EMPIRE telecom

July 19, 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:	75 Roberts Road, Groton, CT 06340 (the "Property")
Applicant:	AT&T Mobility ("AT&T", Site # CT2182)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 144-foot monopole at the above-referenced address, latitude 41.36028056°, longitude -72.04842500°. Said monopole and property is owned by Crown Castle.

AT&T desires to modify its existing telecommunications facility by: swapping (3) antennas, adding (9) RRUs, adding (6) diplexers, adding (1) surge suppressor and associated cabling. The centerline height of the existing antennas and ancillary tower-mounted equipment is and will remain at 145 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 the Mr. John Burt, Town Manager for Town of Groton; and Planning and Zoning Development for the Town of Groton and 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 145 feet on the 145-foot monopole.

2. The proposed modifications will not involve any changes to AT&T's ground-space footprint, and therefore and therefore will not require an extension of the site boundary.

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 Maser Consulting, dated July 18, 2019, and stamped by Petros Tsoukalas.

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

Sincerely,

Michelle Scharath

Michelle Scharath
Site Acquisition Specialist
Empire Telecom USA, LLC

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

cc: Town of Groton
Mr. John Burt, Town Manager
45 Fort Hill Road
Groton, CT 06340

Town of Groton
Planning and Zoning Development
134 Groton Long Point Road
Groton, CT 06340

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

Residential Property Card

Print Date: 6/11/2019

Card 1 Of 1

Account	Location	Grand List Code	Zoning	Acres
169914226707	75 ROBERTS RD	RESIDENTIAL	RU-20	3.18

District	Neighborhood	Deed Book/Page	Use Code
POQUONNOCK BRIDGE	1031	1206/918	SINGLE FAMILY

Current Owner

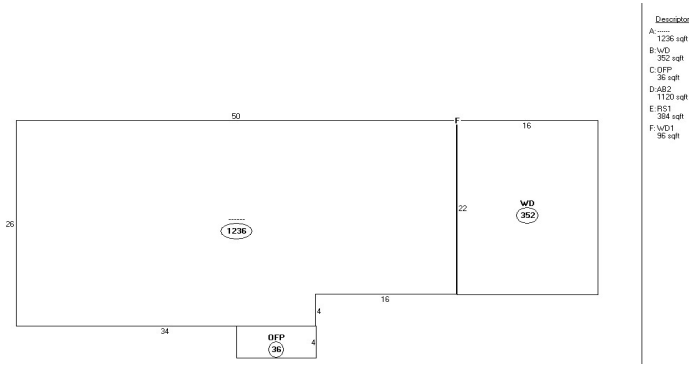
PERROTTA DANIEL J & STACEY A
75 ROBERTS RD
GROTON CT 06340

Property Picture

Building Information

Style:	RAISED RANCH
Exterior:	ALUM/VINYL
Attic:	NONE
Stories:	1
Basement:	FULL
Year Built:	1977
Tot Living Area:	2120 SqFt.
Fuel:	ELECTRIC
Heating:	BASIC
System:	ELECTRIC
Bedrooms:	4
Full Baths:	2
Half Baths:	

Building Sketch



Valuation

Land:	$94,000
Building:	$200,500
Total:	$294,500
Assessed Value:	$206,150

Recent Sales

Book/Page	Date	Price
1206/918	10/15/2018	$0
1091/1053	5/4/2012	$300,000
1091/1050	5/3/2012	$0

Sketch Legend

----	Main Living Area	1SMA	Masonry	GRHS	Attached Greenhouse
1FR	Frame	OMP	Open Masonry Porch	CAT	Cathedral Ceiling
OFP	Open Frame Porch	EMP	Enclosed Msry Porch	SOP	Screen Open Frame Prch
EFP	Enclosed Frame Porch	MUB	Masonry Utility	SMP	Screen Open Msnry Prch
FUB	Frame Utility Building	MB	Masonry Bay	CPAT	Concrete Patio
FB	Frame Bay	MOH	Masonry Overhang	B	Basement
FG	Frame Garage	.5MA	1/2 Story Masonry		
FOH	Frame Overhang	MP	Masonry Patio		
.5FR	1/2 Story Frame	WD	Wood Deck		
A(U)	Attic (Unfinished)	CPY	Canopy		
A(F)	Attic (Finished)				

Town of Groton

GIS Map

N
W E
S

1 inch = 104 feet

Date: June 11, 2019

Disclaimer:

The planimetric and topographic information depicted on this map was compiled by The Sanborn Map Company based on an aerial flight performed in April 2009. The parcel and property line information depicted on this map has been compiled from recorded deeds, maps, assessor records, and other sources of information in the Town of Groton. The intent of this map is to depict a graphical representation of real property information relative to the planimetric features for the Town of Groton and is subject to change as a more accurate survey may disclose. The Town of Groton and the mapping companies assume no legal responsibility for the information contained in this data.
THIS MAP ISNOT TO BE USED FOR THE TRANSFER OF PROPERTY.

Horizontal Datum:
Connecticut State Plane Coordinates, North American Datum of 1983 (NAD83 Feet).

Vertical Datum:
North American Vertical Datum of 1988 (NAVD88).

Map Created using Town of Groton GIS Viewer

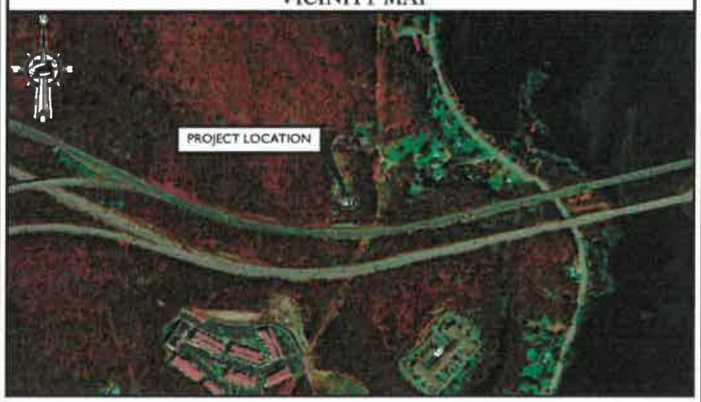
PROJECT NOTES

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
   A. PLAN ENTITLED "GROTON ROBERTS RD" PREPARED BY CENTEK ENGINEERING OF BRADFORD, CT LAST REVISED 11/13/2017.
   B. LIMITED FIELD OBSERVATION BY MASER CONSULTING ON 06/19/2018.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE AN INSIGNIFICANT OR "DE-MINIMUS" INCREASE IN STORM WATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-H AS PER IBC REQUIREMENTS.
16. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
17. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
18. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.

at&t

SITE NAME: GROTON ROBERTS RD
FA NUMBER: 10035316
SITE NUMBER: CT2182
4C - MRCTB030889
5C - MRCTB031379
6C - MRCTB031913
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY
CROWN CASTLE # 881533

VICINITY MAP



CODE COMPLIANCE

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

1. 2018 CONNECTICUT STATE BUILDING CODE, (INCORPORATING THE 2015 IBC
2. 2017 NATIONAL ELECTRICAL CODE - NFPA 70
3. 2015 NFPA 101
4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10
5. AMERICAN CONCRETE INSTITUTE
6. TIA-222-H
7. TIA 607 FOR GROUNDING
8. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81 IEEE C2 LATEST EDITION
9. TELCORDIA GR-1275
10. ANSI T1.311
11. PROPOSED USE: UNMANNED TELECOM FACILITY
12. HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
13. CONSTRUCTION TYPE: IIB
14. USE GROUP: U

PROJECT INFORMATION

SITE INFORMATION

LATITUDE: 41.3602139° N
LONGITUDE: 72.0486381° W
JURISDICTION: NEW LONDON COUNTY

APPLICANT/LESSEE

COMPANY: NEW CINGULAR WIRELESS PCS, LLC
ADDRESS: 550 COCHITUATE ROAD
CITY, STATE, ZIP: FRAMINGHAM, MA 01701

TOWER OWNER

COMPANY: CROWN CASTLE USA
ADDRESS: 2000 CORPORATE DRIVE
CITY, STATE, ZIP: CANONSBURG, PA 15317
CROWN #: 881533

CLIENT REPRESENTATIVE

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
CITY, STATE, ZIP: BILLERICA, MA 01862
CONTACT: DAVID COOPER
E-MAIL: DCOOPER@EMPIRETELECOM.COM

SITE ACQUISITION

COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD
CITY, STATE, ZIP: BILLERICA, MA 01862
CONTACT: DAVID COOPER
E-MAIL: DCOOPER@EMPIRETELECOM.COM

ENGINEER

COMPANY: MASER CONSULTING CONNECTICUT
ADDRESS: 331 NEWMAN SPRINGS ROAD, SUITE 203
CITY, STATE, ZIP: RED BANK, NJ 07701-5699
CONTACT: ROBERT ANDREWS
PHONE: (856) 797-0412
E-MAIL: RANDREWS@MASERCONSULTING.COM

PROJECT DESCRIPTION/ SCOPE OF WORK

- INSTALL (9) NEW RRUS, (3) PER SECTOR
- RELOCATE (6) EXISTING RRUS, (2) PER SECTOR)
- INSTALL (3) NEW PANEL ANTENNAS, (1) PER SECTOR
- RELOCATE (3) EXISTING PANEL ANTENNAS, (1) PER SECTOR
- INSTALL (6) LOW BAND COMBINERS, (2) PER SECTOR
- INSTALL (1) NEW DC-6 SURGE SUPPRESSION DOME
- INSTALL (2) NEW 6/C DC CABLES
- INSTALL (1) 18-PAIR FIBER TRUNK
- INSTALL 2ND 5216
- INSTALL 2ND XMU WITH IDLs AND (1) 6630
- INSTALL (1) RACK MOUNTED DC-12-48-60-RM
- INSTALL (1) NEW SUPPORT RAIL KIT

PROPOSED PROJECT SCOPE BASED ON RFDS ID# 3214383, VERSION 1.00, LAST UPDATED 06/20/19.

SHEET INDEX

MASER CONSULTING CONNECTICUT

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN | 18963013A

PETROS E. TSOUKALAS
3257

SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

TITLE SHEET

T-1

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

    CONTRACTOR - EMPIRE TELECOM
    SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
    OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)

23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.

MASER CONSULTING CONNECTICUT

at&t

EMPIRE telecom

16 ESQUIRE ROAD
BILLERICA, MA 01862

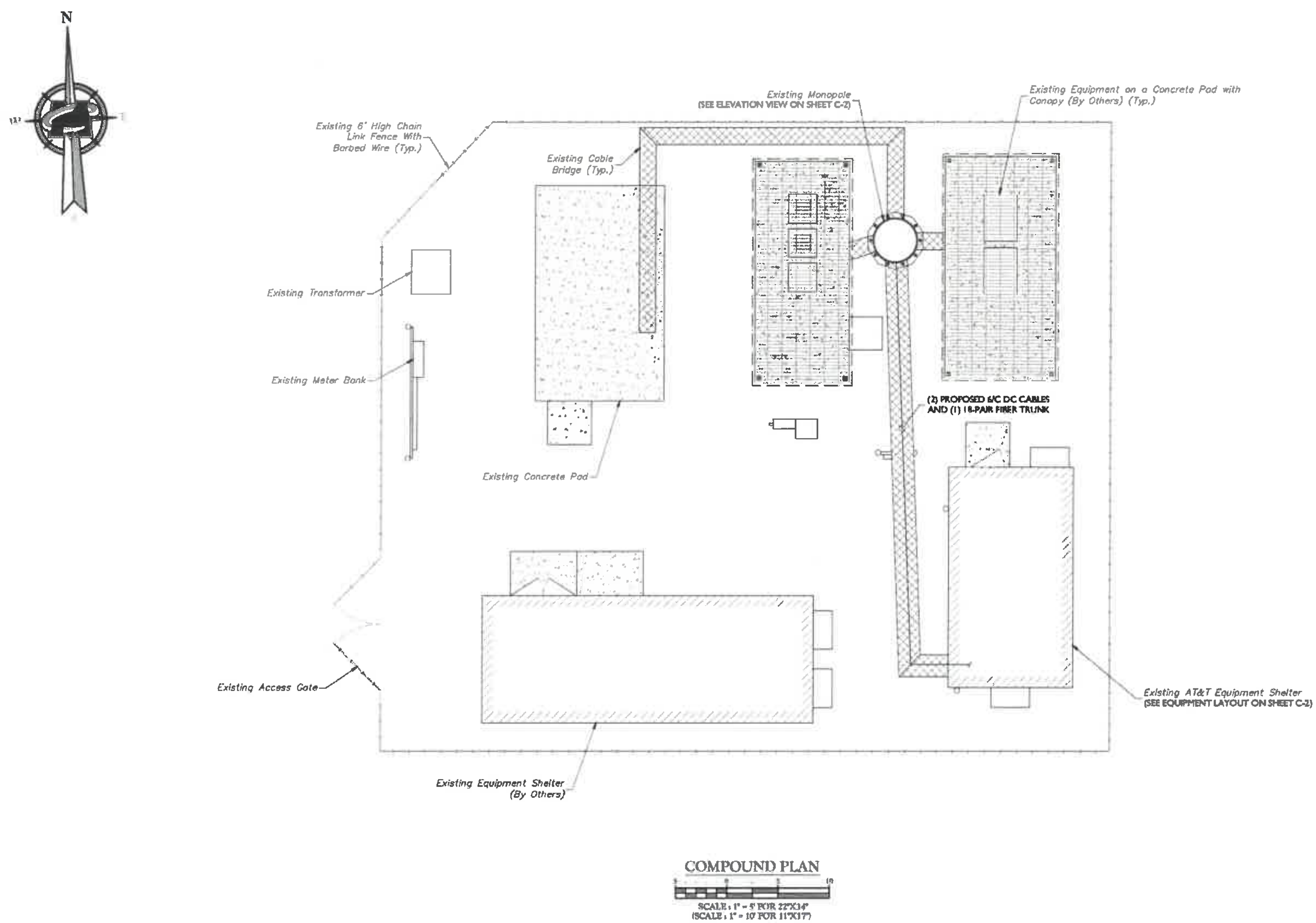
AS SHOWN

SITE NAME:

GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

GENERAL NOTES

GN-1



COMPOUND PLAN

SCALE: 1" = 5' FOR 22"X34"
(SCALE: 1" = 10' FOR 11"X17")

MASER CONSULTING
CONNECTICUT

at&t

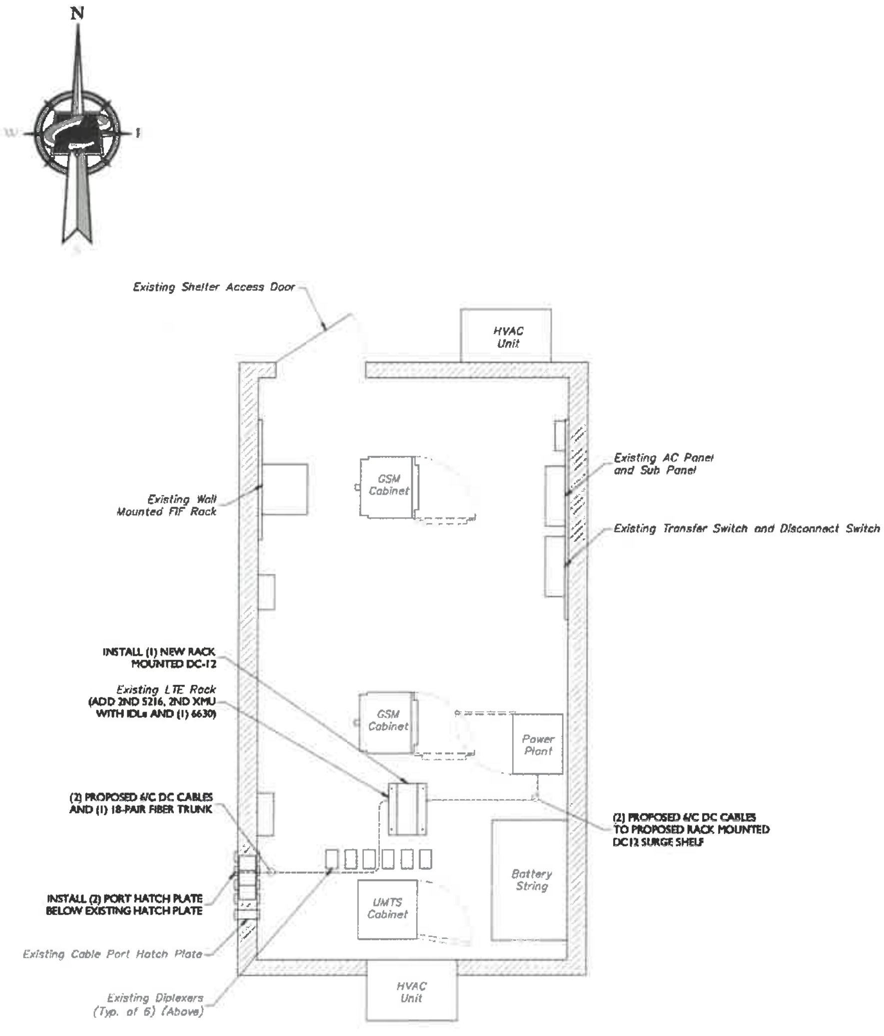
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN | 18963013A

SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

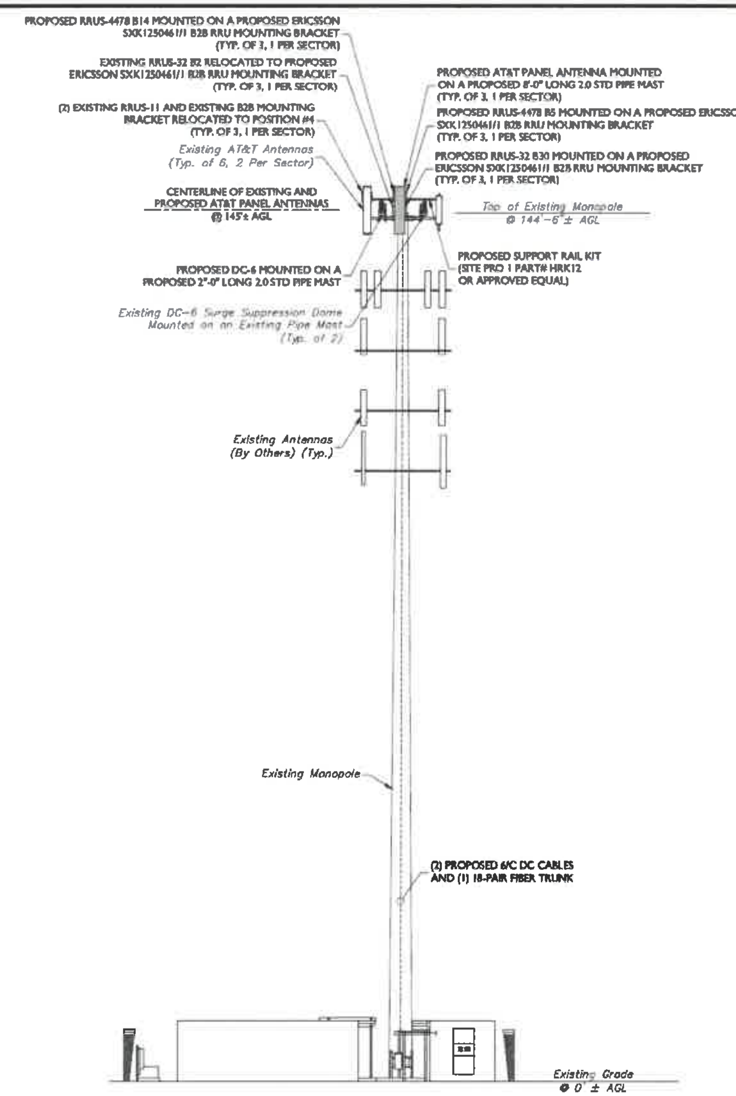
COMPOUND PLAN

C-1



EQUIPMENT LAYOUT

SCALE: 1" = 2' FOR 22"X34"
(SCALE: 1" = 4' FOR 11"X17")



ELEVATION VIEW

SCALE: 1" = 10' FOR 22"X34"
(SCALE: 1" = 20' FOR 11"X17")

MASER CONSULTING —CONNECTICUT—

at&t

EMPIRE telecom

16 ESQUIRE ROAD
BILLERICA, MA 01862

811

AS SHOWN | 18963013A

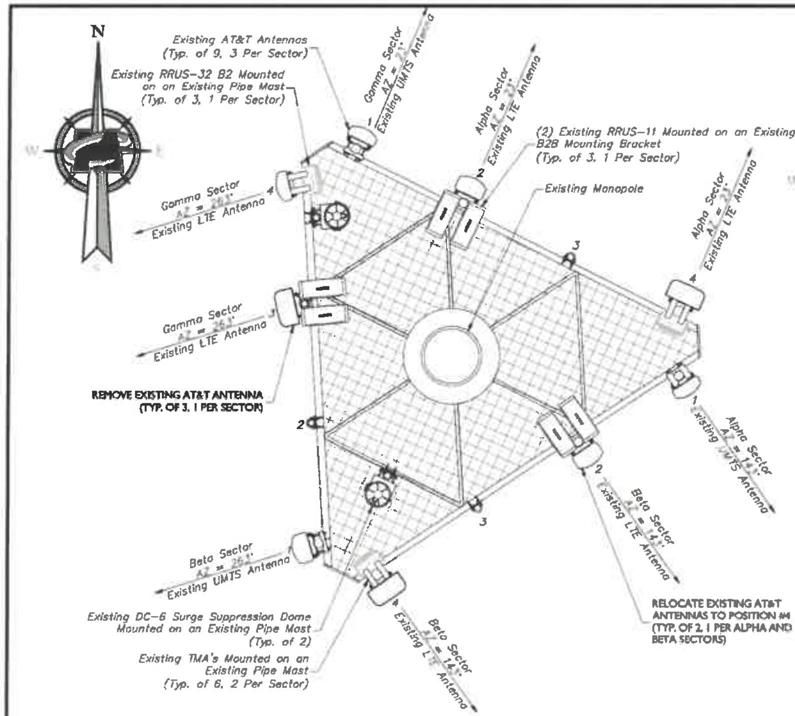
SITE NAME:

GROTON ROBERTS RD
FA# 10035316
SITE# CT2182

75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

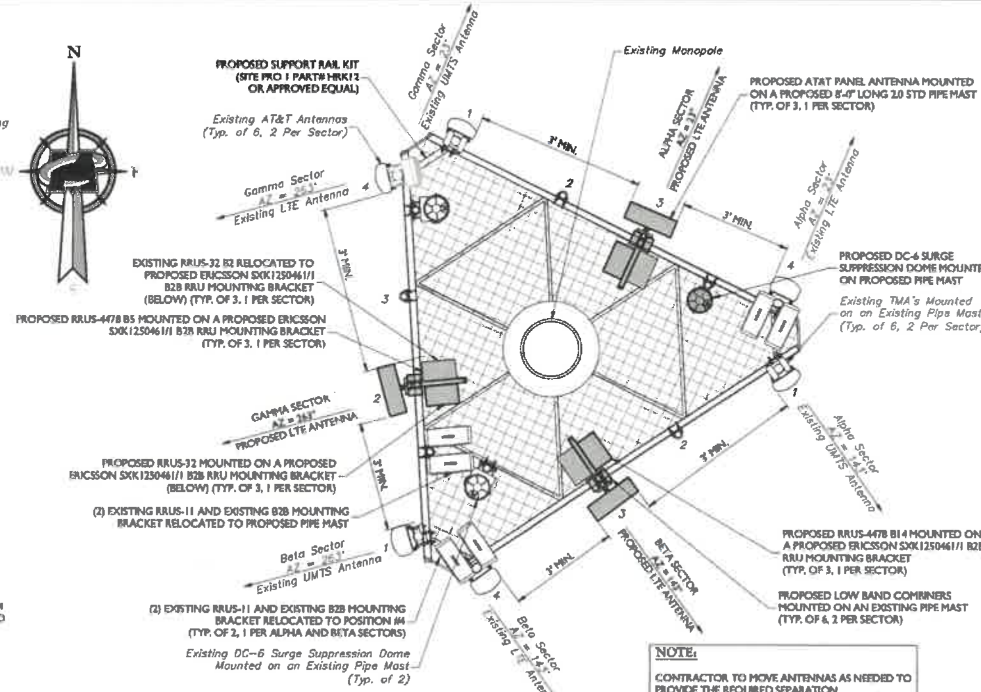
EQUIPMENT LAYOUT AND ELEVATION VIEW

C-2



EXISTING ANTENNA LAYOUT

NOT TO SCALE



NOTE:

CONTRACTOR TO MOVE ANTENNAS AS NEEDED TO PROVIDE THE REQUIRED SEPARATION.

PROPOSED ANTENNA LAYOUT

NOT TO SCALE

ANTENNA SCHEDULE

SECTOR		EXISTING ANTENNA	PROPOSED ANTENNA	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH (DEG.)	ANT. CL ELEV. (ft.)	REMOTE RADIO/TMA CONFIGURATION	TRANSMISSION CABLE QUANTITY	TRANSMISSION CABLE TYPE	TRANSMISSION CABLE STATUS
Sector 1	1	POWERWAVE 7770	POWERWAVE 7770	UMTS	EXISTING	55.00	11.00	5.00	35.00	143	145'	(2) 782-10250 DIPLEXER (EXISTING) (2) LGP 21401 TMA (EXISTING)	2	1 5/8" COAX	EXISTING
	2	KMW AM-X-CD-17-45-00T-RET						-							
	3		KATHREIN 80010799	LTE	PROPOSED	96.00	14.90	4.50	105.00	23	145'	(1) RRUS-4478 B14 (PROPOSED) (1) RRUS-4478 B5 (PROPOSED) (1) RRUS-32 B30 (PROPOSED) (2) DBCT108F1V92-1 DIPLEXER (PROPOSED) (1) RRUS-32 B2 (RELOCATED)	1 1/2	FIBER FIBER/DC	EXISTING PROPOSED
	4	CCI TPA-65R-LCUUUU-H6	KMW AM-X-CD-17-65-00T-RET	LTE	RELOCATED	96.00	11.80	6.00	74.50	23	145'	(1) RRUS-11 B12 (RELOCATED) (1) RRUS-11 B4 (RELOCATED)	1/2	FIBER/DC	EXISTING
Sector 2	1	POWERWAVE 7770	POWERWAVE 7770	UMTS	EXISTING	55.00	11.00	5.00	35.00	263	145'	(2) 782-10250 DIPLEXER (EXISTING) (2) LGP 21401 TMA (EXISTING)	2	1 5/8" COAX	EXISTING
	2	KMW AM-X-CD-17-65-00T-RET		-											
	1	-	KATHREIN 80010799	LTE	PROPOSED	96.00	14.90	6.50	105.00	143	145'	(1) RRUS-4478 B14 (PROPOSED) (1) RRUS-4478 B5 (PROPOSED) (1) RRUS-32 B30 (PROPOSED) (2) DBCT108F1V92-1 DIPLEXER (PROPOSED) (1) RRUS-32 B2 (RELOCATED)			
	4	CCI TPA-65R-LCUUUU-H6	KMW AM-X-CD-17-65-00T-RET	LTE	RELOCATED	96.00	11.80	6.00	74.50	143	145'	(1) RRUS-11 B12 (RELOCATED) (1) RRUS-11 B4 (RELOCATED)	1/2	FIBER/DC	EXISTING
Sector 3	1	COMMSCOPE SBNH-1D6565C	COMMSCOPE SBNH-1D6565C	LTE	EXISTING	96.40	11.90	7.10	40.70	255	145'	(1) RRUS-11 B12 (RELOCATED) (1) RRUS-11 B4 (RELOCATED)			
	2	-	KATHREIN 80010799	LTE	PROPOSED	96.00	14.90	6.50	105.00	255	145'	(1) RRUS-4478 B14 (PROPOSED) (1) RRUS-4478 B5 (PROPOSED) (1) RRUS-32 B30 (PROPOSED) (2) DBCT108F1V92-1 DIPLEXER (PROPOSED) (1) RRUS-32 B2 (RELOCATED)			
	3	CCI TPA-65R-LCUUUU-H6			REMOVED					-	-	-			
	4	POWERWAVE 7770	POWERWAVE 7770	UMTS	EXISTING	55.00	11.00	5.00	35.00	23	145	(2) 782-10250 DIPLEXER (EXISTING) (2) LGP 21401 TMA (EXISTING)	2	1 5/8" COAX	EXISTING

MASER CONSULTING —CONNECTICUT—

at&t

EMPIRE telecom

16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN | 18963013A

PETROS E. TSOUKALAS 32577

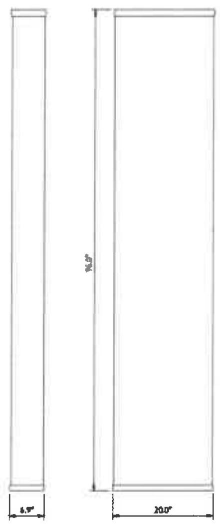
SITE NAME:

GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

RED BANK OFFICE

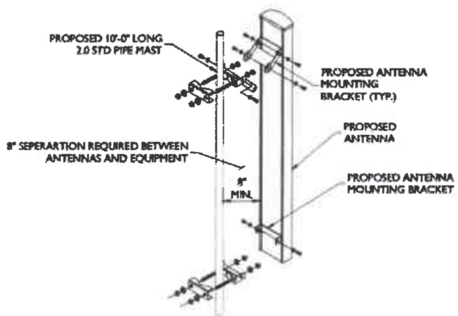
ANTENNA LAYOUT AND ANTENNA SCHEDULE

C-3

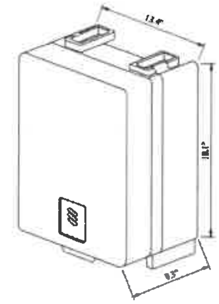


KATHREIN 800-10966

ANTENNA DETAIL
NOT TO SCALE

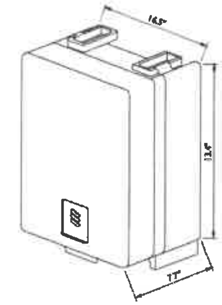


ANTENNA MOUNTING DETAIL
NOT TO SCALE



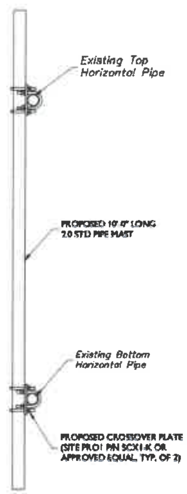
DIMENSIONS (H X W X D): 18.1"H X 13.4"W X 8.3"D (INCLUDES SUNSHIELD)
WEIGHT: 59.4 LBS

RRUS-4478 B14 DETAIL
NOT TO SCALE

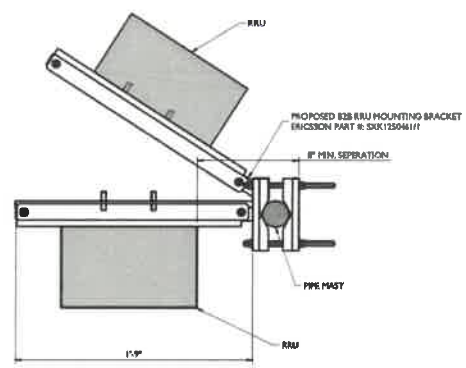


DIMENSIONS (H X W X D): 16.5"H X 13.4"W X 7.7"D (INCLUDES SUNSHIELD)
WEIGHT: 59.9 LBS

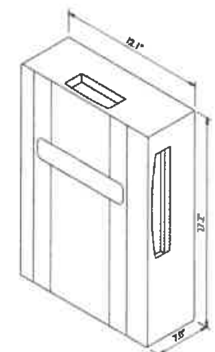
RRU-4478-B5 DETAIL
NOT TO SCALE



PIPE MAST MOUNTING DETAIL
NOT TO SCALE



RRU MOUNTING DETAIL
NOT TO SCALE



RRUS-32 DIMENSIONS (H X W X D): 27.2" X 12.1" X 7.0" (INCLUDES SUNSHIELD)
WEIGHT: 53 LBS

RRUS-32 DETAIL
NOT TO SCALE

MASER CONSULTING —CONNECTICUT—

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

811

AS SHOWN | 18963013A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
2		CLIENT COMMENTS	AJC	RA
1			AJC	RA
0		ISSUED FOR REVIEW	PBB	RA

PETROS TSOUKALAS, CONNECTICUT PROFESSIONAL ENGINEER, 32577

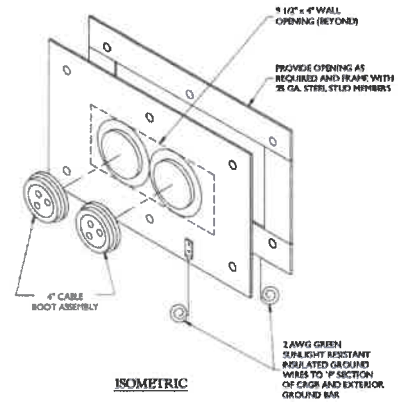
SITE NAME:

GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

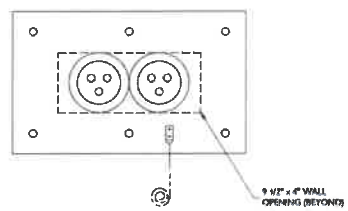
RED BANK OFFICE

DETAILS

A-1



ISOMETRIC



CABLE ENTRY PANEL CHART

SITE PRO E1448 FOR (2 PORTS)
SITE PRO BAZERO, 4" BOOT
SITE PRO BA78, 4" BOOT FOR (1) 7/8" COAX
SITE PRO B158, 4" BOOT FOR (1) 1-5/8" COAX

NOTES:

1. ENTRY PANEL AND BOOTS BY SITE PRO (SEE CHART FOR PART #). ORDER BOOTS SEPARATELY FOR SPECIFIC CABLE SIZE(S) & QUANTITY. PROVIDE PLUGS BY SITE PRO FOR EACH UNUSED HOLE IN BOOT.
2. AN APPROVED EQUAL MAY BE SUBSTITUTED FOR SITE PRO PARTS REFERENCED IN THIS DETAIL.
3. STEEL FRAMES ARE REQUIRED ON BOTH SIDES OF THE WALL. THE FRAMES SHALL BE SEALED WITH THE MANUFACTURER'S RECOMMENDED SEALANT TO HELP RESIST WEATHER EXPOSURE ON THE INTERIOR OF THE SHELTER.
4. OPENING IN WALL CAN BE EITHER ONE OVERALL RECTANGULAR OPENING OR SEVERAL ROUND CORE DRILLS PLACED TO MATCH BOOT LOCATIONS IN THE STEEL FRAMES.

CABLE ENTRY PANEL DETAIL 2 PORT

NOT TO SCALE

MASER CONSULTING CONNECTICUT
Customer Loyalty through Client Satisfaction
www.maserconsulting.com
Engineers ■ Planners ■ Surveyors
Landscape Architects ■ Environmental Scientists

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

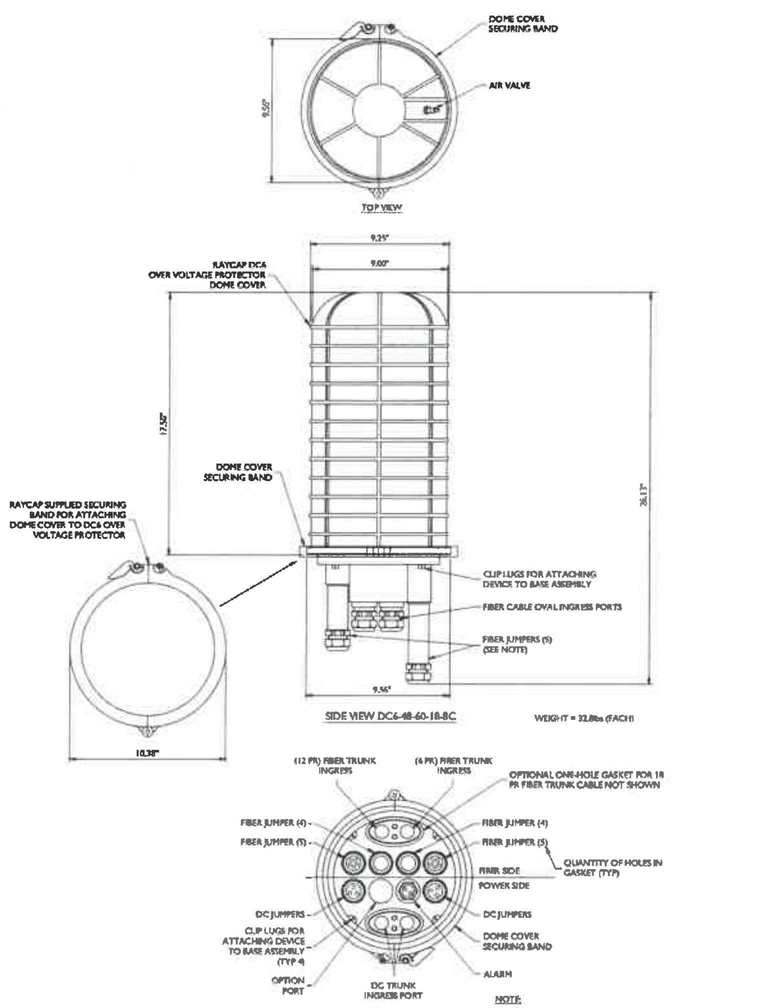
AS SHOWN | 18963013A

SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

RED BANK OFFICE

DETAILS

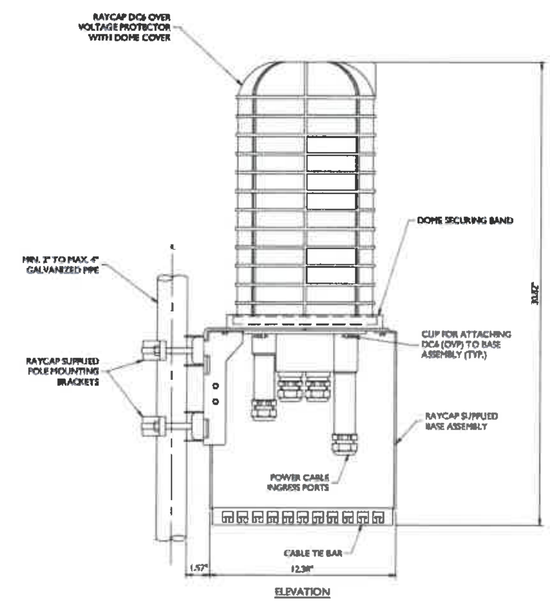
A-2



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

DC6 SURGE SUPPRESSION DOME DETAIL

NOT TO SCALE



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

RAYCAP DC6-48-60-18-8F & DC6-48-60-0-8F DC POWER OVER VOLTAGE PROTECTOR (OVP) POLE MOUNT BASE ASSEMBLY

NOT TO SCALE

MASER CONSULTING —CONNECTICUT—

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

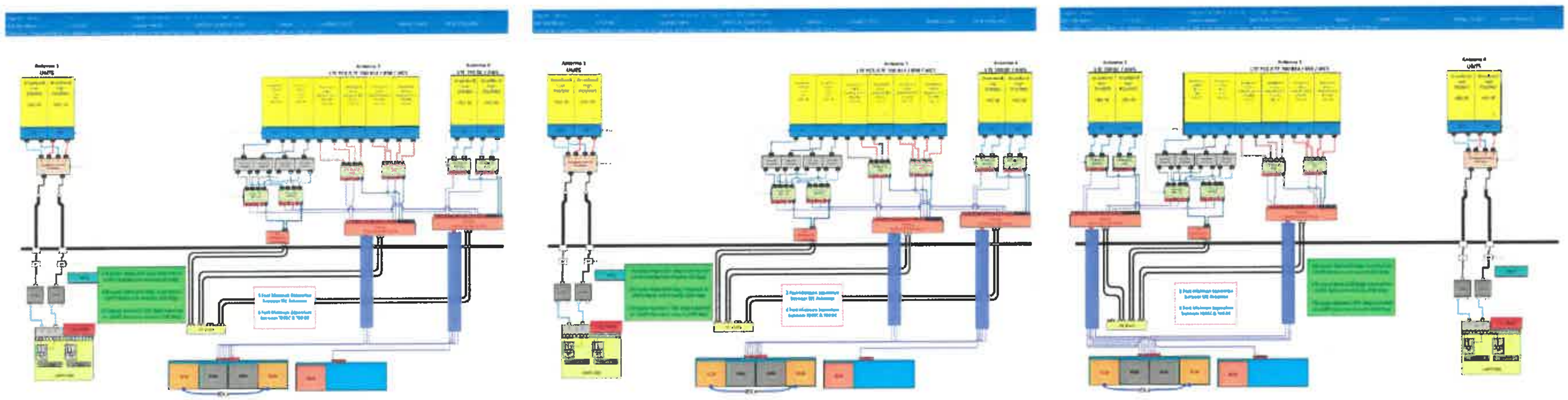
AS SHOWN | 18963013A

PETROS TSOUKALAS 32577

SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

DETAILS

A-3



BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTV2182_2018-LTE-Next-Carrier_LTE_om636a_2051A0G...", LAST REVISED 08/20/19.

RF PLUMBING DIAGRAMS

MASER CONSULTING CONNECTICUT

at&t

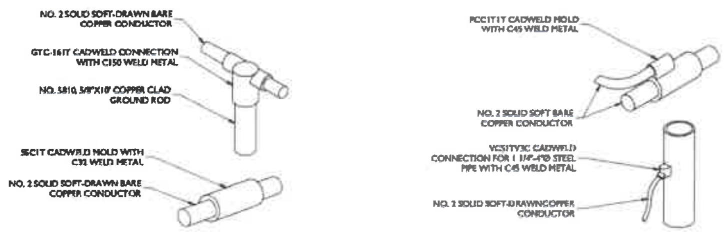
EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN

SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

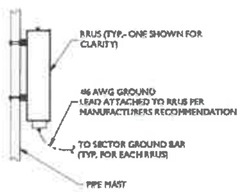
RF PLUMBING DIAGRAM

A-4



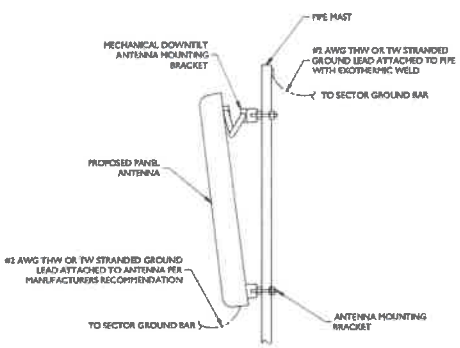
CADWELD DETAILS

NOT TO SCALE



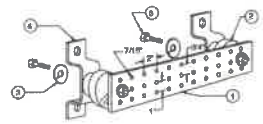
RRU GROUNDING

NOT TO SCALE



ANTENNA GROUNDING

NOT TO SCALE



LEGEND

1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.

2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4

3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8

4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056

5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

6- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

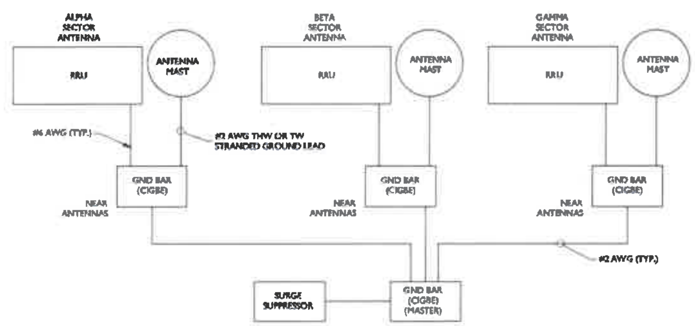
CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
-48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

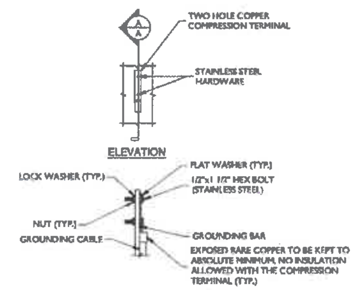
INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

MASTER GROUND BAR

NOT TO SCALE

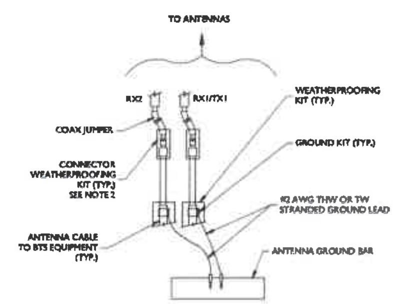


SCHEMATIC DIAGRAM GROUNDING SYSTEM



TYPICAL GROUND BAR CONNECTION DETAIL

NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR

NOT TO SCALE

MASER CONSULTING CONNECTICUT

at&t

EMPIRE telecom

16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN | 18963013A

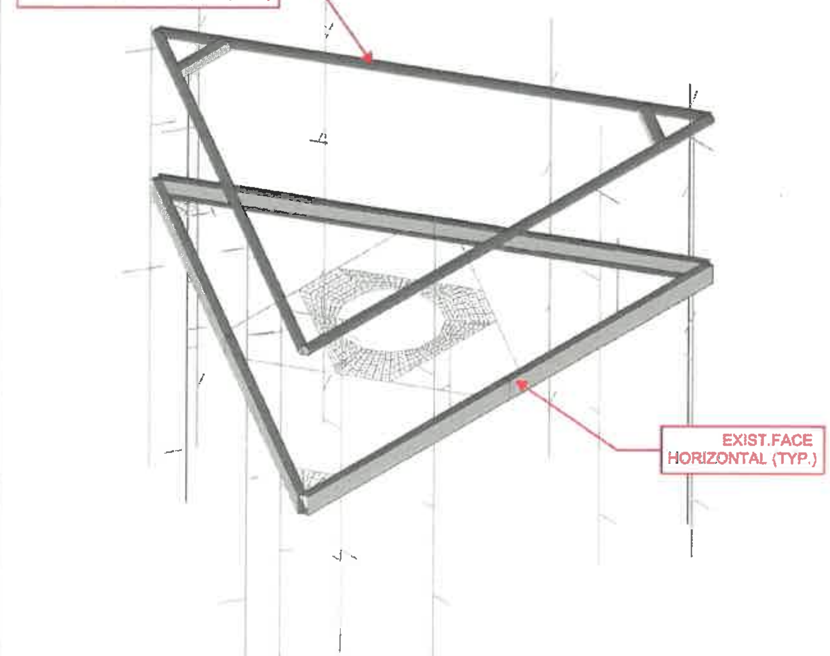
SITE NAME:

GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

GROUNDING DETAILS

G-1

MOUNT MODIFICATION SKETCH (1 OF 2)

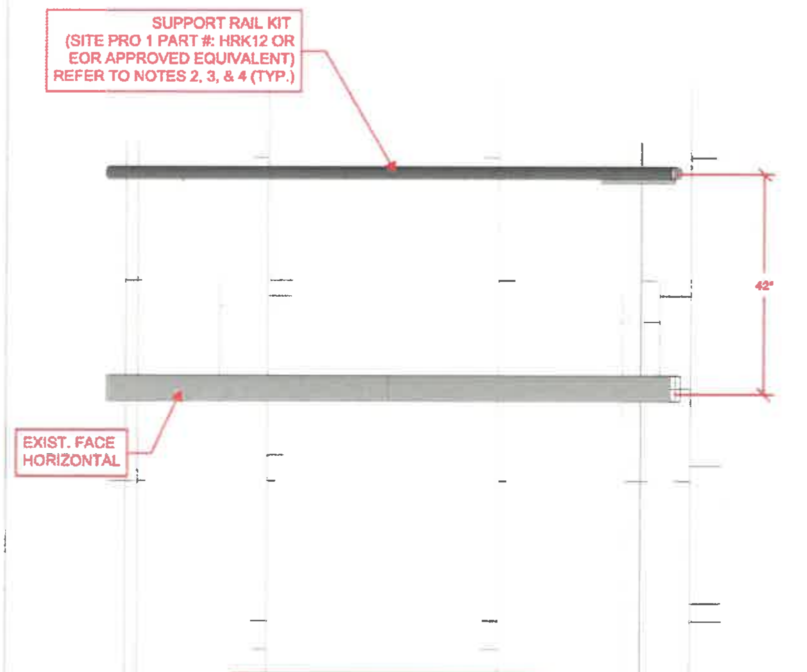


OVERALL MOUNT VIEW

NOTES:
1) MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
2) EXIST. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE.
3) CONNECT NEW FACE HORIZONTAL TO EXISITNG MOUNT PIPES WITH CROSSOVER PLATES (SITE PRO 1 PART #: SCX1-K & SCX-K OR EOR APPROVED EQUIVALENT).
4) TRIM SUPPORT RAIL MEMBERS AS NEEDED.

Maser Consulting P.A.	Platform Analysis	Modification Page 1
JRH		July 12, 2019 at 12:35 AM
18963013A		Platform.r3d

MOUNT MODIFICATION SKETCH (2 OF 2)



SIDE ELEVATION VIEW (TYP. ALL SECTORS)

NOTES:
1) MOUNT MEMBERS NOT SHOWN FOR CLARITY U.N.O.
2) EXIST. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF HORIZONTAL AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE.
3) CONNECT NEW FACE HORIZONTAL TO EXISITNG MOUNT PIPES WITH CROSSOVER PLATES (SITE PRO 1 PART #: SCX1-K & SCX-K OR EOR APPROVED EQUIVALENT).
4) TRIM SUPPORT RAIL MEMBERS AS NEEDED.

Maser Consulting P.A.	Platform Analysis	Modification Page 2
JRH		July 12, 2019 at 12:36 AM
18963013A		Platform.r3d

MASER CONSULTING CONNECTICUT

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN | 18963013A

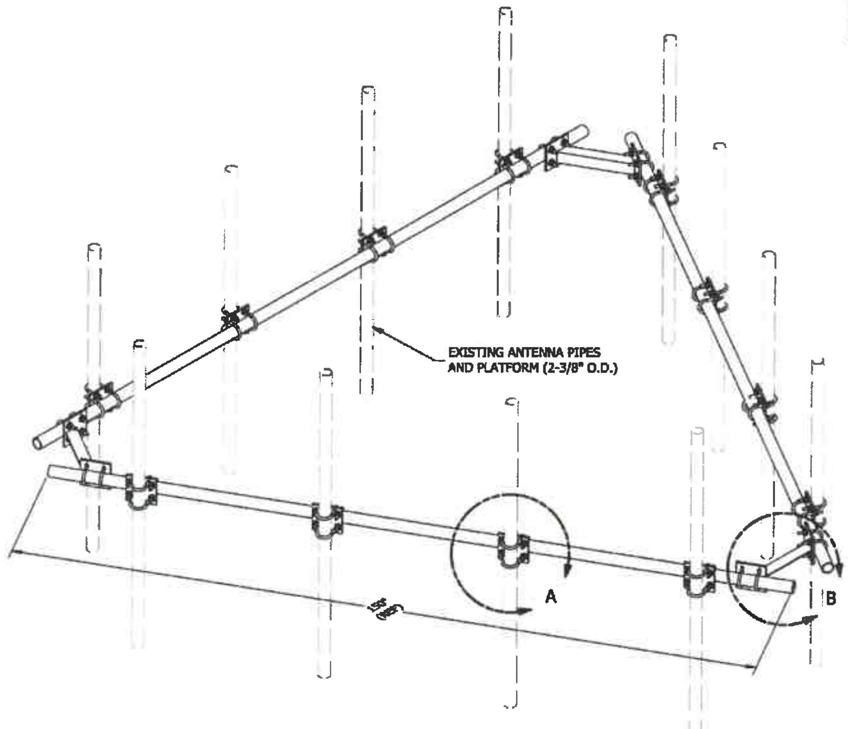
SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

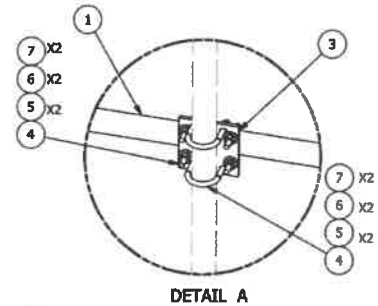
MOUNT MODIFICATION SKETCH

S-1

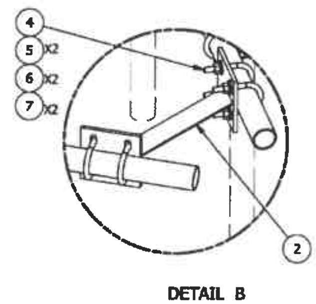
PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	12	SCX1	CROSSOVER PLATE 2-3/8" X 2-3/8"	6 in	3.71	44.50
4	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	37.51
5	120	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	4.09
6	120	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	1.67
7	120	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	8.60
					TOTAL WT. #	272.43





DETAIL A



DETAIL B

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REPLACED HCP WITH X-AHCP		CEK	7/10/2014

REVISION HISTORY

DESCRIPTION: HANDRAIL KIT FOR 12'-6" FACE

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
	KC8 5/30/2012		HRK12

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 7/13/2014	HRK12

PAGE 1 OF 1

SITE PRO 1 — A valmont company
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

MASER CONSULTING — CONNECTICUT

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

AS SHOWN | 18963013A

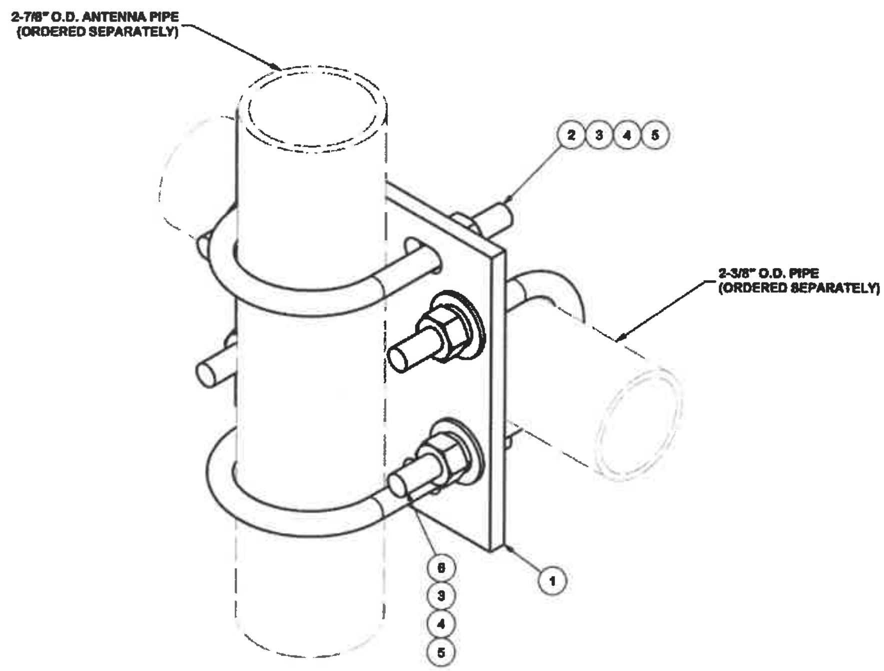
SITE NAME:
GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

MOUNT MODIFICATION DETAIL

S-2

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	SCX2	CROSSOVER PLATE	7 in	4.80	4.80
2	2	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.66	1.31
3	8	G12FW	1/2" HDG USS FLATWASHER		0.03	0.27
4	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
5	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
6	2	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.63	1.25
					TOTAL WT. #	8.39



TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION	CROSSOVER PLATE KIT		
CPD NO.	DRAWN BY: CEK 6/30/2011	ENG. APPROVAL	PART NO. SCX2-K
CLASS / SUB	DRAWING USAGE: SHOP	CHECKED BY: BMC 7/1/2011	DWG. NO. SCX2-K

SITE PRO 1 — A valmont company
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

PAGE 1 OF 1

MASER CONSULTING — CONNECTICUT —

at&t

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01862

811 Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

AS SHOWN | 18963013A

REV	DATE	DESCRIPTION		
2		CLIENT COMMENTS	A/C	BA
1		REVISED PER COMMENTS	A/C	BA
0		ISSUED FOR REVIEW	MSB	BA

PETROS E. TSOUKALAS
32577

SITE NAME:

GROTON ROBERTS RD
FA# 10035316
SITE# CT2182
75 ROBERTS ROAD
GROTON, CT 06340
NEW LONDON COUNTY

MOUNT MODIFICATION DETAIL

S-2

PAUL J. FORD & COMPANY

Date: **May 24, 2019**

Charles Trask
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 East Broad St., Suite 600
Columbus, OH 43215
(614) 221-6679

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT2182
	Carrier Site Name:	GROTON ROBERTS RD
Crown Castle Designation:	**Crown Castle BU Number:**	881533
	Crown Castle Site Name:	GROTON TOWER
	Crown Castle JDE Job Number:	550021
	Crown Castle Work Order Number:	1744268
	Crown Castle Order Number:	472775 Rev. 2
Engineering Firm Designation:	**Paul J. Ford and Company Project Number:**	37519-2353.001.7805
Site Data:	**75 Roberts Road, Groton, New London County, CT**	
	Latitude *41° 21' 36.8"*, Longitude *-72° 2' 55.1"*	
	144.5 Foot - Monopole Tower	

Dear Charles Trask,

Paul J. Ford and Company is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity (96.5%)**

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:

Aaron E. Pike, E.I.
Structural Designer

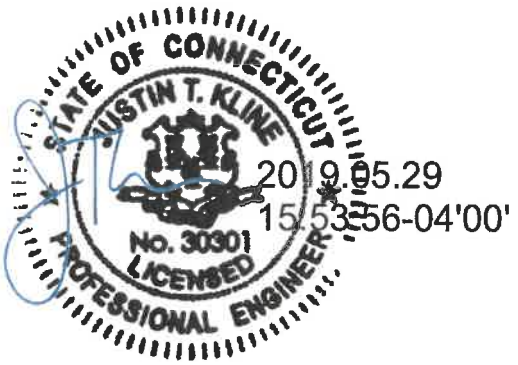


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 144.5 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC in January of 2001.

