18.75	1.0000	1.0000
L65	34	Aero MP305	14.10 - 18.75	1.0000	1.0000
L65	35	Aero MP304	14.10 - 15.50	1.0000	1.0000
L65	36	Aero MP304	14.10 - 15.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L65	41	6" x 1" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L65	42	6" x 1" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L65	43	6" x 1" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L65	62	8.5" x 1.25" Flat Plate (G)	14.10 - 18.75	1.0000	1.0000
L66	3	LDF7-50A(1-5/8")	13.80 - 14.10	1.0000	1.0000
L66	9	2" Rigid Conduit	13.80 - 14.10	1.0000	1.0000
L66	19	561(1-5/8")	13.80 - 14.10	1.0000	1.0000
L66	32	Aero MP305	13.80 - 14.10	1.0000	1.0000
L66	33	Aero MP305	13.80 - 14.10	1.0000	1.0000
L66	34	Aero MP305	13.80 - 14.10	1.0000	1.0000
L66	35	Aero MP304	13.80 - 14.10	1.0000	1.0000
L66	36	Aero MP304	13.80 - 14.10	1.0000	1.0000
L66	41	6" x 1" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L66	42	6" x 1" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L66	43	6" x 1" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L66	62	8.5" x 1.25" Flat Plate (G)	13.80 - 14.10	1.0000	1.0000
L67	3	LDF7-50A(1-5/8")	13.65 - 13.80	1.0000	1.0000
L67	9	2" Rigid Conduit	13.65 - 13.80	1.0000	1.0000
L67	19	561(1-5/8")	13.65 - 13.80	1.0000	1.0000
L67	32	Aero MP305	13.65 - 13.80	1.0000	1.0000
L67	33	Aero MP305	13.65 - 13.80	1.0000	1.0000
L67	34	Aero MP305	13.65 - 13.80	1.0000	1.0000
L67	35	Aero MP304	13.65 - 13.80	1.0000	1.0000
L67	36	Aero MP304	13.65 - 13.80	1.0000	1.0000
L67	41	6" x 1" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L67	42	6" x 1" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L67	43	6" x 1" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L67	62	8.5" x 1.25" Flat Plate (G)	13.65 - 13.80	1.0000	1.0000
L68	3	LDF7-50A(1-5/8")	10.50 - 13.65	1.0000	1.0000
L68	9	2" Rigid Conduit	10.50 - 13.65	1.0000	1.0000
L68	19	561(1-5/8")	10.50 - 13.65	1.0000	1.0000
L68	32	Aero MP305	11.50 - 13.65	1.0000	1.0000
L68	33	Aero MP305	10.50 - 13.65	1.0000	1.0000
L68	34	Aero MP305	10.50 - 13.65	1.0000	1.0000
L68	35	Aero MP304	10.50 - 13.65	1.0000	1.0000
L68	36	Aero MP304	10.50 - 13.65	1.0000	1.0000
L68	41	6" x 1" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L68	42	6" x 1" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L68	43	6" x 1" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L68	62	8.5" x 1.25" Flat Plate (G)	10.50 - 13.65	1.0000	1.0000
L69	3	LDF7-50A(1-5/8")	10.25 - 10.50	1.0000	1.0000
L69	9	2" Rigid Conduit	10.25 - 10.50	1.0000	1.0000
L69	19	561(1-5/8")	10.25 - 10.50	1.0000	1.0000
L69	33	Aero MP305	10.25 - 10.50	1.0000	1.0000
L69	34	Aero MP305	10.25 - 10.50	1.0000	1.0000
L69	35	Aero MP304	10.25 - 10.50	1.0000	1.0000
L69	36	Aero MP304	10.25 - 10.50	1.0000	1.0000
L69	41	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L69	42	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L69	43	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L69	61	6" x 1" Flat Plate (G)	10.25 - 10.50	1.0000	1.0000
L70	3	LDF7-50A(1-5/8")	5.25 - 10.25	1.0000	1.0000
L70	9	2" Rigid Conduit	5.25 - 10.25	1.0000	1.0000
L70	19	561(1-5/8")	5.25 - 10.25	1.0000	1.0000
L70	33	Aero MP305	5.25 - 10.25	1.0000	1.0000
L70	34	Aero MP305	5.25 - 10.25	1.0000	1.0000
L70	35	Aero MP304	5.25 - 10.25	1.0000	1.0000
L70	36	Aero MP304	5.25 - 10.25	1.0000	1.0000
L70	41	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L70	42	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L70	43	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000
L70	61	6" x 1" Flat Plate (G)	5.25 - 10.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L71	3	LDF7-50A(1-5/8")	3.00 - 5.25	1.0000	1.0000
L71	9	2" Rigid Conduit	3.00 - 5.25	1.0000	1.0000
L71	19	561(1-5/8")	3.00 - 5.25	1.0000	1.0000
L71	33	Aero MP305	3.00 - 5.25	1.0000	1.0000
L71	34	Aero MP305	3.00 - 5.25	1.0000	1.0000
L71	35	Aero MP304	3.00 - 5.25	1.0000	1.0000
L71	36	Aero MP304	3.00 - 5.25	1.0000	1.0000
L71	41	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L71	42	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L71	43	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L71	61	6" x 1" Flat Plate (G)	3.00 - 5.25	1.0000	1.0000
L72	3	LDF7-50A(1-5/8")	2.90 - 3.00	1.0000	1.0000
L72	9	2" Rigid Conduit	2.90 - 3.00	1.0000	1.0000
L72	19	561(1-5/8")	2.90 - 3.00	1.0000	1.0000
L72	33	Aero MP305	2.90 - 3.00	1.0000	1.0000
L72	34	Aero MP305	2.90 - 3.00	1.0000	1.0000
L72	35	Aero MP304	2.90 - 3.00	1.0000	1.0000
L72	36	Aero MP304	2.90 - 3.00	1.0000	1.0000
L72	41	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L72	42	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L72	43	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L72	61	6" x 1" Flat Plate (G)	2.90 - 3.00	1.0000	1.0000
L73	3	LDF7-50A(1-5/8")	2.75 - 2.90	1.0000	1.0000
L73	9	2" Rigid Conduit	2.75 - 2.90	1.0000	1.0000
L73	19	561(1-5/8")	2.75 - 2.90	1.0000	1.0000
L73	33	Aero MP305	2.75 - 2.90	1.0000	1.0000
L73	34	Aero MP305	2.75 - 2.90	1.0000	1.0000
L73	35	Aero MP304	2.75 - 2.90	1.0000	1.0000
L73	36	Aero MP304	2.75 - 2.90	1.0000	1.0000
L73	41	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L73	42	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L73	43	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L73	61	6" x 1" Flat Plate (G)	2.75 - 2.90	1.0000	1.0000
L74	3	LDF7-50A(1-5/8")	2.65 - 2.75	1.0000	1.0000
L74	9	2" Rigid Conduit	2.65 - 2.75	1.0000	1.0000
L74	19	561(1-5/8")	2.65 - 2.75	1.0000	1.0000
L74	33	Aero MP305	2.65 - 2.75	1.0000	1.0000
L74	34	Aero MP305	2.65 - 2.75	1.0000	1.0000
L74	35	Aero MP304	2.65 - 2.75	1.0000	1.0000
L74	36	Aero MP304	2.65 - 2.75	1.0000	1.0000
L74	41	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L74	42	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L74	43	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L74	61	6" x 1" Flat Plate (G)	2.65 - 2.75	1.0000	1.0000
L75	3	LDF7-50A(1-5/8")	2.50 - 2.65	1.0000	1.0000
L75	9	2" Rigid Conduit	2.50 - 2.65	1.0000	1.0000
L75	19	561(1-5/8")	2.50 - 2.65	1.0000	1.0000
L75	33	Aero MP305	2.50 - 2.65	1.0000	1.0000
L75	34	Aero MP305	2.50 - 2.65	1.0000	1.0000
L75	35	Aero MP304	2.50 - 2.65	1.0000	1.0000
L75	36	Aero MP304	2.50 - 2.65	1.0000	1.0000
L75	41	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L75	42	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L75	43	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L75	61	6" x 1" Flat Plate (G)	2.50 - 2.65	1.0000	1.0000
L76	3	LDF7-50A(1-5/8")	2.25 - 2.50	1.0000	1.0000
L76	9	2" Rigid Conduit	2.25 - 2.50	1.0000	1.0000
L76	19	561(1-5/8")	2.25 - 2.50	1.0000	1.0000
L76	33	Aero MP305	2.25 - 2.50	1.0000	1.0000
L76	34	Aero MP305	2.25 - 2.50	1.0000	1.0000
L76	35	Aero MP304	2.25 - 2.50	1.0000	1.0000
L76	36	Aero MP304	2.25 - 2.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L76	41	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L76	42	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L76	43	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L76	61	6" x 1" Flat Plate (G)	2.25 - 2.50	1.0000	1.0000
L77	3	LDF7-50A(1-5/8")	1.90 - 2.25	1.0000	1.0000
L77	9	2" Rigid Conduit	1.90 - 2.25	1.0000	1.0000
L77	19	561(1-5/8")	1.90 - 2.25	1.0000	1.0000
L77	33	Aero MP305	1.90 - 2.25	1.0000	1.0000
L77	34	Aero MP305	1.90 - 2.25	1.0000	1.0000
L77	35	Aero MP304	1.90 - 2.25	1.0000	1.0000
L77	36	Aero MP304	1.90 - 2.25	1.0000	1.0000
L77	41	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L77	42	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L77	43	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L77	61	6" x 1" Flat Plate (G)	1.90 - 2.25	1.0000	1.0000
L78	3	LDF7-50A(1-5/8")	1.65 - 1.90	1.0000	1.0000
L78	9	2" Rigid Conduit	1.65 - 1.90	1.0000	1.0000
L78	19	561(1-5/8")	1.65 - 1.90	1.0000	1.0000
L78	33	Aero MP305	1.65 - 1.90	1.0000	1.0000
L78	34	Aero MP305	1.65 - 1.90	1.0000	1.0000
L78	35	Aero MP304	1.65 - 1.90	1.0000	1.0000
L78	36	Aero MP304	1.65 - 1.90	1.0000	1.0000
L78	41	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L78	42	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L78	43	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L78	61	6" x 1" Flat Plate (G)	1.65 - 1.90	1.0000	1.0000
L79	3	LDF7-50A(1-5/8")	0.00 - 1.65	1.0000	1.0000
L79	9	2" Rigid Conduit	0.00 - 1.65	1.0000	1.0000
L79	19	561(1-5/8")	0.00 - 1.65	1.0000	1.0000
L79	33	Aero MP305	0.00 - 1.65	1.0000	1.0000
L79	34	Aero MP305	0.00 - 1.65	1.0000	1.0000
L79	35	Aero MP304	0.00 - 1.65	1.0000	1.0000
L79	36	Aero MP304	0.00 - 1.65	1.0000	1.0000
L79	41	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000
L79	42	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000
L79	43	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000
L79	61	6" x 1" Flat Plate (G)	0.50 - 1.65	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod	A	From Leg	1.0000 0.00 0.00	0.00	156.0000	No Ice 1/2" Ice 1" Ice	0.2500 0.6635 0.9732	0.2500 0.6635 0.9732	0.03 0.03 0.04
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TPA-65R-LCUUUU-H8 w/ Mount Pipe	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	13.5853 14.2884	11.4097 12.9403	0.13 0.24

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	14.9780	14.2934	0.36
TPA-65R-LCUUUU-H8 w/ Mount Pipe	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	13.5853 14.2884	11.4097 12.9403	0.13 0.24
			1.00			1" Ice	14.9780	14.2934	0.36
80010798 w/ Mount Pipe	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	10.7960 11.3498	7.3501 8.5664	0.03 0.11
			1.00			1" Ice	11.8914	9.4965	0.20
80010965 w/ Mount Pipe	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	13.8138 14.3472	7.1608 7.9557	0.13 0.22
			1.00			1" Ice	14.8877	8.7672	0.32
80010966 w/ Mount Pipe	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	17.3630 17.9907	9.2250 10.1774	0.15 0.26
			1.00			1" Ice	18.6255	11.1452	0.38
80010966 w/ Mount Pipe	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	17.3630 17.9907	9.2250 10.1774	0.15 0.26
			1.00			1" Ice	18.6255	11.1452	0.38
RRUS 12	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	3.1450 3.3648	1.2854 1.4379	0.06 0.08
			1.00			1" Ice	3.5920	1.5998	0.11
RRUS 12	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	3.1450 3.3648	1.2854 1.4379	0.06 0.08
			1.00			1" Ice	3.5920	1.5998	0.11
RRUS 12	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	3.1450 3.3648	1.2854 1.4379	0.06 0.08
			1.00			1" Ice	3.5920	1.5998	0.11
RRUS 4478 B14	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	1.8425 2.0123	1.0588 1.1969	0.06 0.08
			1.00			1" Ice	2.1895	1.3425	0.09
RRUS 4478 B14	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	1.8425 2.0123	1.0588 1.1969	0.06 0.08
			1.00			1" Ice	2.1895	1.3425	0.09
RRUS 4478 B14	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	1.8425 2.0123	1.0588 1.1969	0.06 0.08
			1.00			1" Ice	2.1895	1.3425	0.09
RRUS 32	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.8571 3.0830	1.7766 1.9677	0.06 0.08
			1.00			1" Ice	3.3163	2.1658	0.10
RRUS 32	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.8571 3.0830	1.7766 1.9677	0.06 0.08
			1.00			1" Ice	3.3163	2.1658	0.10
RRUS 32	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.8571 3.0830	1.7766 1.9677	0.06 0.08
			1.00			1" Ice	3.3163	2.1658	0.10
RRUS 32 B2	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7615 2.9849	1.6890 1.8778	0.05 0.07
			1.00			1" Ice	3.2157	2.0735	0.10
RRUS 32 B2	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7615 2.9849	1.6890 1.8778	0.05 0.07
			1.00			1" Ice	3.2157	2.0735	0.10
RRUS 32 B2	C	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7615 2.9849	1.6890 1.8778	0.05 0.07
			1.00			1" Ice	3.2157	2.0735	0.10
RRUS 32 B66	A	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7427 2.9647	1.6681 1.8552	0.05 0.07
			1.00			1" Ice	3.1941	2.0493	0.10
RRUS 32 B66	B	From Leg	4.0000 0.00	0.00	156.0000	No Ice 1/2" Ice	2.7427 2.9647	1.6681 1.8552	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.00			1" Ice	3.1941	2.0493	0.10
RRUS 32 B66	C	From Leg	4.0000	0.00	156.0000	No Ice	2.7427	1.6681	0.05
			0.00			1/2" Ice	2.9647	1.8552	0.07
			1.00			1" Ice	3.1941	2.0493	0.10
DC6-48-60-18-8F	B	From Leg	4.0000	0.00	156.0000	No Ice	1.2117	1.2117	0.03
			0.00			1/2" Ice	1.8924	1.8924	0.05
			1.00			1" Ice	2.1051	2.1051	0.08
DC6-48-60-0-8F	B	From Leg	4.0000	0.00	156.0000	No Ice	0.8498	0.8498	0.03
			0.00			1/2" Ice	1.3563	1.3563	0.05
			1.00			1" Ice	1.5325	1.5325	0.07
SBNH-1D6565C w/ Mount Pipe	A	From Leg	4.0000	0.00	156.0000	No Ice	11.6828	9.8418	0.10
			0.00			1/2" Ice	12.4043	11.3657	0.19
			1.00			1" Ice	13.1351	12.9138	0.29
SBNH-1D6565C w/ Mount Pipe	B	From Leg	4.0000	0.00	156.0000	No Ice	11.6828	9.8418	0.10
			0.00			1/2" Ice	12.4043	11.3657	0.19
			1.00			1" Ice	13.1351	12.9138	0.29
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	4.0000	0.00	156.0000	No Ice	8.2619	6.3042	0.07
			0.00			1/2" Ice	8.8215	7.4790	0.14
			1.00			1" Ice	9.3462	8.3676	0.21
DTMABP7819VG12A	A	From Leg	4.0000	0.00	156.0000	No Ice	0.9762	0.3387	0.02
			0.00			1/2" Ice	1.1002	0.4192	0.03
			1.00			1" Ice	1.2316	0.5098	0.04
DTMABP7819VG12A	B	From Leg	4.0000	0.00	156.0000	No Ice	0.9762	0.3387	0.02
			0.00			1/2" Ice	1.1002	0.4192	0.03
			1.00			1" Ice	1.2316	0.5098	0.04
DTMABP7819VG12A	C	From Leg	4.0000	0.00	156.0000	No Ice	0.9762	0.3387	0.02
			0.00			1/2" Ice	1.1002	0.4192	0.03
			1.00			1" Ice	1.2316	0.5098	0.04
RRUS 11	A	From Leg	4.0000	0.00	156.0000	No Ice	2.7845	1.1872	0.05
			0.00			1/2" Ice	2.9919	1.3342	0.07
			1.00			1" Ice	3.2066	1.4897	0.10
RRUS 11	B	From Leg	4.0000	0.00	156.0000	No Ice	2.7845	1.1872	0.05
			0.00			1/2" Ice	2.9919	1.3342	0.07
			1.00			1" Ice	3.2066	1.4897	0.10
RRUS 11	C	From Leg	4.0000	0.00	156.0000	No Ice	2.7845	1.1872	0.05
			0.00			1/2" Ice	2.9919	1.3342	0.07
			1.00			1" Ice	3.2066	1.4897	0.10
DC6-48-60-18-8F	B	From Leg	4.0000	0.00	156.0000	No Ice	1.2117	1.2117	0.03
			0.00			1/2" Ice	1.8924	1.8924	0.05
			1.00			1" Ice	2.1051	2.1051	0.08
Pipe Mount	A	From Leg	4.0000	0.00	156.0000	No Ice	1.2000	1.2000	0.02
			0.00			1/2" Ice	1.5024	1.5024	0.03
			0.00			1" Ice	1.8141	1.8141	0.04
Pipe Mount	B	From Leg	4.0000	0.00	156.0000	No Ice	1.2000	1.2000	0.02
			0.00			1/2" Ice	1.5024	1.5024	0.03
			0.00			1" Ice	1.8141	1.8141	0.04
Pipe Mount	C	From Leg	4.0000	0.00	156.0000	No Ice	1.2000	1.2000	0.02
			0.00			1/2" Ice	1.5024	1.5024	0.03
			0.00			1" Ice	1.8141	1.8141	0.04
(3) Sabre P/N C10-857-111	C	None		0.00	156.0000	No Ice	33.0200	33.0200	1.67
						1/2" Ice	47.3600	47.3600	2.22
						1" Ice	61.7000	61.7000	2.77
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***									
(2) PCS 1900MHz 4x45W-65MHz	A	From Leg	1.0000	0.00	148.0000	No Ice	2.3218	2.2381	0.06
			0.00			1/2" Ice	2.5266	2.4407	0.08
			0.00			1" Ice	2.7388	2.6507	0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) PCS 1900MHz 4x45W-65MHz	B	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.3218 2.5266 2.7388	2.2381 2.4407 2.6507	0.06 0.08 0.11
(2) PCS 1900MHz 4x45W-65MHz	C	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.3218 2.5266 2.7388	2.2381 2.4407 2.6507	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.0583 2.2398 2.4287	1.9317 2.1087 2.2931	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.0583 2.2398 2.4287	1.9317 2.1087 2.2931	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	2.0583 2.2398 2.4287	1.9317 2.1087 2.2931	0.06 0.09 0.11
(2) 4'x2.4" Pipe Mount	A	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	0.8711 1.1161 1.3704	0.8711 1.1161 1.3704	0.03 0.03 0.04
(2) 4'x2.4" Pipe Mount	B	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	0.8711 1.1161 1.3704	0.8711 1.1161 1.3704	0.03 0.03 0.04
(2) 4'x2.4" Pipe Mount	C	From Leg	1.0000 0.00 0.00	0.00	148.0000	No Ice 1/2" Ice 1" Ice	0.8711 1.1161 1.3704	0.8711 1.1161 1.3704	0.03 0.03 0.04
Side Arm Mount [SO 103-3]	C	None		0.00	148.0000	No Ice 1/2" Ice 1" Ice	9.5000 11.8000 14.1000	9.5000 11.8000 14.1000	0.22 0.32 0.41
*** *** ***									
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	7.4708 8.6564 9.5559	0.09 0.16 0.24
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	7.4708 8.6564 9.5559	0.09 0.16 0.24
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	8.2619 8.8215 9.3462	7.4708 8.6564 9.5559	0.09 0.16 0.24
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.5799 7.0306 7.4733	4.9591 5.7544 6.4723	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.5799 7.0306 7.4733	4.9591 5.7544 6.4723	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.5799 7.0306 7.4733	4.9591 5.7544 6.4723	0.08 0.13 0.19
IBC1900BB-1	A	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900BB-1	B	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900BB-1	C	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
IBC1900HG-2A	A	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900HG-2A	B	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
IBC1900HG-2A	C	From Leg	4.0000 0.00 0.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	0.0000 0.0000 0.0000	0.4635 0.5576 0.6599	0.02 0.03 0.04
TD-RRH8x20-25	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	3.7042 3.9462 4.1956	1.2939 1.4646 1.6424	0.07 0.09 0.12
TD-RRH8x20-25	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	3.7042 3.9462 4.1956	1.2939 1.4646 1.6424	0.07 0.09 0.12
TD-RRH8x20-25	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	3.7042 3.9462 4.1956	1.2939 1.4646 1.6424	0.07 0.09 0.12
5' x 2.4" Pipe Mount	A	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	1.2000 1.5024 1.8141	1.2000 1.5024 1.8141	0.02 0.03 0.04
5' x 2.4" Pipe Mount	B	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	1.2000 1.5024 1.8141	1.2000 1.5024 1.8141	0.02 0.03 0.04
5' x 2.4" Pipe Mount	C	From Leg	4.0000 0.00 1.00	0.00	146.0000	No Ice 1/2" Ice 1" Ice	1.2000 1.5024 1.8141	1.2000 1.5024 1.8141	0.02 0.03 0.04
Platform Mount [LP 1201-1]	C	None		0.00	146.0000	No Ice 1/2" Ice 1" Ice	23.1000 26.8000 30.5000	23.1000 26.8000 30.5000	2.10 2.50 2.90
Miscellaneous [NA 510-1]	C	None		0.00	146.0000	No Ice 1/2" Ice 1" Ice	6.0000 8.5000 11.0000	6.0000 8.5000 11.0000	0.26 0.34 0.42
*** ***									
APXV18-206517S-C	A	From Leg	2.0000 0.00 0.00	30.00	139.0000	No Ice 1/2" Ice 1" Ice	5.1667 5.6182 6.0772	3.0375 3.4693 3.9086	0.03 0.05 0.09
APXV18-206517S-C	B	From Leg	2.0000 0.00 0.00	30.00	139.0000	No Ice 1/2" Ice 1" Ice	5.1667 5.6182 6.0772	3.0375 3.4693 3.9086	0.03 0.05 0.09
APXV18-206517S-C	C	From Leg	2.0000 0.00 0.00	30.00	139.0000	No Ice 1/2" Ice 1" Ice	5.1667 5.6182 6.0772	3.0375 3.4693 3.9086	0.03 0.05 0.09
Pipe Mount [PM 501-3]	C	None		0.00	139.0000	No Ice 1/2" Ice 1" Ice	5.7800 7.3700 8.9600	5.7800 7.3700 8.9600	0.16 0.18 0.20
*** *** ***									
BXA-80080-6CF-EDIN-X w/ Mount Pipe	A	From Leg	4.0000 0.00 2.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	6.0062 6.5619 7.0826	6.2035 7.3594 8.2293	0.04 0.10 0.16
BXA-80080-6CF-EDIN-X w/ Mount Pipe	B	From Leg	4.0000 0.00 2.00	0.00	132.0000	No Ice 1/2" Ice 1" Ice	6.0062 6.5619 7.0826	6.2035 7.3594 8.2293	0.04 0.10 0.16
BXA-80080-6CF-EDIN-X w/	C	From Leg	4.0000	0.00	132.0000	No Ice	6.0062	6.2035	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Mount Pipe			0.00			1/2" Ice	6.5619	7.3594	0.10
			2.00			1" Ice	7.0826	8.2293	0.16
BXA-70063/6CFx2 w/ Mount Pipe	A	From Leg	4.0000	0.00	132.0000	No Ice	7.8065	5.3981	0.04
			0.00			1/2" Ice	8.3569	6.5465	0.10
			1.00			1" Ice	8.8720	7.4089	0.17
BXA-70063/6CFx2 w/ Mount Pipe	B	From Leg	4.0000	0.00	132.0000	No Ice	7.8065	5.3981	0.04
			0.00			1/2" Ice	8.3569	6.5465	0.10
			1.00			1" Ice	8.8720	7.4089	0.17
BXA-70063/6CFx2 w/ Mount Pipe	C	From Leg	4.0000	0.00	132.0000	No Ice	7.8065	5.3981	0.04
			0.00			1/2" Ice	8.3569	6.5465	0.10
			1.00			1" Ice	8.8720	7.4089	0.17
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.0000	0.00	132.0000	No Ice	8.6228	7.2963	0.07
			0.00			1/2" Ice	9.2840	8.5810	0.14
			1.00			1" Ice	9.9143	9.7177	0.22
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.0000	0.00	132.0000	No Ice	8.6228	7.2963	0.07
			0.00			1/2" Ice	9.2840	8.5810	0.14
			1.00			1" Ice	9.9143	9.7177	0.22
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.0000	0.00	132.0000	No Ice	8.6228	7.2963	0.07
			0.00			1/2" Ice	9.2840	8.5810	0.14
			1.00			1" Ice	9.9143	9.7177	0.22
RRH2X60-AWS	A	From Leg	4.0000	0.00	132.0000	No Ice	1.8775	1.2359	0.04
			0.00			1/2" Ice	2.0551	1.3858	0.06
			1.00			1" Ice	2.2401	1.5441	0.08
RRH2X60-AWS	B	From Leg	4.0000	0.00	132.0000	No Ice	1.8775	1.2359	0.04
			0.00			1/2" Ice	2.0551	1.3858	0.06
			1.00			1" Ice	2.2401	1.5441	0.08
RRH2X60-AWS	C	From Leg	4.0000	0.00	132.0000	No Ice	1.8775	1.2359	0.04
			0.00			1/2" Ice	2.0551	1.3858	0.06
			1.00			1" Ice	2.2401	1.5441	0.08
RRH2x60-700	A	From Leg	4.0000	0.00	132.0000	No Ice	3.5002	1.8157	0.06
			0.00			1/2" Ice	3.7609	2.0519	0.08
			1.00			1" Ice	4.0285	2.2894	0.11
RRH2x60-700	B	From Leg	4.0000	0.00	132.0000	No Ice	3.5002	1.8157	0.06
			0.00			1/2" Ice	3.7609	2.0519	0.08
			1.00			1" Ice	4.0285	2.2894	0.11
RRH2x60-700	C	From Leg	4.0000	0.00	132.0000	No Ice	3.5002	1.8157	0.06
			0.00			1/2" Ice	3.7609	2.0519	0.08
			1.00			1" Ice	4.0285	2.2894	0.11
RRH2X60-PCS	A	From Leg	4.0000	0.00	132.0000	No Ice	2.2000	1.6500	0.05
			0.00			1/2" Ice	2.3926	1.8259	0.07
			1.00			1" Ice	2.5926	2.0093	0.09
RRH2X60-PCS	B	From Leg	4.0000	0.00	132.0000	No Ice	2.2000	1.6500	0.05
			0.00			1/2" Ice	2.3926	1.8259	0.07
			1.00			1" Ice	2.5926	2.0093	0.09
RRH2X60-PCS	C	From Leg	4.0000	0.00	132.0000	No Ice	2.2000	1.6500	0.05
			0.00			1/2" Ice	2.3926	1.8259	0.07
			1.00			1" Ice	2.5926	2.0093	0.09
DB-T1-6Z-8AB-0Z	B	From Leg	4.0000	0.00	132.0000	No Ice	4.8000	2.0000	0.04
			0.00			1/2" Ice	5.0704	2.1926	0.08
			1.00			1" Ice	5.3481	2.3926	0.12
DB-T1-6Z-8AB-0Z	C	From Leg	4.0000	0.00	132.0000	No Ice	4.8000	2.0000	0.04
			0.00			1/2" Ice	5.0704	2.1926	0.08
			1.00			1" Ice	5.3481	2.3926	0.12
Platform Mount [LP 712-1]	C	None		0.00	132.0000	No Ice	24.5300	24.5300	1.34
						1/2" Ice	29.9400	29.9400	1.65
						1" Ice	35.3500	35.3500	1.96

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
***									
HORIZON COMPACT	A	From Leg	1.0000	0.00	129.0000	No Ice	0.7208	0.3681	0.01
			0.00			1/2" Ice	0.8278	0.4499	0.02
			-2.00			1" Ice	0.9422	0.5391	0.03
HORIZON COMPACT	B	From Leg	1.0000	0.00	129.0000	No Ice	0.7208	0.3681	0.01
			0.00			1/2" Ice	0.8278	0.4499	0.02
			-2.00			1" Ice	0.9422	0.5391	0.03
HORIZON COMPACT	C	From Leg	1.0000	0.00	129.0000	No Ice	0.7208	0.3681	0.01
			0.00			1/2" Ice	0.8278	0.4499	0.02
			-2.00			1" Ice	0.9422	0.5391	0.03
7' x 3.5" Pipe Mount	A	From Leg	0.5000	0.00	129.0000	No Ice	2.3589	2.3589	0.03
			0.00			1/2" Ice	2.8268	2.8268	0.05
			0.00			1" Ice	3.2582	3.2582	0.07
7' x 3.5" Pipe Mount	B	From Leg	0.5000	0.00	129.0000	No Ice	2.3589	2.3589	0.03
			0.00			1/2" Ice	2.8268	2.8268	0.05
			0.00			1" Ice	3.2582	3.2582	0.07
7' x 3.5" Pipe Mount	C	From Leg	0.5000	0.00	129.0000	No Ice	2.3589	2.3589	0.03
			0.00			1/2" Ice	2.8268	2.8268	0.05
			0.00			1" Ice	3.2582	3.2582	0.07
Side Arm Mount [SO 104-3]	C	None		0.00	129.0000	No Ice	3.3000	3.3000	0.29
						1/2" Ice	4.1300	4.1300	0.32
						1" Ice	4.9600	4.9600	0.35
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58532A	A	From Leg	3.0000	0.00	101.0000	No Ice	0.1893	0.1893	0.00
			0.00			1/2" Ice	0.2483	0.2483	0.00
			1.00			1" Ice	0.3147	0.3147	0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.5000	0.00	101.0000	No Ice	0.8500	1.6700	0.07
			0.00			1/2" Ice	1.1400	2.3400	0.08
			0.00			1" Ice	1.4300	3.0100	0.09
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP800-11	A	Paraboloid w/Shroud (HP)	From Leg	1.0000	0.00		129.0000	2.9167	No Ice	6.6800	0.02
				0.00					1/2" Ice	7.0700	0.06
				-2.00					1" Ice	7.4600	0.09
VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	1.0000	30.00		129.0000	2.9167	No Ice	6.6800	0.02
				0.00					1/2" Ice	7.0700	0.06
				-2.00					1" Ice	7.4600	0.09
VHLP2-18	C	Paraboloid w/Shroud (HP)	From Leg	1.0000	90.00		129.0000	2.1750	No Ice	3.7200	0.03
				0.00					1/2" Ice	4.0100	0.05
				-2.00					1" Ice	4.3000	0.07
***											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice
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	160 - 155	Pole	Max Tension	30	0.00	0.00	-0.00
			Max. Compression	26	-16.02	-4.28	0.33
			Max. Mx	8	-3.81	-18.30	0.12
			Max. My	2	-3.76	-0.81	17.39
			Max. Vy	8	9.78	-18.30	0.12
			Max. Vx	2	-9.80	-0.81	17.39
			Max. Torque	12			2.76
L2	155 - 150	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.91	-4.49	0.42
			Max. Mx	8	-4.28	-67.93	0.12
			Max. My	2	-4.23	-0.85	67.12
			Max. Vy	8	10.06	-67.93	0.12
			Max. Vx	2	-10.08	-0.85	67.12
			Max. Torque	12			2.76
L3	150 - 146	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.80	-4.65	0.49
			Max. Mx	8	-5.59	-112.12	0.11
			Max. My	2	-5.53	-0.88	111.43
			Max. Vy	8	12.03	-112.12	0.11
			Max. Vx	2	-12.06	-0.88	111.43
			Max. Torque	12			2.75
L4	146 - 141	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.00	-4.88	0.59
			Max. Mx	8	-9.44	-197.66	0.10
			Max. My	2	-9.35	-0.90	197.21
			Max. Vy	8	16.84	-197.66	0.10
			Max. Vx	2	-16.89	-0.90	197.21
			Max. Torque	12			2.75
L5	141 - 136	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.81	-5.09	0.70
			Max. Mx	8	-10.20	-285.44	0.08
			Max. My	2	-10.11	-0.92	285.25
			Max. Vy	8	18.11	-285.44	0.08
			Max. Vx	2	-18.17	-0.92	285.25
			Max. Torque	12			2.75
L6	136 - 131	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.38	-5.23	-0.41
			Max. Mx	8	-13.25	-389.09	-0.13
			Max. My	2	-13.13	-0.90	388.82
			Max. Vy	8	24.99	-389.09	-0.13
			Max. Vx	2	-24.97	-0.90	388.82
			Max. Torque	12			2.75
L7	131 - 125.9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.92	-5.25	-0.06
			Max. Mx	8	-14.85	-520.16	-0.37
			Max. My	2	-14.66	-0.55	521.12
			Max. Vy	20	-26.77	517.82	0.78
			Max. Vx	14	27.44	-1.42	-520.94
			Max. Torque	2			-2.77
L8	125.9 - 125.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.01	-5.25	-0.04
			Max. Mx	8	-14.92	-526.31	-0.42
			Max. My	2	-14.72	-0.50	527.43
			Max. Vy	20	-26.79	523.98	0.87
			Max. Vx	14	27.47	-1.46	-527.25
			Max. Torque	2			-2.76
L9	125.67 - 120.67	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.20	-5.14	0.26
			Max. Mx	8	-16.07	-661.49	-1.54
			Max. My	2	-15.84	0.65	666.75

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-27.34	659.35	2.75
			Max. Vx	14	28.35	-2.44	-666.67
			Max. Torque	2			-2.76
L10	120.67 - 120.1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.47	-5.13	0.30
			Max. Mx	8	-16.21	-677.08	-1.67
			Max. My	2	-15.98	0.78	682.91
			Max. Vy	20	-27.40	674.96	2.97
			Max. Vx	14	28.44	-2.55	-682.85
			Max. Torque	24			-2.74
L11	120.1 - 119.85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.59	-5.12	0.32
			Max. Mx	8	-16.28	-683.92	-1.72
			Max. My	2	-16.05	0.84	690.02
			Max. Vy	20	-27.43	681.82	3.06
			Max. Vx	14	28.48	-2.60	-689.96
			Max. Torque	24			-2.74
L12	119.85 - 117.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.73	-5.04	0.44
			Max. Mx	8	-16.83	-748.62	-2.25
			Max. My	2	-16.58	1.38	757.37
			Max. Vy	20	-27.70	746.61	3.95
			Max. Vx	14	28.91	-3.06	-757.35
			Max. Torque	24			-2.74
L13	117.5 - 117.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.85	-5.03	0.45
			Max. Mx	8	-16.91	-755.54	-2.31
			Max. My	2	-16.66	1.44	764.59
			Max. Vy	20	-27.72	753.54	4.05
			Max. Vx	14	28.95	-3.11	-764.58
			Max. Torque	24			-2.74
L14	117.25 - 115.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.71	-4.99	0.56
			Max. Mx	8	-17.34	-804.18	-2.70
			Max. My	14	-17.08	-3.45	-815.49
			Max. Vy	20	-27.94	802.25	4.71
			Max. Vx	14	29.29	-3.45	-815.49
			Max. Torque	24			-2.74
L15	115.5 - 115.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.84	-4.98	0.58
			Max. Mx	8	-17.44	-811.16	-2.75
			Max. My	14	-17.18	-3.50	-822.81
			Max. Vy	20	-27.95	809.23	4.80
			Max. Vx	14	29.32	-3.50	-822.81
			Max. Torque	24			-2.74
L16	115.25 - 110.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-55.53	-4.84	0.92
			Max. Mx	8	-18.89	-952.34	-3.87
			Max. My	14	-18.61	-4.46	-971.76
			Max. Vy	20	-28.59	950.63	6.70
			Max. Vx	14	30.31	-4.46	-971.76
			Max. Torque	24			-2.74
L17	110.25 - 103.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.04	-4.76	1.11
			Max. Mx	8	-19.71	-1031.35	-4.48
			Max. My	14	-19.41	-4.99	-1055.77
			Max. Vy	20	-28.95	1029.76	7.75
			Max. Vx	14	30.85	-4.99	-1055.77
			Max. Torque	24			-2.74

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L18	103.75 - 102.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.08	-4.61	1.47
			Max. Mx	8	-22.12	-1177.85	-5.60
			Max. My	14	-21.80	-5.96	-1212.76
			Max. Vy	20	-29.71	1176.48	9.66
			Max. Vx	14	31.98	-5.96	-1212.76
			Max. Torque	24			-2.73
L19	102.5 - 100.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.39	-4.55	2.10
			Max. Mx	8	-22.86	-1237.50	-5.85
			Max. My	2	-22.54	5.37	1277.06
			Max. Vy	20	-30.06	1236.22	10.62
			Max. Vx	14	32.43	-6.34	-1276.88
			Max. Torque	24			-2.85
L20	100.5 - 100.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.54	-4.53	2.12
			Max. Mx	8	-22.95	-1245.01	-5.90
			Max. My	2	-22.63	5.43	1285.16
			Max. Vy	20	-30.08	1243.74	10.72
			Max. Vx	14	32.47	-6.39	-1284.98
			Max. Torque	24			-2.85
L21	100.25 - 98.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.60	-4.45	2.30
			Max. Mx	8	-23.49	-1297.79	-6.29
			Max. My	2	-23.17	5.84	1342.23
			Max. Vy	20	-30.32	1296.61	11.39
			Max. Vx	14	32.83	-6.73	-1342.07
			Max. Torque	24			-2.85
L22	98.5 - 98.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.75	-4.44	2.33
			Max. Mx	8	-23.60	-1305.37	-6.35
			Max. My	2	-23.28	5.90	1350.43
			Max. Vy	20	-30.34	1304.19	11.48
			Max. Vx	14	32.87	-6.78	-1350.28
			Max. Torque	24			-2.85
L23	98.25 - 93.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66.65	-4.18	2.83
			Max. Mx	8	-25.28	-1458.50	-7.46
			Max. My	2	-24.95	7.08	1517.05
			Max. Vy	20	-30.99	1457.56	13.40
			Max. Vx	14	33.86	-7.74	-1516.96
			Max. Torque	24			-2.85
L24	93.25 - 90.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.23	-4.03	3.09
			Max. Mx	8	-26.22	-1544.09	-8.08
			Max. My	2	-25.88	7.73	1610.80
			Max. Vy	20	-31.35	1543.28	14.45
			Max. Vx	14	34.41	-8.27	-1610.74
			Max. Torque	24			-2.85
L25	90.5 - 90.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.39	-4.01	3.12
			Max. Mx	8	-26.33	-1551.92	-8.13
			Max. My	2	-26.00	7.79	1619.39
			Max. Vy	20	-31.37	1551.12	14.55
			Max. Vx	14	34.44	-8.31	-1619.34
			Max. Torque	24			-2.85
L26	90.25 - 85.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.54	-3.70	3.65
			Max. Mx	8	-28.24	-1710.23	-9.24
			Max. My	14	-27.90	-9.27	-1793.94
			Max. Vy	20	-32.03	1709.66	16.47

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	35.45	-9.27	-1793.94
			Max. Torque	24			-2.85
L27	85.25 - 83.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.78	-3.58	3.78
			Max. Mx	8	-28.91	-1766.41	-9.63
			Max. My	14	-28.57	-9.60	-1856.24
			Max. Vy	20	-32.27	1765.93	17.14
			Max. Vx	14	35.82	-9.60	-1856.24
			Max. Torque	24			-2.85
L28	83.5 - 83.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.98	-3.56	3.80
			Max. Mx	8	-29.05	-1774.47	-9.68
			Max. My	14	-28.71	-9.65	-1865.19
			Max. Vy	20	-32.29	1774.00	17.24
			Max. Vx	14	35.85	-9.65	-1865.19
			Max. Torque	24			-2.85
L29	83.25 - 80.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.96	-3.39	3.99
			Max. Mx	8	-30.18	-1855.55	-10.24
			Max. My	14	-29.83	-10.12	-1955.42
			Max. Vy	20	-32.66	1855.21	18.20
			Max. Vx	14	36.39	-10.12	-1955.42
			Max. Torque	24			-2.85
L30	80.75 - 80.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.17	-3.37	4.01
			Max. Mx	8	-30.32	-1863.71	-10.29
			Max. My	14	-29.97	-10.17	-1964.51
			Max. Vy	20	-32.68	1863.38	18.29
			Max. Vx	14	36.43	-10.17	-1964.51
			Max. Torque	24			-2.85
L31	80.5 - 80.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.38	-3.35	4.02
			Max. Mx	8	-30.44	-1871.88	-10.35
			Max. My	14	-30.10	-10.22	-1973.62
			Max. Vy	20	-32.72	1871.56	18.39
			Max. Vx	14	36.49	-10.22	-1973.62
			Max. Torque	24			-2.85
L32	80.25 - 77.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.65	-3.16	4.23
			Max. Mx	8	-31.78	-1962.31	-10.96
			Max. My	14	-31.44	-10.74	-2074.71
			Max. Vy	20	-33.13	1962.13	19.45
			Max. Vx	14	37.09	-10.74	-2074.71
			Max. Torque	24			-2.85
L33	77.5 - 77.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.84	-3.14	4.25
			Max. Mx	8	-31.90	-1970.58	-11.01
			Max. My	14	-31.56	-10.79	-2083.98
			Max. Vy	20	-33.15	1970.41	19.54
			Max. Vx	14	37.13	-10.79	-2083.98
			Max. Torque	24			-2.85
L34	77.25 - 68.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-80.95	-2.78	4.57
			Max. Mx	20	-33.72	2112.54	21.18
			Max. My	14	-33.39	-11.59	-2243.09
			Max. Vy	20	-33.71	2112.54	21.18
			Max. Vx	14	37.81	-11.59	-2243.09
			Max. Torque	24			-2.85
L35	68.5 - 68	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.75	-2.35	4.95
			Max. Mx	20	-37.54	2283.16	23.10

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-37.22	-12.53	-2434.40
			Max. Vy	20	-34.50	2283.16	23.10
			Max. Vx	14	38.76	-12.53	-2434.40
			Max. Torque	24			-2.84
L36	68 - 64.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.65	-2.04	5.24
			Max. Mx	20	-39.27	2413.49	24.55
			Max. My	14	-38.97	-13.23	-2580.71
			Max. Vy	20	-34.99	2413.49	24.55
			Max. Vx	14	39.35	-13.23	-2580.71
			Max. Torque	24			-2.84
L37	64.25 - 64	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.86	-2.03	5.26
			Max. Mx	20	-39.42	2422.24	24.64
			Max. My	14	-39.12	-13.28	-2590.54
			Max. Vy	20	-35.01	2422.24	24.64
			Max. Vx	14	39.37	-13.28	-2590.54
			Max. Torque	24			-2.84
L38	64 - 60.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.85	-1.75	5.54
			Max. Mx	20	-41.23	2545.65	25.99
			Max. My	14	-40.93	-13.93	-2729.24
			Max. Vy	20	-35.50	2545.65	25.99
			Max. Vx	14	39.95	-13.93	-2729.24
			Max. Torque	24			-2.84
L39	60.5 - 60.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.08	-1.73	5.58
			Max. Mx	20	-41.37	2554.53	26.09
			Max. My	14	-41.09	-13.98	-2739.22
			Max. Vy	20	-35.53	2554.53	26.09
			Max. Vx	14	39.98	-13.98	-2739.22
			Max. Torque	24			-2.84
L40	60.25 - 60.1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.22	-1.72	5.60
			Max. Mx	20	-41.46	2559.87	26.15
			Max. My	14	-41.17	-14.01	-2745.22
			Max. Vy	20	-35.55	2559.87	26.15
			Max. Vx	14	40.00	-14.01	-2745.22
			Max. Torque	24			-2.84
L41	60.1 - 59.85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.45	-1.71	5.63
			Max. Mx	20	-41.60	2568.76	26.24
			Max. My	14	-41.31	-14.05	-2755.22
			Max. Vy	20	-35.59	2568.76	26.24
			Max. Vx	14	40.04	-14.05	-2755.22
			Max. Torque	24			-2.84
L42	59.85 - 59.1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.15	-1.69	5.76
			Max. Mx	20	-42.01	2595.52	26.53
			Max. My	14	-41.73	-14.19	-2785.28
			Max. Vy	20	-35.72	2595.52	26.53
			Max. Vx	14	40.17	-14.19	-2785.28
			Max. Torque	24			-2.84
L43	59.1 - 58.85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-94.39	-1.68	5.80
			Max. Mx	20	-42.17	2604.45	26.63
			Max. My	14	-41.89	-14.24	-2795.32
			Max. Vy	20	-35.76	2604.45	26.63
			Max. Vx	14	40.21	-14.24	-2795.32
			Max. Torque	24			-2.84
L44	58.85 - 55.4	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-97.69	-1.56	6.38
			Max. Mx	20	-44.22	2728.87	27.96
			Max. My	14	-43.95	-14.88	-2934.95
			Max. Vy	20	-36.34	2728.87	27.96
			Max. Vx	14	40.80	-14.88	-2934.95
			Max. Torque	24			-2.84
L45	55.4 - 55.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.93	-1.55	6.43
			Max. Mx	20	-44.38	2737.96	28.05
			Max. My	14	-44.11	-14.93	-2945.14
			Max. Vy	20	-36.37	2737.96	28.05
			Max. Vx	14	40.83	-14.93	-2945.14
			Max. Torque	24			-2.84
L46	55.15 - 54.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.32	-1.54	6.49
			Max. Mx	20	-44.62	2752.53	28.21
			Max. My	14	-44.35	-15.00	-2961.47
			Max. Vy	20	-36.44	2752.53	28.21
			Max. Vx	14	40.89	-15.00	-2961.47
			Max. Torque	24			-2.84
L47	54.75 - 54.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-98.53	-1.53	6.54
			Max. Mx	20	-44.75	2761.65	28.30
			Max. My	14	-44.48	-15.05	-2971.69
			Max. Vy	20	-36.48	2761.65	28.30
			Max. Vx	14	40.93	-15.05	-2971.69
			Max. Torque	24			-2.84
L48	54.5 - 49.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-102.71	-1.29	7.40
			Max. Mx	20	-47.29	2945.93	30.23
			Max. My	14	-47.05	-15.97	-3178.11
			Max. Vy	20	-37.22	2945.93	30.23
			Max. Vx	14	41.70	-15.97	-3178.11
			Max. Torque	24			-2.84
L49	49.5 - 44.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-106.77	-0.96	8.23
			Max. Mx	20	-49.88	3133.63	32.15
			Max. My	14	-49.66	-16.89	-3388.21
			Max. Vy	20	-37.86	3133.63	32.15
			Max. Vx	14	42.43	-16.89	-3388.21
			Max. Torque	24			-2.84
L50	44.5 - 41.3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-109.44	-0.67	8.67
			Max. Mx	20	-51.55	3255.41	33.37
			Max. My	14	-51.35	-17.47	-3524.56
			Max. Vy	20	-38.25	3255.41	33.37
			Max. Vx	14	42.88	-17.47	-3524.56
			Max. Torque	24			-2.84
L51	41.3 - 41.05	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-109.66	-0.65	8.71
			Max. Mx	20	-51.70	3264.98	33.47
			Max. My	14	-51.51	-17.52	-3535.27
			Max. Vy	20	-38.27	3264.98	33.47
			Max. Vx	14	42.89	-17.52	-3535.27
			Max. Torque	24			-2.84
L52	41.05 - 34	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-111.52	-0.49	8.99
			Max. Mx	20	-52.85	3343.75	34.26
			Max. My	14	-52.67	-17.89	-3623.44
			Max. Vy	20	-38.56	3343.75	34.26
			Max. Vx	14	43.20	-17.89	-3623.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	24			-2.84
L53	34 - 33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-120.53	-0.04	9.83
			Max. Mx	20	-59.17	3578.16	36.55
			Max. My	14	-59.01	-18.98	-3885.51
			Max. Vy	20	-39.55	3578.16	36.55
			Max. Vx	14	44.22	-18.98	-3885.51
			Max. Torque	24			-2.84
L54	33 - 31.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-122.07	0.06	10.03
			Max. Mx	20	-60.17	3637.65	37.13
			Max. My	14	-60.01	-19.25	-3951.94
			Max. Vy	20	-39.77	3637.65	37.13
			Max. Vx	14	44.44	-19.25	-3951.94
			Max. Torque	24			-2.84
L55	31.5 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-122.34	0.08	10.08
			Max. Mx	20	-60.35	3647.60	37.22
			Max. My	14	-60.19	-19.30	-3963.04
			Max. Vy	20	-39.80	3647.60	37.22
			Max. Vx	14	44.45	-19.30	-3963.04
			Max. Torque	24			-2.84
L56	31.25 - 30.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-123.12	0.13	10.19
			Max. Mx	20	-60.85	3677.51	37.51
			Max. My	14	-60.70	-19.43	-3996.39
			Max. Vy	20	-39.92	3677.51	37.51
			Max. Vx	14	44.57	-19.43	-3996.39
			Max. Torque	24			-2.84
L57	30.5 - 30.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-123.37	0.16	10.21
			Max. Mx	20	-61.02	3687.49	37.60
			Max. My	14	-60.87	-19.48	-4007.53
			Max. Vy	20	-39.94	3687.49	37.60
			Max. Vx	14	44.59	-19.48	-4007.53
			Max. Torque	24			-2.84
L58	30.25 - 25.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-127.96	0.53	10.54
			Max. Mx	20	-63.99	3868.55	39.32
			Max. My	14	-63.85	-20.29	-4209.41
			Max. Vy	20	-40.51	3868.55	39.32
			Max. Vx	14	45.21	-20.29	-4209.41
			Max. Torque	24			-2.84
L59	25.75 - 25.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-128.22	0.55	10.56
			Max. Mx	20	-64.16	3878.68	39.42
			Max. My	14	-64.03	-20.33	-4220.70
			Max. Vy	20	-40.52	3878.68	39.42
			Max. Vx	14	45.22	-20.33	-4220.70
			Max. Torque	24			-2.84
L60	25.5 - 24.7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-129.03	0.62	10.62
			Max. Mx	20	-64.68	3911.15	39.72
			Max. My	14	-64.56	-20.48	-4256.90
			Max. Vy	20	-40.62	3911.15	39.72
			Max. Vx	14	45.33	-20.48	-4256.90
			Max. Torque	24			-2.84
L61	24.7 - 24.45	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-129.26	0.64	10.64
			Max. Mx	20	-64.83	3921.31	39.82
			Max. My	14	-64.71	-20.52	-4268.22

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-40.64	3921.31	39.82
			Max. Vx	14	45.35	-20.52	-4268.22
			Max. Torque	24			-2.84
L62	24.45 - 24	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-129.67	0.68	10.67
			Max. Mx	20	-65.09	3939.62	39.99
			Max. My	14	-64.97	-20.60	-4288.63
			Max. Vy	20	-40.70	3939.62	39.99
			Max. Vx	14	45.41	-20.60	-4288.63
			Max. Torque	24			-2.84
L63	24 - 23.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-129.93	0.70	10.69
			Max. Mx	20	-65.26	3949.80	40.08
			Max. My	14	-65.14	-20.65	-4299.98
			Max. Vy	20	-40.72	3949.80	40.08
			Max. Vx	14	45.44	-20.65	-4299.98
			Max. Torque	24			-2.84
L64	23.75 - 18.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-134.69	1.18	10.99
			Max. Mx	20	-68.55	4154.83	41.99
			Max. My	14	-68.45	-21.54	-4528.55
			Max. Vy	20	-41.26	4154.83	41.99
			Max. Vx	14	46.06	-21.54	-4528.55
			Max. Torque	24			-2.84
L65	18.75 - 14.1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-139.00	1.55	11.26
			Max. Mx	20	-71.64	4347.79	43.75
			Max. My	14	-71.57	-22.36	-4743.73
			Max. Vy	20	-41.72	4347.79	43.75
			Max. Vx	14	46.58	-22.36	-4743.73
			Max. Torque	24			-2.84
L66	14.1 - 13.8	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-139.29	1.57	11.29
			Max. Mx	20	-71.86	4360.31	43.86
			Max. My	14	-71.79	-22.41	-4757.69
			Max. Vy	20	-41.73	4360.31	43.86
			Max. Vx	14	46.59	-22.41	-4757.69
			Max. Torque	24			-2.84
L67	13.8 - 13.65	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-139.43	1.59	11.30
			Max. Mx	20	-71.96	4366.57	43.92
			Max. My	14	-71.89	-22.44	-4764.68
			Max. Vy	20	-41.75	4366.57	43.92
			Max. Vx	14	46.61	-22.44	-4764.68
			Max. Torque	24			-2.84
L68	13.65 - 10.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-142.42	1.83	11.58
			Max. Mx	20	-74.10	4498.62	45.11
			Max. My	14	-74.04	-22.99	-4911.94
			Max. Vy	20	-42.07	4498.62	45.11
			Max. Vx	14	46.97	-22.99	-4911.94
			Max. Torque	24			-2.84
L69	10.5 - 10.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-142.65	1.84	11.60
			Max. Mx	20	-74.28	4509.14	45.21
			Max. My	14	-74.22	-23.04	-4923.67
			Max. Vy	20	-42.07	4509.14	45.21
			Max. Vx	14	46.98	-23.04	-4923.67
			Max. Torque	24			-2.84
L70	10.25 - 5.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-147.18	2.16	11.93

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-77.60	4720.80	47.09
			Max. My	14	-77.57	-23.91	-5159.70
			Max. Vy	20	-42.56	4720.80	47.09
			Max. Vx	14	47.52	-23.91	-5159.70
			Max. Torque	24			-2.84
L71	5.25 - 3	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.19	2.30	12.08
			Max. Mx	20	-79.11	4816.82	47.94
			Max. My	14	-79.09	-24.30	-5266.78
			Max. Vy	20	-42.78	4816.82	47.94
			Max. Vx	14	47.76	-24.30	-5266.78
			Max. Torque	24			-2.84
L72	3 - 2.9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.28	2.31	12.09
			Max. Mx	20	-79.18	4821.10	47.97
			Max. My	14	-79.17	-24.32	-5271.55
			Max. Vy	20	-42.77	4821.10	47.97
			Max. Vx	14	47.74	-24.32	-5271.55
			Max. Torque	24			-2.84
L73	2.9 - 2.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.40	2.32	12.10
			Max. Mx	20	-79.27	4827.52	48.03
			Max. My	14	-79.26	-24.34	-5278.70
			Max. Vy	20	-42.78	4827.52	48.03
			Max. Vx	14	47.76	-24.34	-5278.70
			Max. Torque	24			-2.84
L74	2.75 - 2.65	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.48	2.32	12.10
			Max. Mx	20	-79.34	4831.80	48.07
			Max. My	14	-79.32	-24.36	-5283.48
			Max. Vy	20	-42.79	4831.80	48.07
			Max. Vx	14	47.77	-24.36	-5283.48
			Max. Torque	24			-2.84
L75	2.65 - 2.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.60	2.33	12.11
			Max. Mx	20	-79.43	4838.23	48.12
			Max. My	14	-79.41	-24.39	-5290.64
			Max. Vy	20	-42.80	4838.23	48.12
			Max. Vx	14	47.78	-24.39	-5290.64
			Max. Torque	24			-2.84
L76	2.5 - 2.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-149.81	2.35	12.13
			Max. Mx	20	-79.58	4848.94	48.22
			Max. My	14	-79.56	-24.43	-5302.58
			Max. Vy	20	-42.83	4848.94	48.22
			Max. Vx	14	47.81	-24.43	-5302.58
			Max. Torque	24			-2.84
L77	2.25 - 1.9	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-150.09	2.37	12.15
			Max. Mx	20	-79.79	4863.94	48.35
			Max. My	14	-79.78	-24.49	-5319.31
			Max. Vy	20	-42.86	4863.94	48.35
			Max. Vx	14	47.85	-24.49	-5319.31
			Max. Torque	24			-2.84
L78	1.9 - 1.65	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-150.29	2.38	12.17
			Max. Mx	20	-79.94	4874.66	48.44
			Max. My	14	-79.93	-24.53	-5331.26
			Max. Vy	20	-42.88	4874.66	48.44
			Max. Vx	14	47.87	-24.53	-5331.26
			Max. Torque	24			-2.84

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L79	1.65 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-151.52	2.48	12.28
			Max. Mx	20	-80.88	4945.57	49.06
			Max. My	14	-80.88	-24.82	-5410.32
			Max. Vy	20	-43.06	4945.57	49.06
			Max. Vx	14	48.06	-24.82	-5410.32
			Max. Torque	24			-2.84

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	151.52	0.04	12.82
	Max. H_x	20	80.91	43.02	0.35
	Max. H_z	2	80.91	0.21	47.97
	Max. M_x	2	5410.04	0.21	47.97
	Max. M_z	8	4941.34	-43.01	-0.23
	Max. Torsion	12	2.60	-22.18	-38.57
	Min. Vert	11	60.68	-36.63	-21.56
	Min. H_x	8	80.91	-43.01	-0.23
	Min. H_z	15	60.68	-0.20	-48.02
	Min. M_x	14	-5410.32	-0.20	-48.02
	Min. M_z	20	-4945.57	43.02	0.35
	Min. Torsion	24	-2.84	22.18	38.51

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	67.42	0.00	0.00	-2.47	1.27	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	80.91	-0.21	-47.97	-5410.04	29.53	2.26
0.9 Dead+1.6 Wind 0 deg - No Ice	60.68	-0.21	-47.97	-5352.70	28.85	2.22
1.2 Dead+1.6 Wind 30 deg - No Ice	80.91	25.90	-45.58	-4878.98	-2758.97	0.08
0.9 Dead+1.6 Wind 30 deg - No Ice	60.68	25.90	-45.58	-4828.14	-2731.02	0.04
1.2 Dead+1.6 Wind 60 deg - No Ice	80.91	37.40	-21.66	-2510.88	-4327.10	0.74
0.9 Dead+1.6 Wind 60 deg - No Ice	60.68	37.40	-21.66	-2483.32	-4281.27	0.72
1.2 Dead+1.6 Wind 90 deg - No Ice	80.91	43.01	0.23	27.61	-4941.34	-0.68
0.9 Dead+1.6 Wind 90 deg - No Ice	60.68	43.01	0.23	28.09	-4888.95	-0.68
1.2 Dead+1.6 Wind 120 deg - No Ice	80.91	36.63	21.56	2504.87	-4247.45	-1.81
0.9 Dead+1.6 Wind 120 deg - No Ice	60.68	36.63	21.56	2478.80	-4202.28	-1.79
1.2 Dead+1.6 Wind 150 deg -	80.91	22.18	38.57	4398.84	-2528.27	-2.60

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
No Ice						
0.9 Dead+1.6 Wind 150 deg - No Ice	60.68	22.18	38.57	4352.86	-2501.77	-2.57
1.2 Dead+1.6 Wind 180 deg - No Ice	80.91	0.20	48.02	5410.32	-24.82	-2.20
0.9 Dead+1.6 Wind 180 deg - No Ice	60.68	0.20	48.02	5354.49	-24.93	-2.16
1.2 Dead+1.6 Wind 210 deg - No Ice	80.91	-25.95	45.64	4881.30	2768.55	-0.16
0.9 Dead+1.6 Wind 210 deg - No Ice	60.68	-25.95	45.64	4831.96	2739.77	-0.13
1.2 Dead+1.6 Wind 240 deg - No Ice	80.91	-37.35	21.77	2519.77	4324.55	-1.04
0.9 Dead+1.6 Wind 240 deg - No Ice	60.68	-37.35	21.77	2493.65	4278.02	-1.02
1.2 Dead+1.6 Wind 270 deg - No Ice	80.91	-43.02	-0.35	-49.06	4945.57	1.03
0.9 Dead+1.6 Wind 270 deg - No Ice	60.68	-43.02	-0.35	-47.80	4892.41	1.04
1.2 Dead+1.6 Wind 300 deg - No Ice	80.91	-36.68	-21.51	-2503.87	4257.56	2.26
0.9 Dead+1.6 Wind 300 deg - No Ice	60.68	-36.68	-21.51	-2476.30	4211.57	2.24
1.2 Dead+1.6 Wind 330 deg - No Ice	80.91	-22.18	-38.51	-4397.41	2531.19	2.84
0.9 Dead+1.6 Wind 330 deg - No Ice	60.68	-22.18	-38.51	-4349.93	2503.92	2.81
1.2 Dead+1.0 Ice	151.52	0.00	-0.00	-12.28	2.48	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice	151.52	-0.04	-12.82	-1598.34	7.61	0.76
1.2 Dead+1.0 Wind 30 deg+1.0 Ice	151.52	6.54	-11.45	-1406.11	-791.51	0.23
1.2 Dead+1.0 Wind 60 deg+1.0 Ice	151.52	10.51	-6.08	-779.22	-1322.53	0.30
1.2 Dead+1.0 Wind 90 deg+1.0 Ice	151.52	11.85	0.04	-6.79	-1482.75	-0.14
1.2 Dead+1.0 Wind 120 deg+1.0 Ice	151.52	9.93	5.81	739.05	-1281.18	-0.53
1.2 Dead+1.0 Wind 150 deg+1.0 Ice	151.52	6.38	11.08	1349.77	-781.89	-0.81
1.2 Dead+1.0 Wind 180 deg+1.0 Ice	151.52	0.04	12.83	1574.62	-2.27	-0.75
1.2 Dead+1.0 Wind 210 deg+1.0 Ice	151.52	-6.54	11.46	1382.82	797.91	-0.25
1.2 Dead+1.0 Wind 240 deg+1.0 Ice	151.52	-10.50	6.10	757.24	1326.33	-0.37
1.2 Dead+1.0 Wind 270 deg+1.0 Ice	151.52	-11.85	-0.07	-21.80	1488.00	0.22
1.2 Dead+1.0 Wind 300 deg+1.0 Ice	151.52	-9.94	-5.79	-762.64	1287.68	0.63
1.2 Dead+1.0 Wind 330 deg+1.0 Ice	151.52	-6.38	-11.07	-1373.25	786.81	0.86
Dead+Wind 0 deg - Service	67.42	-0.05	-10.26	-1153.24	7.22	0.49
Dead+Wind 30 deg - Service	67.42	5.54	-9.75	-1040.35	-586.29	0.02
Dead+Wind 60 deg - Service	67.42	8.00	-4.63	-536.12	-919.71	0.16
Dead+Wind 90 deg - Service	67.42	9.20	0.05	3.98	-1050.37	-0.15
Dead+Wind 120 deg - Service	67.42	7.84	4.61	531.03	-902.73	-0.39
Dead+Wind 150 deg - Service	67.42	4.75	8.25	934.07	-537.01	-0.56
Dead+Wind 180 deg - Service	67.42	0.04	10.27	1149.52	-4.34	-0.48
Dead+Wind 210 deg - Service	67.42	-5.55	9.77	1037.06	590.21	-0.04
Dead+Wind 240 deg - Service	67.42	-7.99	4.66	534.23	921.06	-0.23

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 270 deg - Service	67.42	-9.20	-0.07	-12.33	1053.16	0.23
Dead+Wind 300 deg - Service	67.42	-7.85	-4.60	-534.61	906.77	0.49
Dead+Wind 330 deg - Service	67.42	-4.75	-8.24	-937.55	539.52	0.62

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-67.42	0.00	0.00	67.42	0.00	0.000%
2	-0.21	-80.91	-47.97	0.21	80.91	47.97	0.000%
3	-0.21	-60.68	-47.97	0.21	60.68	47.97	0.000%
4	25.90	-80.91	-45.58	-25.90	80.91	45.58	0.000%
5	25.90	-60.68	-45.58	-25.90	60.68	45.58	0.000%
6	37.40	-80.91	-21.66	-37.40	80.91	21.66	0.000%
7	37.40	-60.68	-21.66	-37.40	60.68	21.66	0.000%
8	43.01	-80.91	0.23	-43.01	80.91	-0.23	0.000%
9	43.01	-60.68	0.23	-43.01	60.68	-0.23	0.000%
10	36.63	-80.91	21.56	-36.63	80.91	-21.56	0.000%
11	36.63	-60.68	21.56	-36.63	60.68	-21.56	0.000%
12	22.18	-80.91	38.57	-22.18	80.91	-38.57	0.000%
13	22.18	-60.68	38.57	-22.18	60.68	-38.57	0.000%
14	0.20	-80.91	48.02	-0.20	80.91	-48.02	0.000%
15	0.20	-60.68	48.02	-0.20	60.68	-48.02	0.000%
16	-25.95	-80.91	45.64	25.95	80.91	-45.64	0.000%
17	-25.95	-60.68	45.64	25.95	60.68	-45.64	0.000%
18	-37.35	-80.91	21.77	37.35	80.91	-21.77	0.000%
19	-37.35	-60.68	21.77	37.35	60.68	-21.77	0.000%
20	-43.02	-80.91	-0.35	43.02	80.91	0.35	0.000%
21	-43.02	-60.68	-0.35	43.02	60.68	0.35	0.000%
22	-36.68	-80.91	-21.51	36.68	80.91	21.51	0.000%
23	-36.68	-60.68	-21.51	36.68	60.68	21.51	0.000%
24	-22.18	-80.91	-38.51	22.18	80.91	38.51	0.000%
25	-22.18	-60.68	-38.51	22.18	60.68	38.51	0.000%
26	0.00	-151.52	0.00	-0.00	151.52	0.00	0.000%
27	-0.04	-151.52	-12.82	0.04	151.52	12.82	0.000%
28	6.54	-151.52	-11.45	-6.54	151.52	11.45	0.000%
29	10.51	-151.52	-6.08	-10.51	151.52	6.08	0.000%
30	11.85	-151.52	0.04	-11.85	151.52	-0.04	0.000%
31	9.93	-151.52	5.81	-9.93	151.52	-5.81	0.000%
32	6.38	-151.52	11.08	-6.38	151.52	-11.08	0.000%
33	0.04	-151.52	12.83	-0.04	151.52	-12.83	0.000%
34	-6.54	-151.52	11.46	6.54	151.52	-11.46	0.000%
35	-10.50	-151.52	6.10	10.50	151.52	-6.10	0.000%
36	-11.85	-151.52	-0.07	11.85	151.52	0.07	0.000%
37	-9.94	-151.52	-5.79	9.94	151.52	5.79	0.000%
38	-6.38	-151.52	-11.07	6.38	151.52	11.07	0.000%
39	-0.05	-67.42	-10.26	0.05	67.42	10.26	0.000%
40	5.54	-67.42	-9.75	-5.54	67.42	9.75	0.000%
41	8.00	-67.42	-4.63	-8.00	67.42	4.63	0.000%
42	9.20	-67.42	0.05	-9.20	67.42	-0.05	0.000%
43	7.84	-67.42	4.61	-7.84	67.42	-4.61	0.000%
44	4.75	-67.42	8.25	-4.75	67.42	-8.25	0.000%
45	0.04	-67.42	10.27	-0.04	67.42	-10.27	0.000%
46	-5.55	-67.42	9.77	5.55	67.42	-9.77	0.000%
47	-7.99	-67.42	4.66	7.99	67.42	-4.66	0.000%
48	-9.20	-67.42	-0.07	9.20	67.42	0.07	0.000%
49	-7.85	-67.42	-4.60	7.85	67.42	4.60	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
50	-4.75	-67.42	-8.24	4.75	67.42	8.24	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	0.00075035
3	Yes	5	0.00000001	0.00033157
4	Yes	7	0.00000001	0.00005167
5	Yes	6	0.00000001	0.00033487
6	Yes	6	0.00000001	0.00097971
7	Yes	6	0.00000001	0.00030581
8	Yes	5	0.00000001	0.00027453
9	Yes	5	0.00000001	0.00009756
10	Yes	6	0.00000001	0.00095625
11	Yes	6	0.00000001	0.00029902
12	Yes	7	0.00000001	0.00004899
13	Yes	6	0.00000001	0.00032314
14	Yes	6	0.00000001	0.00006382
15	Yes	5	0.00000001	0.00058022
16	Yes	7	0.00000001	0.00005005
17	Yes	6	0.00000001	0.00032426
18	Yes	7	0.00000001	0.00004756
19	Yes	6	0.00000001	0.00031433
20	Yes	5	0.00000001	0.00097560
21	Yes	5	0.00000001	0.00044070
22	Yes	7	0.00000001	0.00004785
23	Yes	6	0.00000001	0.00031693
24	Yes	6	0.00000001	0.00096537
25	Yes	6	0.00000001	0.00029900
26	Yes	4	0.00000001	0.00013133
27	Yes	6	0.00000001	0.00034134
28	Yes	7	0.00000001	0.00022377
29	Yes	7	0.00000001	0.00019807
30	Yes	6	0.00000001	0.00028767
31	Yes	7	0.00000001	0.00018276
32	Yes	7	0.00000001	0.00021661
33	Yes	6	0.00000001	0.00034443
34	Yes	7	0.00000001	0.00020201
35	Yes	7	0.00000001	0.00019723
36	Yes	6	0.00000001	0.00029127
37	Yes	7	0.00000001	0.00019928
38	Yes	7	0.00000001	0.00019561
39	Yes	5	0.00000001	0.00007314
40	Yes	5	0.00000001	0.00033232
41	Yes	5	0.00000001	0.00026410
42	Yes	5	0.00000001	0.00005278
43	Yes	5	0.00000001	0.00025002
44	Yes	5	0.00000001	0.00030122
45	Yes	5	0.00000001	0.00007651
46	Yes	5	0.00000001	0.00030656
47	Yes	5	0.00000001	0.00027844
48	Yes	5	0.00000001	0.00005824
49	Yes	5	0.00000001	0.00028796
50	Yes	5	0.00000001	0.00025422