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

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
145.0	145.0	1	andrew	SBNH-1D6565C w/ Mount Pipe		
		6	ericsson	RRUS 11		
		3	ericsson	RRUS 32		
		3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 4478 B14		
		3	ericsson	RRUS 4478 B5		
		6	kaelus	DBCT108F1V92-1	6	3/4
		3	kathrein	840370799 w/ Mount Pipe	6	1-5/8
		2	kmw communications	AM-X-CD-17-65-00T-RET w/ Mount Pipe	2 2	3/8 2" cond.
		6	powerwave tech.	7020.00		
		3	powerwave tech.	7770.00 w/ Mount Pipe		
		6	powerwave tech.	LGP21401		
		1	raycap	DC6-48-60-0-8F		
		2	raycap	DC6-48-60-18-8F		
		1	tower mounts	Platform Mount [LP 601-1]		

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)
135.0	137.0	3	alcatel lucent	B66A RRH4X45	8	1-5/8
		3	alcatel lucent	RRH2X60-700		
		3	alcatel lucent	RRH2X60-PCS		
		3	amphenol	QUAD656C0000X w/ Mount Pipe		
		3	andrew	LNX-6512DS-VTM w/ Mount Pipe		
		6	commscope	HBXX-6517DS-A2M w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
	135.0	1	tower mounts	Platform Mount [LP 601-1]		
128.0	128.0	3	commscope	LNX-6515DS-A1M w/ Mount Pipe	12 1	1-5/8 1-1/4
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RRUS 11 B12		
		1	tower mounts	Platform Mount [LP 601-1]		
118.0	118.0	3	alcatel lucent	TD-RRH8X20-25	4 1	1-1/4 5/8
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 601-1]		
108.0	108.0	3	alcatel lucent	TME-PCS 1900MHz 4x45W-65MHz	--	--
		1	tower mounts	Side Arm Mount [SO 102-3]		
	106.0	3	alcatel lucent	TME-800MHz 2X50W RRH W/FILTER		
103.0	103.0	1	tower mounts	Platform Mount [LP 601-1]	--	--

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clarence Welti, 03/13/2000	1406209	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	URS, F301877.01/F04, 12/21/2000	1405796	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI, 8409, 01/02/2001	1405782	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Walker Engineering, 0705-0147VRE, 08/01/2007	2048224	CCISITES
4-POST-MODIFICATION INSPECTION	Vertical Structures, 2007-004-164, 08/01/2008	2304223	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, 2008-004-155, 12/03/2008	2353860	CCISITES
4-POST-MODIFICATION INSPECTION	Vertical Structures, 2009-004-059, 04/28/2009	2435103	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	CCI, 711991, 02/25/2014	4491288	CCISITES
4-POST-MODIFICATION INSPECTION	SGS, 145071, 08/18/2014	5246681	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group, 92739.004.01, 07/23/2015	5795331	CCISITES
4-POST-MODIFICATION INSPECTION	ETS, 151208, 12/14/2015	6017666	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group, 92739.005.01, 10/25/2015	5944786	CCISITES
4-POST-MODIFICATION INSPECTION	ETS, 151208, 02/05/2016	6089847	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group, 92739.007.01, 02/21/2017	6708152	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 76625.68409, 10/18/2017	7137178	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Gropu, 92739.008.01, 08/31/2017	7042669	CCISITES
4-POST-MODIFICATION INSPECTION	ETS, 173016, 12/20/2017	7262385	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0), 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 presented 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.
4) Tower was modified in conformance with the referenced modification documents.
5) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10012, Base Plate Grout Repair.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
144.5 - 139.5	Pole	TP22.094x21x0.1875	Pole	13.5%	Pass
139.5 - 134.5	Pole	TP23.188x22.094x0.1875	Pole	27.2%	Pass
134.5 - 129.5	Pole	TP24.282x23.188x0.1875	Pole	44.4%	Pass
129.5 - 124.5	Pole	TP25.376x24.282x0.1875	Pole	63.0%	Pass
124.5 - 121.51	Pole	TP26.875x25.376x0.1875	Pole	73.8%	Pass
121.51 - 116.51	Pole	TP26.713x25.655x0.25	Pole	64.4%	Pass
116.51 - 112.58	Pole	TP27.544x26.713x0.25	Pole	74.3%	Pass
112.58 - 112.33	Pole + Reinf.	TP27.597x27.544x0.425	Reinf. 7 Tension Rupture	74.9%	Pass
112.33 - 107.33	Pole + Reinf.	TP28.655x27.597x0.4188	Reinf. 7 Tension Rupture	86.8%	Pass
107.33 - 106	Pole + Reinf.	TP28.936x28.655x0.4188	Reinf. 7 Tension Rupture	89.9%	Pass
106 - 105.75	Pole + Reinf.	TP28.989x28.936x0.5313	Reinf. 11 Tension Rupture	75.1%	Pass
105.75 - 103.5	Pole + Reinf.	TP29.465x28.989x0.525	Reinf. 11 Tension Rupture	79.4%	Pass
103.5 - 103.25	Pole + Reinf.	TP29.518x29.465x0.525	Reinf. 11 Tension Rupture	79.9%	Pass
103.25 - 98.5	Pole + Reinf.	TP30.523x29.518x0.5125	Reinf. 11 Tension Rupture	88.7%	Pass
98.5 - 98.25	Pole + Reinf.	TP30.576x30.523x0.675	Reinf. 11 Tension Rupture	68.4%	Pass
98.25 - 98	Pole + Reinf.	TP30.629x30.576x0.675	Reinf. 11 Tension Rupture	68.8%	Pass
98 - 97.75	Pole + Reinf.	TP30.681x30.629x0.575	Reinf. 1 Tension Rupture	78.2%	Pass
97.75 - 92.75	Pole + Reinf.	TP31.739x30.681x0.5625	Reinf. 1 Tension Rupture	85.8%	Pass
92.75 - 91.48	Pole + Reinf.	TP32.987x31.739x0.55	Reinf. 1 Tension Rupture	87.6%	Pass
91.48 - 85.85	Pole	TP32.72x31.508x0.375	Pole	80.3%	Pass
85.85 - 83	Pole	TP33.334x32.72x0.375	Pole	82.4%	Pass
83 - 82.75	Pole + Reinf.	TP33.388x33.334x0.575	Reinf. 6 Tension Rupture	87.4%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
82.75 - 77.75	Pole + Reinf.	TP34.465x33.388x0.5625	Reinf. 6 Tension Rupture	91.9%	Pass
77.75 - 77.25	Pole + Reinf.	TP34.573x34.465x0.5625	Reinf. 6 Tension Rupture	92.4%	Pass
77.25 - 77	Pole + Reinf.	TP34.627x34.573x0.825	Reinf. 6 Tension Rupture	64.1%	Pass
77 - 76.75	Pole + Reinf.	TP34.681x34.627x0.6375	Reinf. 4 Tension Rupture	81.7%	Pass
76.75 - 71.75	Pole + Reinf.	TP35.758x34.681x0.625	Reinf. 4 Tension Rupture	85.6%	Pass
71.75 - 69	Pole + Reinf.	TP36.35x35.758x0.625	Reinf. 4 Tension Rupture	87.6%	Pass
69 - 68.75	Pole + Reinf.	TP36.404x36.35x0.8	Reinf. 13 Tension Rupture	69.6%	Pass
68.75 - 63.75	Pole + Reinf.	TP37.481x36.404x0.7875	Reinf. 13 Tension Rupture	72.7%	Pass
63.75 - 60	Pole + Reinf.	TP38.289x37.481x0.775	Reinf. 13 Tension Rupture	74.9%	Pass
60 - 59.75	Pole + Reinf.	TP38.343x38.289x0.775	Reinf. 13 Tension Rupture	75.0%	Pass
59.75 - 58.5	Pole + Reinf.	TP38.612x38.343x0.775	Reinf. 13 Tension Rupture	75.7%	Pass
58.5 - 58.25	Pole + Reinf.	TP38.666x38.612x0.7875	Reinf. 13 Tension Rupture	76.5%	Pass
58.25 - 58	Pole + Reinf.	TP38.72x38.666x0.775	Reinf. 13 Tension Rupture	76.6%	Pass
58 - 57.75	Pole + Reinf.	TP38.773x38.72x0.6125	Reinf. 3 Tension Rupture	86.7%	Pass
57.75 - 56.75	Pole + Reinf.	TP38.989x38.773x0.6125	Reinf. 3 Tension Rupture	87.3%	Pass
56.75 - 56.5	Pole + Reinf.	TP39.043x38.989x0.7375	Reinf. 3 Tension Rupture	79.3%	Pass
56.5 - 51.5	Pole + Reinf.	TP40.12x39.043x0.725	Reinf. 3 Tension Rupture	81.9%	Pass
51.5 - 47.81	Pole + Reinf.	TP42.214x40.12x0.7125	Reinf. 3 Tension Rupture	83.8%	Pass
47.81 - 40.78	Pole + Reinf.	TP41.684x40.165x0.7875	Reinf. 3 Tension Rupture	82.1%	Pass
40.78 - 35.78	Pole + Reinf.	TP42.765x41.684x0.7875	Reinf. 3 Tension Rupture	84.1%	Pass
35.78 - 31.25	Pole + Reinf.	TP43.744x42.765x0.775	Reinf. 3 Tension Rupture	85.8%	Pass
31.25 - 31	Pole + Reinf.	TP43.799x43.744x0.65	Reinf. 2 Compression	84.4%	Pass
31 - 27.25	Pole + Reinf.	TP44.609x43.799x0.65	Reinf. 2 Compression	85.8%	Pass
27.25 - 27	Pole + Reinf.	TP44.663x44.609x0.85	Reinf. 8 Tension Rupture	87.9%	Pass
27 - 22	Pole + Reinf.	TP45.744x44.663x0.8375	Reinf. 8 Tension Rupture	89.7%	Pass
22 - 17	Pole + Reinf.	TP46.825x45.744x0.8375	Reinf. 8 Tension Rupture	91.4%	Pass
17 - 12	Pole + Reinf.	TP47.906x46.825x0.8125	Reinf. 8 Tension Rupture	93.0%	Pass
12 - 7	Pole + Reinf.	TP48.987x47.906x0.8125	Reinf. 8 Tension Rupture	94.5%	Pass
7 - 2	Pole + Reinf.	TP50.068x48.987x0.8	Reinf. 8 Tension Rupture	96.0%	Pass
2 - 0	Pole + Reinf.	TP50.5x50.068x0.8	Reinf. 8 Tension Rupture	96.5%	Pass
				Summary	
			Pole	82.4%	Pass
			Reinforcement	96.5%	Pass
			Overall	96.5%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	88.6	Pass
1	Base Plate	0	72.8	Pass
1	Base Foundation Steel	0	27.0	Pass
1	Base Foundation Soil Interaction	0	58.6	Pass

Structure Rating (max from all components) =	96.5%

Notes:

- All structural ratings are per TIA-222-H Section 15.5

1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

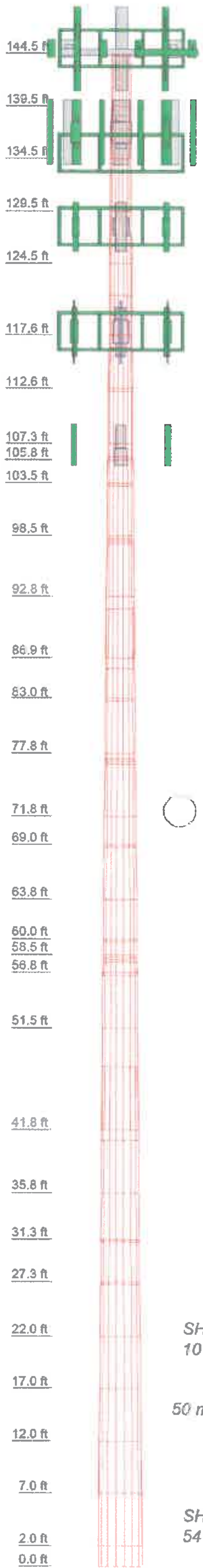
The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.0000	18	0.1875		21.0000	22.0940	A572-65	0.2
2	5.0000	18	0.1875		22.0940	23.1881		0.2
3	5.0000	18	0.1875		23.1881	24.2821		0.2
4	5.0000	18	0.1875		24.2821	25.3762		0.2
5	5.0000	18	0.1875	3.8600	25.3762	26.8750		0.4
6–17	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
18	[illegible]	18	[illegible]		[illegible]	[illegible]		0.9
19	[illegible]	18	0.5500	4.6300	31.7391	32.9871		1.1
20–22	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
23	[illegible]	18	[illegible]		[illegible]	[illegible]		1.0
24–26	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
27	[illegible]	18	[illegible]		[illegible]	[illegible]		1.1
28–29	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
30	[illegible]	18	[illegible]		[illegible]	[illegible]		1.5
31	[illegible]	18	[illegible]		[illegible]	[illegible]		1.1
32–38	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
39	[illegible]	18	[illegible]		[illegible]	[illegible]		1.5
40	[illegible]	18	0.7125	6.0300	40.1197	42.2135		3.0
41	[illegible]	18	[illegible]		[illegible]	[illegible]		2.4
42	5.0000	18	[illegible]		41.6840	[illegible]		1.7
43	[illegible]	18	[illegible]		[illegible]	[illegible]		1.6
44–46	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]
47	[illegible]	18	[illegible]		[illegible]	[illegible]		2.0
48	5.0000	18	0.8375		45.7441	46.8250		2.0
49	5.0000	18	0.8125		46.8250	47.9059		2.0
50	5.0000	18	0.8125		47.9059	48.9868		2.0
51	5.0000	18	0.8000		48.9868	50.0676		2.1
52	[illegible]	18	[illegible]		[illegible]	[illegible]		[illegible]

Weight (K) total: 36.3



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.0000 ft
8. TIA-222-H Annex S

ALL REACTIONS ARE FACTORED

AXIAL 96 K
SHEAR 10 K
MOMENT 1128 kip-ft
TORQUE 1 kip-ft
50 mph WIND - 1.5000 in ICE

AXIAL 61 K
SHEAR 54 K
MOMENT 5467 kip-ft
TORQUE 3 kip-ft
REACTIONS - 135 mph WIND

PJF **Paul J. Ford and Company** 250 East Broad st., Suite 600 Columbus, OH 43215 Phone: (614) 221-6679 FAX:	Job: ***145' Monopole / Groton Tower***		
	Project: ***PJF 37519-2353 / BU 881533***		
	Client: Crown Castle	Drawn by: apike	App'd:
	Code: TIA-222-H	Date: 05/24/19	Scale: NTS
	Path: [illegible]		Dwg No. E-1

Tower Input Data

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

6) Tower is located in New London County, Connecticut.
7) Tower base elevation above sea level: 128.0000 ft.
8) Basic wind speed of 135 mph.
9) Risk Category II.
10) Exposure Category C.
11) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
12) Topographic Category: 1.
13) Crest Height: 0.0000 ft.
14) Nominal ice thickness of 1.5000 in.
15) Ice thickness is considered to increase with height.
16) Ice density of 56.00 pcf.
17) A wind speed of 50 mph is used in combination with ice.
18) Temperature drop of 50 °F.
19) Deflections calculated using a wind speed of 60 mph.
20) TIA-222-H Annex S.
21) A non-linear (P-delta) analysis was used.
22) Pressures are calculated at each section.
23) Stress ratio used in pole design is 1.05.
24) Tower analysis based on target reliabilities in accordance with Annex S.
25) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
26) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	144.5000-139.5000	5.0000	0.00	18	21.0000	22.0940	0.1875	0.7500	A572-65 (65 ksi)
L2	139.5000-134.5000	5.0000	0.00	18	22.0940	23.1881	0.1875	0.7500	A572-65 (65 ksi)
L3	134.5000-129.5000	5.0000	0.00	18	23.1881	24.2821	0.1875	0.7500	A572-65 (65 ksi)
L4	129.5000-124.5000	5.0000	0.00	18	24.2821	25.3762	0.1875	0.7500	A572-65 (65 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
L5	124.5000-117.6500	6.8500	3.86	18	25.3762	26.8750	0.1875	0.7500	A572-65 (65 ksi)
L6	117.6500-116.5100	5.0000	0.00	18	25.6554	26.7131	0.2500	1.0000	A572-65 (65 ksi)
L7	116.5100-112.5800	3.9300	0.00	18	26.7131	27.5444	0.2500	1.0000	A572-65 (65 ksi)
L8	112.5800-112.3300	0.2500	0.00	18	27.5444	27.5973	0.4250	1.7000	A572-65 (65 ksi)
L9	112.3300-107.3300	5.0000	0.00	18	27.5973	28.6549	0.4188	1.6750	A572-65 (65 ksi)
L10	107.3300-106.0000	1.3300	0.00	18	28.6549	28.9363	0.4188	1.6750	A572-65 (65 ksi)
L11	106.0000-105.7500	0.2500	0.00	18	28.9363	28.9891	0.5313	2.1250	A572-65 (65 ksi)
L12	105.7500-103.5000	2.2500	0.00	18	28.9891	29.4651	0.5250	2.1000	A572-65 (65 ksi)
L13	103.5000-103.2500	0.2500	0.00	18	29.4651	29.5180	0.5250	2.1000	A572-65 (65 ksi)
L14	103.2500-98.5000	4.7500	0.00	18	29.5180	30.5228	0.5125	2.0500	A572-65 (65 ksi)
L15	98.5000-98.2500	0.2500	0.00	18	30.5228	30.5756	0.6750	2.7000	A572-65 (65 ksi)
L16	98.2500-98.0000	0.2500	0.00	18	30.5756	30.6285	0.6750	2.7000	A572-65 (65 ksi)
L17	98.0000-97.7500	0.2500	0.00	18	30.6285	30.6814	0.5750	2.3000	A572-65 (65 ksi)
L18	97.7500-92.7500	5.0000	0.00	18	30.6814	31.7391	0.5625	2.2500	A572-65 (65 ksi)
L19	92.7500-86.8500	5.9000	4.63	18	31.7391	32.9871	0.5500	2.2000	A572-65 (65 ksi)
L20	86.8500-85.8500	5.6300	0.00	18	31.5077	32.7205	0.3750	1.5000	A572-65 (65 ksi)
L21	85.8500-83.0000	2.8500	0.00	18	32.7205	33.3344	0.3750	1.5000	A572-65 (65 ksi)
L22	83.0000-82.7500	0.2500	0.00	18	33.3344	33.3882	0.5750	2.3000	A572-65 (65 ksi)
L23	82.7500-77.7500	5.0000	0.00	18	33.3882	34.4653	0.5625	2.2500	A572-65 (65 ksi)
L24	77.7500-77.2500	0.5000	0.00	18	34.4653	34.5730	0.5625	2.2500	A572-65 (65 ksi)
L25	77.2500-77.0000	0.2500	0.00	18	34.5730	34.6268	0.8250	3.3000	A572-65 (65 ksi)
L26	77.0000-76.7500	0.2500	0.00	18	34.6268	34.6807	0.6375	2.5500	A572-65 (65 ksi)
L27	76.7500-71.7500	5.0000	0.00	18	34.6807	35.7577	0.6250	2.5000	A572-65 (65 ksi)
L28	71.7500-69.0000	2.7500	0.00	18	35.7577	36.3501	0.6250	2.5000	A572-65 (65 ksi)
L29	69.0000-68.7500	0.2500	0.00	18	36.3501	36.4039	0.8000	3.2000	A572-65 (65 ksi)
L30	68.7500-63.7500	5.0000	0.00	18	36.4039	37.4810	0.7875	3.1500	A572-65 (65 ksi)
L31	63.7500-60.0000	3.7500	0.00	18	37.4810	38.2888	0.7750	3.1000	A572-65 (65 ksi)
L32	60.0000-59.7500	0.2500	0.00	18	38.2888	38.3426	0.7750	3.1000	A572-65 (65 ksi)
L33	59.7500-58.5000	1.2500	0.00	18	38.3426	38.6119	0.7750	3.1000	A572-65 (65 ksi)
L34	58.5000-58.2500	0.2500	0.00	18	38.6119	38.6657	0.7875	3.1500	A572-65 (65 ksi)
L35	58.2500-58.0000	0.2500	0.00	18	38.6657	38.7196	0.7750	3.1000	A572-65 (65 ksi)
L36	58.0000-57.7500	0.2500	0.00	18	38.7196	38.7734	0.6125	2.4500	A572-65 (65 ksi)
L37	57.7500-56.7500	1.0000	0.00	18	38.7734	38.9888	0.6125	2.4500	A572-65 (65 ksi)
L38	56.7500-56.5000	0.2500	0.00	18	38.9888	39.0427	0.7375	2.9500	A572-65 (65 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
L39	56.5000-51.5000	5.0000	0.00	18	39.0427	40.1197	0.7250	2.9000	A572-65 (65 ksi)
L40	51.5000-41.7800	9.7200	6.03	18	40.1197	42.2135	0.7125	2.8500	A572-65 (65 ksi)
L41	41.7800-40.7800	7.0300	0.00	18	40.1646	41.6843	0.7875	3.1500	A572-65 (65 ksi)
L42	40.7800-35.7800	5.0000	0.00	18	41.6843	42.7652	0.7875	3.1500	A572-65 (65 ksi)
L43	35.7800-31.2500	4.5300	0.00	18	42.7652	43.7445	0.7750	3.1000	A572-65 (65 ksi)
L44	31.2500-31.0000	0.2500	0.00	18	43.7445	43.7985	0.6500	2.6000	A572-65 (65 ksi)
L45	31.0000-27.2500	3.7500	0.00	18	43.7985	44.6092	0.6500	2.6000	A572-65 (65 ksi)
L46	27.2500-27.0000	0.2500	0.00	18	44.6092	44.6632	0.8500	3.4000	A572-65 (65 ksi)
L47	27.0000-22.0000	5.0000	0.00	18	44.6632	45.7441	0.8375	3.3500	A572-65 (65 ksi)
L48	22.0000-17.0000	5.0000	0.00	18	45.7441	46.8250	0.8375	3.3500	A572-65 (65 ksi)
L49	17.0000-12.0000	5.0000	0.00	18	46.8250	47.9059	0.8125	3.2500	A572-65 (65 ksi)
L50	12.0000-7.0000	5.0000	0.00	18	47.9059	48.9868	0.8125	3.2500	A572-65 (65 ksi)
L51	7.0000-2.0000	5.0000	0.00	18	48.9868	50.0676	0.8000	3.2000	A572-65 (65 ksi)
L52	2.0000-0.0000	2.0000		18	50.0676	50.5000	0.8000	3.2000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	21.2950	12.3860	677.8263	7.3884	10.6680	63.5383	1356.5444	6.1942	3.3660	17.952
	22.4060	13.0371	790.4367	7.7768	11.2238	70.4252	1581.9134	6.5198	3.5586	18.979
L2	22.4060	13.0371	790.4367	7.7768	11.2238	70.4252	1581.9134	6.5198	3.5586	18.979
	23.5169	13.6882	914.8758	8.1652	11.7795	77.6665	1830.9553	6.8454	3.7511	20.006
L3	23.5169	13.6882	914.8758	8.1652	11.7795	77.6665	1830.9553	6.8454	3.7511	20.006
	24.6278	14.3393	1051.7343	8.5536	12.3353	85.2620	2104.8526	7.1710	3.9437	21.033
L4	24.6278	14.3393	1051.7343	8.5536	12.3353	85.2620	2104.8526	7.1710	3.9437	21.033
	25.7387	14.9904	1201.6031	8.9420	12.8911	93.2119	2404.7873	7.4966	4.1362	22.06
L5	25.7387	14.9904	1201.6031	8.9420	12.8911	93.2119	2404.7873	7.4966	4.1362	22.06
	27.2607	15.8824	1429.1221	9.4741	13.6525	104.6784	2860.1246	7.9427	4.4000	23.467
L6	26.8417	20.1592	1643.8512	9.0189	13.0329	126.1305	3289.8653	10.0815	4.0754	16.301
	27.0866	20.9984	1857.8240	9.3944	13.5702	136.9043	3718.0925	10.5012	4.2615	17.046
L7	27.0866	20.9984	1857.8240	9.3944	13.5702	136.9043	3718.0925	10.5012	4.2615	17.046
	27.9307	21.6581	2038.4691	9.6895	13.9925	145.6825	4079.6204	10.8311	4.4078	17.631
L8	27.9037	36.5827	3399.1679	9.6274	13.9925	242.9271	6802.8086	18.2948	4.0998	9.647
	27.9574	36.6540	3419.0919	9.6462	14.0194	243.8827	6842.6828	18.3305	4.1091	9.669
L9	27.9584	36.1233	3371.1363	9.6484	14.0194	240.4621	6746.7085	18.0651	4.1201	9.839
	29.0324	37.5291	3780.2171	10.0238	14.5567	259.6891	7565.4083	18.7681	4.3063	10.284
L10	29.0324	37.5291	3780.2171	10.0238	14.5567	259.6891	7565.4083	18.7681	4.3063	10.284
	29.3181	37.9030	3894.3420	10.1237	14.6996	264.9281	7793.8083	18.9551	4.3558	10.402
L11	29.3007	47.8962	4882.3426	10.0838	14.6996	332.1407	9771.1094	23.9526	4.1578	7.826
	29.3544	47.9853	4909.6624	10.1026	14.7265	333.3900	9825.7851	23.9972	4.1671	7.844
L12	29.3554	47.4312	4855.0992	10.1048	14.7265	329.6848	9716.5868	23.7201	4.1781	7.958
	29.8386	48.2243	5102.7395	10.2737	14.9683	340.9038	10212.1933	24.1167	4.2619	8.118
L13	29.8386	48.2243	5102.7395	10.2737	14.9683	340.9038	10212.1933	24.1167	4.2619	8.118
	29.8923	48.3124	5130.7638	10.2925	14.9951	342.1620	10268.2787	24.1608	4.2712	8.136
L14	29.8943	47.1825	5015.0837	10.2969	14.9951	334.4475	10036.7664	23.5957	4.2932	8.377
	30.9146	48.8169	5554.5281	10.6536	15.5056	358.2282	11116.3650	24.4131	4.4700	8.722

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
L15	30.8895	63.9473	7197.5224	10.5960	15.5056	464.1898	14404.5156	31.9797	4.1840	6.199
	30.9432	64.0606	7235.8471	10.6147	15.5324	465.8544	14481.2153	32.0364	4.1933	6.212
L16	30.9432	64.0606	7235.8471	10.6147	15.5324	465.8544	14481.2153	32.0364	4.1933	6.212
	30.9969	64.1739	7274.3075	10.6335	15.5593	467.5219	14558.1868	32.0931	4.2026	6.226
L17	31.0123	54.8492	6258.9022	10.6690	15.5593	402.2615	12526.0401	27.4298	4.3786	7.615
	31.0660	54.9457	6292.0004	10.6878	15.5862	403.6917	12592.2800	27.4781	4.3879	7.631
L18	31.0679	53.7735	6162.8878	10.6922	15.5862	395.4079	12333.8849	26.8919	4.4099	7.84
	32.1419	55.6619	6835.2047	11.0677	16.1234	423.9296	13679.4032	27.8362	4.5961	8.171
L19	32.1438	54.4467	6691.3533	11.0721	16.1234	415.0077	13391.5113	27.2285	4.6181	8.396
	33.4111	56.6254	7527.1942	11.5152	16.7574	449.1850	15064.2929	28.3181	4.8377	8.796
L20	32.9486	37.0557	4537.6009	11.0521	16.0059	283.4952	9081.1725	18.5314	4.8854	13.028
	33.1674	38.4992	5088.8011	11.4826	16.6220	306.1487	10184.2981	19.2532	5.0988	13.597
L21	33.1674	38.4992	5088.8011	11.4826	16.6220	306.1487	10184.2981	19.2532	5.0988	13.597
	33.7908	39.2299	5384.0899	11.7006	16.9339	317.9482	10775.2644	19.6187	5.2068	13.885
L22	33.7599	59.7875	8106.2277	11.6296	16.9339	478.6994	16223.1219	29.8994	4.8548	8.443
	33.8146	59.8858	8146.2701	11.6487	16.9612	480.2881	16303.2594	29.9486	4.8643	8.46
L23	33.8165	58.6062	7978.2882	11.6531	16.9612	470.3842	15967.0745	29.3087	4.8863	8.687
	34.9102	60.5291	8789.6621	12.0355	17.5084	502.0268	17590.8899	30.2703	5.0759	9.024
L24	34.9102	60.5291	8789.6621	12.0355	17.5084	502.0268	17590.8899	30.2703	5.0759	9.024
	35.0195	60.7214	8873.6988	12.0737	17.5631	505.2477	17759.0739	30.3665	5.0948	9.057
L25	34.9790	88.3707	12715.7262	11.9805	17.5631	724.0037	25448.1841	44.1938	4.6328	5.616
	35.0337	88.5118	12776.6953	11.9996	17.5904	726.3438	25570.2024	44.2643	4.6423	5.627
L26	35.0626	68.7748	10038.1100	12.0662	17.5904	570.6576	20089.4285	34.3940	4.9723	7.8
	35.1173	68.8838	10085.8982	12.0853	17.6178	572.4840	20185.0677	34.4484	4.9818	7.815
L27	35.1193	67.5579	9899.0317	12.0898	17.6178	561.8773	19811.0888	33.7854	5.0038	8.006
	36.2129	69.6945	10868.2458	12.4721	18.1649	598.3096	21750.7924	34.8539	5.1934	8.309
L28	36.2129	69.6945	10868.2458	12.4721	18.1649	598.3096	21750.7924	34.8539	5.1934	8.309
	36.8144	70.8696	11427.3160	12.6824	18.4658	618.8353	22869.6684	35.4416	5.2976	8.476
L29	36.7874	90.2688	14413.0644	12.6203	18.4658	780.5256	28845.0938	45.1430	4.9896	6.237
	36.8421	90.4055	14478.6633	12.6394	18.4932	782.9182	28976.3779	45.2113	4.9991	6.249
L30	36.8440	89.0242	14267.4509	12.6438	18.4932	771.4971	28553.6752	44.5205	5.0211	6.376
	37.9377	91.7163	15601.3294	13.0262	19.0403	819.3830	31223.1874	45.8668	5.2107	6.617
L31	37.9396	90.2912	15369.3857	13.0306	19.0403	807.2013	30758.9949	45.1542	5.2327	6.752
	38.7599	92.2782	16406.5738	13.3174	19.4507	843.4957	32834.7358	46.1479	5.3748	6.935
L32	38.7599	92.2782	16406.5738	13.3174	19.4507	843.4957	32834.7358	46.1479	5.3748	6.935

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
	38.8146	92.4107	16477.3315	13.3365	19.4780	845.9437	32976.3443	46.2141	5.3843	6.947
L33	38.8146	92.4107	16477.3315	13.3365	19.4780	845.9437	32976.3443	46.2141	5.3843	6.947
	39.0880	93.0730	16834.1730	13.4321	19.6148	858.2369	33690.4969	46.5454	5.4317	7.009
L34	39.0860	94.5430	17088.7442	13.4277	19.6148	871.2154	34199.9741	47.2805	5.4097	6.869
	39.1407	94.6776	17161.8378	13.4468	19.6422	873.7233	34346.2576	47.3478	5.4192	6.881
L35	39.1426	93.2055	16906.1540	13.4512	19.6422	860.7062	33834.5535	46.6116	5.4412	7.021
	39.1973	93.3380	16978.3398	13.4703	19.6695	863.1791	33979.0202	46.6779	5.4506	7.033
L36	39.2224	74.0830	13591.4996	13.5280	19.6695	690.9921	27200.8833	37.0485	5.7366	9.366
	39.2771	74.1877	13649.2027	13.5471	19.6969	692.9619	27316.3653	37.1009	5.7461	9.381
L37	39.2771	74.1877	13649.2027	13.5471	19.6969	692.9619	27316.3653	37.1009	5.7461	9.381
	39.4958	74.6065	13881.6489	13.6236	19.8063	700.8693	27781.5637	37.3103	5.7840	9.443
L38	39.4765	89.5397	16551.8404	13.5792	19.8063	835.6844	33125.4602	44.7784	5.5640	7.544
	39.5312	89.6657	16621.8462	13.5983	19.8337	838.0614	33265.5639	44.8414	5.5735	7.557
L39	39.5331	88.1748	16356.1219	13.6028	19.8337	824.6637	32733.7655	44.0958	5.5955	7.718
	40.6268	90.6532	17774.4756	13.9851	20.3808	872.1176	35572.3394	45.3352	5.7851	7.979
L40	40.6287	89.1185	17484.6523	13.9896	20.3808	857.8972	34992.3114	44.5677	5.8071	8.15
	42.7548	93.8535	20422.3129	14.7329	21.4445	952.3352	40871.4980	46.9357	6.1756	8.667
L41	41.9864	98.4240	19280.8299	13.9789	20.4036	944.9715	38587.0301	49.2214	5.6830	7.216
	42.2059	102.2226	21600.4734	14.5184	21.1756	1020.0628	43229.3692	51.1210	5.9504	7.556
L42	42.2059	102.2226	21600.4734	14.5184	21.1756	1020.0628	43229.3692	51.1210	5.9504	7.556
	43.3034	104.9243	23358.8091	14.9021	21.7247	1075.2180	46748.3544	52.4721	6.1407	7.798
L43	43.3054	103.2896	23008.5765	14.9065	21.7247	1059.0966	46047.4282	51.6546	6.1627	7.952
	44.2997	105.6985	24656.2042	15.2542	22.2222	1109.5306	49344.8516	52.8593	6.3350	8.174
L44	44.3190	88.9082	20860.3942	15.2985	22.2222	938.7190	41748.2371	44.4626	6.5550	10.085
	44.3739	89.0197	20938.9761	15.3177	22.2496	941.0925	41905.5042	44.5183	6.5645	10.099
L45	44.3739	89.0197	20938.9761	15.3177	22.2496	941.0925	41905.5042	44.5183	6.5645	10.099
	45.1971	90.6922	22141.4759	15.6055	22.6615	977.0540	44312.0861	45.3547	6.7072	10.319
L46	45.1662	118.0579	28560.8359	15.5345	22.6615	1260.3261	57159.2528	59.0402	6.3552	7.477
	45.2211	118.2037	28666.7873	15.5537	22.6889	1263.4708	57371.2950	59.1131	6.3647	7.488
L47	45.2230	116.4986	28269.3990	15.5581	22.6889	1245.9562	56575.9956	58.2604	6.3867	7.626
	46.3206	119.3719	30413.0539	15.9418	23.2380	1308.7634	60866.1261	59.6973	6.5770	7.853
L48	46.3206	119.3719	30413.0539	15.9418	23.2380	1308.7634	60866.1261	59.6973	6.5770	7.853
	47.4181	122.2451	32662.4268	16.3256	23.7871	1373.1153	65367.8316	61.1342	6.7672	8.08
L49	47.4220	118.6605	31739.1354	16.3344	23.7871	1334.3005	63520.0340	59.3415	6.8112	8.383
	48.5196	121.4479	34028.8522	16.7181	24.3362	1398.2820	68102.4804	60.7355	7.0014	8.617

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
L50	48.5196	121.4479	34028.8522	16.7181	24.3362	1398.2820	68102.4804	60.7355	7.0014	8.617
	49.6171	124.2354	36426.1233	17.1019	24.8853	1463.7621	72900.1770	62.1295	7.1917	8.851
L51	49.6190	122.3558	35893.6474	17.1063	24.8853	1442.3649	71834.5245	61.1895	7.2137	9.017
	50.7166	125.1004	38363.6391	17.4900	25.4344	1508.3388	76777.7580	62.5621	7.4039	9.255
L52	50.7166	125.1004	38363.6391	17.4900	25.4344	1508.3388	76777.7580	62.5621	7.4039	9.255
	51.1556	126.1982	39382.5221	17.6435	25.6540	1535.1416	78816.8648	63.1111	7.4800	9.35

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 144.5000-139.5000				1	1	1			
L2 139.5000-134.5000				1	1	1			
L3 134.5000-129.5000				1	1	1			
L4 129.5000-124.5000				1	1	1			
L5 124.5000-117.6500				1	1	1			
L6 117.6500-116.5100				1	1	1			
L7 116.5100-112.5800				1	1	1			
L8 112.5800-112.3300				1	1	0.960346			
L9 112.3300-107.3300				1	1	0.960317			
L10 107.3300-106.0000				1	1	0.956733			
L11 106.0000-105.7500				1	1	0.944149			
L12 105.7500-103.5000				1	1	0.947302			
L13 103.5000-103.2500				1	1	0.946442			
L14 103.2500-98.5000				1	1	0.952994			
L15 98.5000-98.2500				1	1	0.937623			
L16 98.2500-98.0000				1	1	0.936621			
L17 98.0000-97.7500				1	1	0.930888			
L18 97.7500-92.7500				1	1	0.933989			
L19 92.7500-86.8500				1	1	0.950561			
L20 86.8500-85.8500				1	1	1			
L21 85.8500-83.0000				1	1	1			
L22 83.0000-82.7500				1	1	0.956732			
L23 82.7500-77.7500				1	1	0.967742			

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
L24 77.7500-77.2500				1	1	0.966788			
L25 77.2500-77.0000				1	1	0.939364			
L26 77.0000-76.7500				1	1	0.946641			
L27 76.7500-71.7500				1	1	0.954023			
L28 71.7500-69.0000				1	1	0.948152			
L29 69.0000-68.7500				1	1	0.943084			
L30 68.7500-63.7500				1	1	0.943583			
L31 63.7500-60.0000				1	1	0.948256			
L32 60.0000-59.7500				1	1	0.94759			
L33 59.7500-58.5000				1	1	0.94429			
L34 58.5000-58.2500				1	1	1.04119			
L35 58.2500-58.0000				1	1	1.05682			
L36 58.0000-57.7500				1	1	1.08785			
L37 57.7500-56.7500				1	1	1.08518			
L38 56.7500-56.5000				1	1	0.994257			
L39 56.5000-51.5000				1	1	0.997568			
L40 51.5000-41.7800				1	1	1.00509			
L41 41.7800-40.7800				1	1	0.982199			
L42 40.7800-35.7800				1	1	0.971213			
L43 35.7800-31.2500				1	1	0.976965			
L44 31.2500-31.0000				1	1	1.12575			
L45 31.0000-27.2500				1	1	1.1174			
L46 27.2500-27.0000				1	1	0.974292			
L47 27.0000-22.0000				1	1	0.977331			
L48 22.0000-17.0000				1	1	0.966638			
L49 17.0000-12.0000				1	1	0.985342			
L50 12.0000-7.0000				1	1	0.975315			
L51 7.0000-2.0000				1	1	0.980569			
L52 2.0000-0.0000				1	1	0.976796			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
**********										
CCI-045100 (L)	B	No	Surface Af (CaAa)	100.0000 - 90.0000	1	1	0.083 0.083	4.5000	11.0000	0.00
CCI-045100 (L)	A	No	Surface Af (CaAa)	100.0000 - 90.0000	1	1	0.083 0.083	4.5000	11.0000	0.00
CCI-045100 (L)	C	No	Surface Af (CaAa)	100.0000 - 90.0000	1	1	0.083 0.083	4.5000	11.0000	0.00
CCI-085125 (L)	B	No	Surface Af (CaAa)	35.0000 - 0.0000	1	1	0.083 0.083	8.5000	19.5000	0.00
CCI-085125 (L)	A	No	Surface Af (CaAa)	35.0000 - 0.0000	1	1	-0.250 -0.250	8.5000	19.5000	0.00
CCI-085125 (L)	C	No	Surface Af (CaAa)	35.0000 - 0.0000	1	1	-0.250 -0.250	8.5000	19.5000	0.00
CCI-065125 (L)	B	No	Surface Af (CaAa)	80.0000 - 28.5000	1	1	-0.250 -0.250	6.5000	15.5000	0.00
CCI-065125 (L)	A	No	Surface Af (CaAa)	80.0000 - 35.0000	1	1	-0.250 -0.250	6.5000	15.5000	0.00
CCI-065125 (L)	C	No	Surface Af (CaAa)	80.0000 - 35.0000	1	1	-0.250 -0.250	6.5000	15.5000	0.00
CCI-045100 (L)	B	No	Surface Af (CaAa)	105.0000 - 90.0000	1	1	-0.083 -0.083	4.5000	11.0000	0.00
CCI-045100 (L)	A	No	Surface Af (CaAa)	105.0000 - 90.0000	1	1	-0.083 -0.083	4.5000	11.0000	0.00
CCI-045100 (L)	C	No	Surface Af (CaAa)	105.0000 - 90.0000	1	1	-0.083 -0.083	4.5000	11.0000	0.00
CCI-060100 (L)	B	No	Surface Af (CaAa)	85.0000 - 75.0000	1	1	0.083 0.083	6.0000	14.0000	0.00
CCI-060100 (L)	A	No	Surface Af (CaAa)	85.0000 - 75.0000	1	1	0.083 0.083	6.0000	14.0000	0.00
CCI-060100 (L)	C	No	Surface Af (CaAa)	85.0000 - 75.0000	1	1	0.083 0.083	6.0000	14.0000	0.00
CCI-045100 (L)	A	No	Surface Af (CaAa)	114.0000 - 102.0000	1	1	0.417 0.417	4.5000	11.0000	0.00
CCI-045100 (L)	C	No	Surface Af (CaAa)	114.0000 - 102.0000	1	1	0.417 0.417	4.5000	11.0000	0.00
CCI-045100 (L)	B	No	Surface Af (CaAa)	114.0000 - 102.0000	1	1	0.417 0.417	4.5000	11.0000	0.00
5.5" x 1.25"	B	No	Surface Af (CaAa)	29.5000 - 0.0000	1	1	-0.417 -0.417	5.5000	13.5000	0.00
5.5" x 1.25"	C	No	Surface Af (CaAa)	29.5000 - 0.0000	1	1	0.417 0.417	5.5000	13.5000	0.00
5.5" x 1.25"	C	No	Surface Af (CaAa)	29.5000 - 0.0000	1	1	-0.083 -0.083	5.5000	13.5000	0.00
CCI-085125 (L)	A	No	Surface Af (CaAa)	60.5000 - 27.5000	1	1	0.250 0.250	8.5000	19.5000	0.00
CCI-040075 (L)	B	No	Surface Af (CaAa)	107.0000 - 97.0000	1	1	0.250 0.250	4.0000	9.5000	0.00
CCI-040075 (L)	A	No	Surface Af (CaAa)	107.0000 - 97.0000	1	1	0.250 0.250	4.0000	9.5000	0.00
CCI-040075 (L)	C	No	Surface Af (CaAa)	107.0000 - 97.0000	1	1	0.250 0.250	4.0000	9.5000	0.00
CCI-065125 (L)	C	No	Surface Af (CaAa)	59.5000 - 24.5000	1	1	0.250 0.250	6.5000	15.5000	0.00
CCI-060100 (L)	A	No	Surface Af (CaAa)	71.0000 - 56.0000	1	1	0.417 0.417	6.0000	14.0000	0.00
CCI-060100 (L)	C	No	Surface Af (CaAa)	71.0000 - 56.0000	1	1	0.417 0.417	6.0000	14.0000	0.00
CCI-060100 (L)	B	No	Surface Af (CaAa)	71.0000 - 56.0000	1	1	0.417 0.417	6.0000	14.0000	0.00
**********										
WR-VG86ST-BRD(3/4)	C	No	Surface Ar (CaAa)	144.5000 - 0.0000	2	2	-0.211 -0.174	0.7950		0.58
*										

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	128.0000 - 0.0000	2	2	-0.198 -0.138	1.9800		0.82
*										
LDF4.5-50(5/8)	A	No	Surface Ar (CaAa)	118.0000 - 0.0000	1	1	0.232 0.232	0.8650		0.15

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
**********									
**********									
2" (Nominal) Conduit	C	No	No	Inside Pole	0.0000 - 144.5000	1	No Ice	0.0000	0.72
							1/2" Ice	0.0000	0.72
							1" Ice	0.0000	0.72
							2" Ice	0.0000	0.72
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	0.0000 - 144.5000	2	No Ice	0.0000	0.06
							1/2" Ice	0.0000	0.06
							1" Ice	0.0000	0.06
							2" Ice	0.0000	0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	0.0000 - 144.5000	2	No Ice	0.0000	0.58
							1/2" Ice	0.0000	0.58
							1" Ice	0.0000	0.58
							2" Ice	0.0000	0.58
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	0.0000 - 144.5000	2	No Ice	0.0000	0.58
							1/2" Ice	0.0000	0.58
							1" Ice	0.0000	0.58
							2" Ice	0.0000	0.58
LDF7-50A(1-5/8)	C	No	No	Inside Pole	0.0000 - 144.5000	6	No Ice	0.0000	0.82
							1/2" Ice	0.0000	0.82
							1" Ice	0.0000	0.82
							2" Ice	0.0000	0.82
***									
LDF7-50A(1-5/8)	C	No	No	Inside Pole	0.0000 - 135.0000	7	No Ice	0.0000	0.82
							1/2" Ice	0.0000	0.82
							1" Ice	0.0000	0.82
							2" Ice	0.0000	0.82
HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	0.0000 - 135.0000	1	No Ice	0.0000	1.30
							1/2" Ice	0.0000	1.30
							1" Ice	0.0000	1.30
							2" Ice	0.0000	1.30
***									
MLE HYBRID 3POWER/6FIBER RL 2(1-1/4)	C	No	No	Inside Pole	0.0000 - 128.0000	1	No Ice	0.0000	0.68
							1/2" Ice	0.0000	0.68
							1" Ice	0.0000	0.68
							2" Ice	0.0000	0.68
LDF7-50A(1-5/8)	C	No	No	Inside Pole	0.0000 - 128.0000	10	No Ice	0.0000	0.82
							1/2" Ice	0.0000	0.82
							1" Ice	0.0000	0.82
							2" Ice	0.0000	0.82
***									
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	0.0000 - 118.0000	3	No Ice	0.0000	1.08
							1/2" Ice	0.0000	1.08
							1" Ice	0.0000	1.08
							2" Ice	0.0000	1.08

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	144.5000-139.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	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	0.795	0.000	0.05
L2	139.5000-134.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.795	0.000	0.05
L3	134.5000-129.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.795	0.000	0.08
L4	129.5000-124.5000	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	1.386	0.000	0.01
		C	0.000	0.000	0.795	0.000	0.11
L5	124.5000-117.6500	A	0.000	0.000	0.030	0.000	0.00
		B	0.000	0.000	2.713	0.000	0.01
		C	0.000	0.000	1.089	0.000	0.17
L6	117.6500-116.5100	A	0.000	0.000	0.099	0.000	0.00
		B	0.000	0.000	0.451	0.000	0.00
		C	0.000	0.000	0.181	0.000	0.03
L7	116.5100-112.5800	A	0.000	0.000	1.405	0.000	0.00
		B	0.000	0.000	2.621	0.000	0.01
		C	0.000	0.000	1.690	0.000	0.11
L8	112.5800-112.3300	A	0.000	0.000	0.209	0.000	0.00
		B	0.000	0.000	0.286	0.000	0.00
		C	0.000	0.000	0.227	0.000	0.01
L9	112.3300-107.3300	A	0.000	0.000	4.183	0.000	0.00
		B	0.000	0.000	5.730	0.000	0.01
		C	0.000	0.000	4.545	0.000	0.14
L10	107.3300-106.0000	A	0.000	0.000	1.779	0.000	0.00
		B	0.000	0.000	2.191	0.000	0.00
		C	0.000	0.000	1.876	0.000	0.04
L11	106.0000-105.7500	A	0.000	0.000	0.376	0.000	0.00
		B	0.000	0.000	0.453	0.000	0.00
		C	0.000	0.000	0.394	0.000	0.01
L12	105.7500-103.5000	A	0.000	0.000	4.507	0.000	0.00
		B	0.000	0.000	5.204	0.000	0.00
		C	0.000	0.000	4.670	0.000	0.06
L13	103.5000-103.2500	A	0.000	0.000	0.563	0.000	0.00
		B	0.000	0.000	0.641	0.000	0.00
		C	0.000	0.000	0.581	0.000	0.01
L14	103.2500-98.5000	A	0.000	0.000	9.203	0.000	0.00
		B	0.000	0.000	10.673	0.000	0.01
		C	0.000	0.000	9.547	0.000	0.13
L15	98.5000-98.2500	A	0.000	0.000	0.563	0.000	0.00
		B	0.000	0.000	0.641	0.000	0.00
		C	0.000	0.000	0.581	0.000	0.01
L16	98.2500-98.0000	A	0.000	0.000	0.563	0.000	0.00
		B	0.000	0.000	0.641	0.000	0.00
		C	0.000	0.000	0.581	0.000	0.01
L17	98.0000-97.7500	A	0.000	0.000	0.563	0.000	0.00
		B	0.000	0.000	0.641	0.000	0.00
		C	0.000	0.000	0.581	0.000	0.01
L18	97.7500-92.7500	A	0.000	0.000	8.432	0.000	0.00
		B	0.000	0.000	9.980	0.000	0.01
		C	0.000	0.000	8.795	0.000	0.14
L19	92.7500-86.8500	A	0.000	0.000	4.635	0.000	0.00
		B	0.000	0.000	6.461	0.000	0.01
		C	0.000	0.000	5.063	0.000	0.17
L20	86.8500-85.8500	A	0.000	0.000	0.086	0.000	0.00
		B	0.000	0.000	0.396	0.000	0.00
		C	0.000	0.000	0.159	0.000	0.03
L21	85.8500-83.0000	A	0.000	0.000	2.071	0.000	0.00
		B	0.000	0.000	2.953	0.000	0.00
		C	0.000	0.000	2.277	0.000	0.08
L22	83.0000-82.7500	A	0.000	0.000	0.250	0.000	0.00
		B	0.000	0.000	0.327	0.000	0.00
		C	0.000	0.000	0.268	0.000	0.01
L23	82.7500-77.7500	A	0.000	0.000	7.431	0.000	0.00
		B	0.000	0.000	8.978	0.000	0.01
		C	0.000	0.000	7.793	0.000	0.14
L24	77.7500-77.2500	A	0.000	0.000	1.041	0.000	0.00
		B	0.000	0.000	1.196	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	1.077	0.000	0.01
L25	77.2500-77.0000	A	0.000	0.000	0.520	0.000	0.00
		B	0.000	0.000	0.598	0.000	0.00
		C	0.000	0.000	0.539	0.000	0.01
L26	77.0000-76.7500	A	0.000	0.000	0.520	0.000	0.00
		B	0.000	0.000	0.598	0.000	0.00
		C	0.000	0.000	0.539	0.000	0.01
L27	76.7500-71.7500	A	0.000	0.000	7.445	0.000	0.00
		B	0.000	0.000	8.993	0.000	0.01
		C	0.000	0.000	7.808	0.000	0.14
L28	71.7500-69.0000	A	0.000	0.000	5.217	0.000	0.00
		B	0.000	0.000	6.068	0.000	0.00
		C	0.000	0.000	5.416	0.000	0.08
L29	69.0000-68.7500	A	0.000	0.000	0.542	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.561	0.000	0.01
L30	68.7500-63.7500	A	0.000	0.000	10.849	0.000	0.00
		B	0.000	0.000	12.397	0.000	0.01
		C	0.000	0.000	11.212	0.000	0.14
L31	63.7500-60.0000	A	0.000	0.000	8.845	0.000	0.00
		B	0.000	0.000	9.297	0.000	0.01
		C	0.000	0.000	8.409	0.000	0.11
L32	60.0000-59.7500	A	0.000	0.000	0.897	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.561	0.000	0.01
L33	59.7500-58.5000	A	0.000	0.000	4.483	0.000	0.00
		B	0.000	0.000	3.099	0.000	0.00
		C	0.000	0.000	3.886	0.000	0.04
L34	58.5000-58.2500	A	0.000	0.000	0.897	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.831	0.000	0.01
L35	58.2500-58.0000	A	0.000	0.000	0.897	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.831	0.000	0.01
L36	58.0000-57.7500	A	0.000	0.000	0.897	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.831	0.000	0.01
L37	57.7500-56.7500	A	0.000	0.000	3.587	0.000	0.00
		B	0.000	0.000	2.479	0.000	0.00
		C	0.000	0.000	3.326	0.000	0.03
L38	56.7500-56.5000	A	0.000	0.000	0.897	0.000	0.00
		B	0.000	0.000	0.620	0.000	0.00
		C	0.000	0.000	0.831	0.000	0.01
L39	56.5000-51.5000	A	0.000	0.000	13.432	0.000	0.00
		B	0.000	0.000	7.897	0.000	0.01
		C	0.000	0.000	12.128	0.000	0.14
L40	51.5000-41.7800	A	0.000	0.000	25.141	0.000	0.00
		B	0.000	0.000	14.379	0.000	0.02
		C	0.000	0.000	22.605	0.000	0.28
L41	41.7800-40.7800	A	0.000	0.000	2.587	0.000	0.00
		B	0.000	0.000	1.479	0.000	0.00
		C	0.000	0.000	2.326	0.000	0.03
L42	40.7800-35.7800	A	0.000	0.000	12.932	0.000	0.00
		B	0.000	0.000	7.397	0.000	0.01
		C	0.000	0.000	11.628	0.000	0.14
L43	35.7800-31.2500	A	0.000	0.000	12.967	0.000	0.00
		B	0.000	0.000	12.014	0.000	0.01
		C	0.000	0.000	11.785	0.000	0.13
L44	31.2500-31.0000	A	0.000	0.000	0.730	0.000	0.00
		B	0.000	0.000	0.724	0.000	0.00
		C	0.000	0.000	0.665	0.000	0.01
L45	31.0000-27.2500	A	0.000	0.000	10.595	0.000	0.00
		B	0.000	0.000	11.568	0.000	0.01
		C	0.000	0.000	14.096	0.000	0.11
L46	27.2500-27.0000	A	0.000	0.000	0.376	0.000	0.00
		B	0.000	0.000	0.682	0.000	0.00
		C	0.000	0.000	1.123	0.000	0.01
L47	27.0000-22.0000	A	0.000	0.000	7.516	0.000	0.00
		B	0.000	0.000	13.647	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
		C	0.000	0.000	19.753	0.000	0.14
L48	22.0000-17.0000	A	0.000	0.000	7.516	0.000	0.00
		B	0.000	0.000	13.647	0.000	0.01
		C	0.000	0.000	17.045	0.000	0.14
L49	17.0000-12.0000	A	0.000	0.000	7.516	0.000	0.00
		B	0.000	0.000	13.647	0.000	0.01
		C	0.000	0.000	17.045	0.000	0.14
L50	12.0000-7.0000	A	0.000	0.000	7.516	0.000	0.00
		B	0.000	0.000	13.647	0.000	0.01
		C	0.000	0.000	17.045	0.000	0.14
L51	7.0000-2.0000	A	0.000	0.000	7.516	0.000	0.00
		B	0.000	0.000	13.647	0.000	0.01
		C	0.000	0.000	17.045	0.000	0.14
L52	2.0000-0.0000	A	0.000	0.000	3.006	0.000	0.00
		B	0.000	0.000	5.459	0.000	0.00
		C	0.000	0.000	6.818	0.000	0.06

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	144.5000-139.5000	A	1.475	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.838	0.000	0.07
L2	139.5000-134.5000	A	1.470	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.831	0.000	0.07
L3	134.5000-129.5000	A	1.465	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	2.824	0.000	0.11
L4	129.5000-124.5000	A	1.459	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	3.009	0.000	0.04
		C		0.000	0.000	2.817	0.000	0.14
L5	124.5000-117.6500	A	1.452	0.000	0.000	0.132	0.000	0.00
		B		0.000	0.000	5.877	0.000	0.07
		C		0.000	0.000	3.848	0.000	0.21
L6	117.6500-116.5100	A	1.447	0.000	0.000	0.430	0.000	0.00
		B		0.000	0.000	0.978	0.000	0.01
		C		0.000	0.000	0.640	0.000	0.04
L7	116.5100-112.5800	A	1.444	0.000	0.000	2.861	0.000	0.03
		B		0.000	0.000	4.751	0.000	0.05
		C		0.000	0.000	3.586	0.000	0.14
L8	112.5800-112.3300	A	1.441	0.000	0.000	0.338	0.000	0.00
		B		0.000	0.000	0.458	0.000	0.00
		C		0.000	0.000	0.384	0.000	0.01
L9	112.3300-107.3300	A	1.438	0.000	0.000	6.750	0.000	0.07
		B		0.000	0.000	9.152	0.000	0.10
		C		0.000	0.000	7.671	0.000	0.21
L10	107.3300-106.0000	A	1.434	0.000	0.000	2.657	0.000	0.03
		B		0.000	0.000	3.296	0.000	0.03
		C		0.000	0.000	2.902	0.000	0.06
L11	106.0000-105.7500	A	1.433	0.000	0.000	0.553	0.000	0.01
		B		0.000	0.000	0.673	0.000	0.01
		C		0.000	0.000	0.599	0.000	0.01
L12	105.7500-103.5000	A	1.431	0.000	0.000	6.525	0.000	0.06
		B		0.000	0.000	7.605	0.000	0.08
		C		0.000	0.000	6.938	0.000	0.13
L13	103.5000-103.2500	A	1.429	0.000	0.000	0.811	0.000	0.01
		B		0.000	0.000	0.931	0.000	0.01
		C		0.000	0.000	0.857	0.000	0.01
L14	103.2500-98.5000	A	1.426	0.000	0.000	13.353	0.000	0.13
		B		0.000	0.000	15.632	0.000	0.16
		C		0.000	0.000	14.225	0.000	0.27
L15	98.5000-98.2500	A	1.422	0.000	0.000	0.794	0.000	0.01
		B		0.000	0.000	0.914	0.000	0.01
		C		0.000	0.000	0.840	0.000	0.01
L16	98.2500-98.0000	A	1.422	0.000	0.000	0.794	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
		B		0.000	0.000	0.914	0.000	0.01
		C		0.000	0.000	0.840	0.000	0.01
L17	98.0000-97.7500	A	1.421	0.000	0.000	0.794	0.000	0.01
		B		0.000	0.000	0.914	0.000	0.01
		C		0.000	0.000	0.840	0.000	0.01
L18	97.7500-92.7500	A	1.418	0.000	0.000	12.206	0.000	0.12
		B		0.000	0.000	14.603	0.000	0.15
		C		0.000	0.000	13.122	0.000	0.26
L19	92.7500-86.8500	A	1.409	0.000	0.000	7.508	0.000	0.07
		B		0.000	0.000	10.333	0.000	0.11
		C		0.000	0.000	8.586	0.000	0.24
L20	86.8500-85.8500	A	1.404	0.000	0.000	0.368	0.000	0.00
		B		0.000	0.000	0.847	0.000	0.01
		C		0.000	0.000	0.551	0.000	0.03
L21	85.8500-83.0000	A	1.401	0.000	0.000	3.167	0.000	0.03
		B		0.000	0.000	4.531	0.000	0.05
		C		0.000	0.000	3.686	0.000	0.12
L22	83.0000-82.7500	A	1.398	0.000	0.000	0.357	0.000	0.00
		B		0.000	0.000	0.476	0.000	0.01
		C		0.000	0.000	0.402	0.000	0.01
L23	82.7500-77.7500	A	1.393	0.000	0.000	10.192	0.000	0.10
		B		0.000	0.000	12.582	0.000	0.13
		C		0.000	0.000	11.101	0.000	0.24
L24	77.7500-77.2500	A	1.389	0.000	0.000	1.393	0.000	0.01
		B		0.000	0.000	1.631	0.000	0.02
		C		0.000	0.000	1.483	0.000	0.03
L25	77.2500-77.0000	A	1.388	0.000	0.000	0.696	0.000	0.01
		B		0.000	0.000	0.816	0.000	0.01
		C		0.000	0.000	0.742	0.000	0.01
L26	77.0000-76.7500	A	1.388	0.000	0.000	0.696	0.000	0.01
		B		0.000	0.000	0.816	0.000	0.01
		C		0.000	0.000	0.742	0.000	0.01
L27	76.7500-71.7500	A	1.383	0.000	0.000	10.468	0.000	0.09
		B		0.000	0.000	12.856	0.000	0.12
		C		0.000	0.000	11.375	0.000	0.24
L28	71.7500-69.0000	A	1.375	0.000	0.000	7.168	0.000	0.06
		B		0.000	0.000	8.481	0.000	0.08
		C		0.000	0.000	7.666	0.000	0.14
L29	69.0000-68.7500	A	1.372	0.000	0.000	0.734	0.000	0.01
		B		0.000	0.000	0.854	0.000	0.01
		C		0.000	0.000	0.780	0.000	0.01
L30	68.7500-63.7500	A	1.367	0.000	0.000	14.675	0.000	0.13
		B		0.000	0.000	17.060	0.000	0.15
		C		0.000	0.000	15.578	0.000	0.27
L31	63.7500-60.0000	A	1.358	0.000	0.000	11.833	0.000	0.10
		B		0.000	0.000	12.775	0.000	0.11
		C		0.000	0.000	11.665	0.000	0.20
L32	60.0000-59.7500	A	1.353	0.000	0.000	1.154	0.000	0.01
		B		0.000	0.000	0.851	0.000	0.01
		C		0.000	0.000	0.777	0.000	0.01
L33	59.7500-58.5000	A	1.352	0.000	0.000	5.768	0.000	0.05
		B		0.000	0.000	4.254	0.000	0.04
		C		0.000	0.000	5.238	0.000	0.08
L34	58.5000-58.2500	A	1.350	0.000	0.000	1.153	0.000	0.01
		B		0.000	0.000	0.851	0.000	0.01
		C		0.000	0.000	1.115	0.000	0.02
L35	58.2500-58.0000	A	1.349	0.000	0.000	1.153	0.000	0.01
		B		0.000	0.000	0.851	0.000	0.01
		C		0.000	0.000	1.115	0.000	0.02
L36	58.0000-57.7500	A	1.349	0.000	0.000	1.153	0.000	0.01
		B		0.000	0.000	0.850	0.000	0.01
		C		0.000	0.000	1.115	0.000	0.02
L37	57.7500-56.7500	A	1.347	0.000	0.000	4.611	0.000	0.04
		B		0.000	0.000	3.401	0.000	0.03
		C		0.000	0.000	4.458	0.000	0.06
L38	56.7500-56.5000	A	1.346	0.000	0.000	1.153	0.000	0.01
		B		0.000	0.000	0.850	0.000	0.01
		C		0.000	0.000	1.114	0.000	0.02
L39	56.5000-51.5000	A	1.339	0.000	0.000	17.558	0.000	0.14