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	25.57	40	1.70	0.01
L2	155 - 150	23.79	40	1.70	0.01
L3	150 - 146	22.02	40	1.68	0.01
L4	146 - 141	20.63	40	1.64	0.01
L5	141 - 136	18.96	40	1.54	0.01
L6	136 - 131	17.41	40	1.42	0.00
L7	131 - 125.9	15.99	40	1.29	0.00
L8	125.9 - 125.67	14.65	40	1.23	0.00
L9	125.67 - 120.67	14.59	40	1.22	0.00
L10	120.67 - 120.1	13.35	40	1.15	0.00
L11	120.1 - 119.85	13.21	40	1.15	0.00
L12	119.85 - 117.5	13.15	40	1.14	0.00
L13	117.5 - 117.25	12.60	40	1.11	0.00
L14	117.25 - 115.5	12.54	40	1.10	0.00
L15	115.5 - 115.25	12.14	40	1.08	0.00
L16	115.25 - 110.25	12.08	40	1.08	0.00
L17	110.25 - 103.75	10.98	40	1.02	0.00
L18	107.5 - 102.5	10.40	40	0.99	0.00
L19	102.5 - 100.5	9.38	40	0.96	0.00
L20	100.5 - 100.25	8.98	40	0.94	0.00
L21	100.25 - 98.5	8.93	40	0.93	0.00
L22	98.5 - 98.25	8.60	40	0.91	0.00
L23	98.25 - 93.25	8.55	40	0.91	0.00
L24	93.25 - 90.5	7.63	40	0.85	0.00
L25	90.5 - 90.25	7.15	40	0.81	0.00
L26	90.25 - 85.25	7.11	40	0.81	0.00
L27	85.25 - 83.5	6.29	40	0.75	0.00
L28	83.5 - 83.25	6.02	40	0.73	0.00
L29	83.25 - 80.75	5.99	40	0.72	0.00
L30	80.75 - 80.5	5.61	40	0.70	0.00
L31	80.5 - 80.25	5.58	40	0.70	0.00
L32	80.25 - 77.5	5.54	40	0.70	0.00
L33	77.5 - 77.25	5.15	40	0.67	0.00
L34	77.25 - 68.5	5.11	40	0.67	0.00
L35	73 - 68	4.54	40	0.62	0.00
L36	68 - 64.25	3.91	40	0.59	0.00
L37	64.25 - 64	3.46	40	0.54	0.00
L38	64 - 60.5	3.43	40	0.54	0.00
L39	60.5 - 60.25	3.05	40	0.51	0.00
L40	60.25 - 60.1	3.03	40	0.50	0.00
L41	60.1 - 59.85	3.01	40	0.50	0.00
L42	59.85 - 59.1	2.98	40	0.50	0.00
L43	59.1 - 58.85	2.91	40	0.49	0.00
L44	58.85 - 55.4	2.88	40	0.49	0.00
L45	55.4 - 55.15	2.53	40	0.46	0.00
L46	55.15 - 54.75	2.51	40	0.46	0.00
L47	54.75 - 54.5	2.47	40	0.46	0.00
L48	54.5 - 49.5	2.45	40	0.46	0.00
L49	49.5 - 44.5	2.00	40	0.40	0.00
L50	44.5 - 41.3	1.61	40	0.35	0.00
L51	41.3 - 41.05	1.39	40	0.31	0.00
L52	41.05 - 34	1.37	40	0.31	0.00
L53	39 - 33	1.24	40	0.29	0.00
L54	33 - 31.5	0.89	40	0.26	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L55	31.5 - 31.25	0.81	40	0.25	0.00
L56	31.25 - 30.5	0.80	40	0.25	0.00
L57	30.5 - 30.25	0.76	40	0.24	0.00
L58	30.25 - 25.75	0.75	40	0.24	0.00
L59	25.75 - 25.5	0.54	40	0.20	0.00
L60	25.5 - 24.7	0.53	40	0.20	0.00
L61	24.7 - 24.45	0.50	40	0.19	0.00
L62	24.45 - 24	0.49	40	0.19	0.00
L63	24 - 23.75	0.47	40	0.19	0.00
L64	23.75 - 18.75	0.46	40	0.18	0.00
L65	18.75 - 14.1	0.29	40	0.15	0.00
L66	14.1 - 13.8	0.17	40	0.11	0.00
L67	13.8 - 13.65	0.16	40	0.11	0.00
L68	13.65 - 10.5	0.16	40	0.11	0.00
L69	10.5 - 10.25	0.09	40	0.08	0.00
L70	10.25 - 5.25	0.09	40	0.08	0.00
L71	5.25 - 3	0.02	40	0.04	0.00
L72	3 - 2.9	0.01	40	0.03	0.00
L73	2.9 - 2.75	0.01	40	0.03	0.00
L74	2.75 - 2.65	0.01	40	0.02	0.00
L75	2.65 - 2.5	0.01	40	0.02	0.00
L76	2.5 - 2.25	0.01	40	0.02	0.00
L77	2.25 - 1.9	0.00	40	0.02	0.00
L78	1.9 - 1.65	0.00	40	0.02	0.00
L79	1.65 - 0	0.00	40	0.01	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.0000	Lightning Rod	40	24.14	1.70	0.01	23919
148.0000	(2) PCS 1900MHz 4x45W-65MHz	40	21.32	1.66	0.01	5024
146.0000	APXV9ERR18-C-A20 w/ Mount Pipe	40	20.63	1.64	0.01	3804
139.0000	APXV18-206517S-C	40	18.33	1.49	0.01	2382
132.0000	BXA-80080-6CF-EDIN-X w/ Mount Pipe	40	16.27	1.31	0.00	2772
129.0000	HORIZON COMPACT	40	15.46	1.26	0.00	3583
127.0000	VHLP800-11	40	14.93	1.24	0.00	4146
101.0000	58532A	40	9.08	0.94	0.00	5283

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	119.70	16	7.97	0.06
L2	155 - 150	111.42	16	7.97	0.05
L3	150 - 146	103.18	16	7.86	0.05
L4	146 - 141	96.72	16	7.68	0.04
L5	141 - 136	88.96	16	7.21	0.03

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L6	136 - 131	81.73	16	6.65	0.02
L7	131 - 125.9	75.09	16	6.07	0.01
L8	125.9 - 125.67	68.79	16	5.76	0.01
L9	125.67 - 120.67	68.52	16	5.75	0.01
L10	120.67 - 120.1	62.69	16	5.42	0.01
L11	120.1 - 119.85	62.04	16	5.38	0.01
L12	119.85 - 117.5	61.76	16	5.37	0.01
L13	117.5 - 117.25	59.17	16	5.21	0.01
L14	117.25 - 115.5	58.89	16	5.19	0.01
L15	115.5 - 115.25	57.02	16	5.08	0.01
L16	115.25 - 110.25	56.75	16	5.07	0.01
L17	110.25 - 103.75	51.59	16	4.81	0.01
L18	107.5 - 102.5	48.87	16	4.66	0.01
L19	102.5 - 100.5	44.07	16	4.50	0.01
L20	100.5 - 100.25	42.21	16	4.40	0.01
L21	100.25 - 98.5	41.98	16	4.38	0.01
L22	98.5 - 98.25	40.39	16	4.28	0.01
L23	98.25 - 93.25	40.17	16	4.27	0.01
L24	93.25 - 90.5	35.86	16	3.98	0.01
L25	90.5 - 90.25	33.61	16	3.82	0.00
L26	90.25 - 85.25	33.41	16	3.80	0.00
L27	85.25 - 83.5	29.59	16	3.52	0.00
L28	83.5 - 83.25	28.32	16	3.42	0.00
L29	83.25 - 80.75	28.14	16	3.41	0.00
L30	80.75 - 80.5	26.39	16	3.30	0.00
L31	80.5 - 80.25	26.21	16	3.29	0.00
L32	80.25 - 77.5	26.04	16	3.28	0.00
L33	77.5 - 77.25	24.19	16	3.16	0.00
L34	77.25 - 68.5	24.02	16	3.15	0.00
L35	73 - 68	21.33	16	2.91	0.00
L36	68 - 64.25	18.36	16	2.75	0.00
L37	64.25 - 64	16.28	16	2.54	0.00
L38	64 - 60.5	16.15	16	2.53	0.00
L39	60.5 - 60.25	14.35	16	2.38	0.00
L40	60.25 - 60.1	14.22	16	2.37	0.00
L41	60.1 - 59.85	14.15	16	2.36	0.00
L42	59.85 - 59.1	14.03	16	2.35	0.00
L43	59.1 - 58.85	13.66	16	2.32	0.00
L44	58.85 - 55.4	13.54	16	2.31	0.00
L45	55.4 - 55.15	11.92	16	2.18	0.00
L46	55.15 - 54.75	11.80	16	2.17	0.00
L47	54.75 - 54.5	11.62	16	2.15	0.00
L48	54.5 - 49.5	11.51	16	2.14	0.00
L49	49.5 - 44.5	9.40	16	1.89	0.00
L50	44.5 - 41.3	7.56	16	1.63	0.00
L51	41.3 - 41.05	6.52	16	1.47	0.00
L52	41.05 - 34	6.44	16	1.46	0.00
L53	39 - 33	5.83	16	1.36	0.00
L54	33 - 31.5	4.20	16	1.22	0.00
L55	31.5 - 31.25	3.83	16	1.17	0.00
L56	31.25 - 30.5	3.77	16	1.16	0.00
L57	30.5 - 30.25	3.59	16	1.13	0.00
L58	30.25 - 25.75	3.53	16	1.12	0.00
L59	25.75 - 25.5	2.55	16	0.95	0.00
L60	25.5 - 24.7	2.51	16	0.94	0.00
L61	24.7 - 24.45	2.35	16	0.90	0.00
L62	24.45 - 24	2.30	16	0.89	0.00
L63	24 - 23.75	2.22	16	0.87	0.00
L64	23.75 - 18.75	2.18	16	0.86	0.00
L65	18.75 - 14.1	1.36	16	0.68	0.00
L66	14.1 - 13.8	0.78	16	0.52	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L67	13.8 - 13.65	0.75	16	0.50	0.00
L68	13.65 - 10.5	0.73	16	0.50	0.00
L69	10.5 - 10.25	0.44	16	0.39	0.00
L70	10.25 - 5.25	0.42	16	0.38	0.00
L71	5.25 - 3	0.12	16	0.20	0.00
L72	3 - 2.9	0.04	16	0.12	0.00
L73	2.9 - 2.75	0.04	16	0.12	0.00
L74	2.75 - 2.65	0.03	16	0.11	0.00
L75	2.65 - 2.5	0.03	16	0.11	0.00
L76	2.5 - 2.25	0.03	16	0.10	0.00
L77	2.25 - 1.9	0.02	16	0.09	0.00
L78	1.9 - 1.65	0.02	16	0.08	0.00
L79	1.65 - 0	0.01	16	0.07	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
156.0000	Lightning Rod	16	113.07	7.97	0.06	5888
148.0000	(2) PCS 1900MHz 4x45W-65MHz	16	99.93	7.79	0.04	1146
146.0000	APXV9ERR18-C-A20 w/ Mount Pipe	16	96.72	7.68	0.04	860
139.0000	APXV18-206517S-C	16	86.00	6.99	0.02	528
132.0000	BXA-80080-6CF-EDIN-X w/ Mount Pipe	16	76.38	6.16	0.02	607
129.0000	HORIZON COMPACT	16	72.58	5.92	0.01	783
127.0000	VHLP800-11	16	70.12	5.82	0.01	905
101.0000	58532A	16	42.67	4.43	0.01	1140

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	160 - 159	TP16x16x0.375	5.0000	0.0000	0.0	18.4078	-0.14	579.85	0.000 [1]
	159 - 158					18.4078	-0.27	579.85	0.000
	158 - 157					18.4078	-0.22	579.85	0.000
	157 - 156					18.4078	-0.29	579.85	0.001
	156 - 155					18.4078	-3.81	579.85	0.007
L2	155 - 154	TP16x16x0.375	5.0000	0.0000	0.0	18.4078	-3.90	579.85	0.007
	154 - 153					18.4078	-3.99	579.85	0.007
	153 - 152					18.4078	-4.09	579.85	0.007
	152 - 151					18.4078	-4.18	579.85	0.007
	151 - 150					18.4078	-4.28	579.85	0.007
L3	150 - 149	TP16x16x0.375	4.0000	0.0000	0.0	18.4078	-4.38	579.85	0.008
	149 - 148					18.4078	-4.47	579.85	0.008
	148 - 147					18.4078	-5.49	579.85	0.009

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	147 - 146					18.4078	-5.51	579.85	0.010
L4	146 - 145	TP17.6341x16x0.25	5.0000	0.0000	0.0	12.9418	-8.94	880.56	0.010
	145 - 144					13.2049	-9.03	898.46	0.010
	144 - 143					13.4680	-9.13	916.36	0.010
	143 - 142					13.7311	-9.23	934.26	0.010
	142 - 141					13.9942	-9.33	952.16	0.010
L5	141 - 140	TP19.2682x17.6341x0.25	5.0000	0.0000	0.0	14.2573	-9.44	970.07	0.010
	140 - 139					14.5204	-9.55	987.97	0.010
	139 - 138					14.7834	-9.85	1005.87	0.010
	138 - 137					15.0465	-9.97	1023.77	0.010
	137 - 136					15.3096	-10.08	1041.67	0.010
L6	136 - 135	TP20.9022x19.2682x0.25	5.0000	0.0000	0.0	15.5727	-10.21	1059.57	0.010
	135 - 134					15.8358	-10.34	1077.47	0.010
	134 - 133					16.0989	-10.47	1095.37	0.010
	133 - 132					16.3620	-10.60	1113.27	0.010
	132 - 131					16.6251	-13.09	1131.17	0.012
L7	131 - 129.98	TP22.569x20.9022x0.55	5.1000	0.0000	0.0	36.6342	-13.32	2492.59	0.005
	129.98 - 128.96					37.2246	-13.97	2532.76	0.006
	128.96 - 127.94					37.8149	-14.19	2572.93	0.006
	127.94 - 126.92					38.4053	-14.41	2613.10	0.006
	126.92 - 125.9					38.9957	-14.64	2653.27	0.006
L8	125.9 - 125.67 (8)	TP22.6442x22.569x0.55	0.2300	0.0000	0.0	39.1288	-14.70	2662.32	0.006
L9	125.67 - 124.67	TP24.2783x22.6442x0.525	5.0000	0.0000	0.0	37.9450	-14.91	2581.78	0.006
	124.67 - 123.67					38.4974	-15.13	2619.37	0.006
	123.67 - 122.67					39.0499	-15.36	2656.96	0.006
	122.67 - 121.67					39.6024	-15.59	2694.55	0.006
	121.67 - 120.67					40.1549	-15.82	2732.14	0.006
L10	120.67 - 120.1 (10)	TP24.4645x24.2783x0.525	0.5700	0.0000	0.0	40.4698	-15.96	2753.57	0.006
L11	120.1 - 119.85 (11)	TP24.5463x24.4645x0.525	0.2500	0.0000	0.0	40.6079	-16.02	2762.96	0.006
L12	119.85 - 118.675	TP25.3143x24.5463x0.5125	2.3500	0.0000	0.0	40.2954	-16.28	2741.70	0.006
	118.675 - 117.5					40.9291	-16.55	2784.82	0.006
L13	117.5 - 117.25 (13)	TP25.396x25.3143x0.525	0.2500	0.0000	0.0	42.0444	-16.63	2860.70	0.006
L14	117.25 - 115.5 (14)	TP25.9679x25.396x0.5125	1.7500	0.0000	0.0	42.0078	-17.05	2858.21	0.006
L15	115.5 - 115.25 (15)	TP26.0496x25.9679x0.7	0.2500	0.0000	0.0	57.1380	-17.15	3887.67	0.004
L16	115.25 - 114.25	TP27.6837x26.0496x0.6625	5.0000	0.0000	0.0	54.8542	-17.42	3732.28	0.005
	114.25 - 113.25					55.5514	-17.71	3779.72	0.005
	113.25 - 112.25					56.2486	-17.99	3827.15	0.005
	112.25 - 111.25					56.9458	-18.28	3874.59	0.005
	111.25 - 110.25					57.6430	-18.58	3922.03	0.005

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L17	110.25 - 108.875	TP29.808x27.6837x0.65	6.5000	0.0000	0.0	57.5221	-18.97	3913.80	0.005
	108.875 - 107.5					58.4626	-19.37	3977.79	0.005
	107.5 - 103.75					61.0277	-10.38	4152.32	0.003
L18	107.5 - 103.75	TP29.0743x28.0824x0.7125	5.0000	0.0000	0.0	64.5002	-10.96	4388.59	0.002
	103.75 - 102.5					65.0691	-21.76	4427.30	0.005
L19	102.5 - 101.5	TP29.4711x29.0743x0.7	2.0000	0.0000	0.0	64.4028	-22.09	4381.97	0.005
	101.5 - 100.5					64.8500	-22.49	4412.39	0.005
L20	100.5 - 100.25 (20)	TP29.5206x29.4711x0.6375	0.2500	0.0000	0.0	59.2899	-22.58	4034.08	0.006
L21	100.25 - 98.5 (21)	TP29.8678x29.5206x0.6375	1.7500	0.0000	0.0	60.0025	-23.11	4082.57	0.006
L22	98.5 - 98.25 (22)	TP29.9174x29.8678x0.6625	0.2500	0.0000	0.0	62.4080	-23.22	4246.24	0.005
L23	98.25 - 97.25	TP30.9093x29.9174x0.65	5.0000	0.0000	0.0	61.6718	-23.54	4196.15	0.006
	97.25 - 96.25					62.0870	-23.88	4224.40	0.006
	96.25 - 95.25					62.5022	-24.21	4252.65	0.006
	95.25 - 94.25					62.9174	-24.55	4280.90	0.006
	94.25 - 93.25					63.3326	-24.89	4309.15	0.006
L24	93.25 - 91.875	TP31.4548x30.9093x0.65	2.7500	0.0000	0.0	63.9035	-25.35	4348.00	0.006
	91.875 - 90.5					64.4744	-25.83	4386.84	0.006
L25	90.5 - 90.25 (25)	TP31.5044x31.4548x0.6875	0.2500	0.0000	0.0	68.2209	-25.94	4641.75	0.006
L26	90.25 - 89.25	TP32.4962x31.5044x0.675	5.0000	0.0000	0.0	67.4388	-26.31	4588.54	0.006
	89.25 - 88.25					67.8700	-26.69	4617.87	0.006
	88.25 - 87.25					68.3011	-27.07	4647.21	0.006
	87.25 - 86.25					68.7323	-27.46	4676.55	0.006
	86.25 - 85.25					69.1635	-27.85	4705.88	0.006
L27	85.25 - 83.5 (27)	TP32.8434x32.4962x0.6625	1.7500	0.0000	0.0	68.6499	-28.51	4670.94	0.006
L28	83.5 - 83.25 (28)	TP32.893x32.8434x0.9125	0.2500	0.0000	0.0	93.9667	-28.65	6393.49	0.004
L29	83.25 - 82	TP33.3889x32.893x0.9	2.5000	0.0000	0.0	93.4343	-29.21	6357.27	0.005
	82 - 80.75					94.1529	-29.78	6406.16	0.005
L30	80.75 - 80.5 (30)	TP33.4385x33.3889x1.0625	0.2500	0.0000	0.0	110.7660	-29.92	7536.55	0.004
L31	80.5 - 80.25 (31)	TP33.4881x33.4385x0.9875	0.2500	0.0000	0.0	103.3440	-30.04	7031.51	0.004
L32	80.25 - 78.875	TP34.0336x33.4881x0.9625	2.7500	0.0000	0.0	101.6500	-30.70	6916.29	0.004
	78.875 - 77.5					102.4960	-31.38	6973.81	0.004
L33	77.5 - 77.25 (33)	TP34.0832x34.0336x0.6875	0.2500	0.0000	0.0	73.9298	-31.50	5030.18	0.006
L34	77.25 - 76.1875	TP35.819x34.0832x0.6875	8.7500	0.0000	0.0	74.3964	-31.94	5061.93	0.006
	76.1875 - 75.125					74.8630	-32.40	5093.68	0.006
	75.125 - 74.0625					75.3296	-32.86	5125.43	0.006
	74.0625 - 73					75.7962	-33.33	5157.17	0.006
	73 - 68.5					77.7724	-17.89	5291.63	0.003
L35	73 - 68.5	TP35.2329x34.3013x0.75	5.0000	0.0000	0.0	83.0513	-18.98	5650.81	0.003
	68.5 - 68					83.2763	-37.14	5666.12	0.007
L36	68 - 66.75	TP35.9317x35.2329x0.7375	3.7500	0.0000	0.0	82.4712	-37.71	5611.34	0.007
	66.75 - 65.5					83.0242	-38.29	5648.97	0.007
	65.5 - 64.25					83.5773	-38.89	5686.60	0.007
L37	64.25 - 64 (37)	TP35.9782x35.9317x0.95	0.2500	0.0000	0.0	107.1510	-39.04	7290.58	0.005

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L38	64 - 62.8333	TP36.6304x35.9782x0.95	3.5000	0.0000	0.0	107.8160	-39.63	7335.83	0.005
	62.8333 - 61.6667					108.4810	-40.24	7381.07	0.005
	61.6667 - 60.5					109.1460	-40.85	7426.31	0.006
L39	60.5 - 60.25 (39)	TP36.677x36.6304x1	0.2500	0.0000	0.0	114.8800	-41.00	7816.42	0.005
L40	60.25 - 60.1 (40)	TP36.7049x36.677x1	0.1500	0.0000	0.0	114.9700	-41.09	7822.55	0.005
L41	60.1 - 59.85 (41)	TP36.7515x36.7049x1.05	0.2500	0.0000	0.0	120.7070	-41.23	8212.89	0.005
L42	59.85 - 59.1 (42)	TP36.8912x36.7515x1.05	0.7500	0.0000	0.0	121.1790	-41.64	8245.04	0.005
L43	59.1 - 58.85 (43)	TP36.9378x36.8912x1.125	0.2500	0.0000	0.0	129.7320	-41.80	8826.96	0.005
L44	58.85 - 57.7	TP37.5806x36.9378x1.1	3.4500	0.0000	0.0	127.6970	-42.47	8688.47	0.005
	57.7 - 56.55					128.4550	-43.16	8740.11	0.005
	56.55 - 55.4					129.2140	-43.86	8791.75	0.005
L45	55.4 - 55.15 (45)	TP37.6272x37.5806x1.1	0.2500	0.0000	0.0	129.3790	-44.02	8802.98	0.005
L46	55.15 - 54.75 (46)	TP37.7018x37.6272x1.1	0.4000	0.0000	0.0	129.6430	-44.26	8820.94	0.005
L47	54.75 - 54.5 (47)	TP37.7483x37.7018x0.825	0.2500	0.0000	0.0	98.0868	-44.39	6673.83	0.007
L48	54.5 - 53.5	TP38.68x37.7483x0.8125	5.0000	0.0000	0.0	97.1208	-44.89	6608.10	0.007
	53.5 - 52.5					97.6083	-45.40	6641.27	0.007
	52.5 - 51.5					98.0958	-45.92	6674.44	0.007
	51.5 - 50.5					98.5833	-46.44	6707.61	0.007
	50.5 - 49.5					99.0707	-46.96	6740.77	0.007
L49	49.5 - 48.5	TP39.6116x38.68x0.8	5.0000	0.0000	0.0	98.0588	-47.47	6671.92	0.007
	48.5 - 47.5					98.5387	-47.99	6704.58	0.007
	47.5 - 46.5					99.0187	-48.52	6737.23	0.007
	46.5 - 45.5					99.4987	-49.04	6769.89	0.007
	45.5 - 44.5					99.9786	-49.57	6802.55	0.007
L50	44.5 - 43.4333	TP40.2078x39.6116x0.7875	3.2000	0.0000	0.0	98.9521	-50.13	6732.70	0.007
	43.4333 - 42.3667					99.4561	-50.70	6766.99	0.007
	42.3667 - 41.3					99.9601	-51.26	6801.28	0.008
L51	41.3 - 41.05 (51)	TP40.2544x40.2078x0.875	0.2500	0.0000	0.0	110.9510	-51.43	7549.14	0.007
L52	41.05 - 40.025	TP41.568x40.2544x0.875	7.0500	0.0000	0.0	111.4900	-52.00	7585.75	0.007
	40.025 - 39					112.0280	-52.59	7622.36	0.007
	39 - 34					114.6530	-25.38	7800.96	0.003
L53	39 - 34	TP40.9962x39.8864x1.175	6.0000	0.0000	0.0	149.9640	-32.84	10203.50	0.003
	34 - 33					150.6630	-58.92	10251.10	0.006
L54	33 - 31.5 (54)	TP41.2736x40.9962x1.175	1.5000	0.0000	0.0	151.7130	-59.92	10322.60	0.006
L55	31.5 - 31.25 (55)	TP41.3199x41.2736x1.175	0.2500	0.0000	0.0	151.8880	-60.11	10334.50	0.006
L56	31.25 - 30.5 (56)	TP41.4586x41.3199x1.175	0.7500	0.0000	0.0	152.4130	-60.61	10370.20	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L57	30.5 - 30.25 (57)	TP41.5048x41.4586x1.125	0.2500	0.0000	0.0	146.2760	-60.79	9952.61	0.006
L58	30.25 - 29.125	TP42.3372x41.5048x1.1	4.5000	0.0000	0.0	143.8510	-61.52	9787.62	0.006
	29.125 - 28					144.5880	-62.27	9837.76	0.006
	28 - 26.875					145.3250	-63.02	9887.91	0.006
	26.875 - 25.75					146.0620	-63.78	9938.06	0.006
L59	25.75 - 25.5 (59)	TP42.3834x42.3372x1.075	0.2500	0.0000	0.0	142.9890	-63.96	9728.97	0.007
L60	25.5 - 24.7 (60)	TP42.5314x42.3834x1.075	0.8000	0.0000	0.0	143.5010	-64.48	9763.82	0.007
L61	24.7 - 24.45 (61)	TP42.5776x42.5314x0.95	0.2500	0.0000	0.0	127.3390	-64.64	8664.14	0.007
L62	24.45 - 24 (62)	TP42.6608x42.5776x0.95	0.4500	0.0000	0.0	127.5930	-64.90	8681.46	0.007
L63	24 - 23.75 (63)	TP42.7071x42.6608x1.2	0.2500	0.0000	0.0	160.3830	-65.07	10912.50	0.006
L64	23.75 - 22.75	TP43.6319x42.7071x1.175	5.0000	0.0000	0.0	157.8360	-65.72	10739.20	0.006
	22.75 - 21.75					158.5360	-66.38	10786.80	0.006
	21.75 - 20.75					159.2360	-67.05	10834.40	0.006
	20.75 - 19.75					159.9360	-67.72	10882.00	0.006
	19.75 - 18.75					160.6360	-68.39	10929.70	0.006
L65	18.75 - 17.5875	TP44.492x43.6319x1.15	4.6500	0.0000	0.0	158.1070	-69.17	10757.60	0.006
	17.5875 - 16.425					158.9030	-69.95	10811.80	0.006
	16.425 - 15.2625					159.6990	-70.73	10865.90	0.007
	15.2625 - 14.1					160.4950	-71.52	10920.10	0.007
L66	14.1 - 13.8 (66)	TP44.5475x44.492x1.175	0.3000	0.0000	0.0	164.1000	-71.74	11165.40	0.006
L67	13.8 - 13.65 (67)	TP44.5752x44.5475x1.175	0.1500	0.0000	0.0	164.2050	-71.85	11172.50	0.006
L68	13.65 - 12.6	TP45.1579x44.5752x1.175	3.1500	0.0000	0.0	164.9400	-72.55	11222.50	0.006
	12.6 - 11.55					165.6740	-73.28	11272.50	0.007
	11.55 - 10.5					166.4090	-74.00	11322.50	0.007
L69	10.5 - 10.25 (69)	TP45.2041x45.1579x1.175	0.2500	0.0000	0.0	166.5840	-74.18	11334.40	0.007
L70	10.25 - 9.25	TP46.1289x45.2041x1.15	5.0000	0.0000	0.0	163.8170	-74.84	11146.10	0.007
	9.25 - 8.25					164.5020	-75.51	11192.70	0.007
	8.25 - 7.25					165.1870	-76.19	11239.30	0.007
	7.25 - 6.25					165.8720	-76.86	11285.90	0.007
	6.25 - 5.25					166.5570	-77.54	11332.50	0.007

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L71	5.25 - 4.125	TP46.5451x46.1289x1.15	2.2500	0.0000	0.0	167.3280	-78.30	11385.00	0.007
	4.125 - 3					168.0980	-79.07	11437.40	0.007
L72	3 - 2.9 (72)	TP46.5636x46.5451x1.1	0.1000	0.0000	0.0	161.0320	-79.15	10956.60	0.007
L73	2.9 - 2.75 (73)	TP46.5913x46.5636x0.95	0.1500	0.0000	0.0	139.6170	-79.24	9499.53	0.008
L74	2.75 - 2.65 (74)	TP46.6098x46.5913x0.95	0.1000	0.0000	0.0	139.6730	-79.31	9503.38	0.008
L75	2.65 - 2.5 (75)	TP46.6376x46.6098x0.95	0.1500	0.0000	0.0	139.7580	-79.40	9509.16	0.008
L76	2.5 - 2.25 (76)	TP46.6838x46.6376x1	0.2500	0.0000	0.0	147.1020	-79.55	10008.80	0.008
L77	2.25 - 1.9 (77)	TP46.7486x46.6838x1	0.3500	0.0000	0.0	147.3100	-79.77	10023.00	0.008
L78	1.9 - 1.65 (78)	TP46.7948x46.7486x0.95	0.2500	0.0000	0.0	140.2390	-79.92	9541.88	0.008
L79	1.65 - 0 (79)	TP47.1x46.7948x0.95	1.6500	0.0000	0.0	141.1730	-80.87	9605.40	0.008

[1] P_u / ϕP_n controls

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	160 - 159	TP16x16x0.375	0.02	240.37	0.000	0.00	240.37	0.000
	159 - 158		0.06	240.37	0.000	0.00	240.37	0.000
	158 - 157		0.25	240.37	0.001	0.00	240.37	0.000
	157 - 156		0.45	240.37	0.002	0.00	240.37	0.000
	156 - 155		18.31	240.37	0.076	0.00	240.37	0.000
L2	155 - 154	TP16x16x0.375	28.12	240.37	0.117	0.00	240.37	0.000
	154 - 153		37.99	240.37	0.158	0.00	240.37	0.000
	153 - 152		47.91	240.37	0.199	0.00	240.37	0.000
	152 - 151		57.89	240.37	0.241	0.00	240.37	0.000
	151 - 150		67.93	240.37	0.283	0.00	240.37	0.000
L3	150 - 149	TP16x16x0.375	78.01	240.37	0.325	0.00	240.37	0.000
	149 - 148		88.16	240.37	0.367	0.00	240.37	0.000
	148 - 147		100.11	240.37	0.416	0.00	240.37	0.000
	147 - 146		112.11	240.37	0.466	0.00	240.37	0.000
L4	146 - 145	TP17.6341x16x0.25	130.99	286.24	0.458	0.00	286.24	0.000
	145 - 144		147.65	298.09	0.495	0.00	298.09	0.000
	144 - 143		164.38	310.18	0.530	0.00	310.18	0.000
	143 - 142		181.18	322.50	0.562	0.00	322.50	0.000
	142 - 141		198.07	335.07	0.591	0.00	335.07	0.000
L5	141 - 140	TP19.2682x17.6341x0.25	215.03	347.88	0.618	0.00	347.88	0.000
	140 - 139		232.07	360.93	0.643	0.00	360.93	0.000
	139 - 138		250.07	374.22	0.668	0.00	374.22	0.000
	138 - 137		268.15	387.75	0.692	0.00	387.75	0.000
	137 - 136		286.31	401.51	0.713	0.00	401.51	0.000
L6	136 - 135	TP20.9022x19.2682x0.25	304.55	415.52	0.733	0.00	415.52	0.000
	135 - 134		322.89	429.77	0.751	0.00	429.77	0.000
	134 - 133		341.32	444.26	0.768	0.00	444.26	0.000
	133 - 132		359.84	458.99	0.784	0.00	458.99	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	132 - 131		390.23	473.96	0.823	0.00	473.96	0.000
L7	131 - 129.98	TP22.569x20.9022x0.55	415.87	1031.33	0.403	0.00	1031.33	0.000
	129.98 - 128.96		441.58	1065.28	0.415	0.00	1065.28	0.000
	128.96 - 127.94		468.20	1099.78	0.426	0.00	1099.78	0.000
	127.94 - 126.92		495.04	1134.82	0.436	0.00	1134.82	0.000
	126.92 - 125.9		522.80	1170.41	0.447	0.00	1170.41	0.000
L8	125.9 - 125.67 (8)	TP22.6442x22.569x0.55	529.08	1178.52	0.449	0.00	1178.52	0.000
L9	125.67 - 124.67	TP24.2783x22.6442x0.525	556.52	1162.77	0.479	0.00	1162.77	0.000
	124.67 - 123.67		584.14	1197.26	0.488	0.00	1197.26	0.000
	123.67 - 122.67		611.94	1232.27	0.497	0.00	1232.27	0.000
	122.67 - 121.67		639.93	1267.78	0.505	0.00	1267.78	0.000
	121.67 - 120.67		668.10	1303.78	0.512	0.00	1303.78	0.000
L10	120.67 - 120.1 (10)	TP24.4645x24.2783x0.525	684.25	1324.54	0.517	0.00	1324.54	0.000
L11	120.1 - 119.85 (11)	TP24.5463x24.4645x0.525	691.35	1333.69	0.518	0.00	1333.69	0.000
L12	119.85 - 118.675	TP25.3143x24.5463x0.5125	724.88	1346.42	0.538	0.00	1346.42	0.000
	118.675 - 117.5		758.67	1389.54	0.546	0.00	1389.54	0.000
L13	117.5 - 117.25 (13)	TP25.396x25.3143x0.525	765.89	1430.77	0.535	0.00	1430.77	0.000
L14	117.25 - 115.5 (14)	TP25.9679x25.396x0.5125	816.80	1464.51	0.558	0.00	1464.51	0.000
L15	115.5 - 115.25 (15)	TP26.0496x25.9679x0.7	824.12	1969.28	0.418	0.00	1969.28	0.000
L16	115.25 - 114.25	TP27.6837x26.0496x0.6625	853.53	1921.19	0.444	0.00	1921.19	0.000
	114.25 - 113.25		883.14	1970.96	0.448	0.00	1970.96	0.000
	113.25 - 112.25		912.95	2021.36	0.452	0.00	2021.36	0.000
	112.25 - 111.25		942.97	2072.40	0.455	0.00	2072.40	0.000
	111.25 - 110.25		973.19	2124.07	0.458	0.00	2124.07	0.000
L17	110.25 - 108.875	TP29.808x27.6837x0.65	1015.09	2157.68	0.470	0.00	2157.68	0.000
	108.875 - 107.5		1057.41	2229.64	0.474	0.00	2229.64	0.000
	107.5 - 103.75		586.17	2431.92	0.241	0.00	2431.92	0.000
L18	107.5 - 103.75	TP29.0743x28.0824x0.7125	589.05	2470.88	0.238	0.00	2470.88	0.000
	103.75 - 102.5		1215.22	2515.20	0.483	0.00	2515.20	0.000
L19	102.5 - 101.5	TP29.4711x29.0743x0.7	1247.46	2509.47	0.497	0.00	2509.47	0.000
	101.5 - 100.5		1279.76	2544.87	0.503	0.00	2544.87	0.000
L20	100.5 - 100.25 (20)	TP29.5206x29.4711x0.6375	1287.92	2340.90	0.550	0.00	2340.90	0.000
L21	100.25 - 98.5 (21)	TP29.8678x29.5206x0.6375	1345.40	2398.13	0.561	0.00	2398.13	0.000
L22	98.5 - 98.25 (22)	TP29.9174x29.8678x0.6625	1353.67	2494.32	0.543	0.00	2494.32	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L23	98.25 - 97.25	TP30.9093x29.9174x0.65	1386.85	2484.09	0.558	0.00	2484.09	0.000
	97.25 - 96.25		1420.23	2518.02	0.564	0.00	2518.02	0.000
	96.25 - 95.25		1453.83	2552.17	0.570	0.00	2552.17	0.000
	95.25 - 94.25		1487.63	2586.55	0.575	0.00	2586.55	0.000
	94.25 - 93.25		1521.63	2621.17	0.581	0.00	2621.17	0.000
L24	93.25 - 91.875	TP31.4548x30.9093x0.65	1568.72	2669.13	0.588	0.00	2669.13	0.000
	91.875 - 90.5		1616.21	2717.54	0.595	0.00	2717.54	0.000
L25	90.5 - 90.25 (25)	TP31.5044x31.4548x0.6875	1624.88	2873.18	0.566	0.00	2873.18	0.000
L26	90.25 - 89.25	TP32.4962x31.5044x0.675	1659.71	2861.23	0.580	0.00	2861.23	0.000
	89.25 - 88.25		1694.74	2898.32	0.585	0.00	2898.32	0.000
	88.25 - 87.25		1729.98	2935.66	0.589	0.00	2935.66	0.000
	87.25 - 86.25		1765.43	2973.23	0.594	0.00	2973.23	0.000
	86.25 - 85.25		1801.09	3011.04	0.598	0.00	3011.04	0.000
L27	85.25 - 83.5 (27)	TP32.8434x32.4962x0.6625	1863.99	3024.32	0.616	0.00	3024.32	0.000
L28	83.5 - 83.25 (28)	TP32.893x32.8434x0.9125	1873.03	4082.07	0.459	0.00	4082.07	0.000
L29	83.25 - 82	TP33.3889x32.893x0.9	1918.44	4094.46	0.469	0.00	4094.46	0.000
	82 - 80.75		1964.19	4158.54	0.472	0.00	4158.54	0.000
L30	80.75 - 80.5 (30)	TP33.4385x33.3889x1.0625	1973.38	4851.18	0.407	0.00	4851.18	0.000
L31	80.5 - 80.25 (31)	TP33.4881x33.4385x0.9875	1982.59	4554.24	0.435	0.00	4554.24	0.000
L32	80.25 - 78.875	TP34.0336x33.4881x0.9625	2033.47	4525.22	0.449	0.00	4525.22	0.000
	78.875 - 77.5		2084.78	4601.88	0.453	0.00	4601.88	0.000
L33	77.5 - 77.25 (33)	TP34.0832x34.0336x0.6875	2094.16	3379.87	0.620	0.00	3379.87	0.000
L34	77.25 - 76.1875	TP35.819x34.0832x0.6875	2134.14	3423.10	0.623	0.00	3423.10	0.000
	76.1875 - 75.125		2174.36	3466.61	0.627	0.00	3466.61	0.000
	75.125 - 74.0625		2214.81	3510.38	0.631	0.00	3510.38	0.000
	74.0625 - 73		2255.49	3554.44	0.635	0.00	3554.44	0.000
	73 - 68.5		1200.68	3744.07	0.321	0.00	3744.07	0.000
L35	73 - 68.5	TP35.2329x34.3013x0.75	1230.09	3905.22	0.315	0.00	3905.22	0.000
	68.5 - 68		2450.55	3926.63	0.624	0.00	3926.63	0.000
L36	68 - 66.75	TP35.9317x35.2329x0.7375	2500.21	3918.32	0.638	0.00	3918.32	0.000
	66.75 - 65.5		2550.19	3971.60	0.642	0.00	3971.60	0.000
	65.5 - 64.25		2600.48	4025.24	0.646	0.00	4025.24	0.000
L37	64.25 - 64 (37)	TP35.9782x35.9317x0.95	2610.58	5105.45	0.511	0.00	5105.45	0.000
L38	64 - 62.8333	TP36.6304x35.9782x0.95	2657.88	5169.86	0.514	0.00	5169.86	0.000
	62.8333 - 61.6667		2705.46	5234.67	0.517	0.00	5234.67	0.000
	61.6667 - 60.5		2753.33	5299.88	0.520	0.00	5299.88	0.000
L39	60.5 - 60.25 (39)	TP36.677x36.6304x1	2763.63	5570.13	0.496	0.00	5570.13	0.000
L40	60.25 - 60.1 (40)	TP36.7049x36.677x1	2769.81	5578.98	0.496	0.00	5578.98	0.000
L41	60.1 - 59.85 (41)	TP36.7515x36.7049x1.05	2780.13	5848.82	0.475	0.00	5848.82	0.000
L42	59.85 - 59.1 (42)	TP36.8912x36.7515x1.05	2811.17	5895.36	0.477	0.00	5895.36	0.000
L43	59.1 - 58.85 (43)	TP36.9378x36.8912x1.125	2821.54	6293.50	0.448	0.00	6293.50	0.000
L44	58.85 - 57.7	TP37.5806x36.9378x1.1	2869.45	6241.60	0.460	0.00	6241.60	0.000
	57.7 - 56.55		2917.66	6317.12	0.462	0.00	6317.12	0.000
	56.55 - 55.4		2966.16	6393.09	0.464	0.00	6393.09	0.000
L45	55.4 - 55.15	TP37.6272x37.5806x1.1	2976.74	6409.67	0.464	0.00	6409.67	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	(45)							
L46	55.15 - 54.75	TP37.7018x37.6272x1.1	2993.71	6436.23	0.465	0.00	6436.23	0.000
	(46)							
L47	54.75 - 54.5	TP37.7483x37.7018x0.825	3004.32	4949.42	0.607	0.00	4949.42	0.000
	(47)							
L48	54.5 - 53.5	TP38.68x37.7483x0.8125	3046.93	4929.27	0.618	0.00	4929.27	0.000
	53.5 - 52.5		3089.75	4979.40	0.621	0.00	4979.40	0.000
	52.5 - 51.5		3132.77	5029.79	0.623	0.00	5029.79	0.000
	51.5 - 50.5		3176.00	5080.44	0.625	0.00	5080.44	0.000
	50.5 - 49.5		3219.43	5131.34	0.627	0.00	5131.34	0.000
L49	49.5 - 48.5	TP39.6116x38.68x0.8	3263.07	5107.80	0.639	0.00	5107.80	0.000
	48.5 - 47.5		3306.91	5158.44	0.641	0.00	5158.44	0.000
	47.5 - 46.5		3350.94	5209.33	0.643	0.00	5209.33	0.000
	46.5 - 45.5		3395.18	5260.48	0.645	0.00	5260.48	0.000
	45.5 - 44.5		3439.62	5311.87	0.648	0.00	5311.87	0.000
L50	44.5 - 43.4333	TP40.2078x39.6116x0.7875	3487.22	5288.18	0.659	0.00	5288.18	0.000
	43.4333 - 42.3667		3535.06	5342.72	0.662	0.00	5342.72	0.000
	42.3667 - 41.3		3583.12	5397.54	0.664	0.00	5397.54	0.000
L51	41.3 - 41.05	TP40.2544x40.2078x0.875	3594.42	5971.69	0.602	0.00	5971.69	0.000
	(51)							
L52	41.05 - 40.025	TP41.568x40.2544x0.875	3640.85	6030.38	0.604	0.00	6030.38	0.000
	40.025 - 39		3687.49	6089.37	0.606	0.00	6089.37	0.000
	39 - 34		1749.47	6381.21	0.274	0.00	6381.21	0.000
L53	39 - 34	TP40.9962x39.8864x1.175	2168.97	8065.47	0.269	0.00	8065.47	0.000
	34 - 33		3965.30	8142.01	0.487	0.00	8142.01	0.000
L54	33 - 31.5 (54)	TP41.2736x40.9962x1.175	4035.97	8257.50	0.489	0.00	8257.50	0.000
L55	31.5 - 31.25	TP41.3199x41.2736x1.175	4047.80	8276.82	0.489	0.00	8276.82	0.000
	(55)							
L56	31.25 - 30.5	TP41.4586x41.3199x1.175	4083.34	8334.92	0.490	0.00	8334.92	0.000
	(56)							
L57	30.5 - 30.25	TP41.5048x41.4586x1.125	4095.21	8028.64	0.510	0.00	8028.64	0.000
	(57)							
L58	30.25 - 29.125	TP42.3372x41.5048x1.1	4148.77	7947.12	0.522	0.00	7947.12	0.000
	29.125 - 28		4202.57	8029.84	0.523	0.00	8029.84	0.000
	28 - 26.875		4256.62	8112.99	0.525	0.00	8112.99	0.000
	26.875 - 25.75		4310.90	8196.57	0.526	0.00	8196.57	0.000
L59	25.75 - 25.5	TP42.3834x42.3372x1.075	4322.99	8043.09	0.537	0.00	8043.09	0.000
	(59)							
L60	25.5 - 24.7 (60)	TP42.5314x42.3834x1.075	4361.77	8101.55	0.538	0.00	8101.55	0.000
L61	24.7 - 24.45	TP42.5776x42.5314x0.95	4373.92	7240.72	0.604	0.00	7240.72	0.000
	(61)							
L62	24.45 - 24 (62)	TP42.6608x42.5776x0.95	4395.80	7270.03	0.605	0.00	7270.03	0.000
L63	24 - 23.75 (63)	TP42.7071x42.6608x1.2	4407.98	9039.50	0.488	0.00	9039.50	0.000
L64	23.75 - 22.75	TP43.6319x42.7071x1.175	4456.77	8947.42	0.498	0.00	8947.42	0.000
	22.75 - 21.75		4505.76	9028.00	0.499	0.00	9028.00	0.000
	21.75 - 20.75		4554.91	9109.00	0.500	0.00	9109.00	0.000
	20.75 - 19.75		4604.24	9190.33	0.501	0.00	9190.33	0.000
	19.75 - 18.75		4653.74	9272.00	0.502	0.00	9272.00	0.000
L65	18.75 - 17.5875	TP44.492x43.6319x1.15	4711.51	9184.25	0.513	0.00	9184.25	0.000
	17.5875 - 16.425		4769.48	9278.17	0.514	0.00	9278.17	0.000
	16.425 - 15.2625		4827.68	9372.67	0.515	0.00	9372.67	0.000
	15.2625 - 14.1		4886.11	9467.58	0.516	0.00	9467.58	0.000
L66	14.1 - 13.8 (66)	TP44.5475x44.492x1.175	4901.22	9681.75	0.506	0.00	9681.75	0.000
L67	13.8 - 13.65	TP44.5752x44.5475x1.175	4908.78	9694.25	0.506	0.00	9694.25	0.000
	(67)							
L68	13.65 - 12.6	TP45.1579x44.5752x1.175	4961.81	9782.42	0.507	0.00	9782.42	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	12.6 - 11.55		5015.02	9870.92	0.508	0.00	9870.92	0.000
	11.55 - 10.5		5068.40	9959.75	0.509	0.00	9959.75	0.000
L69	10.5 - 10.25 (69)	TP45.2041x45.1579x1.175	5081.13	9981.00	0.509	0.00	9981.00	0.000
L70	10.25 - 9.25	TP46.1289x45.2041x1.15	5132.18	9868.67	0.520	0.00	9868.67	0.000
	9.25 - 8.25		5183.38	9952.42	0.521	0.00	9952.42	0.000
	8.25 - 7.25		5234.74	10036.50	0.522	0.00	10036.50	0.000
	7.25 - 6.25		5286.27	10121.00	0.522	0.00	10121.00	0.000
	6.25 - 5.25		5337.94	10205.83	0.523	0.00	10205.83	0.000
L71	5.25 - 4.125	TP46.5451x46.1289x1.15	5396.27	10301.67	0.524	0.00	10301.67	0.000
	4.125 - 3		5454.80	10397.92	0.525	0.00	10397.92	0.000
L72	3 - 2.9 (72)	TP46.5636x46.5451x1.1	5460.02	9986.92	0.547	0.00	9986.92	0.000
L73	2.9 - 2.75 (73)	TP46.5913x46.5636x0.95	5467.83	8721.42	0.627	0.00	8721.42	0.000
L74	2.75 - 2.65 (74)	TP46.6098x46.5913x0.95	5473.05	8728.58	0.627	0.00	8728.58	0.000
L75	2.65 - 2.5 (75)	TP46.6376x46.6098x0.95	5480.88	8739.33	0.627	0.00	8739.33	0.000
L76	2.5 - 2.25 (76)	TP46.6838x46.6376x1	5493.93	9187.92	0.598	0.00	9187.92	0.000
L77	2.25 - 1.9 (77)	TP46.7486x46.6838x1	5512.22	9214.25	0.598	0.00	9214.25	0.000
L78	1.9 - 1.65 (78)	TP46.7948x46.7486x0.95	5525.29	8800.17	0.628	0.00	8800.17	0.000
L79	1.65 - 0 (79)	TP47.1x46.7948x0.95	5611.77	8918.92	0.629	0.00	8918.92	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	160 - 159	TP16x16x0.375	0.03	289.92	0.000	0.00	368.87	0.000
	159 - 158		0.05	289.92	0.000	0.00	368.87	0.000
	158 - 157		0.17	289.92	0.001	0.00	368.87	0.000
	157 - 156		0.22	289.92	0.001	0.00	368.87	0.000
	156 - 155		9.78	289.92	0.034	0.84	368.87	0.002
L2	155 - 154	TP16x16x0.375	9.84	289.92	0.034	0.84	368.87	0.002
	154 - 153		9.89	289.92	0.034	0.84	368.87	0.002
	153 - 152		9.95	289.92	0.034	0.84	368.87	0.002
	152 - 151		10.01	289.92	0.035	0.84	368.87	0.002
	151 - 150		10.06	289.92	0.035	0.84	368.87	0.002
L3	150 - 149	TP16x16x0.375	10.11	289.92	0.035	0.84	368.87	0.002
	149 - 148		10.17	289.92	0.035	0.84	368.87	0.002
	148 - 147		11.98	289.92	0.041	0.84	368.87	0.002
	147 - 146		12.09	289.92	0.042	1.92	368.87	0.005
L4	146 - 145	TP17.6341x16x0.25	16.62	440.28	0.038	1.92	583.45	0.003
	145 - 144		16.70	449.23	0.037	1.92	607.54	0.003
	144 - 143		16.77	458.18	0.037	1.92	632.11	0.003
	143 - 142		16.85	467.13	0.036	1.92	657.17	0.003
	142 - 141		16.93	476.08	0.036	1.92	682.72	0.003
L5	141 - 140	TP19.2682x17.6341x0.25	17.01	485.03	0.035	1.92	708.75	0.003
	140 - 139		17.08	493.98	0.035	1.92	735.27	0.003
	139 - 138		18.05	502.93	0.036	1.92	762.28	0.003
	138 - 137		18.12	511.88	0.035	1.92	789.78	0.002
	137 - 136		18.20	520.83	0.035	1.92	817.76	0.002
L6	136 - 135	TP20.9022x19.2682x0.25	18.30	529.78	0.035	1.92	846.23	0.002
	135 - 134		18.39	538.73	0.034	1.92	875.18	0.002
	134 - 133		18.48	547.68	0.034	1.92	904.63	0.002
	133 - 132		18.58	556.63	0.033	1.92	934.57	0.002
	132 - 131		25.07	565.59	0.044	2.15	964.98	0.002
L7	131 - 129.98	TP22.569x20.9022x0.55	25.23	1246.30	0.020	2.15	2109.83	0.001
	129.98 -		26.01	1266.38	0.021	2.14	2178.98	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	128.96							
	128.96 - 127.94		26.19	1286.46	0.020	2.13	2249.24	0.001
	127.94 - 126.92		27.13	1306.55	0.021	2.13	2320.62	0.001
	126.92 - 125.9		27.31	1326.63	0.021	2.13	2393.10	0.001
L8	125.9 - 125.67 (8)	TP22.6442x22.569x0.55	27.35	1331.16	0.021	2.12	2409.60	0.001
L9	125.67 - 124.67	TP24.2783x22.6442x0.525	27.53	1290.89	0.021	2.12	2376.22	0.001
	124.67 - 123.67		27.72	1309.68	0.021	2.11	2446.46	0.001
	123.67 - 122.67		27.90	1328.48	0.021	2.10	2517.72	0.001
	122.67 - 121.67		28.09	1347.27	0.021	2.10	2589.99	0.001
	121.67 - 120.67		28.28	1366.07	0.021	2.09	2663.30	0.001
L10	120.67 - 120.1 (10)	TP24.4645x24.2783x0.525	28.38	1376.78	0.021	2.08	2705.53	0.001
L11	120.1 - 119.85 (11)	TP24.5463x24.4645x0.525	28.42	1381.48	0.021	2.08	2724.17	0.001
L12	119.85 - 118.675	TP25.3143x24.5463x0.5125	28.66	1370.85	0.021	2.08	2749.38	0.001
	118.675 - 117.5		28.88	1392.41	0.021	2.07	2837.13	0.001
L13	117.5 - 117.25 (13)	TP25.396x25.3143x0.525	28.92	1430.35	0.020	2.06	2921.72	0.001
L14	117.25 - 115.5 (14)	TP25.9679x25.396x0.5125	29.27	1429.10	0.020	2.05	2989.68	0.001
L15	115.5 - 115.25 (15)	TP26.0496x25.9679x0.7	29.31	1943.84	0.015	2.04	4029.97	0.001
L16	115.25 - 114.25	TP27.6837x26.0496x0.6625	29.51	1866.14	0.016	2.04	3929.20	0.001
	114.25 - 113.25		29.71	1889.86	0.016	2.04	4030.56	0.001
	113.25 - 112.25		29.92	1913.58	0.016	2.03	4133.21	0.000
	112.25 - 111.25		30.12	1937.30	0.016	2.02	4237.15	0.000
	111.25 - 110.25		30.33	1961.01	0.015	2.02	4342.38	0.000
L17	110.25 - 108.875	TP29.808x27.6837x0.65	30.62	1956.90	0.016	2.01	4409.82	0.000
	108.875 - 107.5		30.98	1988.90	0.016	2.09	4556.33	0.000
	107.5 - 103.75		16.11	2076.16	0.008	1.04	4968.08	0.000
L18	107.5 - 103.75	TP29.0743x28.0824x0.7125	15.79	2194.30	0.007	1.04	5052.72	0.000
	103.75 - 102.5		32.15	2213.65	0.015	2.06	5142.98	0.000
L19	102.5 - 101.5	TP29.4711x29.0743x0.7	32.36	2190.98	0.015	2.05	5130.24	0.000
	101.5 - 100.5		32.63	2206.20	0.015	2.04	5202.29	0.000
L20	100.5 - 100.25 (20)	TP29.5206x29.4711x0.6375	32.67	2017.04	0.016	1.92	4781.80	0.000
L21	100.25 - 98.5 (21)	TP29.8678x29.5206x0.6375	33.06	2041.28	0.016	1.91	4898.27	0.000
L22	98.5 - 98.25 (22)	TP29.9174x29.8678x0.6625	33.09	2123.12	0.016	1.89	5096.16	0.000
L23	98.25 - 97.25	TP30.9093x29.9174x0.65	33.30	2098.08	0.016	1.88	5074.28	0.000
	97.25 - 96.25		33.51	2112.20	0.016	1.86	5143.32	0.000
	96.25 - 95.25		33.72	2126.33	0.016	1.84	5212.84	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	95.25 - 94.25		33.92	2140.45	0.016	1.83	5282.82	0.000
	94.25 - 93.25		34.13	2154.58	0.016	1.81	5353.27	0.000
L24	93.25 - 91.875	TP31.4548x30.9093x0.65	34.42	2174.00	0.016	1.79	5450.89	0.000
	91.875 - 90.5		34.70	2193.42	0.016	1.76	5549.40	0.000
L25	90.5 - 90.25 (25)	TP31.5044x31.4548x0.6875	34.73	2320.87	0.015	1.73	5869.56	0.000
L26	90.25 - 89.25	TP32.4962x31.5044x0.675	34.95	2294.27	0.015	1.72	5844.08	0.000
	89.25 - 88.25		35.16	2308.94	0.015	1.70	5919.57	0.000
	88.25 - 87.25		35.36	2323.61	0.015	1.68	5995.56	0.000
	87.25 - 86.25		35.57	2338.27	0.015	1.65	6072.02	0.000
	86.25 - 85.25		35.78	2352.94	0.015	1.63	6148.98	0.000
L27	85.25 - 83.5 (27)	TP32.8434x32.4962x0.6625	36.16	2335.47	0.015	1.61	6174.82	0.000
L28	83.5 - 83.25 (28)	TP32.893x32.8434x0.9125	36.20	3196.75	0.011	1.58	8356.17	0.000
L29	83.25 - 82	TP33.3889x32.893x0.9	36.48	3178.64	0.011	1.58	8379.83	0.000
	82 - 80.75		36.76	3203.08	0.011	1.56	8510.42	0.000
L30	80.75 - 80.5 (30)	TP33.4385x33.3889x1.0625	36.81	3768.27	0.010	1.54	9944.33	0.000
L31	80.5 - 80.25 (31)	TP33.4881x33.4385x0.9875	36.86	3515.76	0.010	1.54	9328.33	0.000
L32	80.25 - 78.875	TP34.0336x33.4881x0.9625	37.18	3458.15	0.011	1.53	9265.75	0.000
	78.875 - 77.5		37.49	3486.90	0.011	1.51	9422.00	0.000
L33	77.5 - 77.25 (33)	TP34.0832x34.0336x0.6875	37.53	2515.09	0.015	1.49	6900.75	0.000
L34	77.25 - 76.1875	TP35.819x34.0832x0.6875	37.77	2530.97	0.015	1.48	6988.72	0.000
	76.1875 - 75.125		37.99	2546.84	0.015	1.46	7077.24	0.000
	75.125 - 74.0625		38.21	2562.71	0.015	1.44	7166.32	0.000
	74.0625 - 73		38.43	2578.59	0.015	1.41	7255.97	0.000
	73 - 68.5		19.79	2645.82	0.007	0.71	7641.79	0.000
L35	73 - 68.5	TP35.2329x34.3013x0.75	19.76	2825.41	0.007	0.68	7976.58	0.000
	68.5 - 68		39.62	2833.06	0.014	1.28	8020.16	0.000
L36	68 - 66.75	TP35.9317x35.2329x0.7375	39.89	2805.67	0.014	1.27	8001.82	0.000
	66.75 - 65.5		40.14	2824.49	0.014	1.24	8110.25	0.000
	65.5 - 64.25		40.39	2843.30	0.014	1.22	8219.42	0.000
L37	64.25 - 64 (37)	TP35.9782x35.9317x0.95	40.43	3645.29	0.011	1.20	10446.25	0.000
L38	64 - 62.8333	TP36.6304x35.9782x0.95	40.69	3667.91	0.011	1.19	10577.42	0.000
	62.8333 - 61.6667		40.93	3690.54	0.011	1.17	10709.50	0.000
	61.6667 - 60.5		41.18	3713.16	0.011	1.16	10842.33	0.000
L39	60.5 - 60.25 (39)	TP36.677x36.6304x1	41.22	3908.21	0.011	1.14	11400.42	0.000
L40	60.25 - 60.1 (40)	TP36.7049x36.677x1	41.26	3911.27	0.011	1.14	11418.42	0.000
L41	60.1 - 59.85 (41)	TP36.7515x36.7049x1.05	41.31	4106.44	0.010	1.14	11976.17	0.000
L42	59.85 - 59.1 (42)	TP36.8912x36.7515x1.05	41.49	4122.52	0.010	1.14	12071.00	0.000
L43	59.1 - 58.85 (43)	TP36.9378x36.8912x1.125	41.54	4413.48	0.009	1.14	12895.08	0.000
L44	58.85 - 57.7	TP37.5806x36.9378x1.1	41.81	4344.24	0.010	1.14	12785.00	0.000
	57.7 - 56.55		42.07	4370.06	0.010	1.15	12938.92	0.000
	56.55 - 55.4		42.33	4395.88	0.010	1.15	13093.75	0.000
L45	55.4 - 55.15 (45)	TP37.6272x37.5806x1.1	42.37	4401.49	0.010	1.15	13127.58	0.000
L46	55.15 - 54.75 (46)	TP37.7018x37.6272x1.1	42.47	4410.47	0.010	1.15	13181.75	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L47	54.75 - 54.5 (47)	TP37.7483x37.7018x0.825	42.52	3336.91	0.013	1.15	10111.17	0.000
L48	54.5 - 53.5	TP38.68x37.7483x0.8125	42.74	3304.05	0.013	1.15	10068.50	0.000
	53.5 - 52.5		42.95	3320.64	0.013	1.15	10170.50	0.000
	52.5 - 51.5		43.15	3337.22	0.013	1.14	10273.08	0.000
	51.5 - 50.5		43.36	3353.80	0.013	1.14	10376.17	0.000
	50.5 - 49.5		43.57	3370.39	0.013	1.13	10479.75	0.000
L49	49.5 - 48.5	TP39.6116x38.68x0.8	43.77	3335.96	0.013	1.13	10430.17	0.000
	48.5 - 47.5		43.97	3352.29	0.013	1.12	10533.25	0.000
	47.5 - 46.5		44.17	3368.62	0.013	1.10	10636.75	0.000
	46.5 - 45.5		44.36	3384.94	0.013	1.09	10740.83	0.000
	45.5 - 44.5		44.56	3401.27	0.013	1.07	10845.42	0.000
L50	44.5 - 43.4333	TP40.2078x39.6116x0.7875	44.77	3366.35	0.013	1.06	10795.58	0.000
	43.4333 - 42.3667		44.98	3383.50	0.013	1.04	10906.50	0.000
	42.3667 - 41.3		45.19	3400.64	0.013	1.01	11018.08	0.000
L51	41.3 - 41.05 (51)	TP40.2544x40.2078x0.875	45.22	3774.57	0.012	0.99	12199.08	0.000
L52	41.05 - 40.025	TP41.568x40.2544x0.875	45.44	3792.88	0.012	0.99	12318.58	0.000
	40.025 - 39		45.64	3811.18	0.012	0.97	12438.58	0.000
	39 - 34		21.23	3900.48	0.005	0.45	13032.58	0.000
L53	39 - 34	TP40.9962x39.8864x1.175	25.60	5101.76	0.005	0.51	16516.25	0.000
	34 - 33		47.00	5125.57	0.009	0.90	16672.25	0.000
L54	33 - 31.5 (54)	TP41.2736x40.9962x1.175	47.30	5161.28	0.009	0.89	16907.67	0.000
L55	31.5 - 31.25 (55)	TP41.3199x41.2736x1.175	47.33	5167.23	0.009	0.88	16947.00	0.000
L56	31.25 - 30.5 (56)	TP41.4586x41.3199x1.175	47.48	5185.09	0.009	0.88	17065.50	0.000
L57	30.5 - 30.25 (57)	TP41.5048x41.4586x1.125	47.52	4976.31	0.010	0.87	16431.33	0.000
L58	30.25 - 29.125	TP42.3372x41.5048x1.1	47.75	4893.81	0.010	0.87	16260.42	0.000
	29.125 - 28		47.96	4918.88	0.010	0.85	16428.92	0.000
	28 - 26.875		48.18	4943.96	0.010	0.83	16598.25	0.000
	26.875 - 25.75		48.39	4969.03	0.010	0.82	16768.58	0.000
L59	25.75 - 25.5 (59)	TP42.3834x42.3372x1.075	48.42	4864.49	0.010	0.80	16451.08	0.000
L60	25.5 - 24.7 (60)	TP42.5314x42.3834x1.075	48.57	4881.91	0.010	0.79	16570.08	0.000
L61	24.7 - 24.45 (61)	TP42.5776x42.5314x0.95	48.61	4332.07	0.011	0.78	14794.42	0.000
L62	24.45 - 24 (62)	TP42.6608x42.5776x0.95	48.69	4340.73	0.011	0.78	14854.08	0.000
L63	24 - 23.75 (63)	TP42.7071x42.6608x1.2	48.73	5456.24	0.009	0.77	18506.42	0.000
L64	23.75 - 22.75	TP43.6319x42.7071x1.175	48.92	5369.60	0.009	0.77	18313.50	0.000
	22.75 - 21.75		49.10	5393.40	0.009	0.74	18477.75	0.000
	21.75 - 20.75		49.27	5417.21	0.009	0.72	18642.67	0.000
	20.75 - 19.75		49.45	5441.02	0.009	0.69	18808.42	0.000
	19.75 - 18.75		49.62	5464.83	0.009	0.67	18974.83	0.000
L65	18.75 - 17.5875	TP44.492x43.6319x1.15	49.82	5378.79	0.009	0.64	18790.75	0.000
	17.5875 - 16.425		50.01	5405.88	0.009	0.61	18982.08	0.000
	16.425 - 15.2625		50.19	5432.97	0.009	0.58	19174.50	0.000
	15.2625 - 14.1		50.38	5460.05	0.009	0.55	19367.83	0.000
L66	14.1 - 13.8 (66)	TP44.5475x44.492x1.175	50.41	5582.68	0.009	0.53	19809.58	0.000
L67	13.8 - 13.65 (67)	TP44.5752x44.5475x1.175	50.43	5586.25	0.009	0.52	19835.17	0.000
L68	13.65 - 12.6	TP45.1579x44.5752x1.175	50.62	5611.24	0.009	0.51	20014.58	0.000
	12.6 - 11.55		50.79	5636.24	0.009	0.48	20194.92	0.000
	11.55 - 10.5		50.96	5661.24	0.009	0.45	20376.00	0.000
L69	10.5 - 10.25	TP45.2041x45.1579x1.175	50.98	5667.19	0.009	0.42	20419.25	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(69)							
L70	10.25 - 9.25	TP46.1289x45.2041x1.15	51.16	5573.06	0.009	0.42	20184.92	0.000
	9.25 - 8.25		51.31	5596.37	0.009	0.39	20355.50	0.000
	8.25 - 7.25		51.47	5619.67	0.009	0.36	20526.75	0.000
	7.25 - 6.25		51.63	5642.97	0.009	0.33	20698.75	0.000
	6.25 - 5.25		51.79	5666.27	0.009	0.30	20871.50	0.000
L71	5.25 - 4.125	TP46.5451x46.1289x1.15	51.97	5692.48	0.009	0.27	21066.67	0.000
	4.125 - 3		52.15	5718.70	0.009	0.24	21262.75	0.000
L72	3 - 2.9 (72)	TP46.5636x46.5451x1.1	52.14	5478.31	0.010	0.20	20414.75	0.000
L73	2.9 - 2.75 (73)	TP46.5913x46.5636x0.95	52.17	4749.77	0.011	0.20	17808.08	0.000
L74	2.75 - 2.65 (74)	TP46.6098x46.5913x0.95	52.18	4751.69	0.011	0.19	17822.67	0.000
L75	2.65 - 2.5 (75)	TP46.6376x46.6098x0.95	52.20	4754.58	0.011	0.19	17844.42	0.000
L76	2.5 - 2.25 (76)	TP46.6838x46.6376x1	52.25	5004.41	0.010	0.19	18767.17	0.000
L77	2.25 - 1.9 (77)	TP46.7486x46.6838x1	52.30	5011.50	0.010	0.18	18820.75	0.000
L78	1.9 - 1.65 (78)	TP46.7948x46.7486x0.95	52.34	4770.94	0.011	0.17	17968.33	0.000
L79	1.65 - 0 (79)	TP47.1x46.7948x0.95	52.55	4802.70	0.011	0.16	18210.00	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	160 - 159	0.000	0.000	0.000	0.000	0.000	0.000 [1]	1.000	4.8.2
	159 - 158	0.000	0.000	0.000	0.000	0.000	0.001	1.000	4.8.2
	158 - 157	0.000	0.001	0.000	0.001	0.000	0.001	1.000	4.8.2
	157 - 156	0.001	0.002	0.000	0.001	0.000	0.002	1.000	4.8.2
	156 - 155	0.007	0.076	0.000	0.034	0.002	0.084	1.000	4.8.2
L2	155 - 154	0.007	0.117	0.000	0.034	0.002	0.125	1.000	4.8.2
	154 - 153	0.007	0.158	0.000	0.034	0.002	0.166	1.000	4.8.2
	153 - 152	0.007	0.199	0.000	0.034	0.002	0.208	1.000	4.8.2
	152 - 151	0.007	0.241	0.000	0.035	0.002	0.249	1.000	4.8.2
	151 - 150	0.007	0.283	0.000	0.035	0.002	0.291	1.000	4.8.2
L3	150 - 149	0.008	0.325	0.000	0.035	0.002	0.333	1.000	4.8.2
	149 - 148	0.008	0.367	0.000	0.035	0.002	0.376	1.000	4.8.2
	148 - 147	0.009	0.416	0.000	0.041	0.002	0.428	1.000	4.8.2
	147 - 146	0.010	0.466	0.000	0.042	0.005	0.478	1.000	4.8.2
L4	146 - 145	0.010	0.458	0.000	0.038	0.003	0.469	1.000	4.8.2
	145 - 144	0.010	0.495	0.000	0.037	0.003	0.507	1.000	4.8.2
	144 - 143	0.010	0.530	0.000	0.037	0.003	0.541	1.000	4.8.2
	143 - 142	0.010	0.562	0.000	0.036	0.003	0.573	1.000	4.8.2
	142 - 141	0.010	0.591	0.000	0.036	0.003	0.602	1.000	4.8.2
L5	141 - 140	0.010	0.618	0.000	0.035	0.003	0.629	1.000	4.8.2
	140 - 139	0.010	0.643	0.000	0.035	0.003	0.654	1.000	4.8.2
	139 - 138	0.010	0.668	0.000	0.036	0.003	0.680	1.000	4.8.2
	138 - 137	0.010	0.692	0.000	0.035	0.002	0.703	1.000	4.8.2
	137 - 136	0.010	0.713	0.000	0.035	0.002	0.724	1.000	4.8.2
L6	136 - 135	0.010	0.733	0.000	0.035	0.002	0.744	1.000	4.8.2
	135 - 134	0.010	0.751	0.000	0.034	0.002	0.762	1.000	4.8.2
	134 - 133	0.010	0.768	0.000	0.034	0.002	0.779	1.000	4.8.2
	133 - 132	0.010	0.784	0.000	0.033	0.002	0.795	1.000	4.8.2
	132 - 131	0.012	0.823	0.000	0.044	0.002	0.837	1.000	4.8.2
L7	131 - 129.98	0.005	0.403	0.000	0.020	0.001	0.409	1.000	4.8.2
	129.98 - 128.96	0.006	0.415	0.000	0.021	0.001	0.421	1.000	4.8.2
	128.96 -	0.006	0.426	0.000	0.020	0.001	0.432	1.000	4.8.2