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft²	A_F ft²	C_AA_A In Face ft²	C_AA_A Out Face ft²	Weight K
		B		0.000	0.000	11.513	0.000	0.11
		C		0.000	0.000	16.788	0.000	0.28
L40	51.5000-41.7800	A	1.320	0.000	0.000	32.838	0.000	0.26
		B		0.000	0.000	21.114	0.000	0.19
		C		0.000	0.000	31.330	0.000	0.52
L41	41.7800-40.7800	A	1.304	0.000	0.000	3.378	0.000	0.03
		B		0.000	0.000	2.172	0.000	0.02
		C		0.000	0.000	3.223	0.000	0.05
L42	40.7800-35.7800	A	1.294	0.000	0.000	16.815	0.000	0.13
		B		0.000	0.000	10.803	0.000	0.10
		C		0.000	0.000	16.033	0.000	0.27
L43	35.7800-31.2500	A	1.277	0.000	0.000	16.438	0.000	0.12
		B		0.000	0.000	16.023	0.000	0.13
		C		0.000	0.000	15.725	0.000	0.25
L44	31.2500-31.0000	A	1.268	0.000	0.000	0.920	0.000	0.01
		B		0.000	0.000	0.955	0.000	0.01
		C		0.000	0.000	0.881	0.000	0.01
L45	31.0000-27.2500	A	1.259	0.000	0.000	13.365	0.000	0.10
		B		0.000	0.000	15.261	0.000	0.12
		C		0.000	0.000	18.448	0.000	0.24
L46	27.2500-27.0000	A	1.250	0.000	0.000	0.501	0.000	0.00
		B		0.000	0.000	0.910	0.000	0.01
		C		0.000	0.000	1.461	0.000	0.02
L47	27.0000-22.0000	A	1.238	0.000	0.000	9.991	0.000	0.07
		B		0.000	0.000	18.164	0.000	0.15
		C		0.000	0.000	25.830	0.000	0.33
L48	22.0000-17.0000	A	1.210	0.000	0.000	9.935	0.000	0.07
		B		0.000	0.000	18.073	0.000	0.14
		C		0.000	0.000	22.385	0.000	0.30
L49	17.0000-12.0000	A	1.174	0.000	0.000	9.864	0.000	0.07
		B		0.000	0.000	17.958	0.000	0.14
		C		0.000	0.000	22.234	0.000	0.30
L50	12.0000-7.0000	A	1.126	0.000	0.000	9.767	0.000	0.07
		B		0.000	0.000	17.800	0.000	0.13
		C		0.000	0.000	22.028	0.000	0.29
L51	7.0000-2.0000	A	1.044	0.000	0.000	9.605	0.000	0.06
		B		0.000	0.000	17.536	0.000	0.12
		C		0.000	0.000	21.683	0.000	0.28
L52	2.0000-0.0000	A	0.899	0.000	0.000	3.725	0.000	0.02
		B		0.000	0.000	6.825	0.000	0.04
		C		0.000	0.000	8.425	0.000	0.10

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	144.5000-139.5000	0.4686	1.0976	0.7080	1.6585
L2	139.5000-134.5000	0.4702	1.1014	0.7190	1.6843
L3	134.5000-129.5000	0.4717	1.1048	0.7292	1.7081
L4	129.5000-124.5000	1.6240	-0.5059	1.6511	0.0843
L5	124.5000-117.6500	2.0148	-1.0843	1.9361	-0.4632
L6	117.6500-116.5100	1.6870	-1.4659	1.3872	-1.1463
L7	116.5100-112.5800	1.2538	-1.0892	1.1869	-0.9804
L8	112.5800-112.3300	0.6875	-0.5971	0.9326	-0.7700
L9	112.3300-107.3300	0.6941	-0.6026	0.9444	-0.7794
L10	107.3300-106.0000	0.5525	-0.4795	0.7819	-0.6450

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L11	106.0000-105.7500	0.5181	-0.4497	0.7402	-0.6105
L12	105.7500-103.5000	0.4351	-0.3775	0.6295	-0.5191
L13	103.5000-103.2500	0.4044	-0.3508	0.5882	-0.4849
L14	103.2500-98.5000	0.4574	-0.3967	0.6599	-0.5438
L15	98.5000-98.2500	0.4197	-0.3639	0.6176	-0.5088
L16	98.2500-98.0000	0.4202	-0.3643	0.6184	-0.5094
L17	98.0000-97.7500	0.4206	-0.3647	0.6191	-0.5100
L18	97.7500-92.7500	0.5139	-0.4455	0.7424	-0.6113
L19	92.7500-86.8500	0.9781	-0.8475	1.0623	-0.8740
L20	86.8500-85.8500	1.7579	-1.5231	1.5184	-1.2492
L21	85.8500-83.0000	1.0262	-0.8890	1.1328	-0.9316
L22	83.0000-82.7500	0.8768	-0.7595	1.0272	-0.8446
L23	82.7500-77.7500	0.5803	-0.5026	0.8665	-0.7122
L24	77.7500-77.2500	0.4779	-0.4137	0.7282	-0.5983
L25	77.2500-77.0000	0.4788	-0.4145	0.7296	-0.5994
L26	77.0000-76.7500	0.4791	-0.4148	0.7302	-0.5999
L27	76.7500-71.7500	0.5927	-0.5130	0.8750	-0.7185
L28	71.7500-69.0000	0.5142	-0.4450	0.7733	-0.6347
L29	69.0000-68.7500	0.4735	-0.4097	0.7200	-0.5908
L30	68.7500-63.7500	0.4782	-0.4137	0.7275	-0.5968
L31	63.7500-60.0000	0.4509	-0.7803	0.7053	-0.9223
L32	60.0000-59.7500	0.2534	-2.8552	0.5084	-2.7695
L33	59.7500-58.5000	-0.9325	-1.8540	-0.6297	-1.8344
L34	58.5000-58.2500	-1.2041	-1.6307	-0.8922	-1.6246
L35	58.2500-58.0000	-1.2053	-1.6323	-0.8932	-1.6264
L36	58.0000-57.7500	-1.2063	-1.6336	-0.8941	-1.6279
L37	57.7500-56.7500	-1.2092	-1.6377	-0.8967	-1.6323
L38	56.7500-56.5000	-1.2123	-1.6419	-0.8993	-1.6368
L39	56.5000-51.5000	-1.5660	-2.1213	-1.1358	-2.0659
L40	51.5000-41.7800	-1.6552	-2.2430	-1.2036	-2.1850
L41	41.7800-40.7800	-1.6653	-2.2569	-1.2121	-2.2005
L42	40.7800-35.7800	-1.6808	-2.2784	-1.2288	-2.2251
L43	35.7800-31.2500	0.5470	-1.8416	0.7362	-1.9308
L44	31.2500-31.0000	0.9413	-1.7738	1.0957	-1.8871
L45	31.0000-27.2500	-0.5385	-0.9454	-0.3846	-1.0907
L46	27.2500-27.0000	-1.4542	2.6746	-1.2845	2.2499
L47	27.0000-22.0000	-0.6542	2.2308	-0.5150	1.8078
L48	22.0000-17.0000	0.2339	1.7500	0.3364	1.3326
L49	17.0000-12.0000	0.2367	1.7753	0.3420	1.3612
L50	12.0000-7.0000	0.2394	1.8003	0.3478	1.3923
L51	7.0000-2.0000	0.2421	1.8248	0.3544	1.4299
L52	2.0000-0.0000	0.2440	1.8418	0.3612	1.4749

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	61	WR-VG86ST-BRD(3/4)	139.50 - 144.50	1.0000	1.0000
L2	61	WR-VG86ST-BRD(3/4)	134.50 - 139.50	1.0000	1.0000
L3	61	WR-VG86ST-BRD(3/4)	129.50 - 134.50	1.0000	1.0000
L4	61	WR-VG86ST-BRD(3/4)	124.50 - 129.50	1.0000	1.0000
L4	63	LDF7-50A(1-5/8)	124.50 - 128.00	1.0000	1.0000
L5	61	WR-VG86ST-BRD(3/4)	117.65 - 124.50	1.0000	1.0000
L5	63	LDF7-50A(1-5/8)	117.65 - 124.50	1.0000	1.0000
L5	65	LDF4.5-50(5/8)	117.65 - 118.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L7	46	CCI-045100 (L)	112.58 - 114.00	1.0000	1.0000
L7	47	CCI-045100 (L)	112.58 - 114.00	1.0000	1.0000
L7	48	CCI-045100 (L)	112.58 - 114.00	1.0000	1.0000
L7	61	WR-VG86ST-BRD(3/4)	112.58 - 116.51	1.0000	1.0000
L7	63	LDF7-50A(1-5/8)	112.58 - 116.51	1.0000	1.0000
L7	65	LDF4.5-50(5/8)	112.58 - 116.51	1.0000	1.0000
L8	46	CCI-045100 (L)	112.33 - 112.58	1.0000	1.0000
L8	47	CCI-045100 (L)	112.33 - 112.58	1.0000	1.0000
L8	48	CCI-045100 (L)	112.33 - 112.58	1.0000	1.0000
L8	61	WR-VG86ST-BRD(3/4)	112.33 - 112.58	1.0000	1.0000
L8	63	LDF7-50A(1-5/8)	112.33 - 112.58	1.0000	1.0000
L8	65	LDF4.5-50(5/8)	112.33 - 112.58	1.0000	1.0000
L9	46	CCI-045100 (L)	107.33 - 112.33	1.0000	1.0000
L9	47	CCI-045100 (L)	107.33 - 112.33	1.0000	1.0000
L9	48	CCI-045100 (L)	107.33 - 112.33	1.0000	1.0000
L9	61	WR-VG86ST-BRD(3/4)	107.33 - 112.33	1.0000	1.0000
L9	63	LDF7-50A(1-5/8)	107.33 - 112.33	1.0000	1.0000
L9	65	LDF4.5-50(5/8)	107.33 - 112.33	1.0000	1.0000
L10	46	CCI-045100 (L)	106.00 - 107.33	1.0000	1.0000
L10	47	CCI-045100 (L)	106.00 - 107.33	1.0000	1.0000
L10	48	CCI-045100 (L)	106.00 - 107.33	1.0000	1.0000
L10	53	CCI-040075 (L)	106.00 - 107.00	1.0000	1.0000
L10	54	CCI-040075 (L)	106.00 - 107.00	1.0000	1.0000
L10	55	CCI-040075 (L)	106.00 - 107.00	1.0000	1.0000
L10	61	WR-VG86ST-BRD(3/4)	106.00 - 107.33	1.0000	1.0000
L10	63	LDF7-50A(1-5/8)	106.00 - 107.33	1.0000	1.0000
L10	65	LDF4.5-50(5/8)	106.00 - 107.33	1.0000	1.0000
L11	46	CCI-045100 (L)	105.75 - 106.00	1.0000	1.0000
L11	47	CCI-045100 (L)	105.75 - 106.00	1.0000	1.0000
L11	48	CCI-045100 (L)	105.75 - 106.00	1.0000	1.0000
L11	53	CCI-040075 (L)	105.75 - 106.00	1.0000	1.0000
L11	54	CCI-040075 (L)	105.75 - 106.00	1.0000	1.0000
L11	55	CCI-040075 (L)	105.75 - 106.00	1.0000	1.0000
L11	61	WR-VG86ST-BRD(3/4)	105.75 - 106.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L11	63	LDF7-50A(1-5/8)	105.75 - 106.00	1.0000	1.0000
L11	65	LDF4.5-50(5/8)	105.75 - 106.00	1.0000	1.0000
L12	40	CCI-045100 (L)	103.50 - 105.00	1.0000	1.0000
L12	41	CCI-045100 (L)	103.50 - 105.00	1.0000	1.0000
L12	42	CCI-045100 (L)	103.50 - 105.00	1.0000	1.0000
L12	46	CCI-045100 (L)	103.50 - 105.75	1.0000	1.0000
L12	47	CCI-045100 (L)	103.50 - 105.75	1.0000	1.0000
L12	48	CCI-045100 (L)	103.50 - 105.75	1.0000	1.0000
L12	53	CCI-040075 (L)	103.50 - 105.75	1.0000	1.0000
L12	54	CCI-040075 (L)	103.50 - 105.75	1.0000	1.0000
L12	55	CCI-040075 (L)	103.50 - 105.75	1.0000	1.0000
L12	61	WR-VG86ST-BRD(3/4)	103.50 - 105.75	1.0000	1.0000
L12	63	LDF7-50A(1-5/8)	103.50 - 105.75	1.0000	1.0000
L12	65	LDF4.5-50(5/8)	103.50 - 105.75	1.0000	1.0000
L13	40	CCI-045100 (L)	103.25 - 103.50	1.0000	1.0000
L13	41	CCI-045100 (L)	103.25 - 103.50	1.0000	1.0000
L13	42	CCI-045100 (L)	103.25 - 103.50	1.0000	1.0000
L13	46	CCI-045100 (L)	103.25 - 103.50	1.0000	1.0000
L13	47	CCI-045100 (L)	103.25 - 103.50	1.0000	1.0000
L13	48	CCI-045100 (L)	103.25 - 103.50	1.0000	1.0000
L13	53	CCI-040075 (L)	103.25 - 103.50	1.0000	1.0000
L13	54	CCI-040075 (L)	103.25 - 103.50	1.0000	1.0000
L13	55	CCI-040075 (L)	103.25 - 103.50	1.0000	1.0000
L13	61	WR-VG86ST-BRD(3/4)	103.25 - 103.50	1.0000	1.0000
L13	63	LDF7-50A(1-5/8)	103.25 - 103.50	1.0000	1.0000
L13	65	LDF4.5-50(5/8)	103.25 - 103.50	1.0000	1.0000
L14	31	CCI-045100 (L)	98.50 - 100.00	1.0000	1.0000
L14	32	CCI-045100 (L)	98.50 - 100.00	1.0000	1.0000
L14	33	CCI-045100 (L)	98.50 - 100.00	1.0000	1.0000
L14	40	CCI-045100 (L)	98.50 - 103.25	1.0000	1.0000
L14	41	CCI-045100 (L)	98.50 - 103.25	1.0000	1.0000
L14	42	CCI-045100 (L)	98.50 - 103.25	1.0000	1.0000
L14	46	CCI-045100 (L)	102.00 - 103.25	1.0000	1.0000
L14	47	CCI-045100 (L)	102.00 - 103.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	48	CCI-045100 (L)	102.00 - 103.25	1.0000	1.0000
L14	53	CCI-040075 (L)	98.50 - 103.25	1.0000	1.0000
L14	54	CCI-040075 (L)	98.50 - 103.25	1.0000	1.0000
L14	55	CCI-040075 (L)	98.50 - 103.25	1.0000	1.0000
L14	61	WR-VG86ST-BRD(3/4)	98.50 - 103.25	1.0000	1.0000
L14	63	LDF7-50A(1-5/8)	98.50 - 103.25	1.0000	1.0000
L14	65	LDF4.5-50(5/8)	98.50 - 103.25	1.0000	1.0000
L15	31	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L15	32	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L15	33	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L15	40	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L15	41	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L15	42	CCI-045100 (L)	98.25 - 98.50	1.0000	1.0000
L15	53	CCI-040075 (L)	98.25 - 98.50	1.0000	1.0000
L15	54	CCI-040075 (L)	98.25 - 98.50	1.0000	1.0000
L15	55	CCI-040075 (L)	98.25 - 98.50	1.0000	1.0000
L15	61	WR-VG86ST-BRD(3/4)	98.25 - 98.50	1.0000	1.0000
L15	63	LDF7-50A(1-5/8)	98.25 - 98.50	1.0000	1.0000
L15	65	LDF4.5-50(5/8)	98.25 - 98.50	1.0000	1.0000
L16	31	CCI-045100 (L)	98.00 - 98.25	1.0000	1.0000
L16	32	CCI-045100 (L)	98.00 - 98.25	1.0000	1.0000
L16	33	CCI-045100 (L)	98.00 - 98.25	1.0000	1.0000
L16	40	CCI-045100 (L)	98.00 - 98.25	1.0000	1.0000
L16	41	CCI-045100 (L)	98.00 - 98.25	1.0000	1.0000
L16	42	CCI-045100 (L)	98.00 - 98.25	1.0000	1.0000
L16	53	CCI-040075 (L)	98.00 - 98.25	1.0000	1.0000
L16	54	CCI-040075 (L)	98.00 - 98.25	1.0000	1.0000
L16	55	CCI-040075 (L)	98.00 - 98.25	1.0000	1.0000
L16	61	WR-VG86ST-BRD(3/4)	98.00 - 98.25	1.0000	1.0000
L16	63	LDF7-50A(1-5/8)	98.00 - 98.25	1.0000	1.0000
L16	65	LDF4.5-50(5/8)	98.00 - 98.25	1.0000	1.0000
L17	31	CCI-045100 (L)	97.75 - 98.00	1.0000	1.0000
L17	32	CCI-045100 (L)	97.75 - 98.00	1.0000	1.0000
L17	33	CCI-045100 (L)	97.75 - 98.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	40	CCI-045100 (L)	97.75 - 98.00	1.0000	1.0000
L17	41	CCI-045100 (L)	97.75 - 98.00	1.0000	1.0000
L17	42	CCI-045100 (L)	97.75 - 98.00	1.0000	1.0000
L17	53	CCI-040075 (L)	97.75 - 98.00	1.0000	1.0000
L17	54	CCI-040075 (L)	97.75 - 98.00	1.0000	1.0000
L17	55	CCI-040075 (L)	97.75 - 98.00	1.0000	1.0000
L17	61	WR-VG86ST-BRD(3/4)	97.75 - 98.00	1.0000	1.0000
L17	63	LDF7-50A(1-5/8)	97.75 - 98.00	1.0000	1.0000
L17	65	LDF4.5-50(5/8)	97.75 - 98.00	1.0000	1.0000
L18	31	CCI-045100 (L)	92.75 - 97.75	1.0000	1.0000
L18	32	CCI-045100 (L)	92.75 - 97.75	1.0000	1.0000
L18	33	CCI-045100 (L)	92.75 - 97.75	1.0000	1.0000
L18	40	CCI-045100 (L)	92.75 - 97.75	1.0000	1.0000
L18	41	CCI-045100 (L)	92.75 - 97.75	1.0000	1.0000
L18	42	CCI-045100 (L)	92.75 - 97.75	1.0000	1.0000
L18	53	CCI-040075 (L)	97.00 - 97.75	1.0000	1.0000
L18	54	CCI-040075 (L)	97.00 - 97.75	1.0000	1.0000
L18	55	CCI-040075 (L)	97.00 - 97.75	1.0000	1.0000
L18	61	WR-VG86ST-BRD(3/4)	92.75 - 97.75	1.0000	1.0000
L18	63	LDF7-50A(1-5/8)	92.75 - 97.75	1.0000	1.0000
L18	65	LDF4.5-50(5/8)	92.75 - 97.75	1.0000	1.0000
L19	31	CCI-045100 (L)	90.00 - 92.75	1.0000	1.0000
L19	32	CCI-045100 (L)	90.00 - 92.75	1.0000	1.0000
L19	33	CCI-045100 (L)	90.00 - 92.75	1.0000	1.0000
L19	40	CCI-045100 (L)	90.00 - 92.75	1.0000	1.0000
L19	41	CCI-045100 (L)	90.00 - 92.75	1.0000	1.0000
L19	42	CCI-045100 (L)	90.00 - 92.75	1.0000	1.0000
L19	61	WR-VG86ST-BRD(3/4)	86.85 - 92.75	1.0000	1.0000
L19	63	LDF7-50A(1-5/8)	86.85 - 92.75	1.0000	1.0000
L19	65	LDF4.5-50(5/8)	86.85 - 92.75	1.0000	1.0000
L21	43	CCI-060100 (L)	83.00 - 85.00	1.0000	1.0000
L21	44	CCI-060100 (L)	83.00 - 85.00	1.0000	1.0000
L21	45	CCI-060100 (L)	83.00 - 85.00	1.0000	1.0000
L21	61	WR-VG86ST-BRD(3/4)	83.00 - 85.85	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	63	LDF7-50A(1-5/8)	83.00 - 85.85	1.0000	1.0000
L21	65	LDF4.5-50(5/8)	83.00 - 85.85	1.0000	1.0000
L22	43	CCI-060100 (L)	82.75 - 83.00	1.0000	1.0000
L22	44	CCI-060100 (L)	82.75 - 83.00	1.0000	1.0000
L22	45	CCI-060100 (L)	82.75 - 83.00	1.0000	1.0000
L22	61	WR-VG86ST-BRD(3/4)	82.75 - 83.00	1.0000	1.0000
L22	63	LDF7-50A(1-5/8)	82.75 - 83.00	1.0000	1.0000
L22	65	LDF4.5-50(5/8)	82.75 - 83.00	1.0000	1.0000
L23	37	CCI-065125 (L)	77.75 - 80.00	1.0000	1.0000
L23	38	CCI-065125 (L)	77.75 - 80.00	1.0000	1.0000
L23	39	CCI-065125 (L)	77.75 - 80.00	1.0000	1.0000
L23	43	CCI-060100 (L)	77.75 - 82.75	1.0000	1.0000
L23	44	CCI-060100 (L)	77.75 - 82.75	1.0000	1.0000
L23	45	CCI-060100 (L)	77.75 - 82.75	1.0000	1.0000
L23	61	WR-VG86ST-BRD(3/4)	77.75 - 82.75	1.0000	1.0000
L23	63	LDF7-50A(1-5/8)	77.75 - 82.75	1.0000	1.0000
L23	65	LDF4.5-50(5/8)	77.75 - 82.75	1.0000	1.0000
L24	37	CCI-065125 (L)	77.25 - 77.75	1.0000	1.0000
L24	38	CCI-065125 (L)	77.25 - 77.75	1.0000	1.0000
L24	39	CCI-065125 (L)	77.25 - 77.75	1.0000	1.0000
L24	43	CCI-060100 (L)	77.25 - 77.75	1.0000	1.0000
L24	44	CCI-060100 (L)	77.25 - 77.75	1.0000	1.0000
L24	45	CCI-060100 (L)	77.25 - 77.75	1.0000	1.0000
L24	61	WR-VG86ST-BRD(3/4)	77.25 - 77.75	1.0000	1.0000
L24	63	LDF7-50A(1-5/8)	77.25 - 77.75	1.0000	1.0000
L24	65	LDF4.5-50(5/8)	77.25 - 77.75	1.0000	1.0000
L25	37	CCI-065125 (L)	77.00 - 77.25	1.0000	1.0000
L25	38	CCI-065125 (L)	77.00 - 77.25	1.0000	1.0000
L25	39	CCI-065125 (L)	77.00 - 77.25	1.0000	1.0000
L25	43	CCI-060100 (L)	77.00 - 77.25	1.0000	1.0000
L25	44	CCI-060100 (L)	77.00 - 77.25	1.0000	1.0000
L25	45	CCI-060100 (L)	77.00 - 77.25	1.0000	1.0000
L25	61	WR-VG86ST-BRD(3/4)	77.00 - 77.25	1.0000	1.0000
L25	63	LDF7-50A(1-5/8)	77.00 - 77.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	65	LDF4.5-50(5/8)	77.00 - 77.25	1.0000	1.0000
L26	37	CCI-065125 (L)	76.75 - 77.00	1.0000	1.0000
L26	38	CCI-065125 (L)	76.75 - 77.00	1.0000	1.0000
L26	39	CCI-065125 (L)	76.75 - 77.00	1.0000	1.0000
L26	43	CCI-060100 (L)	76.75 - 77.00	1.0000	1.0000
L26	44	CCI-060100 (L)	76.75 - 77.00	1.0000	1.0000
L26	45	CCI-060100 (L)	76.75 - 77.00	1.0000	1.0000
L26	61	WR-VG86ST-BRD(3/4)	76.75 - 77.00	1.0000	1.0000
L26	63	LDF7-50A(1-5/8)	76.75 - 77.00	1.0000	1.0000
L26	65	LDF4.5-50(5/8)	76.75 - 77.00	1.0000	1.0000
L27	37	CCI-065125 (L)	71.75 - 76.75	1.0000	1.0000
L27	38	CCI-065125 (L)	71.75 - 76.75	1.0000	1.0000
L27	39	CCI-065125 (L)	71.75 - 76.75	1.0000	1.0000
L27	43	CCI-060100 (L)	75.00 - 76.75	1.0000	1.0000
L27	44	CCI-060100 (L)	75.00 - 76.75	1.0000	1.0000
L27	45	CCI-060100 (L)	75.00 - 76.75	1.0000	1.0000
L27	61	WR-VG86ST-BRD(3/4)	71.75 - 76.75	1.0000	1.0000
L27	63	LDF7-50A(1-5/8)	71.75 - 76.75	1.0000	1.0000
L27	65	LDF4.5-50(5/8)	71.75 - 76.75	1.0000	1.0000
L28	37	CCI-065125 (L)	69.00 - 71.75	1.0000	1.0000
L28	38	CCI-065125 (L)	69.00 - 71.75	1.0000	1.0000
L28	39	CCI-065125 (L)	69.00 - 71.75	1.0000	1.0000
L28	57	CCI-060100 (L)	69.00 - 71.00	1.0000	1.0000
L28	58	CCI-060100 (L)	69.00 - 71.00	1.0000	1.0000
L28	59	CCI-060100 (L)	69.00 - 71.00	1.0000	1.0000
L28	61	WR-VG86ST-BRD(3/4)	69.00 - 71.75	1.0000	1.0000
L28	63	LDF7-50A(1-5/8)	69.00 - 71.75	1.0000	1.0000
L28	65	LDF4.5-50(5/8)	69.00 - 71.75	1.0000	1.0000
L29	37	CCI-065125 (L)	68.75 - 69.00	1.0000	1.0000
L29	38	CCI-065125 (L)	68.75 - 69.00	1.0000	1.0000
L29	39	CCI-065125 (L)	68.75 - 69.00	1.0000	1.0000
L29	57	CCI-060100 (L)	68.75 - 69.00	1.0000	1.0000
L29	58	CCI-060100 (L)	68.75 - 69.00	1.0000	1.0000
L29	59	CCI-060100 (L)	68.75 - 69.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L29	61	WR-VG86ST-BRD(3/4)	68.75 - 69.00	1.0000	1.0000
L29	63	LDF7-50A(1-5/8)	68.75 - 69.00	1.0000	1.0000
L29	65	LDF4.5-50(5/8)	68.75 - 69.00	1.0000	1.0000
L30	37	CCI-065125 (L)	63.75 - 68.75	1.0000	1.0000
L30	38	CCI-065125 (L)	63.75 - 68.75	1.0000	1.0000
L30	39	CCI-065125 (L)	63.75 - 68.75	1.0000	1.0000
L30	57	CCI-060100 (L)	63.75 - 68.75	1.0000	1.0000
L30	58	CCI-060100 (L)	63.75 - 68.75	1.0000	1.0000
L30	59	CCI-060100 (L)	63.75 - 68.75	1.0000	1.0000
L30	61	WR-VG86ST-BRD(3/4)	63.75 - 68.75	1.0000	1.0000
L30	63	LDF7-50A(1-5/8)	63.75 - 68.75	1.0000	1.0000
L30	65	LDF4.5-50(5/8)	63.75 - 68.75	1.0000	1.0000
L31	37	CCI-065125 (L)	60.00 - 63.75	1.0000	1.0000
L31	38	CCI-065125 (L)	60.00 - 63.75	1.0000	1.0000
L31	39	CCI-065125 (L)	60.00 - 63.75	1.0000	1.0000
L31	52	CCI-085125 (L)	60.00 - 60.50	1.0000	1.0000
L31	57	CCI-060100 (L)	60.00 - 63.75	1.0000	1.0000
L31	58	CCI-060100 (L)	60.00 - 63.75	1.0000	1.0000
L31	59	CCI-060100 (L)	60.00 - 63.75	1.0000	1.0000
L31	61	WR-VG86ST-BRD(3/4)	60.00 - 63.75	1.0000	1.0000
L31	63	LDF7-50A(1-5/8)	60.00 - 63.75	1.0000	1.0000
L31	65	LDF4.5-50(5/8)	60.00 - 63.75	1.0000	1.0000
L32	37	CCI-065125 (L)	59.75 - 60.00	1.0000	1.0000
L32	38	CCI-065125 (L)	59.75 - 60.00	1.0000	1.0000
L32	39	CCI-065125 (L)	59.75 - 60.00	1.0000	1.0000
L32	52	CCI-085125 (L)	59.75 - 60.00	1.0000	1.0000
L32	57	CCI-060100 (L)	59.75 - 60.00	1.0000	1.0000
L32	58	CCI-060100 (L)	59.75 - 60.00	1.0000	1.0000
L32	59	CCI-060100 (L)	59.75 - 60.00	1.0000	1.0000
L32	61	WR-VG86ST-BRD(3/4)	59.75 - 60.00	1.0000	1.0000
L32	63	LDF7-50A(1-5/8)	59.75 - 60.00	1.0000	1.0000
L32	65	LDF4.5-50(5/8)	59.75 - 60.00	1.0000	1.0000
L33	37	CCI-065125 (L)	58.50 - 59.75	1.0000	1.0000
L33	38	CCI-065125 (L)	58.50 - 59.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L33	39	CCI-065125 (L)	58.50 - 59.75	1.0000	1.0000
L33	52	CCI-085125 (L)	58.50 - 59.75	1.0000	1.0000
L33	56	CCI-065125 (L)	58.50 - 59.50	1.0000	1.0000
L33	57	CCI-060100 (L)	58.50 - 59.75	1.0000	1.0000
L33	58	CCI-060100 (L)	58.50 - 59.75	1.0000	1.0000
L33	59	CCI-060100 (L)	58.50 - 59.75	1.0000	1.0000
L33	61	WR-VG86ST-BRD(3/4)	58.50 - 59.75	1.0000	1.0000
L33	63	LDF7-50A(1-5/8)	58.50 - 59.75	1.0000	1.0000
L33	65	LDF4.5-50(5/8)	58.50 - 59.75	1.0000	1.0000
L34	37	CCI-065125 (L)	58.25 - 58.50	1.0000	1.0000
L34	38	CCI-065125 (L)	58.25 - 58.50	1.0000	1.0000
L34	39	CCI-065125 (L)	58.25 - 58.50	1.0000	1.0000
L34	52	CCI-085125 (L)	58.25 - 58.50	1.0000	1.0000
L34	56	CCI-065125 (L)	58.25 - 58.50	1.0000	1.0000
L34	57	CCI-060100 (L)	58.25 - 58.50	1.0000	1.0000
L34	58	CCI-060100 (L)	58.25 - 58.50	1.0000	1.0000
L34	59	CCI-060100 (L)	58.25 - 58.50	1.0000	1.0000
L34	61	WR-VG86ST-BRD(3/4)	58.25 - 58.50	1.0000	1.0000
L34	63	LDF7-50A(1-5/8)	58.25 - 58.50	1.0000	1.0000
L34	65	LDF4.5-50(5/8)	58.25 - 58.50	1.0000	1.0000
L35	37	CCI-065125 (L)	58.00 - 58.25	1.0000	1.0000
L35	38	CCI-065125 (L)	58.00 - 58.25	1.0000	1.0000
L35	39	CCI-065125 (L)	58.00 - 58.25	1.0000	1.0000
L35	52	CCI-085125 (L)	58.00 - 58.25	1.0000	1.0000
L35	56	CCI-065125 (L)	58.00 - 58.25	1.0000	1.0000
L35	57	CCI-060100 (L)	58.00 - 58.25	1.0000	1.0000
L35	58	CCI-060100 (L)	58.00 - 58.25	1.0000	1.0000
L35	59	CCI-060100 (L)	58.00 - 58.25	1.0000	1.0000
L35	61	WR-VG86ST-BRD(3/4)	58.00 - 58.25	1.0000	1.0000
L35	63	LDF7-50A(1-5/8)	58.00 - 58.25	1.0000	1.0000
L35	65	LDF4.5-50(5/8)	58.00 - 58.25	1.0000	1.0000
L36	37	CCI-065125 (L)	57.75 - 58.00	1.0000	1.0000
L36	38	CCI-065125 (L)	57.75 - 58.00	1.0000	1.0000
L36	39	CCI-065125 (L)	57.75 - 58.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_e No Ice	K_a Ice
L36	52	CCI-085125 (L)	57.75 - 58.00	1.0000	1.0000
L36	56	CCI-065125 (L)	57.75 - 58.00	1.0000	1.0000
L36	57	CCI-060100 (L)	57.75 - 58.00	1.0000	1.0000
L36	58	CCI-060100 (L)	57.75 - 58.00	1.0000	1.0000
L36	59	CCI-060100 (L)	57.75 - 58.00	1.0000	1.0000
L36	61	WR-VG86ST-BRD(3/4)	57.75 - 58.00	1.0000	1.0000
L36	63	LDF7-50A(1-5/8)	57.75 - 58.00	1.0000	1.0000
L36	65	LDF4.5-50(5/8)	57.75 - 58.00	1.0000	1.0000
L37	37	CCI-065125 (L)	56.75 - 57.75	1.0000	1.0000
L37	38	CCI-065125 (L)	56.75 - 57.75	1.0000	1.0000
L37	39	CCI-065125 (L)	56.75 - 57.75	1.0000	1.0000
L37	52	CCI-085125 (L)	56.75 - 57.75	1.0000	1.0000
L37	56	CCI-065125 (L)	56.75 - 57.75	1.0000	1.0000
L37	57	CCI-060100 (L)	56.75 - 57.75	1.0000	1.0000
L37	58	CCI-060100 (L)	56.75 - 57.75	1.0000	1.0000
L37	59	CCI-060100 (L)	56.75 - 57.75	1.0000	1.0000
L37	61	WR-VG86ST-BRD(3/4)	56.75 - 57.75	1.0000	1.0000
L37	63	LDF7-50A(1-5/8)	56.75 - 57.75	1.0000	1.0000
L37	65	LDF4.5-50(5/8)	56.75 - 57.75	1.0000	1.0000
L38	37	CCI-065125 (L)	56.50 - 56.75	1.0000	1.0000
L38	38	CCI-065125 (L)	56.50 - 56.75	1.0000	1.0000
L38	39	CCI-065125 (L)	56.50 - 56.75	1.0000	1.0000
L38	52	CCI-085125 (L)	56.50 - 56.75	1.0000	1.0000
L38	56	CCI-065125 (L)	56.50 - 56.75	1.0000	1.0000
L38	57	CCI-060100 (L)	56.50 - 56.75	1.0000	1.0000
L38	58	CCI-060100 (L)	56.50 - 56.75	1.0000	1.0000
L38	59	CCI-060100 (L)	56.50 - 56.75	1.0000	1.0000
L38	61	WR-VG86ST-BRD(3/4)	56.50 - 56.75	1.0000	1.0000
L38	63	LDF7-50A(1-5/8)	56.50 - 56.75	1.0000	1.0000
L38	65	LDF4.5-50(5/8)	56.50 - 56.75	1.0000	1.0000
L39	37	CCI-065125 (L)	51.50 - 56.50	1.0000	1.0000
L39	38	CCI-065125 (L)	51.50 - 56.50	1.0000	1.0000
L39	39	CCI-065125 (L)	51.50 - 56.50	1.0000	1.0000
L39	52	CCI-085125 (L)	51.50 - 56.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L39	56	CCI-065125 (L)	51.50 - 56.50	1.0000	1.0000
L39	57	CCI-060100 (L)	56.00 - 56.50	1.0000	1.0000
L39	58	CCI-060100 (L)	56.00 - 56.50	1.0000	1.0000
L39	59	CCI-060100 (L)	56.00 - 56.50	1.0000	1.0000
L39	61	WR-VG86ST-BRD(3/4)	51.50 - 56.50	1.0000	1.0000
L39	63	LDF7-50A(1-5/8)	51.50 - 56.50	1.0000	1.0000
L39	65	LDF4.5-50(5/8)	51.50 - 56.50	1.0000	1.0000
L40	37	CCI-065125 (L)	41.78 - 51.50	1.0000	1.0000
L40	38	CCI-065125 (L)	41.78 - 51.50	1.0000	1.0000
L40	39	CCI-065125 (L)	41.78 - 51.50	1.0000	1.0000
L40	52	CCI-085125 (L)	41.78 - 51.50	1.0000	1.0000
L40	56	CCI-065125 (L)	41.78 - 51.50	1.0000	1.0000
L40	61	WR-VG86ST-BRD(3/4)	41.78 - 51.50	1.0000	1.0000
L40	63	LDF7-50A(1-5/8)	41.78 - 51.50	1.0000	1.0000
L40	65	LDF4.5-50(5/8)	41.78 - 51.50	1.0000	1.0000
L42	37	CCI-065125 (L)	35.78 - 40.78	1.0000	1.0000
L42	38	CCI-065125 (L)	35.78 - 40.78	1.0000	1.0000
L42	39	CCI-065125 (L)	35.78 - 40.78	1.0000	1.0000
L42	52	CCI-085125 (L)	35.78 - 40.78	1.0000	1.0000
L42	56	CCI-065125 (L)	35.78 - 40.78	1.0000	1.0000
L42	61	WR-VG86ST-BRD(3/4)	35.78 - 40.78	1.0000	1.0000
L42	63	LDF7-50A(1-5/8)	35.78 - 40.78	1.0000	1.0000
L42	65	LDF4.5-50(5/8)	35.78 - 40.78	1.0000	1.0000
L43	34	CCI-085125 (L)	31.25 - 35.00	1.0000	1.0000
L43	35	CCI-085125 (L)	31.25 - 35.00	1.0000	1.0000
L43	36	CCI-085125 (L)	31.25 - 35.00	1.0000	1.0000
L43	37	CCI-065125 (L)	31.25 - 35.78	1.0000	1.0000
L43	38	CCI-065125 (L)	35.00 - 35.78	1.0000	1.0000
L43	39	CCI-065125 (L)	35.00 - 35.78	1.0000	1.0000
L43	52	CCI-085125 (L)	31.25 - 35.78	1.0000	1.0000
L43	56	CCI-065125 (L)	31.25 - 35.78	1.0000	1.0000
L43	61	WR-VG86ST-BRD(3/4)	31.25 - 35.78	1.0000	1.0000
L43	63	LDF7-50A(1-5/8)	31.25 - 35.78	1.0000	1.0000
L43	65	LDF4.5-50(5/8)	31.25 - 35.78	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_z No Ice	K_z Ice
L44	34	CCI-085125 (L)	31.00 - 31.25	1.0000	1.0000
L44	35	CCI-085125 (L)	31.00 - 31.25	1.0000	1.0000
L44	36	CCI-085125 (L)	31.00 - 31.25	1.0000	1.0000
L44	37	CCI-065125 (L)	31.00 - 31.25	1.0000	1.0000
L44	52	CCI-085125 (L)	31.00 - 31.25	1.0000	1.0000
L44	56	CCI-065125 (L)	31.00 - 31.25	1.0000	1.0000
L44	61	WR-VG86ST-BRD(3/4)	31.00 - 31.25	1.0000	1.0000
L44	63	LDF7-50A(1-5/8)	31.00 - 31.25	1.0000	1.0000
L44	65	LDF4.5-50(5/8)	31.00 - 31.25	1.0000	1.0000
L45	34	CCI-085125 (L)	27.25 - 31.00	1.0000	1.0000
L45	35	CCI-085125 (L)	27.25 - 31.00	1.0000	1.0000
L45	36	CCI-085125 (L)	27.25 - 31.00	1.0000	1.0000
L45	37	CCI-065125 (L)	28.50 - 31.00	1.0000	1.0000
L45	49	5.5" x 1.25"	27.25 - 29.50	1.0000	1.0000
L45	50	5.5" x 1.25"	27.25 - 29.50	1.0000	1.0000
L45	51	5.5" x 1.25"	27.25 - 29.50	1.0000	1.0000
L45	52	CCI-085125 (L)	27.50 - 31.00	1.0000	1.0000
L45	56	CCI-065125 (L)	27.25 - 31.00	1.0000	1.0000
L45	61	WR-VG86ST-BRD(3/4)	27.25 - 31.00	1.0000	1.0000
L45	63	LDF7-50A(1-5/8)	27.25 - 31.00	1.0000	1.0000
L45	65	LDF4.5-50(5/8)	27.25 - 31.00	1.0000	1.0000
L46	34	CCI-085125 (L)	27.00 - 27.25	1.0000	1.0000
L46	35	CCI-085125 (L)	27.00 - 27.25	1.0000	1.0000
L46	36	CCI-085125 (L)	27.00 - 27.25	1.0000	1.0000
L46	49	5.5" x 1.25"	27.00 - 27.25	1.0000	1.0000
L46	50	5.5" x 1.25"	27.00 - 27.25	1.0000	1.0000
L46	51	5.5" x 1.25"	27.00 - 27.25	1.0000	1.0000
L46	56	CCI-065125 (L)	27.00 - 27.25	1.0000	1.0000
L46	61	WR-VG86ST-BRD(3/4)	27.00 - 27.25	1.0000	1.0000
L46	63	LDF7-50A(1-5/8)	27.00 - 27.25	1.0000	1.0000
L46	65	LDF4.5-50(5/8)	27.00 - 27.25	1.0000	1.0000
L47	34	CCI-085125 (L)	22.00 - 27.00	1.0000	1.0000
L47	35	CCI-085125 (L)	22.00 - 27.00	1.0000	1.0000
L47	36	CCI-085125 (L)	22.00 - 27.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L47	49	5.5" x 1.25"	22.00 - 27.00	1.0000	1.0000
L47	50	5.5" x 1.25"	22.00 - 27.00	1.0000	1.0000
L47	51	5.5" x 1.25"	22.00 - 27.00	1.0000	1.0000
L47	56	CCI-065125 (L)	24.50 - 27.00	1.0000	1.0000
L47	61	WR-VG86ST-BRD(3/4)	22.00 - 27.00	1.0000	1.0000
L47	63	LDF7-50A(1-5/8)	22.00 - 27.00	1.0000	1.0000
L47	65	LDF4.5-50(5/8)	22.00 - 27.00	1.0000	1.0000
L48	34	CCI-085125 (L)	17.00 - 22.00	1.0000	1.0000
L48	35	CCI-085125 (L)	17.00 - 22.00	1.0000	1.0000
L48	36	CCI-085125 (L)	17.00 - 22.00	1.0000	1.0000
L48	49	5.5" x 1.25"	17.00 - 22.00	1.0000	1.0000
L48	50	5.5" x 1.25"	17.00 - 22.00	1.0000	1.0000
L48	51	5.5" x 1.25"	17.00 - 22.00	1.0000	1.0000
L48	61	WR-VG86ST-BRD(3/4)	17.00 - 22.00	1.0000	1.0000
L48	63	LDF7-50A(1-5/8)	17.00 - 22.00	1.0000	1.0000
L48	65	LDF4.5-50(5/8)	17.00 - 22.00	1.0000	1.0000
L49	34	CCI-085125 (L)	12.00 - 17.00	1.0000	1.0000
L49	35	CCI-085125 (L)	12.00 - 17.00	1.0000	1.0000
L49	36	CCI-085125 (L)	12.00 - 17.00	1.0000	1.0000
L49	49	5.5" x 1.25"	12.00 - 17.00	1.0000	1.0000
L49	50	5.5" x 1.25"	12.00 - 17.00	1.0000	1.0000
L49	51	5.5" x 1.25"	12.00 - 17.00	1.0000	1.0000
L49	61	WR-VG86ST-BRD(3/4)	12.00 - 17.00	1.0000	1.0000
L49	63	LDF7-50A(1-5/8)	12.00 - 17.00	1.0000	1.0000
L49	65	LDF4.5-50(5/8)	12.00 - 17.00	1.0000	1.0000
L50	34	CCI-085125 (L)	7.00 - 12.00	1.0000	1.0000
L50	35	CCI-085125 (L)	7.00 - 12.00	1.0000	1.0000
L50	36	CCI-085125 (L)	7.00 - 12.00	1.0000	1.0000
L50	49	5.5" x 1.25"	7.00 - 12.00	1.0000	1.0000
L50	50	5.5" x 1.25"	7.00 - 12.00	1.0000	1.0000
L50	51	5.5" x 1.25"	7.00 - 12.00	1.0000	1.0000
L50	61	WR-VG86ST-BRD(3/4)	7.00 - 12.00	1.0000	1.0000
L50	63	LDF7-50A(1-5/8)	7.00 - 12.00	1.0000	1.0000
L50	65	LDF4.5-50(5/8)	7.00 - 12.00	1.0000	1.0000
L51	34	CCI-085125 (L)	2.00 - 7.00	1.0000	1.0000
L51	35	CCI-085125 (L)	2.00 - 7.00	1.0000	1.0000
L51	36	CCI-085125 (L)	2.00 - 7.00	1.0000	1.0000
L51	49	5.5" x 1.25"	2.00 - 7.00	1.0000	1.0000
L51	50	5.5" x 1.25"	2.00 - 7.00	1.0000	1.0000
L51	51	5.5" x 1.25"	2.00 - 7.00	1.0000	1.0000
L51	61	WR-VG86ST-BRD(3/4)	2.00 - 7.00	1.0000	1.0000
L51	63	LDF7-50A(1-5/8)	2.00 - 7.00	1.0000	1.0000
L51	65	LDF4.5-50(5/8)	2.00 - 7.00	1.0000	1.0000
L52	34	CCI-085125 (L)	0.00 - 2.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L52	35	CCI-085125 (L)	0.00 - 2.00	1.0000	1.0000
L52	36	CCI-085125 (L)	0.00 - 2.00	1.0000	1.0000
L52	49	5.5" x 1.25"	0.00 - 2.00	1.0000	1.0000
L52	50	5.5" x 1.25"	0.00 - 2.00	1.0000	1.0000
L52	51	5.5" x 1.25"	0.00 - 2.00	1.0000	1.0000
L52	61	WR-VG86ST-BRD(3/4)	0.00 - 2.00	1.0000	1.0000
L52	63	LDF7-50A(1-5/8)	0.00 - 2.00	1.0000	1.0000
L52	65	LDF4.5-50(5/8)	0.00 - 2.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment c	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
SBNH-1D6565C w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.5600 6.0700 6.5900 7.6500	4.4700 4.9700 5.4700 6.5200	0.08 0.17 0.26 0.50
840370799 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	13.8982 14.6034 15.3175 16.6811	9.3264 10.8415 12.3806 14.7123	0.14 0.24 0.34 0.59
840370799 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	13.8982 14.6034 15.3175 16.6811	9.3264 10.8415 12.3806 14.7123	0.14 0.24 0.34 0.59
840370799 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	13.8982 14.6034 15.3175 16.6811	9.3264 10.8415 12.3806 14.7123	0.14 0.24 0.34 0.59
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.0900 6.6600 7.2400 8.4300	4.3100 4.8600 5.4200 6.5700	0.09 0.17 0.26 0.48
AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.0900 6.6600 7.2400 8.4300	4.3100 4.8600 5.4200 6.5700	0.09 0.17 0.26 0.48
7770.00 w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.7460 6.1791 6.6067 7.4880	4.2543 5.0137 5.7109 7.1553	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.7460 6.1791 6.6067 7.4880	4.2543 5.0137 5.7109 7.1553	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.7460 6.1791 6.6067 7.4880	4.2543 5.0137 5.7109 7.1553	0.06 0.10 0.16 0.29
(2) RRUS 11	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7908 2.9984 3.2134 3.6656	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.10 0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) RRUS 11	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7908 2.9984 3.2134 3.6656	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.10 0.15
(2) RRUS 11	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7908 2.9984 3.2134 3.6656	1.1923 1.3395 1.4957 1.8390	0.05 0.07 0.10 0.15
RRUS 32	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.8571 3.0830 3.3163 3.8052	1.7766 1.9677 2.1658 2.5829	0.06 0.08 0.10 0.16
RRUS 32	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.8571 3.0830 3.3163 3.8052	1.7766 1.9677 2.1658 2.5829	0.06 0.08 0.10 0.16
RRUS 32	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.8571 3.0830 3.3163 3.8052	1.7766 1.9677 2.1658 2.5829	0.06 0.08 0.10 0.16
RRUS 32 B2	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B2	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 32 B2	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.7427 2.9647 3.1941 3.6753	1.6681 1.8552 2.0493 2.4585	0.05 0.07 0.10 0.16
RRUS 4478 B14	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0212 2.1999 2.3860 2.7804	1.2459 1.3960 1.5536 1.8909	0.06 0.08 0.10 0.15
RRUS 4478 B14	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0212 2.1999 2.3860 2.7804	1.2459 1.3960 1.5536 1.8909	0.06 0.08 0.10 0.15
RRUS 4478 B14	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.0212 2.1999 2.3860 2.7804	1.2459 1.3960 1.5536 1.8909	0.06 0.08 0.10 0.15
RRUS 4478 B5	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.06 0.08 0.09 0.14
RRUS 4478 B5	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.06 0.08 0.09 0.14