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	127.94								
	127.94 - 126.92	0.006	0.436	0.000	0.021	0.001	0.442	1.000	4.8.2
	126.92 - 125.9	0.006	0.447	0.000	0.021	0.001	0.453	1.000	4.8.2
L8	125.9 - 125.67 (8)	0.006	0.449	0.000	0.021	0.001	0.455	1.000	4.8.2
L9	125.67 - 124.67	0.006	0.479	0.000	0.021	0.001	0.485	1.000	4.8.2
	124.67 - 123.67	0.006	0.488	0.000	0.021	0.001	0.494	1.000	4.8.2
	123.67 - 122.67	0.006	0.497	0.000	0.021	0.001	0.503	1.000	4.8.2
	122.67 - 121.67	0.006	0.505	0.000	0.021	0.001	0.511	1.000	4.8.2
	121.67 - 120.67	0.006	0.512	0.000	0.021	0.001	0.519	1.000	4.8.2
L10	120.67 - 120.1 (10)	0.006	0.517	0.000	0.021	0.001	0.523	1.000	4.8.2
L11	120.1 - 119.85 (11)	0.006	0.518	0.000	0.021	0.001	0.525	1.000	4.8.2
L12	119.85 - 118.675	0.006	0.538	0.000	0.021	0.001	0.545	1.000	4.8.2
	118.675 - 117.5	0.006	0.546	0.000	0.021	0.001	0.552	1.000	4.8.2
L13	117.5 - 117.25 (13)	0.006	0.535	0.000	0.020	0.001	0.542	1.000	4.8.2
L14	117.25 - 115.5 (14)	0.006	0.558	0.000	0.020	0.001	0.564	1.000	4.8.2
L15	115.5 - 115.25 (15)	0.004	0.418	0.000	0.015	0.001	0.423	1.000	4.8.2
L16	115.25 - 114.25	0.005	0.444	0.000	0.016	0.001	0.449	1.000	4.8.2
	114.25 - 113.25	0.005	0.448	0.000	0.016	0.001	0.453	1.000	4.8.2
	113.25 - 112.25	0.005	0.452	0.000	0.016	0.000	0.457	1.000	4.8.2
	112.25 - 111.25	0.005	0.455	0.000	0.016	0.000	0.460	1.000	4.8.2
	111.25 - 110.25	0.005	0.458	0.000	0.015	0.000	0.463	1.000	4.8.2
L17	110.25 - 108.875	0.005	0.470	0.000	0.016	0.000	0.476	1.000	4.8.2
	108.875 - 107.5	0.005	0.474	0.000	0.016	0.000	0.479	1.000	4.8.2
	107.5 - 103.75	0.003	0.241	0.000	0.008	0.000	0.244	1.000	4.8.2
L18	107.5 - 103.75	0.002	0.238	0.000	0.007	0.000	0.241	1.000	4.8.2
	103.75 - 102.5	0.005	0.483	0.000	0.015	0.000	0.488	1.000	4.8.2
L19	102.5 - 101.5	0.005	0.497	0.000	0.015	0.000	0.502	1.000	4.8.2
	101.5 - 100.5	0.005	0.503	0.000	0.015	0.000	0.508	1.000	4.8.2
L20	100.5 - 100.25 (20)	0.006	0.550	0.000	0.016	0.000	0.556	1.000	4.8.2
L21	100.25 - 98.5 (21)	0.006	0.561	0.000	0.016	0.000	0.567	1.000	4.8.2
L22	98.5 - 98.25 (22)	0.005	0.543	0.000	0.016	0.000	0.548	1.000	4.8.2
L23	98.25 - 97.25	0.006	0.558	0.000	0.016	0.000	0.564	1.000	4.8.2
	97.25 - 96.25	0.006	0.564	0.000	0.016	0.000	0.570	1.000	4.8.2
	96.25 - 95.25	0.006	0.570	0.000	0.016	0.000	0.576	1.000	4.8.2
	95.25 - 94.25	0.006	0.575	0.000	0.016	0.000	0.581	1.000	4.8.2
	94.25 - 93.25	0.006	0.581	0.000	0.016	0.000	0.587	1.000	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L24	93.25 - 91.875	0.006	0.588	0.000	0.016	0.000	0.594	1.000	4.8.2
	91.875 - 90.5	0.006	0.595	0.000	0.016	0.000	0.601	1.000	4.8.2
L25	90.5 - 90.25 (25)	0.006	0.566	0.000	0.015	0.000	0.571	1.000	4.8.2
L26	90.25 - 89.25	0.006	0.580	0.000	0.015	0.000	0.586	1.000	4.8.2
	89.25 - 88.25	0.006	0.585	0.000	0.015	0.000	0.591	1.000	4.8.2
	88.25 - 87.25	0.006	0.589	0.000	0.015	0.000	0.595	1.000	4.8.2
	87.25 - 86.25	0.006	0.594	0.000	0.015	0.000	0.600	1.000	4.8.2
	86.25 - 85.25	0.006	0.598	0.000	0.015	0.000	0.604	1.000	4.8.2
L27	85.25 - 83.5 (27)	0.006	0.616	0.000	0.015	0.000	0.623	1.000	4.8.2
L28	83.5 - 83.25 (28)	0.004	0.459	0.000	0.011	0.000	0.463	1.000	4.8.2
L29	83.25 - 82	0.005	0.469	0.000	0.011	0.000	0.473	1.000	4.8.2
	82 - 80.75	0.005	0.472	0.000	0.011	0.000	0.477	1.000	4.8.2
L30	80.75 - 80.5 (30)	0.004	0.407	0.000	0.010	0.000	0.411	1.000	4.8.2
L31	80.5 - 80.25 (31)	0.004	0.435	0.000	0.010	0.000	0.440	1.000	4.8.2
L32	80.25 - 78.875	0.004	0.449	0.000	0.011	0.000	0.454	1.000	4.8.2
	78.875 - 77.5	0.004	0.453	0.000	0.011	0.000	0.458	1.000	4.8.2
L33	77.5 - 77.25 (33)	0.006	0.620	0.000	0.015	0.000	0.626	1.000	4.8.2
L34	77.25 - 76.1875	0.006	0.623	0.000	0.015	0.000	0.630	1.000	4.8.2
	76.1875 - 75.125	0.006	0.627	0.000	0.015	0.000	0.634	1.000	4.8.2
	75.125 - 74.0625	0.006	0.631	0.000	0.015	0.000	0.638	1.000	4.8.2
	74.0625 - 73	0.006	0.635	0.000	0.015	0.000	0.641	1.000	4.8.2
	73 - 68.5	0.003	0.321	0.000	0.007	0.000	0.324	1.000	4.8.2
L35	73 - 68.5	0.003	0.315	0.000	0.007	0.000	0.318	1.000	4.8.2
	68.5 - 68	0.007	0.624	0.000	0.014	0.000	0.631	1.000	4.8.2
L36	68 - 66.75	0.007	0.638	0.000	0.014	0.000	0.645	1.000	4.8.2
	66.75 - 65.5	0.007	0.642	0.000	0.014	0.000	0.649	1.000	4.8.2
	65.5 - 64.25	0.007	0.646	0.000	0.014	0.000	0.653	1.000	4.8.2
L37	64.25 - 64 (37)	0.005	0.511	0.000	0.011	0.000	0.517	1.000	4.8.2
L38	64 - 62.8333	0.005	0.514	0.000	0.011	0.000	0.520	1.000	4.8.2
	62.8333 - 61.6667	0.005	0.517	0.000	0.011	0.000	0.522	1.000	4.8.2
	61.6667 - 60.5	0.006	0.520	0.000	0.011	0.000	0.525	1.000	4.8.2
L39	60.5 - 60.25 (39)	0.005	0.496	0.000	0.011	0.000	0.502	1.000	4.8.2
L40	60.25 - 60.1 (40)	0.005	0.496	0.000	0.011	0.000	0.502	1.000	4.8.2
L41	60.1 - 59.85 (41)	0.005	0.475	0.000	0.010	0.000	0.480	1.000	4.8.2
L42	59.85 - 59.1 (42)	0.005	0.477	0.000	0.010	0.000	0.482	1.000	4.8.2
L43	59.1 - 58.85 (43)	0.005	0.448	0.000	0.009	0.000	0.453	1.000	4.8.2
L44	58.85 - 57.7	0.005	0.460	0.000	0.010	0.000	0.465	1.000	4.8.2
	57.7 - 56.55	0.005	0.462	0.000	0.010	0.000	0.467	1.000	4.8.2
	56.55 - 55.4	0.005	0.464	0.000	0.010	0.000	0.469	1.000	4.8.2
L45	55.4 - 55.15 (45)	0.005	0.464	0.000	0.010	0.000	0.470	1.000	4.8.2
L46	55.15 - 54.75 (46)	0.005	0.465	0.000	0.010	0.000	0.470	1.000	4.8.2
L47	54.75 - 54.5 (47)	0.007	0.607	0.000	0.013	0.000	0.614	1.000	4.8.2

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L48	54.5 - 53.5	0.007	0.618	0.000	0.013	0.000	0.625	1.000	4.8.2
	53.5 - 52.5	0.007	0.621	0.000	0.013	0.000	0.628	1.000	4.8.2
	52.5 - 51.5	0.007	0.623	0.000	0.013	0.000	0.630	1.000	4.8.2
	51.5 - 50.5	0.007	0.625	0.000	0.013	0.000	0.632	1.000	4.8.2
	50.5 - 49.5	0.007	0.627	0.000	0.013	0.000	0.635	1.000	4.8.2
L49	49.5 - 48.5	0.007	0.639	0.000	0.013	0.000	0.646	1.000	4.8.2
	48.5 - 47.5	0.007	0.641	0.000	0.013	0.000	0.648	1.000	4.8.2
	47.5 - 46.5	0.007	0.643	0.000	0.013	0.000	0.651	1.000	4.8.2
	46.5 - 45.5	0.007	0.645	0.000	0.013	0.000	0.653	1.000	4.8.2
	45.5 - 44.5	0.007	0.648	0.000	0.013	0.000	0.655	1.000	4.8.2
L50	44.5 - 43.4333	0.007	0.659	0.000	0.013	0.000	0.667	1.000	4.8.2
	43.4333 - 42.3667	0.007	0.662	0.000	0.013	0.000	0.669	1.000	4.8.2
	42.3667 - 41.3	0.008	0.664	0.000	0.013	0.000	0.672	1.000	4.8.2
L51	41.3 - 41.05 (51)	0.007	0.602	0.000	0.012	0.000	0.609	1.000	4.8.2
L52	41.05 - 40.025	0.007	0.604	0.000	0.012	0.000	0.611	1.000	4.8.2
	40.025 - 39	0.007	0.606	0.000	0.012	0.000	0.613	1.000	4.8.2
	39 - 34	0.003	0.274	0.000	0.005	0.000	0.277	1.000	4.8.2
L53	39 - 34	0.003	0.269	0.000	0.005	0.000	0.272	1.000	4.8.2
	34 - 33	0.006	0.487	0.000	0.009	0.000	0.493	1.000	4.8.2
L54	33 - 31.5 (54)	0.006	0.489	0.000	0.009	0.000	0.495	1.000	4.8.2
L55	31.5 - 31.25 (55)	0.006	0.489	0.000	0.009	0.000	0.495	1.000	4.8.2
L56	31.25 - 30.5 (56)	0.006	0.490	0.000	0.009	0.000	0.496	1.000	4.8.2
L57	30.5 - 30.25 (57)	0.006	0.510	0.000	0.010	0.000	0.516	1.000	4.8.2
L58	30.25 - 29.125	0.006	0.522	0.000	0.010	0.000	0.528	1.000	4.8.2
	29.125 - 28	0.006	0.523	0.000	0.010	0.000	0.530	1.000	4.8.2
	28 - 26.875	0.006	0.525	0.000	0.010	0.000	0.531	1.000	4.8.2
	26.875 - 25.75	0.006	0.526	0.000	0.010	0.000	0.532	1.000	4.8.2
L59	25.75 - 25.5 (59)	0.007	0.537	0.000	0.010	0.000	0.544	1.000	4.8.2
L60	25.5 - 24.7 (60)	0.007	0.538	0.000	0.010	0.000	0.545	1.000	4.8.2
L61	24.7 - 24.45 (61)	0.007	0.604	0.000	0.011	0.000	0.612	1.000	4.8.2
L62	24.45 - 24 (62)	0.007	0.605	0.000	0.011	0.000	0.612	1.000	4.8.2
L63	24 - 23.75 (63)	0.006	0.488	0.000	0.009	0.000	0.494	1.000	4.8.2
L64	23.75 - 22.75	0.006	0.498	0.000	0.009	0.000	0.504	1.000	4.8.2
	22.75 - 21.75	0.006	0.499	0.000	0.009	0.000	0.505	1.000	4.8.2
	21.75 - 20.75	0.006	0.500	0.000	0.009	0.000	0.506	1.000	4.8.2
	20.75 - 19.75	0.006	0.501	0.000	0.009	0.000	0.507	1.000	4.8.2
	19.75 - 18.75	0.006	0.502	0.000	0.009	0.000	0.508	1.000	4.8.2
L65	18.75 - 17.5875	0.006	0.513	0.000	0.009	0.000	0.520	1.000	4.8.2
	17.5875 - 16.425	0.006	0.514	0.000	0.009	0.000	0.521	1.000	4.8.2
	16.425 - 15.2625	0.007	0.515	0.000	0.009	0.000	0.522	1.000	4.8.2
	15.2625 - 14.1	0.007	0.516	0.000	0.009	0.000	0.523	1.000	4.8.2
L66	14.1 - 13.8 (66)	0.006	0.506	0.000	0.009	0.000	0.513	1.000	4.8.2
L67	13.8 - 13.65 (67)	0.006	0.506	0.000	0.009	0.000	0.513	1.000	4.8.2
L68	13.65 - 12.6	0.006	0.507	0.000	0.009	0.000	0.514	1.000	4.8.2
	12.6 - 11.55	0.007	0.508	0.000	0.009	0.000	0.515	1.000	4.8.2
	11.55 - 10.5	0.007	0.509	0.000	0.009	0.000	0.516	1.000	4.8.2
L69	10.5 - 10.25 (69)	0.007	0.509	0.000	0.009	0.000	0.516	1.000	4.8.2
L70	10.25 - 9.25	0.007	0.520	0.000	0.009	0.000	0.527	1.000	4.8.2

Section No.	Elevation ft	Ratio $P_u / \phi P_n$	Ratio $M_{ux} / \phi M_{nx}$	Ratio $M_{uy} / \phi M_{ny}$	Ratio $V_u / \phi V_n$	Ratio $T_u / \phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	9.25 - 8.25	0.007	0.521	0.000	0.009	0.000	0.528	1.000	4.8.2
	8.25 - 7.25	0.007	0.522	0.000	0.009	0.000	0.528	1.000	4.8.2
	7.25 - 6.25	0.007	0.522	0.000	0.009	0.000	0.529	1.000	4.8.2
	6.25 - 5.25	0.007	0.523	0.000	0.009	0.000	0.530	1.000	4.8.2
L71	5.25 - 4.125	0.007	0.524	0.000	0.009	0.000	0.531	1.000	4.8.2
	4.125 - 3	0.007	0.525	0.000	0.009	0.000	0.532	1.000	4.8.2
L72	3 - 2.9 (72)	0.007	0.547	0.000	0.010	0.000	0.554	1.000	4.8.2
L73	2.9 - 2.75 (73)	0.008	0.627	0.000	0.011	0.000	0.635	1.000	4.8.2
L74	2.75 - 2.65 (74)	0.008	0.627	0.000	0.011	0.000	0.635	1.000	4.8.2
L75	2.65 - 2.5 (75)	0.008	0.627	0.000	0.011	0.000	0.636	1.000	4.8.2
L76	2.5 - 2.25 (76)	0.008	0.598	0.000	0.010	0.000	0.606	1.000	4.8.2
L77	2.25 - 1.9 (77)	0.008	0.598	0.000	0.010	0.000	0.606	1.000	4.8.2
L78	1.9 - 1.65 (78)	0.008	0.628	0.000	0.011	0.000	0.636	1.000	4.8.2
L79	1.65 - 0 (79)	0.008	0.629	0.000	0.011	0.000	0.638	1.000	4.8.2

[1] $P_u / \phi P_n$ controls

Section Capacity Table

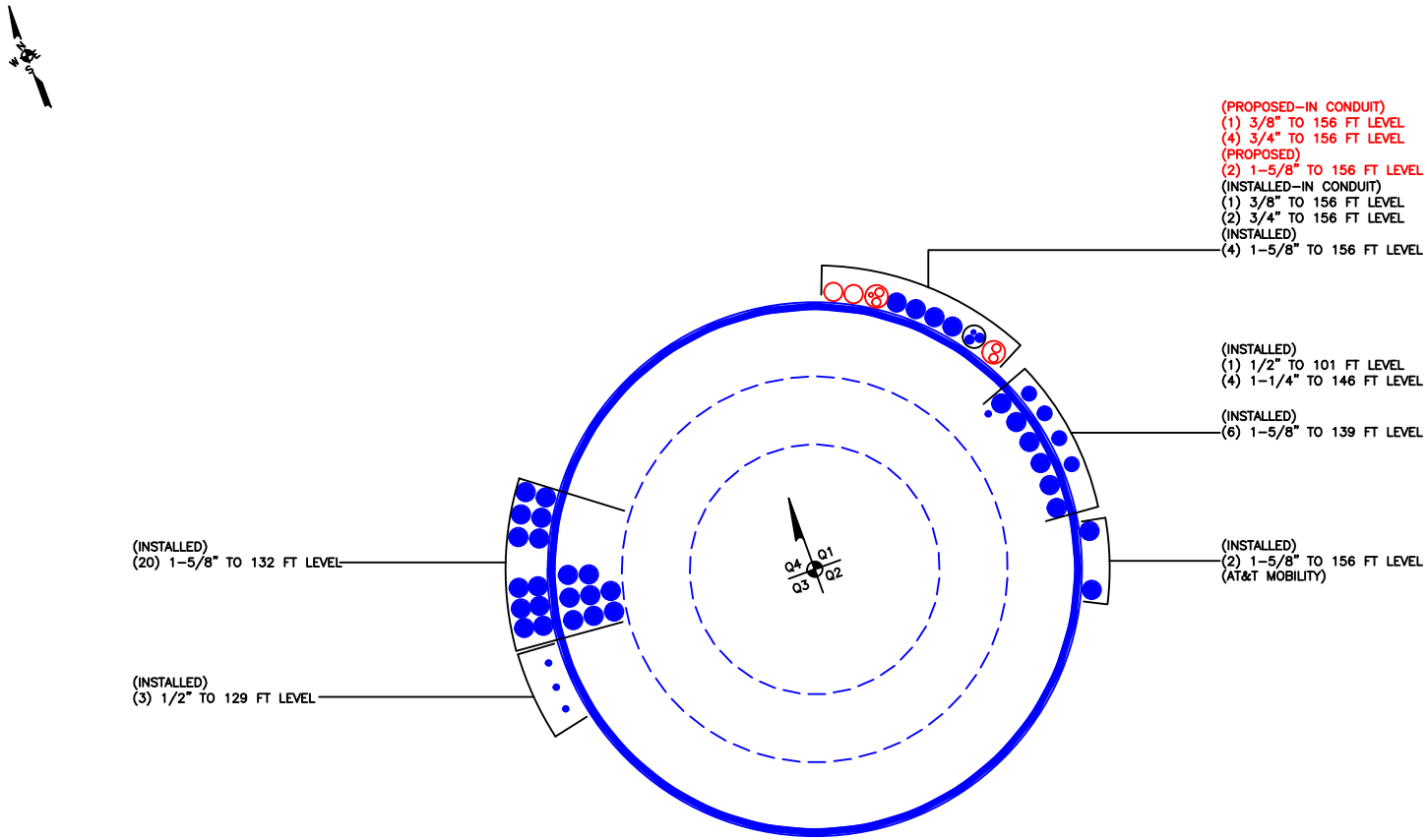
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	160 - 155	Pole	TP16x16x0.375	1	-3.81	579.85	8.4	Pass
L2	155 - 150	Pole	TP16x16x0.375	2	-4.28	579.85	29.1	Pass
L3	150 - 146	Pole	TP16x16x0.375	3	-5.51	579.85	47.8	Pass
L4	146 - 141	Pole	TP17.6341x16x0.25	4	-9.33	952.16	60.2	Pass
L5	141 - 136	Pole	TP19.2682x17.6341x0.25	5	-10.08	1041.67	72.4	Pass
L6	136 - 131	Pole	TP20.9022x19.2682x0.25	6	-13.09	1131.17	83.7	Pass
L7	131 - 125.9	Pole	TP22.569x20.9022x0.55	7	-14.64	2653.27	45.3	Pass
L8	125.9 - 125.67	Pole	TP22.6442x22.569x0.55	8	-14.70	2662.32	45.5	Pass
L9	125.67 - 120.67	Pole	TP24.2783x22.6442x0.525	9	-15.82	2732.14	51.9	Pass
L10	120.67 - 120.1	Pole	TP24.4645x24.2783x0.525	10	-15.96	2753.57	52.3	Pass
L11	120.1 - 119.85	Pole	TP24.5463x24.4645x0.525	11	-16.02	2762.96	52.5	Pass
L12	119.85 - 117.5	Pole	TP25.3143x24.5463x0.5125	12	-16.55	2784.82	55.2	Pass
L13	117.5 - 117.25	Pole	TP25.396x25.3143x0.525	13	-16.63	2860.70	54.2	Pass
L14	117.25 - 115.5	Pole	TP25.9679x25.396x0.5125	14	-17.05	2858.21	56.4	Pass
L15	115.5 - 115.25	Pole	TP26.0496x25.9679x0.7	15	-17.15	3887.67	42.3	Pass
L16	115.25 - 110.25	Pole	TP27.6837x26.0496x0.6625	16	-18.58	3922.03	46.3	Pass
L17	110.25 - 103.75	Pole	TP29.808x27.6837x0.65	17	-19.37	3977.79	47.9	Pass
L18	103.75 - 102.5	Pole	TP29.0743x28.0824x0.7125	18	-21.76	4427.30	48.8	Pass
L19	102.5 - 100.5	Pole	TP29.4711x29.0743x0.7	19	-22.49	4412.39	50.8	Pass
L20	100.5 - 100.25	Pole	TP29.5206x29.4711x0.6375	20	-22.58	4034.08	55.6	Pass
L21	100.25 - 98.5	Pole	TP29.8678x29.5206x0.6375	21	-23.11	4082.57	56.7	Pass
L22	98.5 - 98.25	Pole	TP29.9174x29.8678x0.6625	22	-23.22	4246.24	54.8	Pass
L23	98.25 - 93.25	Pole	TP30.9093x29.9174x0.65	23	-24.89	4309.15	58.7	Pass
L24	93.25 - 90.5	Pole	TP31.4548x30.9093x0.65	24	-25.83	4386.84	60.1	Pass
L25	90.5 - 90.25	Pole	TP31.5044x31.4548x0.6875	25	-25.94	4641.75	57.1	Pass
L26	90.25 - 85.25	Pole	TP32.4962x31.5044x0.675	26	-27.85	4705.88	60.4	Pass
L27	85.25 - 83.5	Pole	TP32.8434x32.4962x0.6625	27	-28.51	4670.94	62.3	Pass
L28	83.5 - 83.25	Pole	TP32.893x32.8434x0.9125	28	-28.65	6393.49	46.3	Pass
L29	83.25 - 80.75	Pole	TP33.3889x32.893x0.9	29	-29.78	6406.16	47.7	Pass
L30	80.75 - 80.5	Pole	TP33.4385x33.3889x1.0625	30	-29.92	7536.55	41.1	Pass
L31	80.5 - 80.25	Pole	TP33.4881x33.4385x0.9875	31	-30.04	7031.51	44.0	Pass
L32	80.25 - 77.5	Pole	TP34.0336x33.4881x0.9625	32	-31.38	6973.81	45.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L33	77.5 - 77.25	Pole	TP34.0832x34.0336x0.6875	33	-31.50	5030.18	62.6	Pass
L34	77.25 - 68.5	Pole	TP35.819x34.0832x0.6875	34	-33.33	5157.17	64.1	Pass
L35	68.5 - 68	Pole	TP35.2329x34.3013x0.75	35	-37.14	5666.12	63.1	Pass
L36	68 - 64.25	Pole	TP35.9317x35.2329x0.7375	36	-38.89	5686.60	65.3	Pass
L37	64.25 - 64	Pole	TP35.9782x35.9317x0.95	37	-39.04	7290.58	51.7	Pass
L38	64 - 60.5	Pole	TP36.6304x35.9782x0.95	38	-40.85	7426.31	52.5	Pass
L39	60.5 - 60.25	Pole	TP36.677x36.6304x1	39	-41.00	7816.42	50.2	Pass
L40	60.25 - 60.1	Pole	TP36.7049x36.677x1	40	-41.09	7822.55	50.2	Pass
L41	60.1 - 59.85	Pole	TP36.7515x36.7049x1.05	41	-41.23	8212.89	48.0	Pass
L42	59.85 - 59.1	Pole	TP36.8912x36.7515x1.05	42	-41.64	8245.04	48.2	Pass
L43	59.1 - 58.85	Pole	TP36.9378x36.8912x1.125	43	-41.80	8826.96	45.3	Pass
L44	58.85 - 55.4	Pole	TP37.5806x36.9378x1.1	44	-43.86	8791.75	46.9	Pass
L45	55.4 - 55.15	Pole	TP37.6272x37.5806x1.1	45	-44.02	8802.98	47.0	Pass
L46	55.15 - 54.75	Pole	TP37.7018x37.6272x1.1	46	-44.26	8820.94	47.0	Pass
L47	54.75 - 54.5	Pole	TP37.7483x37.7018x0.825	47	-44.39	6673.83	61.4	Pass
L48	54.5 - 49.5	Pole	TP38.68x37.7483x0.8125	48	-46.96	6740.77	63.5	Pass
L49	49.5 - 44.5	Pole	TP39.6116x38.68x0.8	49	-49.57	6802.55	65.5	Pass
L50	44.5 - 41.3	Pole	TP40.2078x39.6116x0.7875	50	-51.26	6801.28	67.2	Pass
L51	41.3 - 41.05	Pole	TP40.2544x40.2078x0.875	51	-51.43	7549.14	60.9	Pass
L52	41.05 - 34	Pole	TP41.568x40.2544x0.875	52	-52.59	7622.36	61.3	Pass
L53	34 - 33	Pole	TP40.9962x39.8864x1.175	53	-58.92	10251.10	49.3	Pass
L54	33 - 31.5	Pole	TP41.2736x40.9962x1.175	54	-59.92	10322.60	49.5	Pass
L55	31.5 - 31.25	Pole	TP41.3199x41.2736x1.175	55	-60.11	10334.50	49.5	Pass
L56	31.25 - 30.5	Pole	TP41.4586x41.3199x1.175	56	-60.61	10370.20	49.6	Pass
L57	30.5 - 30.25	Pole	TP41.5048x41.4586x1.125	57	-60.79	9952.61	51.6	Pass
L58	30.25 - 25.75	Pole	TP42.3372x41.5048x1.1	58	-63.78	9938.06	53.2	Pass
L59	25.75 - 25.5	Pole	TP42.3834x42.3372x1.075	59	-63.96	9728.97	54.4	Pass
L60	25.5 - 24.7	Pole	TP42.5314x42.3834x1.075	60	-64.48	9763.82	54.5	Pass
L61	24.7 - 24.45	Pole	TP42.5776x42.5314x0.95	61	-64.64	8664.14	61.2	Pass
L62	24.45 - 24	Pole	TP42.6608x42.5776x0.95	62	-64.90	8681.46	61.2	Pass
L63	24 - 23.75	Pole	TP42.7071x42.6608x1.2	63	-65.07	10912.50	49.4	Pass
L64	23.75 - 18.75	Pole	TP43.6319x42.7071x1.175	64	-68.39	10929.70	50.8	Pass
L65	18.75 - 14.1	Pole	TP44.492x43.6319x1.15	65	-71.52	10920.10	52.3	Pass
L66	14.1 - 13.8	Pole	TP44.5475x44.492x1.175	66	-71.74	11165.40	51.3	Pass
L67	13.8 - 13.65	Pole	TP44.5752x44.5475x1.175	67	-71.85	11172.50	51.3	Pass
L68	13.65 - 10.5	Pole	TP45.1579x44.5752x1.175	68	-74.00	11322.50	51.6	Pass
L69	10.5 - 10.25	Pole	TP45.2041x45.1579x1.175	69	-74.18	11334.40	51.6	Pass
L70	10.25 - 5.25	Pole	TP46.1289x45.2041x1.15	70	-77.54	11332.50	53.0	Pass
L71	5.25 - 3	Pole	TP46.5451x46.1289x1.15	71	-79.07	11437.40	53.2	Pass
L72	3 - 2.9	Pole	TP46.5636x46.5451x1.1	72	-79.15	10956.60	55.4	Pass
L73	2.9 - 2.75	Pole	TP46.5913x46.5636x0.95	73	-79.24	9499.53	63.5	Pass
L74	2.75 - 2.65	Pole	TP46.6098x46.5913x0.95	74	-79.31	9503.38	63.5	Pass
L75	2.65 - 2.5	Pole	TP46.6376x46.6098x0.95	75	-79.40	9509.16	63.6	Pass
L76	2.5 - 2.25	Pole	TP46.6838x46.6376x1	76	-79.55	10008.80	60.6	Pass
L77	2.25 - 1.9	Pole	TP46.7486x46.6838x1	77	-79.77	10023.00	60.6	Pass
L78	1.9 - 1.65	Pole	TP46.7948x46.7486x0.95	78	-79.92	9541.88	63.6	Pass
L79	1.65 - 0	Pole	TP47.1x46.7948x0.95	79	-80.87	9605.40	63.8	Pass
							Summary	
						Pole (L6)	83.7	Pass
						RATING =	**83.7**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876334 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 876334

Work Order: 1606423

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	160	14	0	0	16	16	0.375		A53-B-35
2	146	42.25	3.75	12	16.00	29.808	0.25	Auto	A607-60
3	107.5	39	4.5	12	28.08	35.819	0.3125	Auto	A607-60
4	73	39	5	12	34.30	41.568	0.375	Auto	A607-60
5	39	39	0	12	39.89	47.1	0.375	Auto	A607-60

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
1	100.5	117.5	plate	CCI-SFP-045100	1				*								
2	98.5	115.5	plate	CCI-SFP-045100	2								*				*
3	64.25	80.75	plate	CCI-AFP-085125	1												*
4	10.5	41.3	plate	CCI-AFP-085125	1												*
5	3	10.5	plate	CCI-SFP-060100	1												*
6	77.5	83.5	plate	MS-600 (1.1875")	3	*			*				*				
7	54.75	64.25	plate	MS-650 (1.1875")	3	*			*				*				
8	25.75	35.25	plate	MS-650 (1.1875")	3	*			*				*				
9	2.5	30.5	plate	MS-600 (1.1875")	3		*			*				*			
10	30.5	60.5	plate	MS-650 (1.1875")	3		*			*				*			
11	60.5	80.5	plate	MS-600 (1.1875")	3		*			*				*			
12	80.5	98.5	plate	MS-600 (1.1875")	2					*				*			
13	1.9	14.1	channel	MP3-04 (1.1875in)	2						*		*				
14	2.9	30.5	channel	MP3-05 (1.1875in)	2			*								*	
15	30.5	59.1	channel	MP3-04 (1.1875in)	2			*								*	
16	13.9	31.5	channel	MP3-05 (1.1875in)	1							*					
17	31.5	60.1	channel	MP3-04 (1.1875in)	1							*					
18	0	24	plate	TS-5.875"x1.25"	6		-6	-6			-6	-6			-6	-6	
19	24.7	55.4	plate	CCI-AFP-085125	2						*				*		
20	55.4	90.5	plate	CCI-AFP-085125	2						*				*		
21	90.5	120.1	plate	CCI-AFP-060100	2						*				*		
22	100.5	120.1	plate	CCI-AFP-060100	1		*										
23	80.5	100.5	plate	MS-650 (1.1875")	1		*										
24	0	2.5	plate	1.25"x4"	4	*			*			*			*		
25	24	25.75	plate	TS-5.875"x1.25"	3		-6				-6				-6		
26	120.1	125.92	plate	CCI-SFP-060100	3			P				P				P	
27																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
2	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
3	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
4	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
5	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
6	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
7	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
8	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
10	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
11	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
12	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
13	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.593	1.1875	A572-65
14	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
15	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.593	1.1875	A572-65
16	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
17	4.78	1.61	4.13	0.61	17.000	17.000	18.000	3.593	1.1875	A572-65
18	1.25	5.875	7.34375	2.9375	n/a	n/a	0.000	7.344	0.0000	A572-65
19	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
20	8.5	1.25	10.625	0.625	51.000	51.000	17.000	9.063	1.1875	A572-65
21	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
22	6	1	6	0.5	30.000	30.000	16.000	4.750	1.1875	A572-65
23	6.5	1.25	8.125	0.625	33.000	33.000	19.250	6.563	1.1875	A572-65
24	1.25	4	5	2	n/a	n/a	0.000	5.000	0.0000	A572-65
25	1.25	5.875	7.34375	2.9375	n/a	n/a	0.000	7.344	0.0000	A572-65
26	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	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	160 - 155	5		0	16.000	16.000	0.375	A53-B-35	1.000
2	155 - 150	5		0	16.000	16.000	0.375	A53-B-35	1.000
3	150 - 146	4	0	0	16.000	16.000	0.375	A53-B-35	1.000
4	146 - 141	5		12	16.000	17.634	0.25	A607-60	1.000
5	141 - 136	5		12	17.634	19.268	0.25	A607-60	1.000
6	136 - 131	5		12	19.268	20.902	0.25	A607-60	1.000
7	131 - 125.9	5.1		12	20.902	22.569	0.55	A607-60	0.923
8	125.9 - 125.67	0.23		12	22.569	22.644	0.55	A607-60	0.921
9	125.67 - 120.67	5		12	22.644	24.278	0.525	A607-60	0.931
10	120.67 - 120.1	0.57		12	24.278	24.465	0.525	A607-60	0.927
11	120.1 - 119.85	0.25		12	24.465	24.546	0.525	A607-60	0.926
12	119.85 - 117.5	2.35		12	24.546	25.314	0.5125	A607-60	0.933
13	117.5 - 117.25	0.25		12	25.314	25.396	0.525	A607-60	1.017
14	117.25 - 115.5	1.75		12	25.396	25.968	0.5125	A607-60	1.029
15	115.5 - 115.25	0.25		12	25.968	26.050	0.7	A607-60	0.916
16	115.25 - 110.25	5		12	26.050	27.684	0.6625	A607-60	0.930
17	110.25 - 107.5	6.5	3.75	12	27.684	29.808	0.65	A607-60	0.930
18	107.5 - 102.5	5		12	28.082	29.074	0.7125	A607-60	0.930
19	102.5 - 100.5	2		12	29.074	29.471	0.7	A607-60	0.939
20	100.5 - 100.25	0.25		12	29.471	29.521	0.6375	A607-60	0.988
21	100.25 - 98.5	1.75		12	29.521	29.868	0.6375	A607-60	0.982
22	98.5 - 98.25	0.25		12	29.868	29.917	0.6625	A607-60	0.993
23	98.25 - 93.25	5		12	29.917	30.909	0.65	A607-60	0.994
24	93.25 - 90.5	2.75		12	30.909	31.455	0.65	A607-60	0.985
25	90.5 - 90.25	0.25		12	31.455	31.504	0.6875	A607-60	1.067
26	90.25 - 85.25	5		12	31.504	32.496	0.675	A607-60	1.067
27	85.25 - 83.5	1.75		12	32.496	32.843	0.6625	A607-60	1.080
28	83.5 - 83.25	0.25		12	32.843	32.893	0.9125	A607-60	0.982
29	83.25 - 80.75	2.5		12	32.893	33.389	0.9	A607-60	0.985
30	80.75 - 80.5	0.25		12	33.389	33.439	1.0625	A607-60	0.934
31	80.5 - 80.25	0.25		12	33.439	33.488	0.9875	A607-60	0.981
32	80.25 - 77.5	2.75		12	33.488	34.034	0.9625	A607-60	0.994
33	77.5 - 77.25	0.25		12	34.034	34.083	0.6875	A607-60	1.135
34	77.25 - 73	8.75	4.5	12	34.083	35.819	0.6875	A607-60	1.118
35	73 - 68	5		12	34.301	35.233	0.75	A607-60	1.105
36	68 - 64.25	3.75		12	35.233	35.932	0.7375	A607-60	1.111
37	64.25 - 64	0.25		12	35.932	35.978	0.95	A607-60	0.996
38	64 - 60.5	3.5		12	35.978	36.630	0.95	A607-60	0.985
39	60.5 - 60.25	0.25		12	36.630	36.677	1	A607-60	0.992
40	60.25 - 60.1	0.15		12	36.677	36.705	1	A607-60	0.991
41	60.1 - 59.85	0.25		12	36.705	36.751	1.05	A607-60	0.979
42	59.85 - 59.1	0.75		12	36.751	36.891	1.05	A607-60	0.976
43	59.1 - 58.85	0.25		12	36.891	36.938	1.125	A607-60	0.976
44	58.85 - 55.4	3.45		12	36.938	37.581	1.1	A607-60	0.986
45	55.4 - 55.15	0.25		12	37.581	37.627	1.1	A607-60	0.985
46	55.15 - 54.75	0.4		12	37.627	37.702	1.1	A607-60	0.984
47	54.75 - 54.5	0.25		12	37.702	37.748	0.825	A607-60	1.052
48	54.5 - 49.5	5		12	37.748	38.680	0.8125	A607-60	1.053
49	49.5 - 44.5	5		12	38.680	39.612	0.8	A607-60	1.055
50	44.5 - 41.3	3.2		12	39.612	40.208	0.7875	A607-60	1.062
51	41.3 - 41.05	0.25		12	40.208	40.254	0.875	A607-60	1.054
52	41.05 - 39	7.05	5	12	40.254	41.568	0.875	A607-60	1.048
53	39 - 33	6		12	39.886	40.996	1.175	A607-60	0.944
54	33 - 31.5	1.5		12	40.996	41.274	1.175	A607-60	0.939
55	31.5 - 31.25	0.25		12	41.274	41.320	1.175	A607-60	0.949
56	31.25 - 30.5	0.75		12	41.320	41.459	1.175	A607-60	0.947
57	30.5 - 30.25	0.25		12	41.459	41.505	1.125	A607-60	0.964
58	30.25 - 25.75	4.5		12	41.505	42.337	1.1	A607-60	0.972
59	25.75 - 25.5	0.25		12	42.337	42.383	1.075	A607-60	0.977
60	25.5 - 24.7	0.8		12	42.383	42.531	1.075	A607-60	0.975
61	24.7 - 24.45	0.25		12	42.531	42.578	0.95	A607-60	0.932
62	24.45 - 24	0.45		12	42.578	42.661	0.95	A607-60	0.931
63	24 - 23.75	0.25		12	42.661	42.707	1.2	A607-60	0.878
64	23.75 - 18.75	5		12	42.707	43.632	1.175	A607-60	0.884
65	18.75 - 14.1	4.65		12	43.632	44.492	1.15	A607-60	0.891
66	14.1 - 13.8	0.3		12	44.492	44.547	1.175	A607-60	0.888
67	13.8 - 13.65	0.15		12	44.547	44.575	1.175	A607-60	0.888
68	13.65 - 10.5	3.15		12	44.575	45.158	1.175	A607-60	0.880
69	10.5 - 10.25	0.25		12	45.158	45.204	1.175	A607-60	0.852
70	10.25 - 5.25	5		12	45.204	46.129	1.15	A607-60	0.859
71	5.25 - 3	2.25		12	46.129	46.545	1.15	A607-60	0.854
72	3 - 2.9	0.1		12	46.545	46.564	1.1	A607-60	0.854
73	2.9 - 2.75	0.15		12	46.564	46.591	0.95	A607-60	0.904
74	2.75 - 2.65	0.1		12	46.591	46.610	0.95	A607-60	0.904
75	2.65 - 2.5	0.15		12	46.610	46.638	0.95	A607-60	0.904
76	2.5 - 2.25	0.25		12	46.638	46.684	1	A607-60	0.872
77	2.25 - 1.9	0.35		12	46.684	46.749	1	A607-60	0.872
78	1.9 - 1.65	0.25		12	46.749	46.795	0.95	A607-60	0.857
79	1.65 - 0	1.65		12	46.795	47.100	0.95	A607-60	0.854