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
RRUS 4478 B5	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.8425 2.0123 2.1895 2.5662	1.0588 1.1969 1.3425 1.6558	0.06 0.08 0.09 0.14
(2) DBCT108F1V92-1	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.6372 0.7401 0.8504 1.0932	0.6042 0.7050 0.8133 1.0519	0.03 0.04 0.04 0.07
(2) DBCT108F1V92-1	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.6372 0.7401 0.8504 1.0932	0.6042 0.7050 0.8133 1.0519	0.03 0.04 0.04 0.07
(2) DBCT108F1V92-1	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.6372 0.7401 0.8504 1.0932	0.6042 0.7050 0.8133 1.0519	0.03 0.04 0.04 0.07
(2) 7020.00	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1021 0.1469 0.1991 0.3258	0.1750 0.2393 0.3109 0.4765	0.00 0.01 0.01 0.02
(2) 7020.00	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1021 0.1469 0.1991 0.3258	0.1750 0.2393 0.3109 0.4765	0.00 0.01 0.01 0.02
(2) 7020.00	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.1021 0.1469 0.1991 0.3258	0.1750 0.2393 0.3109 0.4765	0.00 0.01 0.01 0.02
DC6-48-60-18-8F	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.2117 1.8924 2.1051 2.5703	1.2117 1.8924 2.1051 2.5703	0.03 0.05 0.08 0.14
DC6-48-60-0-8F	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.9167 1.4583 1.6431 2.0417	0.9167 1.4583 1.6431 2.0417	0.02 0.04 0.06 0.11
DC6-48-60-18-8F	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.2117 1.8924 2.1051 2.5703	1.2117 1.8924 2.1051 2.5703	0.03 0.05 0.08 0.14
(2) LGP21401	A	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1040 1.2388 1.3810 1.6877	0.3471 0.4422 0.5444 0.7696	0.01 0.02 0.03 0.05
(2) LGP21401	B	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1040 1.2388 1.3810 1.6877	0.3471 0.4422 0.5444 0.7696	0.01 0.02 0.03 0.05
(2) LGP21401	C	From Leg	4.0000 0.00 0.00	0.00	145.0000	No Ice 1/2" Ice 1" Ice 2" Ice	1.1040 1.2388 1.3810 1.6877	0.3471 0.4422 0.5444 0.7696	0.01 0.02 0.03 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount [LP 601-1]	C	None			0.00	145.0000	No Ice	28.4700	28.4700	1.12
							1/2" Ice	33.5900	33.5900	1.51
							1" Ice	38.7100	38.7100	1.91
							2" Ice	48.9500	48.9500	2.69
8-ft Ladder	A	From Leg	4.0000		0.00	145.0000	No Ice	7.0700	7.0700	0.04
			0.00				1/2" Ice	9.7300	9.7300	0.07
			0.00				1" Ice	11.1900	11.1900	0.08
							2" Ice	13.9800	13.9800	0.11
2.375" OD x 6' Mount Pipe	A	From Leg	4.0000		0.00	145.0000	No Ice	1.4250	1.4250	0.03
			0.00				1/2" Ice	1.9250	1.9250	0.04
			0.00				1" Ice	2.2939	2.2939	0.05
							2" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	B	From Leg	4.0000		0.00	145.0000	No Ice	1.4250	1.4250	0.03
			0.00				1/2" Ice	1.9250	1.9250	0.04
			0.00				1" Ice	2.2939	2.2939	0.05
							2" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	C	From Leg	4.0000		0.00	145.0000	No Ice	1.4250	1.4250	0.03
			0.00				1/2" Ice	1.9250	1.9250	0.04
			0.00				1" Ice	2.2939	2.2939	0.05
							2" Ice	3.0596	3.0596	0.09
***										
LNX-6512DS-VTM w/ Mount Pipe	A	From Leg	4.0000		0.00	135.0000	No Ice	2.6700	2.1500	0.05
			0.00				1/2" Ice	2.9400	2.4200	0.09
			2.00				1" Ice	3.2200	2.6900	0.14
							2" Ice	3.8100	3.2500	0.27
LNX-6512DS-VTM w/ Mount Pipe	B	From Leg	4.0000		0.00	135.0000	No Ice	2.6700	2.1500	0.05
			0.00				1/2" Ice	2.9400	2.4200	0.09
			2.00				1" Ice	3.2200	2.6900	0.14
							2" Ice	3.8100	3.2500	0.27
LNX-6512DS-VTM w/ Mount Pipe	C	From Leg	4.0000		0.00	135.0000	No Ice	2.6700	2.1500	0.05
			0.00				1/2" Ice	2.9400	2.4200	0.09
			2.00				1" Ice	3.2200	2.6900	0.14
							2" Ice	3.8100	3.2500	0.27
QUAD656C0000X w/ Mount Pipe	A	From Leg	4.0000		0.00	135.0000	No Ice	13.4791	7.3313	0.08
			0.00				1/2" Ice	14.0955	8.5469	0.17
			2.00				1" Ice	14.6815	9.5003	0.28
							2" Ice	15.8670	11.3757	0.51
QUAD656C0000X w/ Mount Pipe	B	From Leg	4.0000		0.00	135.0000	No Ice	13.4791	7.3313	0.08
			0.00				1/2" Ice	14.0955	8.5469	0.17
			2.00				1" Ice	14.6815	9.5003	0.28
							2" Ice	15.8670	11.3757	0.51
QUAD656C0000X w/ Mount Pipe	C	From Leg	4.0000		0.00	135.0000	No Ice	13.4791	7.3313	0.08
			0.00				1/2" Ice	14.0955	8.5469	0.17
			2.00				1" Ice	14.6815	9.5003	0.28
							2" Ice	15.8670	11.3757	0.51
(2) HBXX-6517DS-A2M w/ Mount Pipe	A	From Leg	4.0000		0.00	135.0000	No Ice	8.7655	6.9629	0.07
			0.00				1/2" Ice	9.3417	8.1817	0.14
			2.00				1" Ice	9.8885	9.1436	0.21
							2" Ice	10.9937	11.0219	0.40
(2) HBXX-6517DS-A2M w/ Mount Pipe	B	From Leg	4.0000		0.00	135.0000	No Ice	8.7655	6.9629	0.07
			0.00				1/2" Ice	9.3417	8.1817	0.14
			2.00				1" Ice	9.8885	9.1436	0.21
							2" Ice	10.9937	11.0219	0.40

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
(2) HBXX-6517DS-A2M w/ Mount Pipe	C	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	8.7655 9.3417 9.8885 10.9937	6.9629 8.1817 9.1436 11.0219	0.07 0.14 0.21 0.40
RRH2X60-700	A	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.5002 3.7609 4.0285 4.5849	1.8157 2.0519 2.2894 2.7852	0.06 0.08 0.11 0.17
RRH2X60-700	B	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.5002 3.7609 4.0285 4.5849	1.8157 2.0519 2.2894 2.7852	0.06 0.08 0.11 0.17
RRH2X60-700	C	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	3.5002 3.7609 4.0285 4.5849	1.8157 2.0519 2.2894 2.7852	0.06 0.08 0.11 0.17
RRH2X60-PCS	A	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.2000 2.3926 2.5926 3.0148	1.7233 1.9015 2.0870 2.4804	0.06 0.08 0.10 0.16
RRH2X60-PCS	B	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.2000 2.3926 2.5926 3.0148	1.7233 1.9015 2.0870 2.4804	0.06 0.08 0.10 0.16
RRH2X60-PCS	C	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.2000 2.3926 2.5926 3.0148	1.7233 1.9015 2.0870 2.4804	0.06 0.08 0.10 0.16
B66A RRH4X45	A	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.5800 2.7937 3.0148 3.4793	1.6296 1.8106 1.9986 2.3955	0.07 0.09 0.11 0.17
B66A RRH4X45	B	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.5800 2.7937 3.0148 3.4793	1.6296 1.8106 1.9986 2.3955	0.07 0.09 0.11 0.17
B66A RRH4X45	C	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	2.5800 2.7937 3.0148 3.4793	1.6296 1.8106 1.9986 2.3955	0.07 0.09 0.11 0.17
DB-T1-6Z-8AB-0Z	A	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.8000 5.0704 5.3481 5.9259	2.0000 2.1926 2.3926 2.8148	0.04 0.08 0.12 0.21
DB-T1-6Z-8AB-0Z	C	From Leg	4.0000 0.00 2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	4.8000 5.0704 5.3481 5.9259	2.0000 2.1926 2.3926 2.8148	0.04 0.08 0.12 0.21
Platform Mount [LP 601-1]	C	None		0.00	135.0000	No Ice 1/2" Ice 1" Ice	28.4700 33.5900 38.7100 48.9500	28.4700 33.5900 38.7100 48.9500	1.12 1.51 1.91 2.69

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice			
8-ft Ladder	C	From Leg	2.0000 0.00 -2.00	0.00	135.0000	No Ice 1/2" Ice 1" Ice 2" Ice	7.0700 9.7300 11.1900 13.9800	7.0700 9.7300 11.1900 13.9800	0.04 0.07 0.08 0.11
***									
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.3100 5.8000 6.3000 7.3300	4.2700 4.7500 5.2400 6.2400	0.08 0.17 0.26 0.49
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.3100 5.8000 6.3000 7.3300	4.2700 4.7500 5.2400 6.2400	0.08 0.17 0.26 0.49
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	5.3100 5.8000 6.3000 7.3300	4.2700 4.7500 5.2400 6.2400	0.08 0.17 0.26 0.49
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3292 6.7751 7.2137 8.1168	5.6424 6.4259 7.1313 8.5907	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	A	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	B	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
ERICSSON AIR 21 B4A B2P w/ Mount Pipe	C	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	6.3186 6.7646 7.2032 8.1062	5.6334 6.4160 7.1208 8.5791	0.11 0.17 0.23 0.38
KRY 112 144/1	A	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	B	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice 1" Ice 2" Ice	0.3500 0.4259 0.5093 0.6981	0.1750 0.2343 0.3009 0.4565	0.01 0.01 0.02 0.03
KRY 112 144/1	C	From Leg	4.0000 0.00 0.00	0.00	128.0000	No Ice 1/2" Ice	0.3500 0.4259 0.5093	0.1750 0.2343 0.3009	0.01 0.01 0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	0.6981	0.4565	0.03
						2" Ice			
RRUS 11 B12	A	From Leg	4.0000	0.00	128.0000	No Ice	2.8333	1.1821	0.05
			0.00			1/2"	3.0426	1.3299	0.07
			0.00			Ice	3.2593	1.4848	0.10
						1" Ice	3.7148	1.8259	0.15
						2" Ice			
RRUS 11 B12	B	From Leg	4.0000	0.00	128.0000	No Ice	2.8333	1.1821	0.05
			0.00			1/2"	3.0426	1.3299	0.07
			0.00			Ice	3.2593	1.4848	0.10
						1" Ice	3.7148	1.8259	0.15
						2" Ice			
RRUS 11 B12	C	From Leg	4.0000	0.00	128.0000	No Ice	2.8333	1.1821	0.05
			0.00			1/2"	3.0426	1.3299	0.07
			0.00			Ice	3.2593	1.4848	0.10
						1" Ice	3.7148	1.8259	0.15
						2" Ice			
Platform Mount [LP 601-1]	C	None		0.00	128.0000	No Ice	28.4700	28.4700	1.12
						1/2"	33.5900	33.5900	1.51
						Ice	38.7100	38.7100	1.91
						1" Ice	48.9500	48.9500	2.69
						2" Ice			
8-ft Ladder	C	From Leg	2.0000	0.00	128.0000	No Ice	7.0700	7.0700	0.04
			0.00			1/2"	9.7300	9.7300	0.07
			-2.00			Ice	11.1900	11.1900	0.08
						1" Ice	13.9800	13.9800	0.11
						2" Ice			
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	4.0000	0.00	118.0000	No Ice	4.6000	4.0100	0.09
			0.00			1/2"	5.0500	4.4500	0.15
			0.00			Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.41
						2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.0000	0.00	118.0000	No Ice	4.6000	4.0100	0.09
			0.00			1/2"	5.0500	4.4500	0.15
			0.00			Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.41
						2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.0000	0.00	118.0000	No Ice	4.6000	4.0100	0.09
			0.00			1/2"	5.0500	4.4500	0.15
			0.00			Ice	5.5000	4.8900	0.23
						1" Ice	6.4400	5.8200	0.41
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.0000	0.00	118.0000	No Ice	6.5799	4.9591	0.08
			0.00			1/2"	7.0306	5.7544	0.13
			0.00			Ice	7.4733	6.4723	0.19
						1" Ice	8.3846	7.9407	0.34
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.0000	0.00	118.0000	No Ice	6.5799	4.9591	0.08
			0.00			1/2"	7.0306	5.7544	0.13
			0.00			Ice	7.4733	6.4723	0.19
						1" Ice	8.3846	7.9407	0.34
						2" Ice			
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.0000	0.00	118.0000	No Ice	6.5799	4.9591	0.08
			0.00			1/2"	7.0306	5.7544	0.13
			0.00			Ice	7.4733	6.4723	0.19
						1" Ice	8.3846	7.9407	0.34
						2" Ice			
TD-RRH8X20-25	A	From Leg	4.0000	0.00	118.0000	No Ice	4.0455	1.5345	0.07
			0.00			1/2"	4.2975	1.7142	0.10
			0.00			Ice	4.5570	1.9008	0.13
						1" Ice	5.0981	2.2951	0.20
						2" Ice			
TD-RRH8X20-25	B	From Leg	4.0000	0.00	118.0000	No Ice	4.0455	1.5345	0.07
			0.00				4.2975	1.7142	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	4.5570	1.9008	0.13
						1" Ice	5.0981	2.2951	0.20
						2" Ice			
TD-RRH8X20-25	C	From Leg	4.0000	0.00	118.0000	No Ice	4.0455	1.5345	0.07
			0.00			1/2" Ice	4.2975	1.7142	0.10
			0.00			1" Ice	4.5570	1.9008	0.13
						2" Ice	5.0981	2.2951	0.20
Platform Mount [LP 601-1]	C	None		0.00	118.0000	No Ice	28.4700	28.4700	1.12
						1/2" Ice	33.5900	33.5900	1.51
						1" Ice	38.7100	38.7100	1.91
						2" Ice	48.9500	48.9500	2.69
8-ft Ladder	C	From Leg	2.0000	0.00	118.0000	No Ice	7.0700	7.0700	0.04
			0.00			1/2" Ice	9.7300	9.7300	0.07
			-2.00			1" Ice	11.1900	11.1900	0.08
						2" Ice	13.9800	13.9800	0.11
2.375" OD x 6' Mount Pipe	A	From Leg	4.0000	0.00	118.0000	No Ice	1.4250	1.4250	0.03
			0.00			1/2" Ice	1.9250	1.9250	0.04
			0.00			1" Ice	2.2939	2.2939	0.05
						2" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	B	From Leg	4.0000	0.00	118.0000	No Ice	1.4250	1.4250	0.03
			0.00			1/2" Ice	1.9250	1.9250	0.04
			0.00			1" Ice	2.2939	2.2939	0.05
						2" Ice	3.0596	3.0596	0.09
2.375" OD x 6' Mount Pipe	C	From Leg	4.0000	0.00	118.0000	No Ice	1.4250	1.4250	0.03
			0.00			1/2" Ice	1.9250	1.9250	0.04
			0.00			1" Ice	2.2939	2.2939	0.05
						2" Ice	3.0596	3.0596	0.09
***									
TME-800MHz 2X50W RRH W/FILTER	A	From Leg	4.0000	0.00	108.0000	No Ice	2.1453	2.2938	0.07
			0.00			1/2" Ice	2.3591	2.6057	0.10
			-2.00			1" Ice	2.5826	2.9343	0.13
						2" Ice	3.0584	3.6414	0.21
TME-800MHz 2X50W RRH W/FILTER	B	From Leg	4.0000	0.00	108.0000	No Ice	2.1453	2.2938	0.07
			0.00			1/2" Ice	2.3591	2.6057	0.10
			-2.00			1" Ice	2.5826	2.9343	0.13
						2" Ice	3.0584	3.6414	0.21
TME-800MHz 2X50W RRH W/FILTER	C	From Leg	4.0000	0.00	108.0000	No Ice	2.1453	2.2938	0.07
			0.00			1/2" Ice	2.3591	2.6057	0.10
			-2.00			1" Ice	2.5826	2.9343	0.13
						2" Ice	3.0584	3.6414	0.21
TME-PCS 1900MHz 4x45W-65MHz	A	From Leg	4.0000	0.00	108.0000	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
						2" Ice	3.1855	3.0929	0.17
TME-PCS 1900MHz 4x45W-65MHz	B	From Leg	4.0000	0.00	108.0000	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
						2" Ice	3.1855	3.0929	0.17
TME-PCS 1900MHz 4x45W-65MHz	C	From Leg	4.0000	0.00	108.0000	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
						2" Ice	3.1855	3.0929	0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Side Arm Mount [SO 102-3]	C	None		0.00	108.0000	No Ice	3.0000	3.0000	0.08
						1/2" Ice	3.4800	3.4800	0.11
						1" Ice	3.9600	3.9600	0.14
						2" Ice	4.9200	4.9200	0.20
***									

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
L1 144.5000-139.5000	141.9788	1.363	57.107	9.104	A	0.000	9.104	9.104	100.00	0.000	0.000
					B	0.000	9.104		100.00	0.000	0.000
					C	0.000	9.104		100.00	0.795	0.000
L2 139.5000-134.5000	136.9799	1.352	56.678	9.567	A	0.000	9.567	9.567	100.00	0.000	0.000
					B	0.000	9.567		100.00	0.000	0.000
					C	0.000	9.567		100.00	0.795	0.000
L3 134.5000-129.5000	131.9808	1.342	56.236	10.030	A	0.000	10.030	10.030	100.00	0.000	0.000
					B	0.000	10.030		100.00	0.000	0.000
					C	0.000	10.030		100.00	0.795	0.000
L4 129.5000-124.5000	126.9816	1.331	55.781	10.493	A	0.000	10.493	10.493	100.00	0.000	0.000
					B	0.000	10.493		100.00	1.386	0.000
					C	0.000	10.493		100.00	0.795	0.000
L5 124.5000-117.6500	121.0423	1.318	55.221	15.127	A	0.000	15.127	15.127	100.00	0.030	0.000
					B	0.000	15.127		100.00	2.713	0.000
					C	0.000	15.127		100.00	1.089	0.000
L6 117.6500-116.5100	117.0791	1.308	54.836	2.562	A	0.000	2.562	2.562	100.00	0.099	0.000
					B	0.000	2.562		100.00	0.451	0.000
					C	0.000	2.562		100.00	0.181	0.000
L7 116.5100-112.5800	114.5350	1.302	54.582	9.009	A	0.000	9.009	9.009	100.00	1.405	0.000
					B	0.000	9.009		100.00	2.621	0.000
					C	0.000	9.009		100.00	1.690	0.000
L8 112.5800-112.3300	112.4550	1.297	54.372	0.582	A	0.000	0.582	0.582	100.00	0.209	0.000
					B	0.000	0.582		100.00	0.286	0.000
					C	0.000	0.582		100.00	0.227	0.000
L9 112.3300-107.3300	109.8143	1.291	54.101	11.873	A	0.000	11.873	11.873	100.00	4.183	0.000
					B	0.000	11.873		100.00	5.730	0.000
					C	0.000	11.873		100.00	4.545	0.000
L10 107.3300-106.0000	106.6639	1.283	53.770	3.234	A	0.000	3.234	3.234	100.00	1.779	0.000
					B	0.000	3.234		100.00	2.191	0.000
					C	0.000	3.234		100.00	1.876	0.000
L11 106.0000-105.7500	105.8750	1.281	53.686	0.611	A	0.000	0.611	0.611	100.00	0.376	0.000
					B	0.000	0.611		100.00	0.453	0.000
					C	0.000	0.611		100.00	0.394	0.000
L12 105.7500-103.5000	104.6219	1.278	53.552	5.549	A	0.000	5.549	5.549	100.00	4.507	0.000
					B	0.000	5.549		100.00	5.204	0.000
					C	0.000	5.549		100.00	4.670	0.000
L13 103.5000-103.2500	103.3750	1.274	53.417	0.622	A	0.000	0.622	0.622	100.00	0.563	0.000
					B	0.000	0.622		100.00	0.641	0.000
					C	0.000	0.622		100.00	0.581	0.000
L14 103.2500-98.5000	100.8618	1.268	53.141	12.035	A	0.000	12.035	12.035	100.00	9.203	0.000
					B	0.000	12.035		100.00	10.673	0.000
					C	0.000	12.035		100.00	9.547	0.000
L15 98.5000-98.2500	98.3750	1.261	52.862	0.644	A	0.000	0.644	0.644	100.00	0.563	0.000
					B	0.000	0.644		100.00	0.641	0.000
					C	0.000	0.644		100.00	0.581	0.000
L16 98.2500-98.0000	98.1250	1.261	52.834	0.645	A	0.000	0.645	0.645	100.00	0.563	0.000
					B	0.000	0.645		100.00	0.641	0.000
					C	0.000	0.645		100.00	0.581	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L17 98.0000-97.7500	97.8750	1.26	52.806	0.647	A	0.000	0.647	0.647	100.00	0.563	0.000
					B	0.000	0.647		100.00	0.641	0.000
					C	0.000	0.647		100.00	0.581	0.000
L18 97.7500-92.7500	95.2359	1.253	52.503	13.169	A	0.000	13.169	13.169	100.00	8.432	0.000
					B	0.000	13.169		100.00	9.980	0.000
					C	0.000	13.169		100.00	8.795	0.000
L19 92.7500-86.8500	89.7810	1.237	51.855	16.116	A	0.000	16.116	16.116	100.00	4.635	0.000
					B	0.000	16.116		100.00	6.461	0.000
					C	0.000	16.116		100.00	5.063	0.000
L20 86.8500-85.8500	86.3494	1.227	51.431	2.755	A	0.000	2.755	2.755	100.00	0.086	0.000
					B	0.000	2.755		100.00	0.396	0.000
					C	0.000	2.755		100.00	0.159	0.000
L21 85.8500-83.0000	84.4206	1.221	51.187	7.951	A	0.000	7.951	7.951	100.00	2.071	0.000
					B	0.000	7.951		100.00	2.953	0.000
					C	0.000	7.951		100.00	2.277	0.000
L22 83.0000-82.7500	82.8750	1.217	50.988	0.704	A	0.000	0.704	0.704	100.00	0.250	0.000
					B	0.000	0.704		100.00	0.327	0.000
					C	0.000	0.704		100.00	0.268	0.000
L23 82.7500-77.7500	80.2368	1.208	50.642	14.318	A	0.000	14.318	14.318	100.00	7.431	0.000
					B	0.000	14.318		100.00	8.978	0.000
					C	0.000	14.318		100.00	7.793	0.000
L24 77.7500-77.2500	77.4999	1.199	50.274	1.457	A	0.000	1.457	1.457	100.00	1.041	0.000
					B	0.000	1.457		100.00	1.196	0.000
					C	0.000	1.457		100.00	1.077	0.000
L25 77.2500-77.0000	77.1250	1.198	50.222	0.729	A	0.000	0.729	0.729	100.00	0.520	0.000
					B	0.000	0.729		100.00	0.598	0.000
					C	0.000	0.729		100.00	0.539	0.000
L26 77.0000-76.7500	76.8750	1.197	50.188	0.731	A	0.000	0.731	0.731	100.00	0.520	0.000
					B	0.000	0.731		100.00	0.598	0.000
					C	0.000	0.731		100.00	0.539	0.000
L27 76.7500-71.7500	74.2373	1.189	49.820	14.861	A	0.000	14.861	14.861	100.00	7.445	0.000
					B	0.000	14.861		100.00	8.993	0.000
					C	0.000	14.861		100.00	7.808	0.000
L28 71.7500-69.0000	70.3712	1.175	49.263	8.368	A	0.000	8.368	8.368	100.00	5.217	0.000
					B	0.000	8.368		100.00	6.068	0.000
					C	0.000	8.368		100.00	5.416	0.000
L29 69.0000-68.7500	68.8750	1.17	49.040	0.767	A	0.000	0.767	0.767	100.00	0.542	0.000
					B	0.000	0.767		100.00	0.620	0.000
					C	0.000	0.767		100.00	0.561	0.000
L30 68.7500-63.7500	66.2379	1.16	48.639	15.580	A	0.000	15.580	15.580	100.00	10.849	0.000
					B	0.000	15.580		100.00	12.397	0.000
					C	0.000	15.580		100.00	11.212	0.000
L31 63.7500-60.0000	61.8683	1.144	47.945	11.984	A	0.000	11.984	11.984	100.00	8.845	0.000
					B	0.000	11.984		100.00	9.297	0.000
					C	0.000	11.984		100.00	8.409	0.000
L32 60.0000-59.7500	59.8750	1.136	47.616	0.808	A	0.000	0.808	0.808	100.00	0.897	0.000
					B	0.000	0.808		100.00	0.620	0.000
					C	0.000	0.808		100.00	0.561	0.000
L33 59.7500-58.5000	59.1243	1.133	47.489	4.057	A	0.000	4.057	4.057	100.00	4.483	0.000
					B	0.000	4.057		100.00	3.099	0.000
					C	0.000	4.057		100.00	3.886	0.000
L34 58.5000-58.2500	58.3750	1.13	47.362	0.815	A	0.000	0.815	0.815	100.00	0.897	0.000
					B	0.000	0.815		100.00	0.620	0.000
					C	0.000	0.815		100.00	0.831	0.000
L35 58.2500-58.0000	58.1250	1.129	47.319	0.816	A	0.000	0.816	0.816	100.00	0.897	0.000
					B	0.000	0.816		100.00	0.620	0.000
					C	0.000	0.816		100.00	0.831	0.000
L36 58.0000-57.7500	57.8750	1.128	47.276	0.818	A	0.000	0.818	0.818	100.00	0.897	0.000
					B	0.000	0.818		100.00	0.620	0.000
					C	0.000	0.818		100.00	0.831	0.000
L37 57.7500-56.7500	57.2495	1.125	47.168	3.282	A	0.000	3.282	3.282	100.00	3.587	0.000
					B	0.000	3.282		100.00	2.479	0.000
					C	0.000	3.282		100.00	3.326	0.000
L38 56.7500-56.5000	56.6250	1.123	47.059	0.823	A	0.000	0.823	0.823	100.00	0.897	0.000
					B	0.000	0.823		100.00	0.620	0.000
					C	0.000	0.823		100.00	0.831	0.000
L39 56.5000-51.5000	53.9887	1.112	46.589	16.700	A	0.000	16.700	16.700	100.00	13.432	0.000
					B	0.000	16.700		100.00	7.897	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	16.700		100.00	12.128	0.000
L40 51.5000-41.7800	46.5988	1.078	45.168	33.770	A	0.000	33.770	33.770	100.00	25.141	0.000
					B	0.000	33.770		100.00	14.379	0.000
					C	0.000	33.770		100.00	22.605	0.000
L41 41.7800-40.7800	41.2796	1.051	44.030	3.508	A	0.000	3.508	3.508	100.00	2.587	0.000
					B	0.000	3.508		100.00	1.479	0.000
					C	0.000	3.508		100.00	2.326	0.000
L42 40.7800-35.7800	38.2693	1.034	43.334	17.814	A	0.000	17.814	17.814	100.00	12.932	0.000
					B	0.000	17.814		100.00	7.397	0.000
					C	0.000	17.814		100.00	11.628	0.000
L43 35.7800-31.2500	33.5065	1.005	42.138	16.535	A	0.000	16.535	16.535	100.00	12.967	0.000
					B	0.000	16.535		100.00	12.014	0.000
					C	0.000	16.535		100.00	11.785	0.000
L44 31.2500-31.0000	31.1250	0.99	41.489	0.924	A	0.000	0.924	0.924	100.00	0.730	0.000
					B	0.000	0.924		100.00	0.724	0.000
					C	0.000	0.924		100.00	0.665	0.000
L45 31.0000-27.2500	29.1193	0.976	40.911	13.995	A	0.000	13.995	13.995	100.00	10.595	0.000
					B	0.000	13.995		100.00	11.568	0.000
					C	0.000	13.995		100.00	14.096	0.000
L46 27.2500-27.0000	27.1250	0.962	40.305	0.942	A	0.000	0.942	0.942	100.00	0.376	0.000
					B	0.000	0.942		100.00	0.682	0.000
					C	0.000	0.942		100.00	1.123	0.000
L47 27.0000-22.0000	24.4900	0.941	39.447	19.072	A	0.000	19.072	19.072	100.00	7.516	0.000
					B	0.000	19.072		100.00	13.647	0.000
					C	0.000	19.072		100.00	19.753	0.000
L48 22.0000-17.0000	19.4903	0.897	37.595	19.529	A	0.000	19.529	19.529	100.00	7.516	0.000
					B	0.000	19.529		100.00	13.647	0.000
					C	0.000	19.529		100.00	17.045	0.000
L49 17.0000-12.0000	14.4905	0.85	35.626	19.988	A	0.000	19.988	19.988	100.00	7.516	0.000
					B	0.000	19.988		100.00	13.647	0.000
					C	0.000	19.988		100.00	17.045	0.000
L50 12.0000-7.0000	9.4907	0.85	35.626	20.445	A	0.000	20.445	20.445	100.00	7.516	0.000
					B	0.000	20.445		100.00	13.647	0.000
					C	0.000	20.445		100.00	17.045	0.000
L51 7.0000-2.0000	4.4909	0.85	35.626	20.903	A	0.000	20.903	20.903	100.00	7.516	0.000
					B	0.000	20.903		100.00	13.647	0.000
					C	0.000	20.903		100.00	17.045	0.000
L52 2.0000-0.0000	0.9986	0.85	35.626	8.489	A	0.000	8.489	8.489	100.00	3.006	0.000
					B	0.000	8.489		100.00	5.459	0.000
					C	0.000	8.489		100.00	6.818	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 144.5000-139.5000	141.9788	1.363	7.834	1.4753	10.334	A	0.000	10.334	10.334	100.00	0.000	0.000
						B	0.000	10.334		100.00	0.000	0.000
						C	0.000	10.334		100.00	2.838	0.000
L2 139.5000-134.5000	136.9799	1.352	7.775	1.4700	10.792	A	0.000	10.792	10.792	100.00	0.000	0.000
						B	0.000	10.792		100.00	0.000	0.000
						C	0.000	10.792		100.00	2.831	0.000
L3 134.5000-129.5000	131.9808	1.342	7.714	1.4646	11.251	A	0.000	11.251	11.251	100.00	0.000	0.000
						B	0.000	11.251		100.00	0.000	0.000
						C	0.000	11.251		100.00	2.824	0.000
L4 129.5000-124.5000	126.9816	1.331	7.652	1.4589	11.709	A	0.000	11.709	11.709	100.00	0.000	0.000
						B	0.000	11.709		100.00	3.009	0.000
						C	0.000	11.709		100.00	2.817	0.000
L5 124.5000-117.6500	121.0423	1.318	7.575	1.4520	16.785	A	0.000	16.785	16.785	100.00	0.132	0.000
						B	0.000	16.785		100.00	5.877	0.000
						C	0.000	16.785		100.00	3.848	0.000
L6 117.6500-116.5100	117.0791	1.308	7.522	1.4471	2.837	A	0.000	2.837	2.837	100.00	0.430	0.000
						B	0.000	2.837		100.00	0.978	0.000
						C	0.000	2.837		100.00	0.640	0.000

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L7 116.5100-112.5800	114.5350	1.302	7.487	1.4440	9.955	A	0.000	9.955	9.955	100.00	2.861	0.000
						B	0.000	9.955		100.00	4.751	0.000
						C	0.000	9.955		100.00	3.586	0.000
L8 112.5800-112.3300	112.4550	1.297	7.458	1.4413	0.642	A	0.000	0.642	0.642	100.00	0.338	0.000
						B	0.000	0.642		100.00	0.458	0.000
						C	0.000	0.642		100.00	0.384	0.000
L9 112.3300-107.3300	109.8143	1.291	7.421	1.4379	13.071	A	0.000	13.071	13.071	100.00	6.750	0.000
						B	0.000	13.071		100.00	9.152	0.000
						C	0.000	13.071		100.00	7.671	0.000
L10 107.3300-106.0000	106.6639	1.283	7.376	1.4337	3.551	A	0.000	3.551	3.551	100.00	2.657	0.000
						B	0.000	3.551		100.00	3.296	0.000
						C	0.000	3.551		100.00	2.902	0.000
L11 106.0000-105.7500	105.8750	1.281	7.364	1.4326	0.671	A	0.000	0.671	0.671	100.00	0.553	0.000
						B	0.000	0.671		100.00	0.673	0.000
						C	0.000	0.671		100.00	0.599	0.000
L12 105.7500-103.5000	104.6219	1.278	7.346	1.4309	6.086	A	0.000	6.086	6.086	100.00	6.525	0.000
						B	0.000	6.086		100.00	7.605	0.000
						C	0.000	6.086		100.00	6.938	0.000
L13 103.5000-103.2500	103.3750	1.274	7.327	1.4292	0.682	A	0.000	0.682	0.682	100.00	0.811	0.000
						B	0.000	0.682		100.00	0.931	0.000
						C	0.000	0.682		100.00	0.857	0.000
L14 103.2500-98.5000	100.8618	1.268	7.290	1.4257	13.164	A	0.000	13.164	13.164	100.00	13.353	0.000
						B	0.000	13.164		100.00	15.632	0.000
						C	0.000	13.164		100.00	14.225	0.000
L15 98.5000-98.2500	98.3750	1.261	7.251	1.4222	0.703	A	0.000	0.703	0.703	100.00	0.794	0.000
						B	0.000	0.703		100.00	0.914	0.000
						C	0.000	0.703		100.00	0.840	0.000
L16 98.2500-98.0000	98.1250	1.261	7.247	1.4218	0.704	A	0.000	0.704	0.704	100.00	0.794	0.000
						B	0.000	0.704		100.00	0.914	0.000
						C	0.000	0.704		100.00	0.840	0.000
L17 98.0000-97.7500	97.8750	1.26	7.244	1.4214	0.706	A	0.000	0.706	0.706	100.00	0.794	0.000
						B	0.000	0.706		100.00	0.914	0.000
						C	0.000	0.706		100.00	0.840	0.000
L18 97.7500-92.7500	95.2359	1.253	7.202	1.4176	14.350	A	0.000	14.350	14.350	100.00	12.206	0.000
						B	0.000	14.350		100.00	14.603	0.000
						C	0.000	14.350		100.00	13.122	0.000
L19 92.7500-86.8500	89.7810	1.237	7.113	1.4092	17.501	A	0.000	17.501	17.501	100.00	7.508	0.000
						B	0.000	17.501		100.00	10.333	0.000
						C	0.000	17.501		100.00	8.586	0.000
L20 86.8500-85.8500	86.3494	1.227	7.055	1.4037	2.990	A	0.000	2.990	2.990	100.00	0.368	0.000
						B	0.000	2.990		100.00	0.847	0.000
						C	0.000	2.990		100.00	0.551	0.000
L21 85.8500-83.0000	84.4206	1.221	7.022	1.4006	8.617	A	0.000	8.617	8.617	100.00	3.167	0.000
						B	0.000	8.617		100.00	4.531	0.000
						C	0.000	8.617		100.00	3.686	0.000
L22 83.0000-82.7500	82.8750	1.217	6.994	1.3980	0.762	A	0.000	0.762	0.762	100.00	0.357	0.000
						B	0.000	0.762		100.00	0.476	0.000
						C	0.000	0.762		100.00	0.402	0.000
L23 82.7500-77.7500	80.2368	1.208	6.947	1.3935	15.479	A	0.000	15.479	15.479	100.00	10.192	0.000
						B	0.000	15.479		100.00	12.582	0.000
						C	0.000	15.479		100.00	11.101	0.000
L24 77.7500-77.2500	77.4999	1.199	6.896	1.3886	1.573	A	0.000	1.573	1.573	100.00	1.393	0.000
						B	0.000	1.573		100.00	1.631	0.000
						C	0.000	1.573		100.00	1.483	0.000
L25 77.2500-77.0000	77.1250	1.198	6.889	1.3880	0.787	A	0.000	0.787	0.787	100.00	0.696	0.000
						B	0.000	0.787		100.00	0.816	0.000
						C	0.000	0.787		100.00	0.742	0.000
L26 77.0000-76.7500	76.8750	1.197	6.885	1.3875	0.789	A	0.000	0.789	0.789	100.00	0.696	0.000
						B	0.000	0.789		100.00	0.816	0.000
						C	0.000	0.789		100.00	0.742	0.000
L27 76.7500-71.7500	74.2373	1.189	6.834	1.3827	16.013	A	0.000	16.013	16.013	100.00	10.468	0.000
						B	0.000	16.013		100.00	12.856	0.000
						C	0.000	16.013		100.00	11.375	0.000
L28 71.7500-69.0000	70.3712	1.175	6.758	1.3753	8.998	A	0.000	8.998	8.998	100.00	7.168	0.000
						B	0.000	8.998		100.00	8.481	0.000
						C	0.000	8.998		100.00	7.666	0.000
L29 69.0000-68.7500	68.8750	1.17	6.727	1.3724	0.824	A	0.000	0.824	0.824	100.00	0.734	0.000
						B	0.000	0.824		100.00	0.854	0.000