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	160 - 155	3.81	18.31	9.78
2	155 - 150	4.28	67.93	10.06
3	150 - 146	5.59	112.12	12.03
4	146 - 141	9.33	198.07	16.93
5	141 - 136	10.08	286.31	18.20
6	136 - 131	13.09	390.23	25.07
7	131 - 125.9	14.64	522.80	27.31
8	125.9 - 125.67	14.70	529.08	27.35
9	125.67 - 120.67	15.82	668.10	28.28
10	120.67 - 120.1	15.96	684.25	28.38
11	120.1 - 119.85	16.02	691.35	28.42
12	119.85 - 117.5	16.55	758.67	28.88
13	117.5 - 117.25	16.63	765.89	28.92
14	117.25 - 115.5	17.05	816.80	29.27
15	115.5 - 115.25	17.15	824.12	29.31
16	115.25 - 110.25	18.58	973.19	30.33
17	110.25 - 107.5	19.37	1057.41	30.98
18	107.5 - 102.5	21.76	1215.22	32.15
19	102.5 - 100.5	22.49	1279.76	32.63
20	100.5 - 100.25	22.58	1287.92	32.67
21	100.25 - 98.5	23.11	1345.40	33.06
22	98.5 - 98.25	23.22	1353.66	33.09
23	98.25 - 93.25	24.89	1521.63	34.13
24	93.25 - 90.5	25.83	1616.21	34.70
25	90.5 - 90.25	25.94	1624.88	34.73
26	90.25 - 85.25	27.85	1801.09	35.78
27	85.25 - 83.5	28.51	1863.99	36.16
28	83.5 - 83.25	28.65	1873.03	36.20
29	83.25 - 80.75	29.78	1964.19	36.76
30	80.75 - 80.5	29.92	1973.38	36.81
31	80.5 - 80.25	30.04	1982.59	36.86
32	80.25 - 77.5	31.38	2084.78	37.49
33	77.5 - 77.25	31.50	2094.16	37.53
34	77.25 - 73	33.33	2255.49	38.43
35	73 - 68	37.14	2450.55	39.62
36	68 - 64.25	38.89	2600.48	40.39
37	64.25 - 64	39.04	2610.58	40.43
38	64 - 60.5	40.85	2753.33	41.18
39	60.5 - 60.25	41.00	2763.63	41.22
40	60.25 - 60.1	41.09	2769.81	41.26
41	60.1 - 59.85	41.23	2780.13	41.31
42	59.85 - 59.1	41.64	2811.17	41.49
43	59.1 - 58.85	41.80	2821.54	41.54
44	58.85 - 55.4	43.86	2966.16	42.33
45	55.4 - 55.15	44.02	2976.74	42.37
46	55.15 - 54.75	44.26	2993.70	42.47
47	54.75 - 54.5	44.39	3004.32	42.52
48	54.5 - 49.5	46.96	3219.43	43.57
49	49.5 - 44.5	49.57	3439.61	44.56
50	44.5 - 41.3	51.26	3583.12	45.19
51	41.3 - 41.05	51.43	3594.41	45.22
52	41.05 - 39	52.59	3687.49	45.64
53	39 - 33	58.92	3965.30	47.00
54	33 - 31.5	59.92	4035.98	47.30
55	31.5 - 31.25	60.11	4047.80	47.33
56	31.25 - 30.5	60.61	4083.34	47.48
57	30.5 - 30.25	60.79	4095.21	47.52
58	30.25 - 25.75	63.78	4310.90	48.39
59	25.75 - 25.5	63.96	4322.99	48.42
60	25.5 - 24.7	64.48	4361.77	48.57
61	24.7 - 24.45	64.64	4373.92	48.61
62	24.45 - 24	64.90	4395.80	48.69
63	24 - 23.75	65.07	4407.97	48.73
64	23.75 - 18.75	68.39	4653.74	49.62
65	18.75 - 14.1	71.52	4886.11	50.38
66	14.1 - 13.8	71.74	4901.22	50.41
67	13.8 - 13.65	71.85	4908.78	50.43
68	13.65 - 10.5	74.00	5068.40	50.96
69	10.5 - 10.25	74.18	5081.14	50.98
70	10.25 - 5.25	77.54	5337.94	51.79
71	5.25 - 3	79.07	5454.80	52.15
72	3 - 2.9	79.15	5460.01	52.14
73	2.9 - 2.75	79.24	5467.84	52.17
74	2.75 - 2.65	79.31	5473.05	52.18
75	2.65 - 2.5	79.40	5480.88	52.20
76	2.5 - 2.25	79.55	5493.93	52.25
77	2.25 - 1.9	79.77	5512.22	52.30
78	1.9 - 1.65	79.92	5525.29	52.34
79	1.65 - 0	80.87	5611.77	52.55

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP16x16x0.375	Pole	8.4%	Pass
155 - 150	Pole	TP16x16x0.375	Pole	29.1%	Pass
150 - 146	Pole	TP16x16x0.375	Pole	47.8%	Pass
146 - 141	Pole	TP17.634x16x0.25	Pole	60.0%	Pass
141 - 136	Pole	TP19.268x17.634x0.25	Pole	72.2%	Pass
136 - 131	Pole	TP20.902x19.268x0.25	Pole	83.5%	Pass
131 - 125.9	Pole + Reinf.	TP22.569x20.902x0.55	Reinf. 26 Tension Rupture	65.0%	Pass
125.9 - 125.67	Pole + Reinf.	TP22.644x22.569x0.55	Reinf. 26 Tension Rupture	65.5%	Pass
125.67 - 120.67	Pole + Reinf.	TP24.278x22.644x0.525	Reinf. 26 Tension Rupture	74.5%	Pass
120.67 - 120.1	Pole + Reinf.	TP24.465x24.278x0.525	Reinf. 26 Tension Rupture	75.5%	Pass
120.1 - 119.85	Pole + Reinf.	TP24.546x24.465x0.525	Reinf. 21 Tension Rupture	75.9%	Pass
119.85 - 117.5	Pole + Reinf.	TP25.314x24.546x0.5125	Reinf. 21 Tension Rupture	79.5%	Pass
117.5 - 117.25	Pole + Reinf.	TP25.396x25.314x0.525	Reinf. 22 Tension Rupture	73.7%	Pass
117.25 - 115.5	Pole + Reinf.	TP25.968x25.396x0.5125	Reinf. 22 Tension Rupture	76.1%	Pass
115.5 - 115.25	Pole + Reinf.	TP26.05x25.968x0.7	Reinf. 1 Tension Rupture	66.5%	Pass
115.25 - 110.25	Pole + Reinf.	TP27.684x26.05x0.6625	Reinf. 1 Tension Rupture	72.2%	Pass
110.25 - 107.5	Pole + Reinf.	TP29.808x27.684x0.65	Reinf. 1 Tension Rupture	75.1%	Pass
107.5 - 102.5	Pole + Reinf.	TP29.074x28.082x0.7125	Reinf. 1 Tension Rupture	76.6%	Pass
102.5 - 100.5	Pole + Reinf.	TP29.471x29.074x0.7	Reinf. 1 Tension Rupture	79.1%	Pass
100.5 - 100.25	Pole + Reinf.	TP29.521x29.471x0.6375	Reinf. 21 Tension Rupture	80.9%	Pass
100.25 - 98.5	Pole + Reinf.	TP29.868x29.521x0.6375	Reinf. 21 Tension Rupture	83.0%	Pass
98.5 - 98.25	Pole + Reinf.	TP29.917x29.868x0.6625	Reinf. 23 Tension Rupture	79.4%	Pass
98.25 - 93.25	Pole + Reinf.	TP30.909x29.917x0.65	Reinf. 23 Tension Rupture	85.0%	Pass
93.25 - 90.5	Pole + Reinf.	TP31.455x30.909x0.65	Reinf. 23 Tension Rupture	87.9%	Pass
90.5 - 90.25	Pole + Reinf.	TP31.504x31.455x0.6875	Reinf. 23 Tension Rupture	86.7%	Pass
90.25 - 85.25	Pole + Reinf.	TP32.496x31.504x0.675	Reinf. 23 Tension Rupture	91.7%	Pass
85.25 - 83.5	Pole + Reinf.	TP32.843x32.496x0.6625	Reinf. 23 Tension Rupture	93.4%	Pass
83.5 - 83.25	Pole + Reinf.	TP32.893x32.843x0.9125	Reinf. 6 Tension Rupture	70.7%	Pass
83.25 - 80.75	Pole + Reinf.	TP33.389x32.893x0.9	Reinf. 6 Tension Rupture	72.7%	Pass
80.75 - 80.5	Pole + Reinf.	TP33.439x33.389x1.0625	Reinf. 6 Tension Rupture	59.7%	Pass
80.5 - 80.25	Pole + Reinf.	TP33.488x33.439x0.9875	Reinf. 11 Tension Rupture	64.3%	Pass
80.25 - 77.5	Pole + Reinf.	TP34.034x33.488x0.9625	Reinf. 11 Tension Rupture	66.1%	Pass
77.5 - 77.25	Pole + Reinf.	TP34.083x34.034x0.6875	Reinf. 11 Tension Rupture	92.6%	Pass
77.25 - 73	Pole + Reinf.	TP35.819x34.083x0.6875	Reinf. 11 Tension Rupture	96.2%	Pass
73 - 68	Pole + Reinf.	TP35.233x34.301x0.75	Reinf. 11 Tension Rupture	94.1%	Pass
68 - 64.25	Pole + Reinf.	TP35.932x35.233x0.7375	Reinf. 11 Tension Rupture	96.9%	Pass
64.25 - 64	Pole + Reinf.	TP35.978x35.932x0.95	Reinf. 7 Tension Rupture	77.1%	Pass
64 - 60.5	Pole + Reinf.	TP36.63x35.978x0.95	Reinf. 7 Tension Rupture	79.2%	Pass
60.5 - 60.25	Pole + Reinf.	TP36.677x36.63x1	Reinf. 7 Tension Rupture	75.3%	Pass
60.25 - 60.1	Pole + Reinf.	TP36.705x36.677x1	Reinf. 7 Tension Rupture	75.4%	Pass
60.1 - 59.85	Pole + Reinf.	TP36.751x36.705x1.05	Reinf. 7 Tension Rupture	73.1%	Pass
59.85 - 59.1	Pole + Reinf.	TP36.891x36.751x1.05	Reinf. 7 Tension Rupture	73.5%	Pass
59.1 - 58.85	Pole + Reinf.	TP36.938x36.891x1.125	Reinf. 7 Tension Rupture	67.4%	Pass
58.85 - 55.4	Pole + Reinf.	TP37.581x36.938x1.1	Reinf. 7 Tension Rupture	69.2%	Pass
55.4 - 55.15	Pole + Reinf.	TP37.627x37.581x1.1	Reinf. 7 Tension Rupture	69.4%	Pass
55.15 - 54.75	Pole + Reinf.	TP37.702x37.627x1.1	Reinf. 7 Tension Rupture	69.6%	Pass
54.75 - 54.5	Pole + Reinf.	TP37.748x37.702x0.825	Reinf. 10 Tension Rupture	92.0%	Pass
54.5 - 49.5	Pole + Reinf.	TP38.68x37.748x0.8125	Reinf. 10 Tension Rupture	95.0%	Pass
49.5 - 44.5	Pole + Reinf.	TP39.612x38.68x0.8	Reinf. 10 Tension Rupture	97.9%	Pass
44.5 - 41.3	Pole + Reinf.	TP40.208x39.612x0.7875	Reinf. 10 Tension Rupture	99.7%	Pass
41.3 - 41.05	Pole + Reinf.	TP40.254x40.208x0.875	Reinf. 10 Tension Rupture	87.5%	Pass
41.05 - 39	Pole + Reinf.	TP41.568x40.254x0.875	Reinf. 10 Tension Rupture	88.5%	Pass
39 - 33	Pole + Reinf.	TP40.996x39.886x1.175	Reinf. 10 Tension Rupture	69.4%	Pass
33 - 31.5	Pole + Reinf.	TP41.274x40.996x1.175	Reinf. 10 Tension Rupture	70.0%	Pass
31.5 - 31.25	Pole + Reinf.	TP41.32x41.274x1.175	Reinf. 10 Tension Rupture	69.7%	Pass
31.25 - 30.5	Pole + Reinf.	TP41.459x41.32x1.175	Reinf. 10 Tension Rupture	70.0%	Pass
30.5 - 30.25	Pole + Reinf.	TP41.505x41.459x1.125	Reinf. 9 Tension Rupture	73.5%	Pass
30.25 - 25.75	Pole + Reinf.	TP42.337x41.505x1.1	Reinf. 9 Tension Rupture	75.3%	Pass
25.75 - 25.5	Pole + Reinf.	TP42.383x42.337x1.075	Reinf. 9 Tension Rupture	79.5%	Pass
25.5 - 24.7	Pole + Reinf.	TP42.531x42.383x1.075	Reinf. 9 Tension Rupture	79.9%	Pass
24.7 - 24.45	Pole + Reinf.	TP42.578x42.531x0.95	Reinf. 9 Tension Rupture	87.5%	Pass
24.45 - 24	Pole + Reinf.	TP42.661x42.578x0.95	Reinf. 9 Tension Rupture	87.7%	Pass
24 - 23.75	Pole + Reinf.	TP42.707x42.661x1.2	Reinf. 9 Tension Rupture	70.5%	Pass
23.75 - 18.75	Pole + Reinf.	TP43.632x42.707x1.175	Reinf. 9 Tension Rupture	72.5%	Pass
18.75 - 14.1	Pole + Reinf.	TP44.492x43.632x1.15	Reinf. 9 Tension Rupture	74.3%	Pass
14.1 - 13.8	Pole + Reinf.	TP44.547x44.492x1.175	Reinf. 9 Tension Rupture	72.5%	Pass
13.8 - 13.65	Pole + Reinf.	TP44.575x44.547x1.175	Reinf. 9 Tension Rupture	72.5%	Pass
13.65 - 10.5	Pole + Reinf.	TP45.158x44.575x1.175	Reinf. 9 Tension Rupture	73.7%	Pass
10.5 - 10.25	Pole + Reinf.	TP45.204x45.158x1.175	Reinf. 9 Tension Rupture	73.8%	Pass
10.25 - 5.25	Pole + Reinf.	TP46.129x45.204x1.15	Reinf. 9 Tension Rupture	75.6%	Pass
5.25 - 3	Pole + Reinf.	TP46.545x46.129x1.15	Reinf. 9 Tension Rupture	76.4%	Pass
3 - 2.9	Pole + Reinf.	TP46.564x46.545x1.1	Reinf. 9 Tension Rupture	78.8%	Pass
2.9 - 2.75	Pole + Reinf.	TP46.591x46.564x0.95	Reinf. 18 Compression	87.1%	Pass
2.75 - 2.65	Pole + Reinf.	TP46.61x46.591x0.95	Reinf. 18 Compression	87.1%	Pass
2.65 - 2.5	Pole + Reinf.	TP46.638x46.61x0.95	Reinf. 18 Compression	87.1%	Pass
2.5 - 2.25	Pole + Reinf.	TP46.684x46.638x1	Reinf. 18 Compression	79.6%	Pass
2.25 - 1.9	Pole + Reinf.	TP46.749x46.684x1	Reinf. 18 Compression	79.7%	Pass
1.9 - 1.65	Pole + Reinf.	TP46.795x46.749x0.95	Reinf. 18 Compression	81.6%	Pass
1.65 - 0	Pole + Reinf.	TP47.1x46.795x0.95	Reinf. 18 Compression	82.1%	Pass
				Summary	
			Pole	83.5%	Pass
			Reinforcement	99.7%	Pass
			Overall	99.7%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity																								
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	R23	R24	R25	R26
160 - 155	562	n/a	562	18.41	n/a	18.41	8.4%																										
155 - 150	562	n/a	562	18.41	n/a	18.41	29.1%																										
150 - 146	562	n/a	562	18.41	n/a	18.41	47.8%																										
146 - 141	541	n/a	541	13.97	n/a	13.97	60.0%																										
141 - 136	708	n/a	708	15.29	n/a	15.29	72.2%																										
136 - 131	906	n/a	906	16.60	n/a	16.60	83.5%																										
131 - 125.9	1144	1278	2422	17.94	18.00	35.94	43.7%																										65.0%
125.9 - 125.67	1156	1286	2441	18.00	18.00	36.00	44.0%																										65.5%
125.67 - 120.67	1427	1465	2893	19.32	18.00	37.32	51.2%																										74.5%
120.67 - 120.1	1461	1487	2948	19.46	18.00	37.46	52.0%																										75.5%
120.1 - 119.85	1476	1496	2972	19.53	18.00	37.53	52.4%																					75.9%	75.9%				
119.85 - 117.5	1620	1586	3206	20.15	18.00	38.15	55.5%																					79.5%	79.5%				
117.5 - 117.25	1641	1680	3320	20.21	22.50	42.71	58.0%	64.4%																				73.7%	73.7%				
117.25 - 115.5	1755	1752	3507	20.67	22.50	43.17	60.3%	66.6%																				76.1%	76.1%				
115.5 - 115.25	1767	2921	4688	20.74	31.50	52.24	42.9%	66.5%	66.5%																			60.7%	60.7%				
115.25 - 110.25	2124	3279	5404	22.05	31.50	53.55	47.8%	72.2%	72.2%																			65.9%	65.9%				
110.25 - 107.5	2340	3485	5826	22.77	31.50	54.27	50.4%	75.1%	75.1%																			68.5%	68.5%				
107.5 - 102.5	3060	3601	6661	28.90	31.50	60.40	47.7%	76.6%	76.6%																			70.0%	70.0%				
102.5 - 100.5	3188	3696	6884	29.30	31.50	60.80	49.5%	79.1%	79.1%																			72.2%	72.2%				
100.5 - 100.25	3233	3141	6373	29.35	29.13	58.47	59.3%		78.0%																			81.0%		71.0%			
100.25 - 98.5	3349	3212	6561	29.70	29.13	58.82	61.0%		80.1%																			83.0%		72.9%			
98.5 - 98.25	3360	3543	6903	29.75	32.13	61.87	57.9%												70.1%									74.7%		79.4%			
98.25 - 93.25	3708	3770	7478	30.74	32.13	62.87	62.7%												75.2%									80.0%		85.0%			
93.25 - 90.5	3909	3898	7807	31.29	32.13	63.42	65.3%												77.9%									82.8%		87.9%			
90.5 - 90.25	4006	4381	8388	31.34	41.38	72.72	64.4%												65.3%								63.6%			86.7%			
90.25 - 85.25	4397	4647	9044	32.34	41.38	73.71	69.0%												69.4%								67.5%			91.7%			
85.25 - 83.5	4540	4741	9281	32.69	41.38	74.06	70.6%												70.8%								68.8%			93.4%			
83.5 - 83.25	4510	7810	12320	32.74	59.38	92.11	51.7%						70.7%						58.9%								56.9%			65.4%			
83.25 - 80.75	4719	8036	12755	33.24	59.38	92.61	53.4%						72.7%						60.6%								58.5%			67.2%			
80.75 - 80.5	4686	10260	14946	33.29	70.00	103.29	43.9%			48.8%			59.7%						58.9%								52.3%			59.1%			
80.5 - 80.25	4703	9166	13869	33.34	67.88	101.21	47.3%			50.2%			61.8%					64.3%								52.8%						
80.25 - 77.5	4939	9452	14390	33.88	67.88	101.76	49.0%			51.8%			63.6%					66.1%								54.4%						
77.5 - 77.25	4992	5677	10668	33.93	49.88	83.81	68.7%			62.7%								92.6%								64.3%						
77.25 - 73	5374	5944	11318	34.78	49.88	84.66	72.1%			65.3%								96.2%								67.0%						
73 - 68	6579	6050	12629	42.03	49.88	91.91	66.2%			65.2%								94.1%								67.0%						
68 - 64.25	6982	6279	13261	42.87	49.88	92.75	68.6%			67.3%								96.9%								69.1%						
64.25 - 64	7072	9951	17023	42.93	63.63	106.55	55.4%							77.1%				73.7%								63.1%						
64 - 60.5	7466	10299	17765	43.72	63.63	107.34	57.3%							79.2%				75.8%								65.0%						
60.5 - 60.25	7491	11275	18766	43.77	70.00	113.77	54.5%							75.3%			69.7%									61.6%						
60.25 - 60.1	7508	11292	18800	43.81	70.00	113.81	54.6%							75.4%			69.8%									61.7%						
60.1 - 59.85	7637	12418	20055	43.86	74.13	117.99	53.0%							73.1%			68.2%						56.2%			62.0%						
59.85 - 59.1	7725	12509	20234	44.03	74.13	118.16	53.3%							73.5%			68.6%						56.6%			62.4%						
59.1 - 58.85	7633	13739	21371	44.09	82.39	126.48	48.9%							67.4%			62.9%				62.6%		56.2%			56.0%						
58.85 - 55.4	8041	14201	22242	44.86	82.39	127.25	50.6%							69.2%			64.6%				64.3%		57.8%			57.6%						
55.4 - 55.15	8071	14234	22305	44.92	82.39	127.31	50.7%							69.4%			64.7%				64.4%		57.9%		57.7%							
55.15 - 54.75	8120	14288	22408	45.01	82.39	127.40	50.9%							69.6%			64.9%				64.6%		58.1%		57.9%							
54.75 - 54.5	8221	8999	17220	45.06	58.02	103.08	68.7%										92.0%				79.8%		74.8%		70.0%							
54.5 - 49.5	8847	9431	18278	46.19	58.02	104.20	71.6%										95.0%				82.5%		77.5%		72.5%							
49.5 - 44.5	9504	9873	19377	47.31	58.02	105.33	74.5%										97.9%				85.1%		80.0%		74.9%							
44.5 - 41.3	9941	10162	20103	48.03	58.02	106.04	76.4%										99.7%				86.7%		81.5%		76.4%							
41.3 - 41.05	9821	12255	22077	48.09	68.64	116.73	65.7%				67.6%						87.5%				83.5%		75.7%		69.0%							
41.05 - 39	10106	12479	22585	48.55	68.64	117.19	66.7%				68.5%						88.5%				84.6%		76.6%		69.8%							
39 - 33	10346	20124	30470	48.98	93.02	141.99	51.4%				61.5%				68.4%		69.4%				67.6%		64.9%		62.6%							
33 - 31.5	10560	20386	30946	49.31	93.02	142.33	52.0%				62.1%				69.0%		70.0%				68.2%		65.5%		63.2%							
31.5 - 31.25	10602	20827	31429	49.37	94.54	143.91	52.9%				61.7%				69.1%		69.7%				68.3%	61.8%			63.2%							
31.25 - 30.5	10710	20962	31672	49.54	94.54	144.07	53.2%				62.0%				69.4%		70.0%				68.6%	62.1%			63.5%							
30.5 - 30.25	10742	19797	30539	49.59	91.20	140.79	55.1%				62.1%				71.7%	73.5%					69.4%		64.9%		64.7%							
30.25 - 25.75	11407	20567	31974	50.60	91.20	141.80	57.0%				63.7%				73.5%	75.3%					71.1%		66.5%		66.3%							
25.75 - 25.5	11472	19614	31087	50.65	88.86	139.51	60.2%				60.9%					79.5%					73.8%		66.4%		62.8%						74.4%	
25.5 - 24.7	11594	19739	31334	50.83	88.86	139.69	60.5%				61.2%					79.9%					74.1%		66.7%		63.1%						74.6%	
24.7 - 24.45	11615	16785	28400	50.89	67.61	118.49	66.4%				69.9%					87.5%					78.4%		81.4%								80.0%	
24.45 - 24	11684	16844	28528	50.99	67.61	118.59	66.6%				70.0%					87.7%					78.6%		81.5%								80.1%	
24 - 23.75	11718	23817	35535	51.04	89.64	140.68	53.5%				57.8%					70.5%					63.5%		65.6%		65.8%							
23.75 - 18.75	12503	24736	37239	52.16	89.64	141.80	55.6%				59.5%					72.5%					65.3%		67.5%		67.4%							
18.75 - 14.1	13263	25607	38870	53.20	89.64	142.83	57.5%				61.1%					74.3%					67.0%		69.1%		68.9%							
14.1 - 13.8	13308	26490	39798	53.26	92.25	145.51	56.1%				61.0%					72.5%			70.4%	65.9%					67.8%							
13.8 - 13.65	13333	26520	39852	53.30	92.25	145.54	56.2%				61.0%					72.5%			70.4%	66.0%					67.8%							
13.65 - 10.5	13867	27141	41008	54.00	92.25	146.25	57.4%				62.1%					73.7%			71.6%	67.1%					68.8%							
10.5 - 10.25	13907	27205	41112	54.05	87.62	141.68	56.3%					72.6%				73.8%			71.7%	67.2%					69.6%							
10.25 - 5.25	14785	28210	42995	55.17	87.62	142.79	58.2%					74.4%				75.6%			73.4%	68.9%					71.1%							
5.25 - 3	15193	28668	43861	55.67	87.62	143.29	59.1%					75.2%				76.4%			74.2%	69.6%					71.8%							
3 - 2.9	15209	27045	42254	55.69	81.62	137.32	62.3%									78.8%			77.2%	77.0%					77.2%							
2.9 - 2.75	15355	21655	37010	55.73	70.32	126.05	76.2%									87.0%			79.6%						87.1%							
2.75 - 2.65	15373	21670	37043	55.75	70.32	126.07	76.3%									87.1%			79.6%						87.1%							
2.65 - 2.5	15401	21692	37093	55.78	70.32	126.10	76.4%									87.1%			79.6%						87.1%							
2.5 - 2.25	15338	23940	39279	55.84	72.32	128.16	69.3%												75.2%						79.6%					74.3%		
2.25 - 1.9	15403	23998	39401	55.92	72.32	128.24	69.5%												75.3%						79.7%					74.4%		
1.9 - 1.65	15437	22604	38041	55.97	64.06	120.03	71.2%																		81.6%					76.8%		
1.65 - 0	15744	22859	38602	56.34	64.06	120.40	72.0%																		82.1%					77.3%		

Note: Section capacity checked in 5 degree increments.

FDH INFRASTRUCTURE SERVICES
ENGINEERING INNOVATION

Version:	1.7
Version Date:	4/27/2017

FDH Infrastructure Services, LLC -- 6521 Meridien Drive, Raleigh, NC 27616 -- Ph. 919.755.1012 -- Fax 919.755.1031

Monopole Anchor Rod Modifications

Project & Site Details	
Project No.	18SUXX1400
Project Name	SOUTHINGTON, SMORON
Site ID	876334
Date	August 28, 2018
Code	ANSI/TIA-222-G
Maximum Stress Ratio	100%

Tower Reactions		
Moment	5612	k-ft
Axial	81	k
Shear	53	k

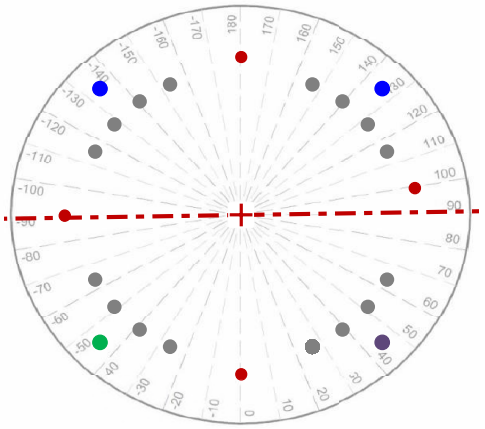
Optional Inputs	
Axis Angle to 0° (°)	91
Additional Inertia (in^4)	0

Centroid		
x	-0.0121	in
y	0.1385	in

Existing Anchor Rod Input		
Anchor Rods	Y	(Y/N)
Base Plate Type	Square	
Quantity	16	Rods
Grade	A615-75	
Thread Form	Non-Upset	
Diameter	2.25	in
Bolt Circle	54.375	in
Angle to 0° of First Rod		
Spacing	6	in
Detail Type	c	
l_{ar}		
ŋ	0.55	

Foundation Input		
Pier Diameter	7	ft
f'c, Pier Concrete Strength	3000	psi
fy, Rebar Yield Strength	60000	psi
Vertical Rebar Size	#11	
Vertical Rebar Quantity		Bars
Horizontal Rebar Size	#5	
Side Cover	4	in
Top Cover	2	in
τ, Ultimate Bond Resistance	1.69	ksi
Vertical Bar Diameter	1.41	in
Horizontal Bar Diameter	0.625	in
Rebar Cage Circle	73.34	in

Moment of Inertia		
	I (in^4)	Angle (°)
Min.	36248.1	140
Max.	36977.5	50
Current	**36662.7**	**91**



Post-Installed Anchor Rods		
Quantity	8	Rods
Any Symmetric Rods?	N	(Y/N)

Individual Post-Installed Anchor Rod Input

Name	Angle	Axis Angle of Max (°)	Axial Force (kips)	Allow. Axial (kips)	Controlling	Percentage	Pass/Fail
AR1	0	91.0	131.1	142.7	Eccentric Weld to Sleeve	91.9%	Pass
AR1	180	91.0	129.9	142.7	Eccentric Weld to Sleeve	91.0%	Pass
AR1	-90	179.0	130.9	142.7	Eccentric Weld to Sleeve	91.7%	Pass
AR1	100	8.5	130.5	142.7	Eccentric Weld to Sleeve	91.4%	Pass
AR2	-135	135.5	246.0	286.4	Eccentric Weld to Pole	85.9%	Pass
AR2	135	44.5	241.3	286.4	Eccentric Weld to Pole	84.2%	Pass
AR3	-45	45.0	242.6	325.0	Anchor Rod Tension	74.6%	Pass
AR4	45	135.0	247.5	325.0	Anchor Rod Tension	76.2%	Pass
Existing Rods		141.0	212.6	260.0	Shear-Tension Interaction	81.8%	Pass

Overall	91.9%	Pass

Post-Installed Anchor Rod Summary

Post-Installed Anchor Rods						Anchor Rod Sleeve		Transfer Plate	
Assembly Name	Diameter (in)	Grade	Bolt Circle (in)	Target Tension (kips)	Required Embedment (ft)	Member	Grade	Dimensions (H" x W" x T")	Grade
AR1	1.75	F1554 Gr. 105	59.1	111	5.28	HSS4x4x1/2	A500-46	42 x 4 x 1 1/4	A572-65
AR2	2.25	A193 B7	66.8125	190	5.34	HSS5x5x1/2	A500-50	30 x 6 1/2 x 1 1/4	A572-65
AR3	2.25	A193 B7	66.8125	190	5.34	HSS5x5x1/2	A500-50	306 x 5 7/8 x 1 1/4	A572-65
AR4	2.25	A193 B7	66.8125	190	5.34	HSS5x5x1/2	A500-50	342 x 5 7/8 x 1 1/4	A572-65

Anchor Rod Colors

Apply New Rod Colors

AR1	
AR2	
AR3	
AR4	

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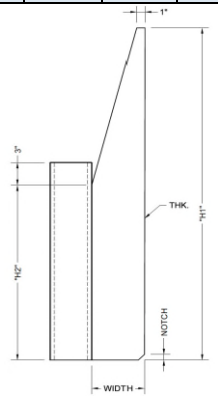
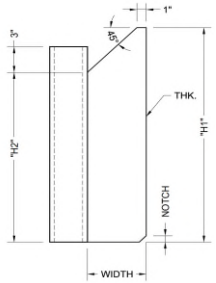
Anchor Rod Assembly Database

Anchor Rod								Anchor Rod Sleeve					Transfer Plate									
Assembly Name	Grade	Thread Form	Diameter (in)	Bolt Circle (in)	Unbraced Length (in)	Installed Through Base Plate? (Y/N)	Breaker Bond Tape Length (in)	Sleeve Member Type	Sleeve Member	Sleeve Grade	Analysis/ Design	AISC Sleeve Comp. Equation (13th Ed.)	Detail	Width (in)	Thickness (in)	Overall Height "H1" (in)	Term Height "H2" (in)	Notch (in)	Plate Grade	Weld Electrode (ksi)	Vert. Weld to Pole Size (in)	Vert. Weld to Sleeve Size (in)
AR1	F1554 Gr. 105	Non-Upset	1.75	59.1	2.5	N	0	HSS Square	HSS4x4x1/2	A500-46	Analysis	J7-1	1	4	1.25	42	9	0.75	A572-65	80	3/8	3/8
AR2	A193 B7	Non-Upset	2.25	66.8125	5	N	6	HSS Square	HSS5x5x1/2	A500-50	Analysis	J7-1	2	6.5	1.25	30	24.5	0	A572-65	80	1/4	3/8
AR3	A193 B7	Non-Upset	2.25	66.8125	5	N	6	HSS Square	HSS5x5x1/2	A500-50	Analysis	J7-1	1	5.875	1.25	306	30	0.75	A572-65	80	1/4	3/8
AR4	A193 B7	Non-Upset	2.25	66.8125	5	N	6	HSS Square	HSS5x5x1/2	A500-50	Analysis	J7-1	1	5.875	1.25	342	30	0.75	A572-65	80	1/4	3/8



Detail 1



Detail 2

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

Assumptions:
1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
3) Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *876334*
Site Name: *SOUTHINGTON, SMORON*
App #: *421254 Rev. 2*

Anchor Rod Data		
Eta Factor, η	0.55	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	54.375	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	55	in
Thick:	3	in
Grade:	50	ksi
Clip Distance:	7.0711	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	47.1	in
Thick:	0.375	in
Grade:	60	ksi
# of Sides:	12	"0" IF Round

Base Reactions		
TIA Revision:	G	
Factored Moment, Mu:	3654	ft-kips
Factored Axial, Pu:	81	kips
Factored Shear, Vu:	53	kips

Anchor Rod Results

TIA G --> Max Rod (Cu+ Vu/η):	212.6 Kips
Axial Design Strength, Φ*Fu*Anet:	260.0 Kips
Anchor Rod Stress Ratio:	81.8% **Pass**

Base Plate Results	Flexural Check
Base Plate Stress:	32.9 ksi
PL Design Bending Strength, Φ*Fy:	45.0 ksi
Base Plate Stress Ratio:	73.1% **Pass**

PL Ref. Data
Yield Line (in):
30.68
Max PL Length:
30.68

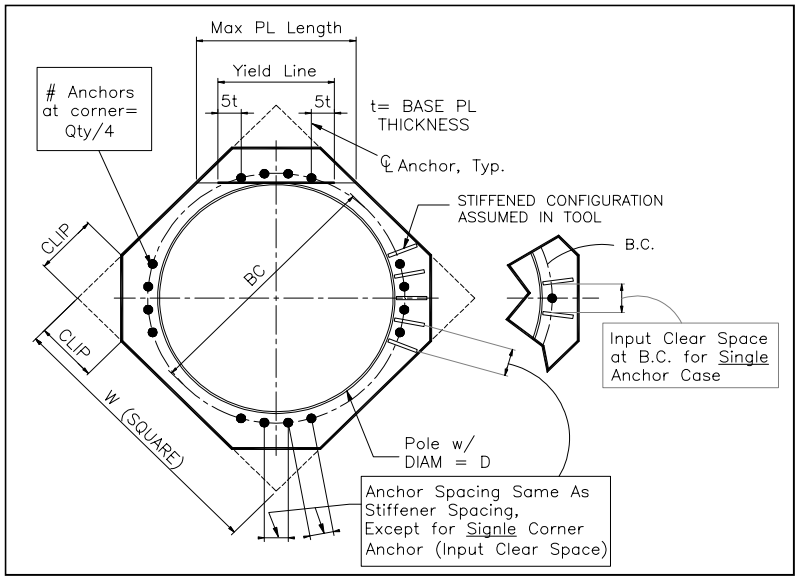
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check:	N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

FDH VELOCITEL
ENGINEERING INNOVATION

Version:	2.4
Version Date:	10/31/2016

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Base Transfer Stiffener

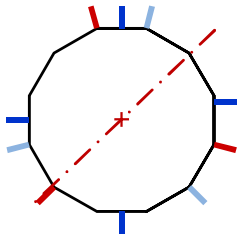
Project & Site Details	
Project No.	18SUXX1400
Project Name	SOUTHINGTON, SMORON
Site ID	876334
Date	August 28, 2018
Code	ANSI/TIA-222-G
Maximum Stress Ratio	100%

Tower Reactions		
Moment	5612	k-ft
Axial	81	kips
Shear	53	kips

Optional Inputs	
Axis Angle to 0° (°)	134
Additional Inertia (in^4)	

Pole Properties		
Pole Diameter	47.1	in
Pole Thickness	0.375	in
Pole Grade	A607-60	
Number of Sides	12	Sided

Centroid		
x	0.0000	in
y	0.1673	in



Moment of Inertia		
	I (in^4)	Angle (°)
Min.	35533.1	137
Max.	36499.3	47
Current	**35536.5**	**134**

Stiffener Properties		
Stiffener Quantity	10	Stiffeners
Any Symmetric Plates?	N	(Y/N)

Individual Stiffener Input

Stiffener Name	Angle to 0° (°)	Axis Angle of Max (°)	Controlling Case	Percentage	Pass/Fail
2. PL 5.875x1.25	45	134	Stress	99.7%	Pass
1. PL 5.875x1.25	-45	46	Stress	97.1%	Pass
1. PL 5.875x1.25	75	162	Stress	98.9%	Pass
2. PL 5.875x1.25	-75	13	Stress	97.6%	Pass
2. PL 5.875x1.25	165	77	Stress	96.8%	Pass
1. PL 5.875x1.25	-165	108	Stress	98.1%	Pass
3. PL 4x1.25	0	93	Stress	89.8%	Pass
3. PL 4x1.25	180	93	Stress	88.8%	Pass
3. PL 4x1.25	-90	178	Stress	89.5%	Pass
3. PL 4x1.25	100	9	Stress	90.5%	Pass
Pole		137	Stress	78.3%	Pass
			Overall	**99.7%**	**Pass**

Stiffener Input

Stiffener Name	Width (in)	Thickness (in)	Considering Plate Capacity (Y/N)	Height (in)	Notch (in)	Offset from Pole (in)	Grade	Weld Electrode (ksi)	Vertical Weld Size (in)	Horizontal Weld Type	Groove Angle (°)	Horizontal Groove Size (in)	Horizontal Fillet Size (in)
1. PL 5.875x1.25	5.875	1.25	Y	306	0.75	0	A572-65	80	1/4	CJP			
2. PL 5.875x1.25	5.875	1.25	Y	342	0.75	0	A572-65	80	1/4	CJP			
3. PL 4x1.25	4	1.25	Y	42	0.75	0	A572-65	80	3/8	CJP			

FDH VELOCITEL
ENGINEERING INNOVATION

Version: 1.6
Issue Date: #########

Flange Bypass for Step Monopole with Internal Flange Plates

Code Specifications:	
Code (F or G)	G
Φ or Ω	0.9
Maximum Stress Ratio	1.00

Project Details:	
Site Name:	SOUTHINGTON
Job No. :	18SUXX1400
Elevation:	146'

Bypass Plate Info.	
Qty. Bypass Plates	3
ø Upper Pole *(in)*	16
ø Lower Pole *(in)*	22
Height - Total *(in)*	36
Bypass Plate Thk. *(in)*	1.25
Width - Min. *(in)*	5
ø Flange Plates *(in)*	32
Upper Flange Plate Thk. *(in)*	1.5
Lower Flange Plate Thk. *(in)*	1.5
Stiffener Height *(in)*	2
Unbraced Length *(in)*	8
Veritcal Clearance *(in)*	1
Horizontal Clearance *(in)*	1
Upper Notch *(in)*	9
Lower Notch *(in)*	6
Upper Plate Width *(in)*	14
Lower Plate Width *(in)*	11
F_y - Bypass Plates *(ksi)*	65
F_u - Bypass Plates *(ksi)*	80
A_g *(in^2)*	6.25
ø of stiffeners *(in)*	39
y_{bar} *(in)*	19.5
$I_{stiffeners}$ *(in^4)*	3564.84375

Reactions From tnx:	
Moment *(k-ft)*	112.11
Axial *(k)*	5.51
Shear *(k)*	12.09

Upper Eccentric Weld	
Weld Thk.	6
Upper L_{weld} *(in)*	14
e_x *(in)*	11.50
a	0.82
C	1.53
Electrode	80
Electrode Strength, C1	1.03

Lower Eccentric Weld	
Weld Thk.	6
Lower L_{weld} *(in)*	14
e_x *(in)*	8.50
a	0.61
C	1.98
Electrode	80
Electrode Strength, C1	1.03

Check Tension	
T_u *(k)*	44.16
φTn (k)	365.63
%capacity	**12.08%**

Check Stress	
s_u *(ksi)*	8.01
φsn (ksi)	58.50
%capacity	**13.69%**

Check Compression - Buckling	
K	0.8
I_{min} *(in^4)*	0.814
r *(in)*	0.361
KL/r	17.74
F_e *(ksi)*	909.86
F_{cr} *(ksi)*	63.09
P_u *(k)*	47.83
φPn (k)	354.85
%capacity	**13.48%**

Check Compression - Lower Portion	
P_u *(k)*	47.83
φPn (k)	118.53
%capacity	**40.35%**

Check Upper Eccentric Weld	
P_u *(k)*	47.83
φRn (k)	99.14
%capacity	**48.24%**

Check Compression - Upper Portion	
P_u *(k)*	47.83
φPn (k)	122.85
%capacity	**38.93%**

Check Lower Eccentric Weld	
P_u *(k)*	47.83
φRn (k)	128.6676
% capacity	**37.17%**

Pier and Pad Foundation

BU # :	876334
Site Name:	SOUTHINGTON
App. Number:	421254 Rev. 2

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☑

Superstructure Analysis Reactions		
Compression, P_{comp}:	81	kips
Base Shear, Vu_comp:	53	kips
Moment, M_u:	3240	ft-kips
Tower Height, **H**:	160	ft
BP Dist. Above Fdn, bp_{dist}:	4.25	in
Bolt Circle / Bearing Plate Width, **BC**:	54.375	in

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	91.47	53.00	**57.9%**	**Pass**
Bearing Pressure (ksf)	4.78	4.77	**99.9%**	**Pass**
*Overturning (kip*ft)*	3471.35	3470.77	**100.0%**	**Pass**
*Pad Flexure (kip*ft)*	2292.80	2145.01	**93.6%**	**Pass**
Pad Shear - 1-way (kips)	989.95	278.04	**28.1%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**

Soil Rating:	**100.0%**
Structural Rating:	**93.6%**

Pad Properties		
Depth, **D**:	3	ft
Pad Width, **W**:	23.083	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size, **Sp**:	8	
Pad Rebar Quantity, **mp**:	15	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, **δc**:	150	pcf

Soil Properties		
Total Soil Unit Weight, **γ**:	123	pcf
Ultimate Net Bearing, Qnet:	6.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, **ϕ**:	34	degrees
SPT Blow Count, N_{blows}:		
Base Friction, **μ**:	0.35	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

Drilled Pier Foundation

BU # :	876334
Site Name:	SOUTHINGTON
Order Number:	421254 Rev. 2

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)	2372	
Axial Force (kips)	81	
Shear Force (kips)	53	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	21	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 21' below grade		
Pier Diameter	7	ft
Rebar Quantity	32	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	7.13	-
Soil Safety Factor	2.76	-
Max Moment (kip-ft)	2674.69	-
Rating	*48.2%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	719.75	-
End Bearing (kips)	1665.42	-
Weight of Concrete (kips)	148.94	-
Total Capacity (kips)	2385.17	-
Axial (kips)	229.94	-
Rating	*9.6%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	6.98	-
Critical Moment (kip-ft)	2674.49	-
Critical Moment Capacity	7594.00	-
Rating	*35.2%*	-

Soil Interaction Rating	**48.2%**
Structural Foundation Rating	**35.2%**

Check Limitation	
N/A	☐

Soil Profile

Groundwater Depth	n/a	ft	# of Layers: 6

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	2	2	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	2	3.5	1.5	130	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	3.5	6	2.5	130	150	0	36	0.000	0.000	0.65	0.65			Cohesionless
4	6	8	2	120	150	0	30	0.000	0.000	0.90	0.90			Cohesionless
5	8	12.4	4.4	130	150	0	36	0.000	0.000	1.38	1.38			Cohesionless
6	12.4	21	8.6	145	150	0	40	0.000	0.000	3.97	3.97	57.7		Cohesionless

APPENDIX D

MODIFICATION DRAWINGS

PROJECT DESCRIPTION:

MODIFICATION DRAWINGS FOR A 160' MONOPOLE

CROWN CASTLE

HOT WORK INCLUDED	
N/A	BASE GRINDING ONLY
N/A	BASE WELDING (AND GRINDING)
N/A	AERIAL GRINDING ONLY
X	AERIAL WELDING (AND GRINDING)

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

QUALIFIED ENGINEERING SERVICES ARE AVAILABLE FROM FDH TO ASSIST CONTRACTORS IN CLASS IV RIGGING PLAN REVIEWS. TO REQUEST QUALIFIED ENGINEERING SERVICES, PLEASE CONTACT FDH AT RIGGING@FDH-IS.COM OR (919) 755-1012

PROJECT DATA

CODES AND STANDARDS	
BUILDING CODE	2016 CONNECTICUT STATE BUILDING CODE
TIA STANDARD	ANSI/TIA-222-G
ULTIMATE WIND SPEED WITHOUT ICE (MPH)	125
NOMINAL WIND SPEED WITH ICE (MPH)	50
SERVICE WIND SPEED (MPH)	60
ICE THICKNESS (IN)	1
EXPOSURE CATEGORY	C
RISK CATEGORY	II
TOPOGRAPHIC CATEGORY	1
CREST HEIGHT (FT)	0
S_S (G)	0.185
S_1 (G)	0.064

PROJECT CONTACTS

CCI PROJECT MANAGER NAME	DAN VADNEY
CCI PROJECT MANAGER EMAIL ADDRESS	DAN.VADNEY@CROWNCASTLE.COM
CCI PROJECT MANAGER PHONE NUMBER	(518) 373-3510
CCI CONSTRUCTION MANAGER NAME	JASON D'AMICO
CCI CONSTRUCTION MANAGER EMAIL ADDRESS	JASON.DAMICO@CROWNCASTLE.COM
CCI CONSTRUCTION MANAGER PHONE NUMBER	(860) 209-0104
FDH PROJECT ENGINEER NAME	**DREW ALEXANDER, EI**
FDH PROJECT ENGINEER EMAIL ADDRESS	**DREW.ALEXANDER@FDH-INC.COM**
FDH PROJECT ENGINEER PHONE NUMBER	**(919) 755-1012**

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

625 SPRING STREET
SOUTHINGTON, CT 06489

COORDINATES:

LAT: 41.6325°
LONG: -72.8943°

FAILING STRUCTURAL ANALYSIS REPORT	
STRUCTURAL ANALYSIS COMPANY	JACOBS ENGINEERING GROUP, INC.
PROJECT NO.	1569723
DATE	MAY 21, 2018
WORK ORDER#	1569723
CCI DOC#	7561391
PASSING STRUCTURAL ANALYSIS / MODIFICATION DRAWINGS	
STRUCTURAL ANALYSIS COMPANY	FDH INFRASTRUCTURE SERVICES, LLC
PROJECT NO.	18SUXX1400
DATE	AUGUST 28, 2018
SDD WORK ORDER#	1606423
CARRIER NAME	AT&T MOBILITY
APPLICATION	421254 REV. 2
TOWER MAPPING FIRM	FDH VELOCITEL
JOB#	16BFMQ1500

THIS REPORT WAS BASED ON A SPECIFIC ANTENNA AND COAX CONFIGURATION PROVIDED BY THE TOWER OWNER. ANY CHANGE TO THIS INFORMATION MUST BE REVIEWED BY FDH.

ALL CONSTRUCTION SHALL COMPLY WITH THE ANSI/ASSE A10.48 AND ANSI/TIA-322 STANDARDS.

LOOK UP!

SAFETY CLIMB: "LOOK UP"
THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENTS AND EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB 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, OR IMPACT TO THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

SHEET INDEX

SHEET	DESCRIPTION	REV.
S-1	TITLE SHEET	0
S-2	MODIFICATION INSPECTION CHECKLIST	0
S-3	GENERAL NOTES	0
S-4	FORGBOLT SPECIFICATIONS AND TIGHTENING PROCEDURE	0
S-5	NEXGEN2 BOLT SPECIFICATIONS AND TIGHTENING PROCEDURE	0
S-6	AJAX ONESIDE BOLT SPECIFICATIONS AND TIGHTENING PROCEDURE	0
S-7	MODIFICATION SCHEDULE, FLAT PLATE INSTALLATION DETAILS I, & BASE LEVEL LAYOUT	0
S-8	FLAT PLATE INSTALLATION DETAILS II	0
S-9	FLANGE BYPASS STIFFENER INSTALLATION DETAILS	0

PREPARED BY:

FDH INFRASTRUCTURE SERVICES
ENGINEERING INNOVATION
FDH INFRASTRUCTURE SERVICES, LLC
6521 MERIDIEN DRIVE RALEIGH, NC 27616
PHONE: 919-755-1012 FAX: 919-755-1031

PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED
PROFESSIONAL ENGINEER

08/29/18

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JS
CHECKED BY:	DMA
ENG APPV'D:	DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

625 SPRING STREET
SOUTHINGTON, CT 06489

SHEET TITLE

TITLE SHEET

SHEET NUMBER

S-1

MODIFICATION INSPECTION NOTES:

MI CHECKLIST			
REQUIRED	REPORT ITEM	APPLICABLE CROWN DOC #	BRIEF DESCRIPTION
PRE-CONSTRUCTION			
X	MI CHECKLIST DRAWING	CED-SOW-10007	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
X	EOR APPROVED SHOP DRAWINGS	CED-SOW-10007	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE AND PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY/SHOP DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	CED-SOW-10007	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR CERTIFIED WELD INSPECTION	CED-SOW-10007 CED-STD-10069	A CWI SHALL INSPECT ALL WELDING PERFORMED ON STRUCTURAL MEMBERS DURING FABRICATION. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORTS (MTR)	CED-SOW-10007	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR MATERIAL USED AS REQUIRED PER SECTION 9.2.5 OF CED-SOW-10007. MTRS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION REPORT	CED-SOW-10066 CED-STD-10069	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	NDE OF MONOPOLE BASE PLATE	ENG-SOW-10033	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	CED-SOW-10007	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
CONSTRUCTION			
N/A	FOUNDATION INSPECTIONS	CED-SOW-10144	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A VISUAL OBSERVATION OF THE REBAR SHALL BE PERFORMED BEFORE PLACING THE EPOXY. A SEALED WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONCRETE COMP. STRENGTH AND SLUMP TEST	CED-SOW-10144	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE FOUNDATION REPORT.
N/A	EARTHWORK	CED-SOW-10144	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER AND RESULTS INCLUDED AS PART OF THE FOUNDATION REPORT.
N/A	MICROPILE/ROCK ANCHOR	CED-SOW-10144	MICROPILES/ROCK ANCHORS SHALL BE INSPECTED BY THE FOUNDATION INSPECTION VENDOR AND SHALL BE INCLUDED AS PART OF THE FOUNDATION INSPECTION REPORT, ADDITIONAL TESTING AND/OR INSPECTION REQUIREMENTS ARE NOTED IN THESE CONTRACT DOCUMENTS.
N/A	POST-INSTALLED ANCHOR ROD VERIFICATION	CED-SOW-10007	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH CROWN REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	BASE PLATE GROUT VERIFICATION	ENG-STD-10323	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS REMOVED AND/OR INSTALLED IN ACCORDANCE WITH CROWN REQUIREMENTS FOR INCLUSION IN THE MI REPORT.
X	FIELD CERTIFIED WELD INSPECTION	CED-SOW-10066 CED-STD-10069	A CROWN APPROVED CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST FIELD WELDS, FOLLOWING ALL PROCEDURES SPECIFIED IN CROWN STANDARD DOCUMENTS APPLICABLE TO WELD INSPECTIONS. A REPORT SHALL BE PROVIDED. NDE OF FIELD WELDS SHALL BE PERFORMED AS REQUIRED BY CROWN STANDARDS AND CONTRACT DOCUMENTS. THE NDE REPORT SHALL BE INCLUDED IN THE CWI REPORT.
X	ON-SITE COLD GALVANIZING VERIFICATION	ENG-STD-10149 ENG-BUL-10149	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS AND APPLICABLE STANDARDS.
N/A	TENSION TWIST AND PLUMB	CED-PRC-10182 CED-STD-10261	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT IN ACCORDANCE WITH APPLICABLE STANDARDS DOCUMENTING TENSION TWIST AND PLUMB.
X	GC AS-BUILT DRAWINGS	CED-SOW-10007	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED WHEN THE EOR IS SPECIFYING ADDITIONAL INSPECTIONS DESCRIPTION AND APPLICABLE STANDARDS SHALL BE APPLIED.
POST-CONSTRUCTION			
X	CONSTRUCTION COMPLIANCE LETTER	CED-SOW-10007	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
N/A	POST-INSTALLED ANCHOR ROD PULL TESTS	CED-PRC-10119	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY A CROWN APPROVED PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
X	PHOTOGRAPHS	CED-SOW-10007	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
N/A	BOLT INSTALLATION VERIFICATION REPORT	CED-SOW-10007	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
X	PUNCHLIST DEVELOPMENT AND CORRECTION DOCUMENTATION	CED-PRC-10283 CED-FRM-10285	FINAL PUNCHLIST INDICATING ALL NONCONFORMANCE(S) IDENTIFIED AND THE FINAL RESOLUTION AND APPROVAL.
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	CED-SOW-10007	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.

GENERAL:

THE MI IS AN ON-SITE VISUAL AND HANDS-ON INSPECTION OF TOWER MODIFICATIONS INCLUDING A REVIEW OF CONSTRUCTION REPORTS AND ADDITIONAL PERTINENT DOCUMENTATION PROVIDED BY THE GENERAL CONTRACTOR (GC), AS WELL AS ANY INSPECTION DOCUMENTS PROVIDED BY 3RD PARTY INSPECTORS. THE MI IS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS; IN ACCORDANCE WITH APPLICABLE CROWN STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

NO DOCUMENT, CODE OR POLICY CAN ANTICIPATE EVERY SITUATION THAT MAY ARISE. ACCORDINGLY, THIS CHECKLIST IS INTENDED TO SERVE AS A SOURCE OF GUIDING PRINCIPLES IN ESTABLISHING GUIDELINES FOR MODIFICATION INSPECTION.

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, AND THE MI INSPECTOR DOES NOT TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES. THE MI INSPECTOR SHALL INSPECT AND NOTE CONFORMANCE/NONCONFORMANCE AND PROVIDE TO THE CROWN POINT OF CONTACT (CROWN POC) FOR EVALUATION.

ALL MI'S SHALL BE CONDUCTED BY A CROWN APPROVED MI INSPECTOR, WORKING FOR A CROWN APPROVED MI VENDOR. SEE CROWN CED-LST-10173, "APPROVED MI VENDORS".

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN THE GC AND/OR INSPECTOR SHALL CONTACT THE CROWN POINT OF CONTACT (POC).

REFER TO CROWN CED-SOW-10007, "MODIFICATION INSPECTION SOW", FOR FURTHER DETAILS AND REQUIREMENTS.

SERVICE LEVEL COMMITMENT:

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- THE GC SHALL PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY MINOR DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

REQUIRED PHOTOS:

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO CROWN DOCUMENT # CED-SOW-10007.

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PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED PROFESSIONAL ENGINEER

08/29/18

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JS
CHECKED BY:	DMA
ENG APPV'D:	DDA

SUBMITTALS

DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE

MODIFICATION INSPECTION CHECKLIST

SHEET NUMBER

S-2

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO FDH FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH APPROVAL.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.
6. 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 STANDARD CED-STD-10253 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).
7. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS WRITTEN APPROVAL OF YOUR CROWN POC. ALL ALTERATIONS TO A SAFETY CLIMB'S ORIGINAL MANUFACTURER'S CONFIGURATION MUST BE DESIGNED BY THE ENGINEER OF RECORD. IF THE GENERAL CONTRACTOR FINDS THAT THE CLIMBING FACILITIES ARE IMPEDED, EITHER DURING BIDDING, DURING PRE-FABRICATION MAPPING, OR WHILE ON-SITE, THE GENERAL CONTRACTOR SHALL CONTRACT THE CROWN POC TO DETERMINE A METHOD OF RESOLUTION.
8. ANY WORK PERFORMED WITHOUT A PREFABRICATION MAPPING IS DONE AT THE RISK OF THE GC AND/OR FABRICATOR.

CONTRACTOR QUALIFICATION NOTES:

1. ALL INSTALLATIONS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE ANSI/TIA-222-G "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH 6521 MERIDIEN DRIVE, RALEIGH, NC 27616, TEL. (919) 755-1012, FAX. (919) 755-1031, E-MAIL STRUCTURAL@FDH-IS.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH.
4. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE ANSI/ASSE A10.48 AND ANSI/TIA-322 STANDARDS.

JOB SITE SAFETY & NOTES:

1. NEITHER THE PROFESSIONAL ACTIVITIES OF FDH NOR THE PRESENCE OF FDH OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
2. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES NOTED IN THE STEEL GRADE SCHEDULE OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS NOTED OTHERWISE).
3. ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1, UNLESS OTHERWISE SPECIFIED. WHEN "X" TYPE BOLTS ARE USED, CONTRACTOR MAY BE REQUIRED TO STACK ADDITIONAL WASHERS TO OBTAIN PROPER SNUG TIGHT INSTALLATION. ALL NUTS SHALL BE HEAVY HEX UNLESS NOTED OTHERWISE.
4. ALL STEEL, AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123, UNLESS NOTED OTHERWISE. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH MULTIPLE COATS OF ZRC COLD GALVANIZING COMPOUND ACHEIVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
5. A490 OR 354-GR. BD BOLTS SHALL NOT BE HOT DIPPED GALVANIZED, MECHANICALLY OR ELECTROPLATED.
6. ALL A490 OR 354-GR. BD BOLTS SHALL BE COATED WITH A ZINC/ALUMINUM COATING (MAGNI 565 OR APPROVED EQUAL) PER ASTM F2833, BY THE BOLT MANUFACTURER.
7. CONTRACTOR TO PROVIDE FULL DOCUMENTATION ON A490 OR 354-GR. BOLTS PRIOR TO INSTALLATION.
8. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. CONTRACTOR IS REQUIRED TO PROVIDE FDH WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
9. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

1. ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
2. CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

SUBSTITUTES AND/OR EQUALS:

1. IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE WRITTEN APPLICATION TO ENGINEER OF RECORD FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL PERFORM ADEQUATELY THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN, BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER OF RECORD IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER OF RECORD MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

COLD GALVANIZATION/SURFACE PREPARATION NOTES:

1. CONTRACTOR TO USE ZINGA OR ZRC COLD GALVANIZATION COMPOUNDS OR APPROVED EQUIVALENT.
2. PREPARE RUSTED/CORRODED SURFACE FOR TREATMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR TO APPLY (2) COATS OF COLD GALVANIZATION COMPOUND PER MANUFACTURER'S RECOMMENDATION. DRYING AND CURING TIMES MUST BE UTILIZED PER MANUFACTURER'S RECOMMENDATION.
4. APPLY ALL COATINGS BY BRUSH IN CALM WIND CONDITIONS. THE USE OF AEROSOL IS NOT PERMITTED.
5. IF THE TOWER IS PAINTED, BRUSH PAINT ALL TREATED AREAS TO MATCH TOWER AFTER COLD GALVANIZATION COMPOUND IS ALLOWED TO CURE.

NEW MONOPOLE REINFORCEMENT NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF REINFORCEMENT TO ENSURE THAT PROPER SPACING CAN BE MET.
2. CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
3. ALL BLIND BOLT CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. BLIND BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE BLIND BOLT ASSEMBLY DETAILS ON SHEETS S-4 THROUGH S-6.
4. ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.
5. PRIOR TO FLAT PLATE INSTALLATION, SLIP JOINTS MUST BE TIGHTENED WITH A MINIMUM JACKING FORCE OF 6000 LBS.
6. NEW REINFORCEMENT TO BE INSTALLED ON THE CENTER OF PROPOSED SIDE UNLESS OTHERWISE NOTED.
7. EXISTING COAX BANDS TO BE REPLACED AFTER REINFORCEMENT INSTALLATION. NEW FLAT PLATE TO BE INSTALLED BENEATH EXISTING COAX BANDS.
8. REINFORCEMENT PIECES SHALL NOT BE MADE BY SPLICING TOGETHER TWO SMALLER PIECES UNLESS SPECIFIED ON THIS DRAWING OR OTHERWISE APPROVED IN WRITING BY THE ENGINEER ON RECORD.
9. CONTRACTOR MUST UTILIZE THE SAME MANUFACTURER/TYPE OF BLIND BOLT FOR THE ENTIRETY OF THE MODIFICATION.

CONSTRUCTION NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED REINFORCEMENT LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE REINFORCEMENT, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.

STIFFENER PLATE NOTES:

1. INSIDE POLE SHAFT TO BE SPRAYED WITH (2) COATS COLD GALVANIZATION PAINT WHERE ALL WELDED CONNECTIONS ARE PERFORMED.
2. AFTER STIFFENER INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF COLD GALVANIZATION PAINT THEN FINISH WITH (1) COAT OF COLD GALVANIZATION SPRAY.

SURFACE PREPARATION:

1. PREPARE SURFACE TO BE WELDED BY REMOVING PAINT OR GALVANIZATION TO BARE METAL USING POWER WIRE BRUSHING IN ACCORDANCE WITH SSPC-SP11, (STEEL STRUCTURES PAINTING COUNCIL). FOLLOWING POWER WIRE BRUSHING CONTRACTOR SHALL POLISH METAL SURFACE WITH HIGH SPEED GRINDER WITH 400+ GRIT SANDPAPER.
2. AFTER NEW STEEL INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF ZRC OR ZINGA COLD GALVANIZATION COMPOUND PER MANUFACTURER'S SPECIFICATIONS.

WELDING NOTES:

1. ALL WELDING TO THE EXISTING TOWER SHALL BE PERFORMED BY CERTIFIED WELDERS UTILIZING PROCEDURES QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND AWS C5.4.
2. CONTRACTOR SHALL COMPLY WITH AWS D1.1 FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". CONTRACTOR SHALL SUBMIT CERTIFICATION OF WELDERS TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
3. CONTRACTOR RESPONSIBLE FOR TEMPORARY HEAT SHIELDING AS REQUIRED DURING WELDING.
4. ALL WELDS TO BE VISUALLY INSPECTED BY A CERTIFIED WELD INSPECTOR PER AWS D1.1.
5. CONTRACTOR RESPONSIBLE FOR VIEWING EXISTING TOWER FOR LOOSE AND FLAMMABLE MATERIAL PRIOR TO WELDING.
6. CONTRACTOR TO VERIFY LOCATION OF POTENTIAL INTERFERENCES PRIOR TO INSTALLATION.

STEEL GRADE SCHEDULE

SCOPE	SHAPE	GRADE	YIELD STRENGTH (F_y)	ULTIMATE STRENGTH (F_u)
ALL	PLATE	A572-65	65 KSI	80 KSI
ALL	WELD ELECTRODE	E-80XX	-	80 KSI

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PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED PROFESSIONAL ENGINEER

08/29/18

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JS
CHECKED BY:	DMA
ENG APPV'D:	DDA

SUBMITTALS

DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

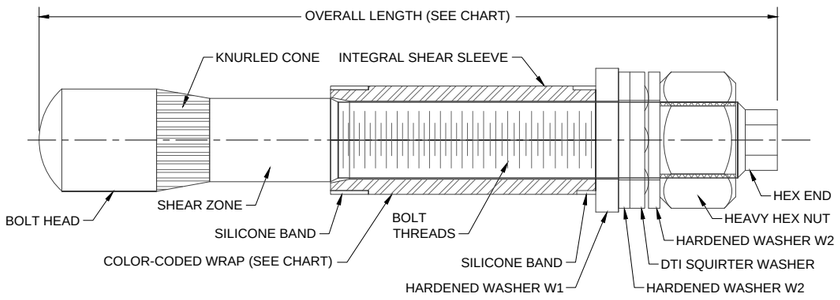
625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE

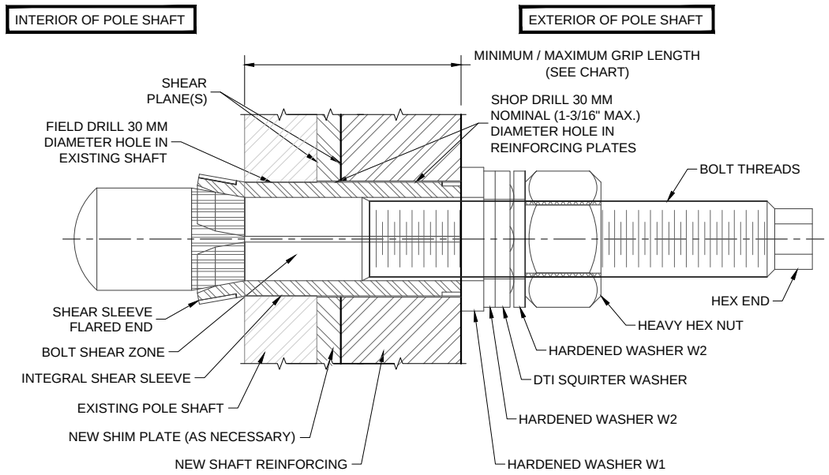
GENERAL NOTES

SHEET NUMBER

S-3



PRE-INSTALLED FORGBolt™ ASSEMBLY DETAIL 1



INSTALLED FORGBolt™ ASSEMBLY DETAIL 2

FORGBolt™ NOTE SHEET: A325/PC8.8 LANDSCAPE VERSION DATE 01/29/2015; Rev. 1.0 04/23/2015

NOTES:

1. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

FORGBolt™		AISC Group A Material: ASTM A325 and PC8.8 (Tensile Stress, Fu = 102 ksi minimum)					
GROUP A		FORGBolt™ Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment	Color Code
FORGBolt™ A325 - PC8.8	1	135	5.31	1.3	3/8 to 1"	--	RED
	2	160	6.30	1.6	3/4 to 1-1/2"	--	GREEN
	3	195	7.68	1.9	1-1/4 to 2-1/4"	--	BLUE
	4	260	10.24	2.6	2" to 3-1/2"	Splice Bolt	YELLOW
	5	365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt	ORANGE
	6	440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt	BLACK
DTI Note	Each Group A (A325/PC8.8) FORGBolt™ assembly shall have a 'Squirter' DTI that is compatible with a M20-PC8.8 bolt.						

FORGBolt™ Installation

Follow all Manufacturer/Distributer Recommendations for Installation, Tightening, and Inspection.

1. FIELD DRILL HOLES TO 30 MM DIAMETER.
2. SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
3. INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE.
4. HAND TIGHTEN NUT TO FINGER TIGHT.
5. TIGHTEN NUT TO PRETENSIONED CONDITION AND UNTIL DTI SHOWS PROPER INDICATION.
6. PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.

DISTRIBUTOR CONTACT:
PRECISION TOWER PRODUCTS
PHONE: **888-926-4857**
EMAIL: info@precisiontowerproducts.com
WEB: www.precisiontowerproducts.com

CONTAINS PROPRIETARY INFORMATION PATENT PENDING

BOLT HOLE NOTES:

1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.

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FDH PROJECT NUMBER:
18SUXX1400

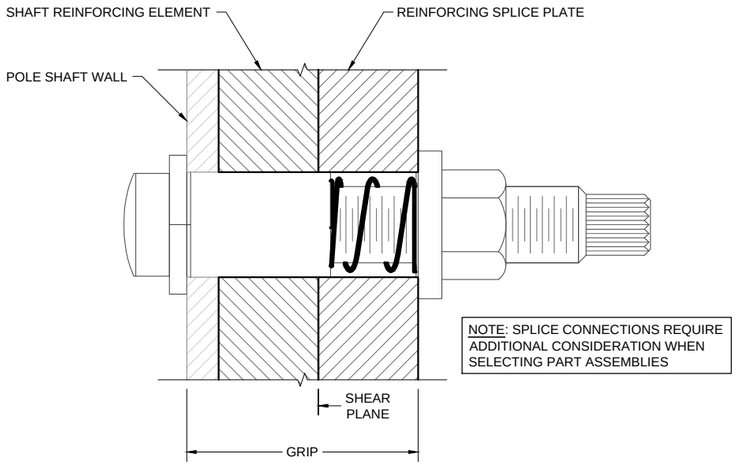
SITE NAME:
SOUTHINGTON, SMORON

SITE NUMBER:
876334

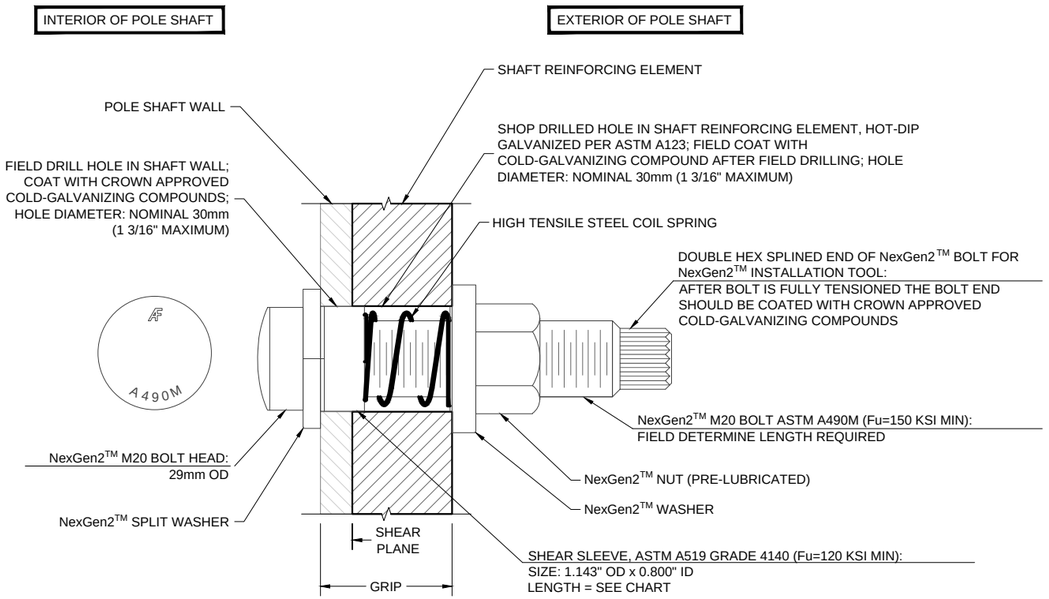
SITE ADDRESS:
625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE
FORGBOLT SPECIFICATIONS AND TIGHTENING PROCEDURE

SHEET NUMBER
S-4



NexGen2™ BOLT ASSEMBLY
SCALE: NTS



NexGen2™ BOLT ASSEMBLY
SCALE: NTS

PART NUMBER	BOLT LENGTH	SLEEVE LENGTH	MIN. GRIP RANGE	MAX. GRIP RANGE
2NG2032	M20x75	1/2"	5/8"	1-3/8"
2NG2036	M20x95	11/16"	15/16"	1-7/16"
2NG2048	M20x95	1-3/16"	1-7/16"	1-7/8"
2NG2057	M20x95	1-5/8"	1-7/8"	2-1/4"
2NG2068	M20x135	2"	2-1/4"	2-11/16"
2NG2096	M20x135	2-7/16"	2-11/16"	3-3/4"
2NG2127	M20x175	3"	3-3/4"	5"
2NG2212	M20x250	4"	5"	8-15/16"

MANUFACTURER:
ALLFASTENERS
959 LAKE ROAD
MEDINA, OHIO, USA 44256
PHONE: **440-232-6060**
WEBSITES: WWW.ALLFASTENERS.COM
WWW.AFTOWER.COM

NEXGEN2 BLIND BOLT ASSEMBLY NOTES:

1. ALL SHOP AND FIELD DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM HOLE DIAMETER PERMITTED IS 1-3/16"
2. NEXGEN2™ COMPLETE ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AS APPROPRIATE.
3. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

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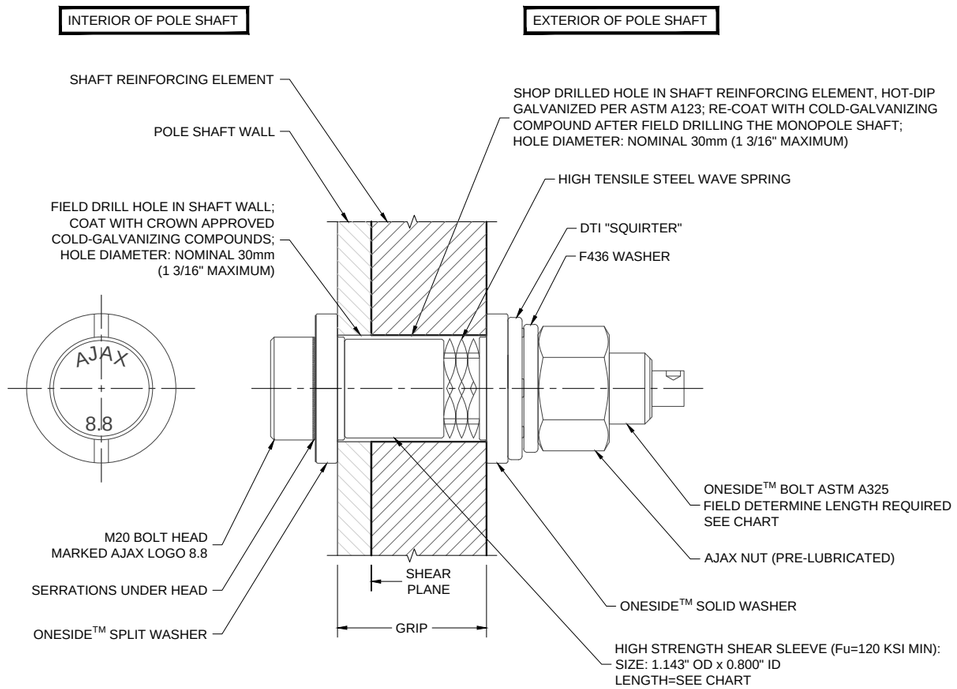
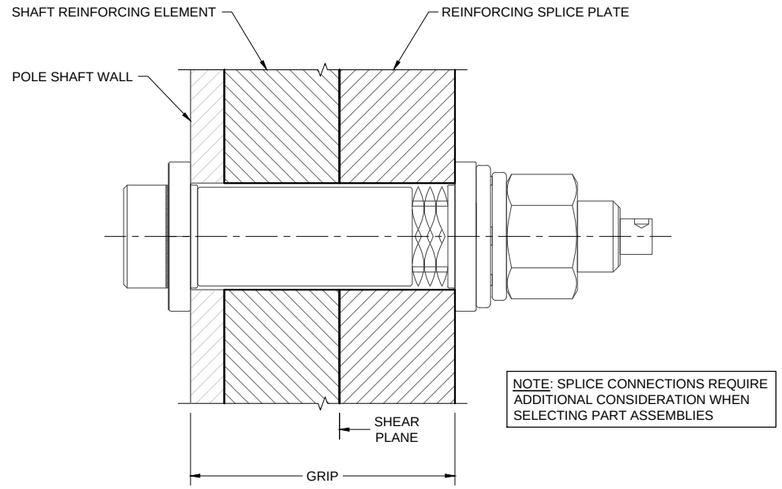
SHEET TITLE
NEXGEN2 BOLT SPECIFICATIONS AND TIGHTENING PROCEDURE

SHEET NUMBER
S-5



AJAX ONESIDE™ BOLT DETAIL

SCALE: NTS



NOTE: SPLICE CONNECTIONS REQUIRE ADDITIONAL CONSIDERATION WHEN SELECTING PART ASSEMBLIES

MANUFACTURER:
AJAX FASTENERS
SALES + TECH: ONESIDE@AJAXFAST.COM.AU

DISTRIBUTOR CONTACT:
IRA SVENSGAARD AND ASSOCIATES
PETER SVENSGAARD - PETERS@IRASVENS.COM
JOHN KILLAM - JOHN@IRASVENS.COM
PHONE: (530) 647-8225
FAX: (530) 647-8229

BOLT ASSEMBLY AND INSTALLATION:

1. BOLT MUST BE PURCHASED PRE-ASSEMBLED.
2. FOLLOW BOLT AND DTI MANUFACTURERS INSTRUCTIONS FOR INSTALLATION.

BOLT ASSEMBLY AND INSTALLATION:

1. A MINIMUM OF 4 OUT OF 5 SQUIRTER® DTI PROTRUSIONS SHALL BE ENGAGED IN ANY AJAX/DTI BOLT ASSEMBLY IN THE REINFORCING MEMBERS. A FEELER GAGE MAY BE USED TO VERIFYPROTRUSION COMPRESSION
2. INSPECTIONS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND CROWN DOCUMENT ENG-SOW-10007: *MODIFICATION INSPECTION SOW* .

CODE	SIZE	COLOR	SLEEVE LENGTH	GRIP	GRIP IMP
OSBA20.65-6	M20 x 65	ORANGE	6.0 (0.236")	12.5 / 20.0	0.500" / 0.787"
OSBA20.95-14	M20 x 95	BLACK	14.0 (0.551")	20.0 / 32.0	0.787" / 1.259"
OSBA20.95-22	M20 x 95	GREEN	22.0 (0.866")	30.0 / 50.0	1.181" / 1.968"
OSBA20.95-30	M20 x 95	YELLOW	30.0 (1.181")	40.5 / 50.0	1.595" / 1.968"
OSBA20.135-39	M20 x 135	BLUE	39.0 (1.535")	49.0 / 77.0	1.929" / 3.031"
OSBA20.135-48	M20 x 135	BROWN	48.0 (1.889")	60.5 / 77.0	2.375" / 3.031"
OSBA20.135-57	M20 x 135	PURPLE	57.0 (2.244")	67.0 / 90.0	2.637" / 3.543"
OSBA20.165-76	M20 x 165	RED	76.0 (3.000")	87.0 / 120.0	3.425" / 4.724"
OSBA20.250	M20 x 250	SILVER	MTO	121.0 / 211.0	4.724" / 8.310"

PREPARED BY:

FDH INFRASTRUCTURE SERVICES
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FDH INFRASTRUCTURE SERVICES, LLC
6521 MERIDIEN DRIVE RALEIGH, NC 27616
PHONE: 919-755-1012 FAX: 919-755-1031

PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT · DENNIS D. ABEL · No. 23247 · LICENSED PROFESSIONAL ENGINEER

08/29/18

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JS
CHECKED BY:	DMA
ENG APPV'D:	DDA

SUBMITTALS

DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

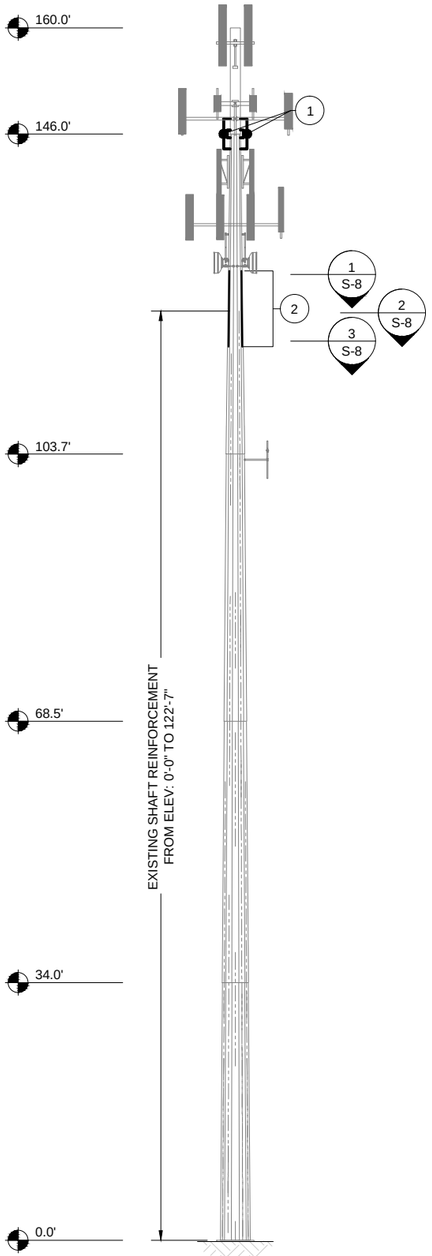
625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE

AJAX ONESIDE BOLT SPECIFICATIONS AND TIGHTENING PROCEDURE

SHEET NUMBER

S-6



TOWER ELEVATION
SCALE: NTS

MANUFACTURER POLE SPECIFICATIONS

POLE SHAPE TYPE:	12-SIDED POLYGON
TAPER:	0.171918 IN/FT
SHAFT STEEL:	ASTM A53 GR. B GRADE 35, ASTM A607 GRADE 60
BASE PLATE STEEL:	ASTM A572 GRADE 50 (50 KSI) (ASSUMED)
ANCHOR RODS:	2 1/4"Ø #18J ASTM A615 GRADE 75 (ASSUMED)

MANUFACTURER SHAFT SECTION DATA

SHAFT SECTION	SECTION LENGTH (FT)	PLATE THICKNESS (IN)	LAP SPLICE (IN)	DIAMETER ACROSS FLATS (IN)	
				@TOP	@BOTTOM
1	14.00	0.375	0	16.000	16.000
2	42.25	0.25	45	22.000	29.808
3	39.00	0.3125	54	28.082	35.819
4	39.00	0.375	60	34.301	41.568
5	39.00	0.375		39.886	47.100

NOTE: DIMENSIONS SHOWN DO NOT INCLUDE GALVANIZING TOLERANCES

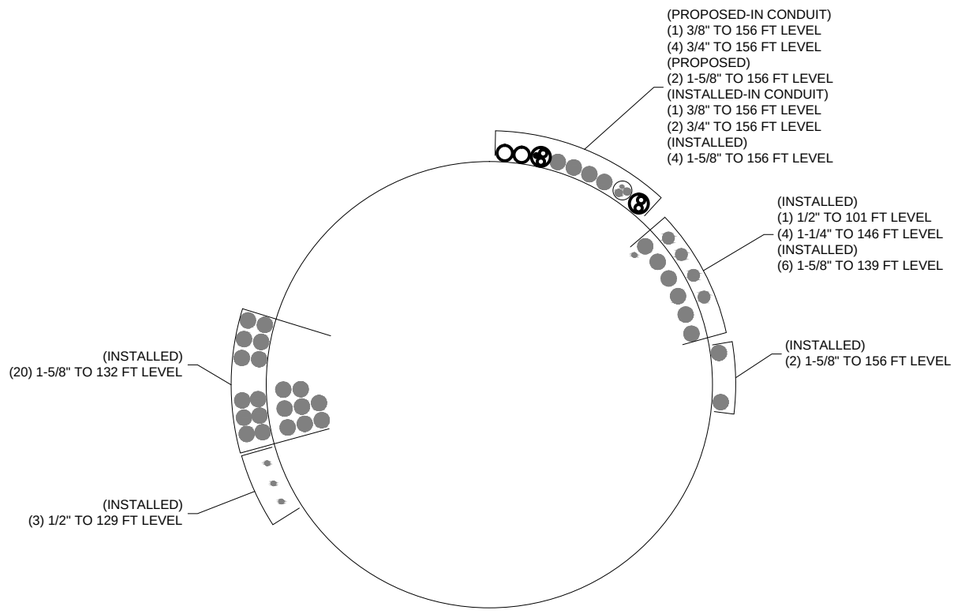
TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BTM. ELEV.	TOP ELEV.	SHEET
1	INSTALLATION OF NEW BYPASS STIFFENERS.	-	146.0'±	S-9
2	INSTALLATION OF NEW MONOPOLE REINFORCEMENT.	117.9'±	127.9'±	S-7 TO S-8
3	INSTALLATION OF SIGNAGE INDICATING SAFETY CLIMB FACILITY OBSTRUCTIONS. PLEASE SEE CED-CAT-10300: MONOPOLE STANDARD DRAWINGS AND APPROVED REINFORCEMENT COMPONENTS.	-	-	-

- CONTRACTOR SHALL VERIFY ALL APPURTENANCE CONDITIONS AND DIMENSIONS IN RELATIONSHIP TO THIS MODIFICATION. APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR MOVED DURING THE INSTALLATION OF THIS MODIFICATION. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND CROWN CASTLE PRIOR TO PROCEEDING WITH THE WORK.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.
- SHIMS FOR MONOPOLE REINFORCEMENT MEMBERS SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST AT FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCING MEMBER. FOR TERMINATION CONNECTIONS, A CONTINUOUS SHIM PLATE (PREFERRED) OR EQUIVALENT INDIVIDUAL SHIM PLATES, MATCHING THE WIDTH OF THE REINFORCING MEMBER MAY BE USED. SHIM THICKNESSES SHALL BE NO LESS THAN 1/16". STACKING OF SHIMS IS PERMITTED. FINGER SHIMS AND HORSESHOE SHIMS ARE PERMITTED. STACKED SHIMS SHALL BE NO GREATER THAN 1/4" WITHOUT EOR APPROVAL.
- FOR PLATES STARTING AT 6", THE BOTTOM OF THE FLAT PLATE SHALL BEGIN AT 6" ± 1". FOR SINGLE PLATES OR MULTIPLE PLATES SPLICED TOGETHER, THE BOTTOM OF THE FLAT PLATE RUN SHALL BEGIN AT THE PROPOSED ELEVATION ± 3". FOR MULTIPLE PLATES SPLICED TOGETHER, THE TOP OF THE FLAT PLATE IS TO BE PLACED SUCH THAT THERE IS NO MORE THAN 3" DIFFERENCE BETWEEN THE ACTUAL OVERALL LENGTH OF THE SPAN AND THE PROPOSED OVERALL LENGTH OF THE SPAN, FROM THE BOTTOM OF THE BOTTOM PLATE TO THE TOP OF THE TOP PLATE.
- PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY, AND SHALL NOT BE USED FOR FABRICATION.

CROWN CASTLE SHAFT REINFORCEMENT INSTALLATION SCHEDULE

BOTTOM ELEVATION	TOP ELEVATION	FLAT / DEGREES (°)	PART NUMBER	TERMINATION BOLTS (BOTTOM)	TERMINATION BOLTS (TOP)	MAX INTERMEDIATE BOLT SPACING	BOLT QUANTITY PER PLATE	STEEL WEIGHT PER PLATE (BLACK, LBS)	TOTAL BOLT QUANTITY	TOTAL STEEL WEIGHT (BLACK, LBS)
117'-11"±	127'-11"±	3, 7, 11	CCI-SFP-06010010	8	8	1'-4"	20	204.0	60	612.0
								TOTAL	60	612.0



BASE LEVEL LAYOUT
SCALE: NTS

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6521 MERIDIEN DRIVE RALEIGH, NC 27616
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PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED PROFESSIONAL ENGINEER

08/29/18

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JS
CHECKED BY:	DMA
ENG APPV'D:	DDA

SUBMITTALS

DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

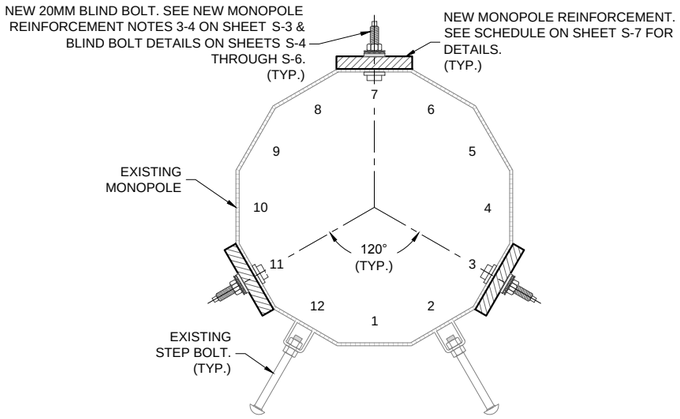
625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE

MODIFICATION SCHEDULE, FLAT PLATE INSTALLATION DETAILS I, & BASE LEVEL LAYOUT

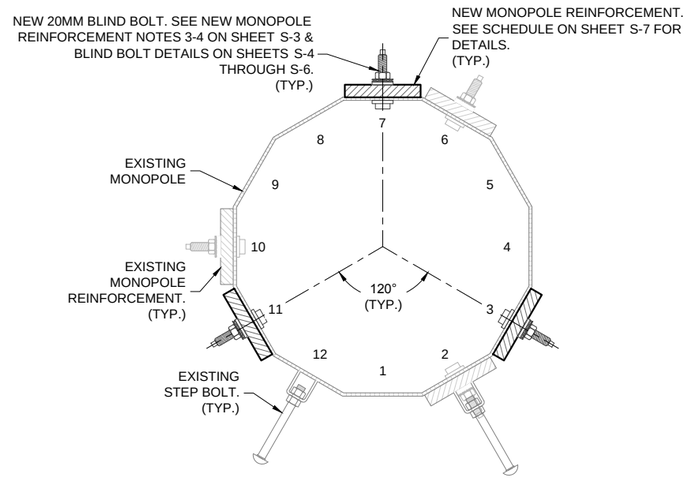
SHEET NUMBER

S-7



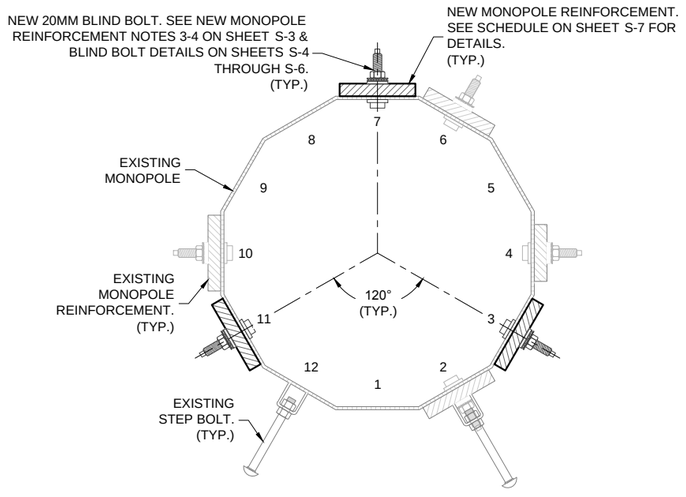
MONOPOLE REINFORCEMENT LAYOUT
SECTION VIEW

1 / S-8 SECTION NTS



MONOPOLE REINFORCEMENT LAYOUT
SECTION VIEW

2 / S-8 SECTION NTS



MONOPOLE REINFORCEMENT LAYOUT
SECTION VIEW

3 / S-8 SECTION NTS

PREPARED BY:

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DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE

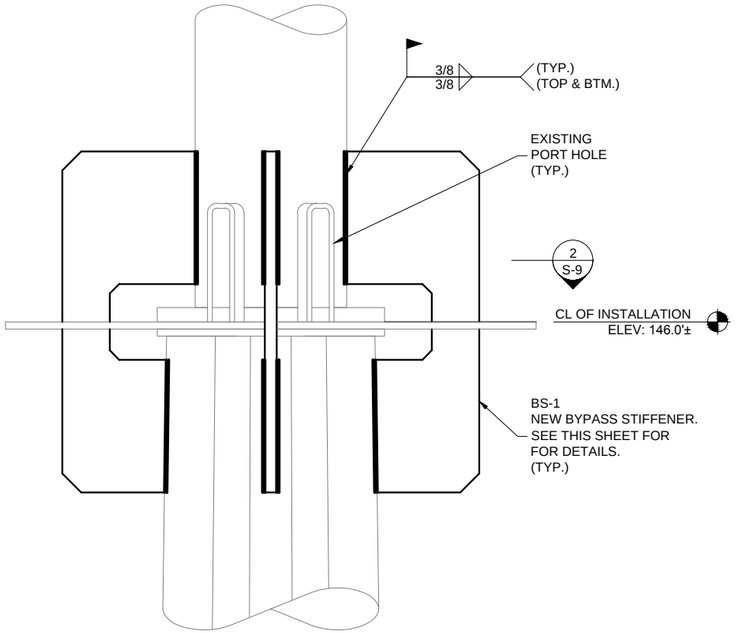
FLAT PLATE
INSTALLATION DETAILS II

SHEET NUMBER

S-8

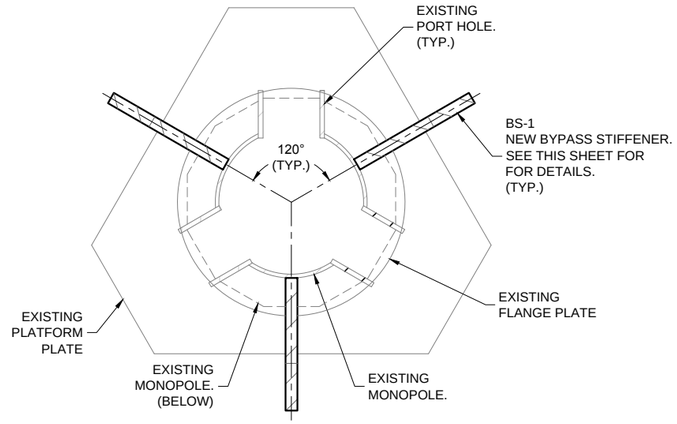
FLANGE BYPASS STIFFENER INSTALLATION SCHEDULE

ELEVATION	PART NO.	QUANTITY	DESCRIPTION
146.0'±	BS-1	3	BYPASS STIFFENER



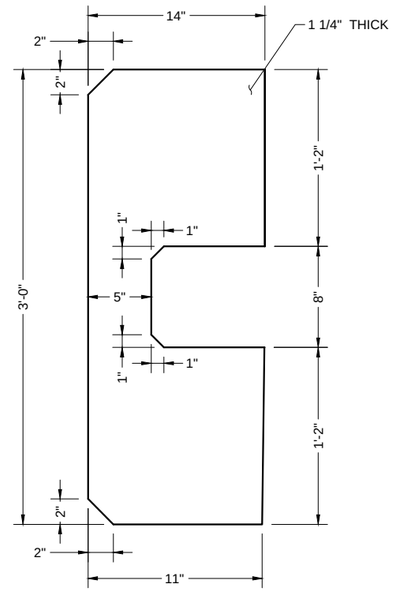
FLANGE BYPASS STIFFENER LAYOUT
ELEVATION VIEW

1 / S-9 — ELEVATION — SCALE: NTS



FLANGE BYPASS STIFFENER LAYOUT
PLAN VIEW

2 / S-9 — SECTION — SCALE: NTS



FLANGE BYPASS STIFFENER
ELEVATION VIEW

BS-1 / S-9 — DETAIL — SCALE: 1/2" = 1'-0"

PREPARED BY:

FDH INFRASTRUCTURE SERVICES
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PREPARED FOR:

CROWN CASTLE

STATE OF CONNECTICUT
DENNIS D. ABEL
No. 23247
LICENSED
PROFESSIONAL ENGINEER

08/29/18

DENNIS D. ABEL, P.E.
CONNECTICUT LIC. NO. 23247

DRAWN BY:	JS
CHECKED BY:	DMA
ENG APPV'D:	DDA

SUBMITTALS

DATE	DESCRIPTION	REV
08/29/18	CONSTRUCTION	0

FDH PROJECT NUMBER:

18SUXX1400

SITE NAME:

SOUTHINGTON, SMORON

SITE NUMBER:

876334

SITE ADDRESS:

625 SPRING STREET SOUTHINGTON, CT 06489

SHEET TITLE

FLANGE BYPASS STIFFENER INSTALLATION DETAILS

SHEET NUMBER

S-9

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5250

FA#: 10071248

GSM - Southington Florians Pond
626 Spring Street
Southington, CT 6489

June 7, 2018

Centerline Communications Project Number: 950006-125

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.55 %**

June 7, 2018

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5250 – GSM - Southington Florians Pond**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **626 Spring Street, Southington, CT**, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. 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 performed for the proposed AT&T Wireless antenna facility located at **626 Spring Street, Southington, CT**, 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 manufactures supplied specifications, minus 10 dB, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
LTE	700 MHz	2	40
LTE	700 MHz (Band 14)	4	40
LTE	2100 MHz (AWS)	4	30
LTE	700 MHz	2	40
LTE	850 MHz	2	40
LTE	1900 MHz (PCS)	4	60
LTE	2300 MHz (WCS)	4	60

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Commscope SBNH-1D6565C	157
A	2	Kathrein 800-10966	157
A	3	CCI TPA-65R-LCUUUU-H8	157
B	1	KMW AM-X-CD-16-65-00T-RET	157
B	2	Kathrein 800-10965	157
B	3	Kathrein 800-10798	157
C	1	Commscope SBNH-1D6565C	157
C	2	Kathrein 800-10966	157
C	3	CCI TPA-65R-LCUUUU-H8	157

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Commscope SBNH-1D6565C	850 MHz / 700 MHz	14.45 / 13.65	4	140	3,525.59	1.09
Antenna A2	Kathrein 800-10966	700 MHz / 2100 MHz (AWS)	13.55 / 16.15	8	280	8,568.60	2.00
Antenna A3	CCI TPA-65R-LCUUUU-H8	700 MHz / 850 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	12.95 / 13.45 / 14.45 / 13.75	12	440	10,485.96	2.15
						Sector A Composite MPE%	**5.24**
Antenna B1	KMW AM-X-CD-16-65-00T-RET	850 MHz / 700 MHz	13.85 / 13.35	4	140	3,186.14	0.99
Antenna B2	Kathrein 800-10965	700 MHz / 2100 MHz (AWS)	12.65 / 15.95	8	280	7,667.84	1.74
Antenna B3	Kathrein 800-10798	700 MHz / 850 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	13.05 / 13.65 / 15.15 / 14.35	12	440	11,753.02	2.37
						Sector B Composite MPE%	**5.09**
Antenna C1	Commscope SBNH-1D6565C	850 MHz / 700 MHz	14.45 / 13.65	4	140	3,525.59	1.09
Antenna C2	Kathrein 800-10966	700 MHz / 2100 MHz (AWS)	13.55 / 16.15	8	280	8,568.60	2.00
Antenna C3	CCI TPA-65R-LCUUUU-H8	700 MHz / 850 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	12.95 / 13.45 / 14.45 / 13.75	12	440	10,485.96	2.15
						Sector C Composite MPE%	**5.24**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, the sector with the largest calculated MPE% are Sectors A & C. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Sectors A & C	**5.24 %**
Sprint	0.94 %
MetroPCS	0.69 %
Verizon Wireless	4.20 %
Nextel	0.48 %
Site Total MPE %:	**11.55 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	5.24 %
AT&T Sector B Total:	5.09 %
AT&T Sector C Total:	5.24 %
Site Total:	11.55 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, the sector with the largest calculated MPE% is Sectors A & C.

AT&T _ Frequency Band / Technology Max Power Values (Sectors A & C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS – Antenna 1	2	835.84	157	2.64	850 MHz	567	0.46%
AT&T 700 MHz LTE – Antenna 1	2	926.96	157	2.92	700 MHz	467	0.63%
AT&T 700 MHz LTE (Band 14) – Antenna 2	4	905.86	157	5.71	700 MHz	467	1.22%
AT&T 2100 MHz (AWS) LTE – Antenna 2	4	1,236.29	157	7.80	2100 MHz (AWS)	1000	0.78%
AT&T 700 MHz LTE – Antenna 3	2	788.97	157	2.49	700 MHz	467	0.53%
AT&T 850 MHz LTE Antenna 3	2	885.24	157	2.79	850 MHz	567	0.49%
AT&T 2300 MHz (WCS) LTE Antenna 3	4	835.84	157	5.27	2300 MHz (WCS)	1000	0.53%
AT&T 1900 MHz (PCS) LTE Antenna 3	4	948.55	157	5.98	1900 MHz (PCS)	1000	0.60%
						Total:	**5.24%**

Table 6: AT&T Maximum Sector MPE Power Values

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:	5.24 %
Sector B:	5.09 %
Sector C:	5.24 %
AT&T Maximum Total (Sectors A & C):	5.24 %
Site Total:	11.55 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.55 %** 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.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

Nora Oliver

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, January 23, 2019 11:03 AM
To: Nora Oliver
Subject: UPS Delivery Notification, Tracking Number 1Z87026W0196256590

Follow Up Flag: Follow up
Flag Status: Flagged

Your package has been delivered.

Delivery Date: Wednesday, 01/23/2019
Delivery Time: 10:57 AM

At the request of QUALTEK USA,LLC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z87026W0196256590
Ship To:	Paul Pedicone Crown Castle 3 CORPORATE DR CLIFTON PARK, NY 12065 US
UPS Service:	UPS NEXT DAY AIR
Number of Packages:	1
Weight:	1.0 LBS
Delivery Location:	INSIDE DELIVERY RHOADES
Reference Number 1:	CT5250CSC

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Nora Oliver

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, January 23, 2019 12:44 PM
To: Nora Oliver
Subject: UPS Delivery Notification, Tracking Number 1Z87026W1395251350

Follow Up Flag: Follow up
Flag Status: Flagged

Your package has been delivered.

Delivery Date: Wednesday, 01/23/2019
Delivery Time: 12:37 PM

At the request of QUALTEK USA,LLC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z87026W1395251350
Ship To:	Town Manager Mr. Mark Sciota 75 MAIN ST SOUTHINGTON, CT 06489 US
UPS Service:	UPS NEXT DAY AIR SAVER
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	RECEIVER SECONDO
Reference Number 1:	PC 321
Reference Number 2:	CT5250

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Help and Support Center

Nora Oliver

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, January 23, 2019 1:04 PM
To: Nora Oliver
Subject: UPS Delivery Notification, Tracking Number 1Z87026W1399913137

Follow Up Flag: Follow up
Flag Status: Flagged

Your package has been delivered.

Delivery Date: Wednesday, 01/23/2019
Delivery Time: 12:55 PM

Set Delivery Instructions | Get Free Alerts | View Delivery Planner

At the request of QUALTEK USA,LLC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z87026W1399913137
Ship To:	Southington Town Council 124 ANDREWS ST SOUTHINGTON, CT 06489 US
UPS Service:	UPS NEXT DAY AIR SAVER
Number of Packages:	1
Package Weight:	3.0 LBS

Delivery Location:	SIDE DOOR
Reference Number 1:	PC 321
Reference Number 2:	CT5250

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Help and Support Center

Nora Oliver

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, January 23, 2019 2:08 PM
To: Nora Oliver
Subject: UPS Delivery Notification, Tracking Number 1Z87026W0196807566

Follow Up Flag: Follow up
Flag Status: Flagged

Your package has been delivered.

Delivery Date: Wednesday, 01/23/2019
Delivery Time: 01:59 PM

At the request of QUALTEK USA,LLC this notice alerts you that the status of the shipment listed below has changed.

Shipment Detail

Tracking Number:	1Z87026W0196807566
Ship To:	Director of Planning Mr. Robert Philips 196 N MAIN ST FLOOR 1 ROOM PLAN SOUTHINGTON, CT 06489 US
UPS Service:	UPS NEXT DAY AIR
Number of Packages:	1
Shipment Type:	Letter
Delivery Location:	RECEIVER BAKER
Reference Number 1:	PC 321
Reference Number 2:	CT5250

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Help and Support Center