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	0.000	0.824		100.00	0.780	0.000
L30 68.7500-63.7500	66.2379	1.16	6.672	1.3670	16.719	A	0.000	16.719	16.719	100.00	14.675	0.000
						B	0.000	16.719		100.00	17.060	0.000
						C	0.000	16.719		100.00	15.578	0.000
L31 63.7500-60.0000	61.8683	1.144	6.577	1.3577	12.833	A	0.000	12.833	12.833	100.00	11.833	0.000
						B	0.000	12.833		100.00	12.775	0.000
						C	0.000	12.833		100.00	11.665	0.000
L32 60.0000-59.7500	59.8750	1.136	6.532	1.3533	0.864	A	0.000	0.864	0.864	100.00	1.154	0.000
						B	0.000	0.864		100.00	0.851	0.000
						C	0.000	0.864		100.00	0.777	0.000
L33 59.7500-58.5000	59.1243	1.133	6.514	1.3516	4.339	A	0.000	4.339	4.339	100.00	5.768	0.000
						B	0.000	4.339		100.00	4.254	0.000
						C	0.000	4.339		100.00	5.238	0.000
L34 58.5000-58.2500	58.3750	1.13	6.497	1.3498	0.871	A	0.000	0.871	0.871	100.00	1.153	0.000
						B	0.000	0.871		100.00	0.851	0.000
						C	0.000	0.871		100.00	1.115	0.000
L35 58.2500-58.0000	58.1250	1.129	6.491	1.3493	0.872	A	0.000	0.872	0.872	100.00	1.153	0.000
						B	0.000	0.872		100.00	0.851	0.000
						C	0.000	0.872		100.00	1.115	0.000
L36 58.0000-57.7500	57.8750	1.128	6.485	1.3487	0.874	A	0.000	0.874	0.874	100.00	1.153	0.000
						B	0.000	0.874		100.00	0.850	0.000
						C	0.000	0.874		100.00	1.115	0.000
L37 57.7500-56.7500	57.2495	1.125	6.470	1.3472	3.507	A	0.000	3.507	3.507	100.00	4.611	0.000
						B	0.000	3.507		100.00	3.401	0.000
						C	0.000	3.507		100.00	4.458	0.000
L38 56.7500-56.5000	56.6250	1.123	6.455	1.3457	0.879	A	0.000	0.879	0.879	100.00	1.153	0.000
						B	0.000	0.879		100.00	0.850	0.000
						C	0.000	0.879		100.00	1.114	0.000
L39 56.5000-51.5000	53.9887	1.112	6.391	1.3393	17.816	A	0.000	17.816	17.816	100.00	17.558	0.000
						B	0.000	17.816		100.00	11.513	0.000
						C	0.000	17.816		100.00	16.788	0.000
L40 51.5000-41.7800	46.5988	1.078	6.196	1.3198	35.908	A	0.000	35.908	35.908	100.00	32.838	0.000
						B	0.000	35.908		100.00	21.114	0.000
						C	0.000	35.908		100.00	31.330	0.000
L41 41.7800-40.7800	41.2796	1.051	6.040	1.3039	3.728	A	0.000	3.728	3.728	100.00	3.378	0.000
						B	0.000	3.728		100.00	2.172	0.000
						C	0.000	3.728		100.00	3.223	0.000
L42 40.7800-35.7800	38.2693	1.034	5.944	1.2940	18.893	A	0.000	18.893	18.893	100.00	16.815	0.000
						B	0.000	18.893		100.00	10.803	0.000
						C	0.000	18.893		100.00	16.033	0.000
L43 35.7800-31.2500	33.5065	1.005	5.780	1.2769	17.500	A	0.000	17.500	17.500	100.00	16.438	0.000
						B	0.000	17.500		100.00	16.023	0.000
						C	0.000	17.500		100.00	15.725	0.000
L44 31.2500-31.0000	31.1250	0.99	5.691	1.2676	0.977	A	0.000	0.977	0.977	100.00	0.920	0.000
						B	0.000	0.977		100.00	0.955	0.000
						C	0.000	0.977		100.00	0.881	0.000
L45 31.0000-27.2500	29.1193	0.976	5.612	1.2591	14.782	A	0.000	14.782	14.782	100.00	13.365	0.000
						B	0.000	14.782		100.00	15.261	0.000
						C	0.000	14.782		100.00	18.448	0.000
L46 27.2500-27.0000	27.1250	0.962	5.529	1.2502	0.994	A	0.000	0.994	0.994	100.00	0.501	0.000
						B	0.000	0.994		100.00	0.910	0.000
						C	0.000	0.994		100.00	1.461	0.000
L47 27.0000-22.0000	24.4900	0.941	5.411	1.2375	20.103	A	0.000	20.103	20.103	100.00	9.991	0.000
						B	0.000	20.103		100.00	18.164	0.000
						C	0.000	20.103		100.00	25.830	0.000
L48 22.0000-17.0000	19.4903	0.897	5.157	1.2096	20.537	A	0.000	20.537	20.537	100.00	9.935	0.000
						B	0.000	20.537		100.00	18.073	0.000
						C	0.000	20.537		100.00	22.385	0.000
L49 17.0000-12.0000	14.4905	0.85	4.887	1.1743	20.966	A	0.000	20.966	20.966	100.00	9.864	0.000
						B	0.000	20.966		100.00	17.958	0.000
						C	0.000	20.966		100.00	22.234	0.000
L50 12.0000-7.0000	9.4907	0.85	4.887	1.1256	21.383	A	0.000	21.383	21.383	100.00	9.767	0.000
						B	0.000	21.383		100.00	17.800	0.000
						C	0.000	21.383		100.00	22.028	0.000
L51 7.0000-2.0000	4.4909	0.85	4.887	1.0445	21.774	A	0.000	21.774	21.774	100.00	9.605	0.000
						B	0.000	21.774		100.00	17.536	0.000
						C	0.000	21.774		100.00	21.683	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L52 2.0000-0.0000	0.9986	0.85	4.887	0.8987	8.789	A	0.000	8.789	8.789	100.00	3.725	0.000
						B	0.000	8.789		100.00	6.825	0.000
						C	0.000	8.789		100.00	8.425	0.000

Tower Pressure - Service

G_H = 1.100

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L1 144.5000-139.5000	141.9788	1.363	10.624	9.104	A	0.000	9.104	9.104	100.00	0.000	0.000
					B	0.000	9.104		100.00	0.000	0.000
					C	0.000	9.104		100.00	0.795	0.000
L2 139.5000-134.5000	136.9799	1.352	10.544	9.567	A	0.000	9.567	9.567	100.00	0.000	0.000
					B	0.000	9.567		100.00	0.000	0.000
					C	0.000	9.567		100.00	0.795	0.000
L3 134.5000-129.5000	131.9808	1.342	10.462	10.030	A	0.000	10.030	10.030	100.00	0.000	0.000
					B	0.000	10.030		100.00	0.000	0.000
					C	0.000	10.030		100.00	0.795	0.000
L4 129.5000-124.5000	126.9816	1.331	10.377	10.493	A	0.000	10.493	10.493	100.00	0.000	0.000
					B	0.000	10.493		100.00	1.386	0.000
					C	0.000	10.493		100.00	0.795	0.000
L5 124.5000-117.6500	121.0423	1.318	10.273	15.127	A	0.000	15.127	15.127	100.00	0.030	0.000
					B	0.000	15.127		100.00	2.713	0.000
					C	0.000	15.127		100.00	1.089	0.000
L6 117.6500-116.5100	117.0791	1.308	10.202	2.562	A	0.000	2.562	2.562	100.00	0.099	0.000
					B	0.000	2.562		100.00	0.451	0.000
					C	0.000	2.562		100.00	0.181	0.000
L7 116.5100-112.5800	114.5350	1.302	10.155	9.009	A	0.000	9.009	9.009	100.00	1.405	0.000
					B	0.000	9.009		100.00	2.621	0.000
					C	0.000	9.009		100.00	1.690	0.000
L8 112.5800-112.3300	112.4550	1.297	10.115	0.582	A	0.000	0.582	0.582	100.00	0.209	0.000
					B	0.000	0.582		100.00	0.286	0.000
					C	0.000	0.582		100.00	0.227	0.000
L9 112.3300-107.3300	109.8143	1.291	10.065	11.873	A	0.000	11.873	11.873	100.00	4.183	0.000
					B	0.000	11.873		100.00	5.730	0.000
					C	0.000	11.873		100.00	4.545	0.000
L10 107.3300-106.0000	106.6639	1.283	10.003	3.234	A	0.000	3.234	3.234	100.00	1.779	0.000
					B	0.000	3.234		100.00	2.191	0.000
					C	0.000	3.234		100.00	1.876	0.000
L11 106.0000-105.7500	105.8750	1.281	9.988	0.611	A	0.000	0.611	0.611	100.00	0.376	0.000
					B	0.000	0.611		100.00	0.453	0.000
					C	0.000	0.611		100.00	0.394	0.000
L12 105.7500-103.5000	104.6219	1.278	9.963	5.549	A	0.000	5.549	5.549	100.00	4.507	0.000
					B	0.000	5.549		100.00	5.204	0.000
					C	0.000	5.549		100.00	4.670	0.000
L13 103.5000-103.2500	103.3750	1.274	9.938	0.622	A	0.000	0.622	0.622	100.00	0.563	0.000
					B	0.000	0.622		100.00	0.641	0.000
					C	0.000	0.622		100.00	0.581	0.000
L14 103.2500-98.5000	100.8618	1.268	9.886	12.035	A	0.000	12.035	12.035	100.00	9.203	0.000
					B	0.000	12.035		100.00	10.673	0.000
					C	0.000	12.035		100.00	9.547	0.000
L15 98.5000-98.2500	98.3750	1.261	9.835	0.644	A	0.000	0.644	0.644	100.00	0.563	0.000
					B	0.000	0.644		100.00	0.641	0.000
					C	0.000	0.644		100.00	0.581	0.000
L16 98.2500-98.0000	98.1250	1.261	9.829	0.645	A	0.000	0.645	0.645	100.00	0.563	0.000
					B	0.000	0.645		100.00	0.641	0.000
					C	0.000	0.645		100.00	0.581	0.000
L17 98.0000-97.7500	97.8750	1.26	9.824	0.647	A	0.000	0.647	0.647	100.00	0.563	0.000
					B	0.000	0.647		100.00	0.641	0.000
					C	0.000	0.647		100.00	0.581	0.000
L18 97.7500-92.7500	95.2359	1.253	9.768	13.169	A	0.000	13.169	13.169	100.00	8.432	0.000
					B	0.000	13.169		100.00	9.980	0.000
					C	0.000	13.169		100.00	8.795	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
L19 92.7500-86.8500	89.7810	1.237	9.647	16.116	A	0.000	16.116	16.116	100.00	4.635	0.000
					B	0.000	16.116		100.00	6.461	0.000
					C	0.000	16.116		100.00	5.063	0.000
L20 86.8500-85.8500	86.3494	1.227	9.568	2.755	A	0.000	2.755	2.755	100.00	0.086	0.000
					B	0.000	2.755		100.00	0.396	0.000
					C	0.000	2.755		100.00	0.159	0.000
L21 85.8500-83.0000	84.4206	1.221	9.523	7.951	A	0.000	7.951	7.951	100.00	2.071	0.000
					B	0.000	7.951		100.00	2.953	0.000
					C	0.000	7.951		100.00	2.277	0.000
L22 83.0000-82.7500	82.8750	1.217	9.486	0.704	A	0.000	0.704	0.704	100.00	0.250	0.000
					B	0.000	0.704		100.00	0.327	0.000
					C	0.000	0.704		100.00	0.268	0.000
L23 82.7500-77.7500	80.2368	1.208	9.421	14.318	A	0.000	14.318	14.318	100.00	7.431	0.000
					B	0.000	14.318		100.00	8.978	0.000
					C	0.000	14.318		100.00	7.793	0.000
L24 77.7500-77.2500	77.4999	1.199	9.353	1.457	A	0.000	1.457	1.457	100.00	1.041	0.000
					B	0.000	1.457		100.00	1.196	0.000
					C	0.000	1.457		100.00	1.077	0.000
L25 77.2500-77.0000	77.1250	1.198	9.343	0.729	A	0.000	0.729	0.729	100.00	0.520	0.000
					B	0.000	0.729		100.00	0.598	0.000
					C	0.000	0.729		100.00	0.539	0.000
L26 77.0000-76.7500	76.8750	1.197	9.337	0.731	A	0.000	0.731	0.731	100.00	0.520	0.000
					B	0.000	0.731		100.00	0.598	0.000
					C	0.000	0.731		100.00	0.539	0.000
L27 76.7500-71.7500	74.2373	1.189	9.269	14.861	A	0.000	14.861	14.861	100.00	7.445	0.000
					B	0.000	14.861		100.00	8.993	0.000
					C	0.000	14.861		100.00	7.808	0.000
L28 71.7500-69.0000	70.3712	1.175	9.165	8.368	A	0.000	8.368	8.368	100.00	5.217	0.000
					B	0.000	8.368		100.00	6.068	0.000
					C	0.000	8.368		100.00	5.416	0.000
L29 69.0000-68.7500	68.8750	1.17	9.123	0.767	A	0.000	0.767	0.767	100.00	0.542	0.000
					B	0.000	0.767		100.00	0.620	0.000
					C	0.000	0.767		100.00	0.561	0.000
L30 68.7500-63.7500	66.2379	1.16	9.049	15.580	A	0.000	15.580	15.580	100.00	10.849	0.000
					B	0.000	15.580		100.00	12.397	0.000
					C	0.000	15.580		100.00	11.212	0.000
L31 63.7500-60.0000	61.8683	1.144	8.920	11.984	A	0.000	11.984	11.984	100.00	8.845	0.000
					B	0.000	11.984		100.00	9.297	0.000
					C	0.000	11.984		100.00	8.409	0.000
L32 60.0000-59.7500	59.8750	1.136	8.858	0.808	A	0.000	0.808	0.808	100.00	0.897	0.000
					B	0.000	0.808		100.00	0.620	0.000
					C	0.000	0.808		100.00	0.561	0.000
L33 59.7500-58.5000	59.1243	1.133	8.835	4.057	A	0.000	4.057	4.057	100.00	4.483	0.000
					B	0.000	4.057		100.00	3.099	0.000
					C	0.000	4.057		100.00	3.886	0.000
L34 58.5000-58.2500	58.3750	1.13	8.811	0.815	A	0.000	0.815	0.815	100.00	0.897	0.000
					B	0.000	0.815		100.00	0.620	0.000
					C	0.000	0.815		100.00	0.831	0.000
L35 58.2500-58.0000	58.1250	1.129	8.803	0.816	A	0.000	0.816	0.816	100.00	0.897	0.000
					B	0.000	0.816		100.00	0.620	0.000
					C	0.000	0.816		100.00	0.831	0.000
L36 58.0000-57.7500	57.8750	1.128	8.795	0.818	A	0.000	0.818	0.818	100.00	0.897	0.000
					B	0.000	0.818		100.00	0.620	0.000
					C	0.000	0.818		100.00	0.831	0.000
L37 57.7500-56.7500	57.2495	1.125	8.775	3.282	A	0.000	3.282	3.282	100.00	3.587	0.000
					B	0.000	3.282		100.00	2.479	0.000
					C	0.000	3.282		100.00	3.326	0.000
L38 56.7500-56.5000	56.6250	1.123	8.755	0.823	A	0.000	0.823	0.823	100.00	0.897	0.000
					B	0.000	0.823		100.00	0.620	0.000
					C	0.000	0.823		100.00	0.831	0.000
L39 56.5000-51.5000	53.9887	1.112	8.668	16.700	A	0.000	16.700	16.700	100.00	13.432	0.000
					B	0.000	16.700		100.00	7.897	0.000
					C	0.000	16.700		100.00	12.128	0.000
L40 51.5000-41.7800	46.5988	1.078	8.403	33.770	A	0.000	33.770	33.770	100.00	25.141	0.000
					B	0.000	33.770		100.00	14.379	0.000
					C	0.000	33.770		100.00	22.605	0.000
L41 41.7800-40.7800	41.2796	1.051	8.191	3.508	A	0.000	3.508	3.508	100.00	2.587	0.000
					B	0.000	3.508		100.00	1.479	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	0.000	3.508		100.00	2.326	0.000
L42 40.7800-35.7800	38.2693	1.034	8.062	17.814	A	0.000	17.814	17.814	100.00	12.932	0.000
					B	0.000	17.814		100.00	7.397	0.000
					C	0.000	17.814		100.00	11.628	0.000
L43 35.7800-31.2500	33.5065	1.005	7.839	16.535	A	0.000	16.535	16.535	100.00	12.967	0.000
					B	0.000	16.535		100.00	12.014	0.000
					C	0.000	16.535		100.00	11.785	0.000
L44 31.2500-31.0000	31.1250	0.99	7.719	0.924	A	0.000	0.924	0.924	100.00	0.730	0.000
					B	0.000	0.924		100.00	0.724	0.000
					C	0.000	0.924		100.00	0.665	0.000
L45 31.0000-27.2500	29.1193	0.976	7.611	13.995	A	0.000	13.995	13.995	100.00	10.595	0.000
					B	0.000	13.995		100.00	11.568	0.000
					C	0.000	13.995		100.00	14.096	0.000
L46 27.2500-27.0000	27.1250	0.962	7.498	0.942	A	0.000	0.942	0.942	100.00	0.376	0.000
					B	0.000	0.942		100.00	0.682	0.000
					C	0.000	0.942		100.00	1.123	0.000
L47 27.0000-22.0000	24.4900	0.941	7.339	19.072	A	0.000	19.072	19.072	100.00	7.516	0.000
					B	0.000	19.072		100.00	13.647	0.000
					C	0.000	19.072		100.00	19.753	0.000
L48 22.0000-17.0000	19.4903	0.897	6.994	19.529	A	0.000	19.529	19.529	100.00	7.516	0.000
					B	0.000	19.529		100.00	13.647	0.000
					C	0.000	19.529		100.00	17.045	0.000
L49 17.0000-12.0000	14.4905	0.85	6.628	19.988	A	0.000	19.988	19.988	100.00	7.516	0.000
					B	0.000	19.988		100.00	13.647	0.000
					C	0.000	19.988		100.00	17.045	0.000
L50 12.0000-7.0000	9.4907	0.85	6.628	20.445	A	0.000	20.445	20.445	100.00	7.516	0.000
					B	0.000	20.445		100.00	13.647	0.000
					C	0.000	20.445		100.00	17.045	0.000
L51 7.0000-2.0000	4.4909	0.85	6.628	20.903	A	0.000	20.903	20.903	100.00	7.516	0.000
					B	0.000	20.903		100.00	13.647	0.000
					C	0.000	20.903		100.00	17.045	0.000
L52 2.0000-0.0000	0.9986	0.85	6.628	8.489	A	0.000	8.489	8.489	100.00	3.006	0.000
					B	0.000	8.489		100.00	5.459	0.000
					C	0.000	8.489		100.00	6.818	0.000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	144.5 - 139.5	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-10.19	-0.46	1.16
			Max. Mx	8	-3.19	-56.20	0.03
			Max. My	2	-3.19	-0.03	56.56
			Max. Vy	8	10.47	-56.20	0.03
			Max. Vx	2	-10.49	-0.03	56.56
			Max. Torque	20			-2.65
L2	139.5 - 134.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.77	0.55	1.41
			Max. Mx	20	-5.69	123.84	0.29
			Max. My	2	-5.66	0.07	124.62
			Max. Vy	8	19.04	-123.61	0.20
			Max. Vx	2	-19.13	0.07	124.62
			Max. Torque	20			-2.65
L3	134.5 - 129.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.41	0.56	1.39
			Max. Mx	20	-6.10	220.19	0.09
			Max. My	2	-6.07	-0.10	221.45
			Max. Vy	8	19.51	-219.99	0.43
			Max. Vx	14	19.60	0.24	-220.49
			Max. Torque	18			-2.57
L4	129.5 - 124.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.31	0.80	1.23
			Max. Mx	20	-8.74	336.55	-0.11
			Max. My	2	-8.71	-0.30	338.12
			Max. Vy	8	25.25	-336.17	0.66
			Max. Vx	14	25.34	0.47	-337.31
			Max. Torque	5			2.83
L5	124.5 - 117.65	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.78	0.77	1.23
			Max. Mx	20	-9.09	412.41	-0.24
			Max. My	2	-9.06	-0.41	414.28
			Max. Vy	8	25.53	-412.07	0.79
			Max. Vx	14	25.62	0.62	-413.47
			Max. Torque	5			2.83

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L6	117.65 - 116.51	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.26	1.00	1.07
			Max. Mx	20	-11.91	547.27	-0.45
			Max. My	2	-11.87	-0.60	549.46
			Max. Vy	8	30.55	-546.76	1.01
			Max. Vx	14	30.64	0.86	-548.80
			Max. Torque	3			3.50
L7	116.51 - 112.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.06	0.97	1.08
			Max. Mx	20	-12.53	667.96	-0.61
			Max. My	2	-12.50	-0.76	670.55
			Max. Vy	8	30.92	-667.50	1.19
			Max. Vx	14	31.01	1.04	-669.89
			Max. Torque	3			3.50
L8	112.58 - 112.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.13	0.97	1.08
			Max. Mx	20	-12.61	675.68	-0.62
			Max. My	2	-12.58	-0.77	678.30
			Max. Vy	8	30.95	-675.23	1.20
			Max. Vx	2	-31.04	-0.77	678.30
			Max. Torque	3			3.50
L9	112.33 - 107.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-36.68	0.93	1.08
			Max. Mx	8	-14.04	-832.15	1.42
			Max. My	2	-14.04	-0.97	835.65
			Max. Vy	8	32.71	-832.15	1.42
			Max. Vx	2	-32.80	-0.97	835.65
			Max. Torque	3			3.50
L10	107.33 - 106	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.08	0.92	1.09
			Max. Mx	8	-14.30	-875.81	1.48
			Max. My	2	-14.30	-1.02	879.42
			Max. Vy	8	32.96	-875.81	1.48
			Max. Vx	2	-33.04	-1.02	879.42
			Max. Torque	3			3.50
L11	106 - 105.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.17	0.92	1.09
			Max. Mx	8	-14.38	-884.06	1.49
			Max. My	2	-14.38	-1.03	887.69
			Max. Vy	8	33.01	-884.06	1.49
			Max. Vx	2	-33.08	-1.03	887.69
			Max. Torque	3			3.50
L12	105.75 - 103.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.99	0.91	1.09
			Max. Mx	8	-14.89	-958.84	1.59
			Max. My	2	-14.89	-1.12	962.62
			Max. Vy	8	33.47	-958.84	1.59
			Max. Vx	2	-33.54	-1.12	962.62
			Max. Torque	3			3.50
L13	103.5 - 103.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.08	0.90	1.09
			Max. Mx	8	-14.97	-967.21	1.60
			Max. My	2	-14.97	-1.13	971.01
			Max. Vy	8	33.52	-967.21	1.60
			Max. Vx	2	-33.58	-1.13	971.01
			Max. Torque	3			3.50
L14	103.25 - 98.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.81	0.87	1.10
			Max. Mx	8	-16.09	-1128.68	1.81
			Max. My	2	-16.09	-1.33	1132.65
			Max. Vy	8	34.48	-1128.68	1.81
			Max. Vx	2	-34.50	-1.33	1132.65

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	3			3.50
L15	98.5 - 98.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.92	0.87	1.10
			Max. Mx	8	-16.18	-1137.31	1.82
			Max. My	2	-16.18	-1.34	1141.28
			Max. Vy	8	34.53	-1137.31	1.82
			Max. Vx	2	-34.54	-1.34	1141.28
			Max. Torque	3			3.50
L16	98.25 - 98	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.02	0.87	1.10
			Max. Mx	8	-16.25	-1145.95	1.83
			Max. My	2	-16.26	-1.35	1149.92
			Max. Vy	8	34.58	-1145.95	1.83
			Max. Vx	2	-34.59	-1.35	1149.92
			Max. Torque	3			3.50
L17	98 - 97.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.12	0.86	1.10
			Max. Mx	8	-16.31	-1154.60	1.84
			Max. My	2	-16.32	-1.36	1158.58
			Max. Vy	8	34.64	-1154.60	1.84
			Max. Vx	2	-34.64	-1.36	1158.58
			Max. Torque	3			3.50
L18	97.75 - 92.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.01	0.82	1.10
			Max. Mx	8	-17.61	-1330.27	2.06
			Max. My	2	-17.62	-1.57	1334.13
			Max. Vy	8	35.64	-1330.27	2.06
			Max. Vx	2	-35.60	-1.57	1334.13
			Max. Torque	3			3.50
L19	92.75 - 86.85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.45	0.81	1.10
			Max. Mx	8	-17.96	-1375.62	2.12
			Max. My	2	-17.97	-1.62	1379.42
			Max. Vy	8	35.79	-1375.62	2.12
			Max. Vx	2	-35.74	-1.62	1379.42
			Max. Torque	3			3.49
L20	86.85 - 85.85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.34	0.77	1.11
			Max. Mx	8	-20.13	-1579.12	2.37
			Max. My	2	-20.14	-1.86	1582.65
			Max. Vy	8	36.50	-1579.12	2.37
			Max. Vx	14	36.64	2.25	-1575.83
			Max. Torque	3			3.49
L21	85.85 - 83	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.18	0.74	1.12
			Max. Mx	8	-20.80	-1683.80	2.49
			Max. My	2	-20.82	-1.98	1686.89
			Max. Vy	8	37.00	-1683.80	2.49
			Max. Vx	14	37.14	2.38	-1680.91
			Max. Torque	3			3.49
L22	83 - 82.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.27	0.74	1.12
			Max. Mx	8	-20.91	-1693.05	2.50
			Max. My	2	-20.93	-1.99	1696.07
			Max. Vy	8	37.03	-1693.05	2.50
			Max. Vx	14	37.17	2.39	-1690.20
			Max. Torque	3			3.49
L23	82.75 - 77.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.25	0.70	1.12
			Max. Mx	8	-22.38	-1880.65	2.72
			Max. My	2	-22.41	-2.21	1882.10
			Max. Vy	8	38.03	-1880.65	2.72
			Max. Vx	14	38.17	2.60	-1878.51
			Max. Torque	3			3.49

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L24	77.75 - 77.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.46	0.70	1.13
			Max. Mx	8	-22.54	-1899.69	2.74
			Max. My	2	-22.57	-2.23	1900.96
			Max. Vy	8	38.13	-1899.69	2.74
			Max. Vx	14	38.27	2.62	-1897.61
			Max. Torque	3			3.49
L25	77.25 - 77	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.59	0.70	1.13
			Max. Mx	8	-22.65	-1909.23	2.75
			Max. My	2	-22.68	-2.24	1910.41
			Max. Vy	8	38.18	-1909.23	2.75
			Max. Vx	14	38.32	2.64	-1907.19
			Max. Torque	3			3.49
L26	77 - 76.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.70	0.69	1.13
			Max. Mx	8	-22.73	-1918.78	2.76
			Max. My	2	-22.76	-2.25	1919.88
			Max. Vy	8	38.23	-1918.78	2.76
			Max. Vx	14	38.37	2.65	-1916.77
			Max. Torque	3			3.49
L27	76.75 - 71.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.84	0.65	1.13
			Max. Mx	8	-24.36	-2112.36	2.98
			Max. My	2	-24.39	-2.47	2111.66
			Max. Vy	8	39.22	-2112.36	2.98
			Max. Vx	14	39.36	2.86	-2111.06
			Max. Torque	3			3.49
L28	71.75 - 69	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.06	0.62	1.14
			Max. Mx	8	-25.27	-2220.94	3.10
			Max. My	14	-25.27	2.98	-2220.01
			Max. Vy	8	39.78	-2220.94	3.10
			Max. Vx	14	39.90	2.98	-2220.01
			Max. Torque	3			3.49
L29	69 - 68.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.19	0.62	1.14
			Max. Mx	8	-25.40	-2230.89	3.11
			Max. My	14	-25.39	2.99	-2229.98
			Max. Vy	8	39.82	-2230.89	3.11
			Max. Vx	14	39.94	2.99	-2229.98
			Max. Torque	3			3.48
L30	68.75 - 63.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.83	0.58	1.14
			Max. Mx	8	-27.41	-2432.68	3.33
			Max. My	14	-27.41	3.20	-2432.25
			Max. Vy	8	40.91	-2432.68	3.33
			Max. Vx	14	40.98	3.20	-2432.25
			Max. Torque	3			3.48
L31	63.75 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.84	0.55	1.16
			Max. Mx	8	-28.95	-2587.58	3.49
			Max. My	14	-28.95	3.35	-2587.34
			Max. Vy	8	41.73	-2587.58	3.49
			Max. Vx	14	41.76	3.35	-2587.34
			Max. Torque	3			3.48
L32	60 - 59.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.98	0.55	1.17
			Max. Mx	8	-29.07	-2598.02	3.50
			Max. My	14	-29.07	3.37	-2597.78
			Max. Vy	8	41.78	-2598.02	3.50
			Max. Vx	14	41.81	3.37	-2597.78
			Max. Torque	3			3.48
L33	59.75 - 58.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.68	0.56	1.17
			Max. Mx	8	-29.57	-2650.42	3.55

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	-29.57	3.42	-2650.21
			Max. Vy	8	42.08	-2650.42	3.55
			Max. Vx	14	42.09	3.42	-2650.21
			Max. Torque	3			3.48
L34	58.5 - 58.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.83	0.57	1.18
			Max. Mx	8	-29.70	-2660.95	3.56
			Max. My	14	-29.70	3.43	-2660.73
			Max. Vy	8	42.13	-2660.95	3.56
			Max. Vx	14	42.13	3.43	-2660.73
			Max. Torque	3			3.48
L35	58.25 - 58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-57.99	0.57	1.18
			Max. Mx	8	-29.82	-2671.49	3.58
			Max. My	14	-29.82	3.44	-2671.27
			Max. Vy	8	42.19	-2671.49	3.58
			Max. Vx	14	42.19	3.44	-2671.27
			Max. Torque	3			3.48
L36	58 - 57.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.12	0.57	1.18
			Max. Mx	8	-29.92	-2682.04	3.59
			Max. My	14	-29.92	3.45	-2681.82
			Max. Vy	8	42.25	-2682.04	3.59
			Max. Vx	14	42.24	3.45	-2681.82
			Max. Torque	3			3.48
L37	57.75 - 56.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.65	0.59	1.18
			Max. Mx	8	-30.30	-2724.41	3.63
			Max. My	14	-30.30	3.49	-2724.17
			Max. Vy	8	42.49	-2724.41	3.63
			Max. Vx	14	42.46	3.49	-2724.17
			Max. Torque	3			3.48
L38	56.75 - 56.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.80	0.59	1.18
			Max. Mx	8	-30.42	-2735.03	3.64
			Max. My	14	-30.42	3.50	-2734.79
			Max. Vy	8	42.54	-2735.03	3.64
			Max. Vx	14	42.51	3.50	-2734.79
			Max. Torque	3			3.48
L39	56.5 - 51.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.51	0.65	1.20
			Max. Mx	8	-32.54	-2950.45	3.85
			Max. My	14	-32.55	3.71	-2949.89
			Max. Vy	8	43.64	-2950.45	3.85
			Max. Vx	14	43.55	3.71	-2949.89
			Max. Torque	3			3.48
L40	51.5 - 41.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.52	0.70	1.21
			Max. Mx	8	-34.14	-3112.88	4.01
			Max. My	14	-34.14	3.86	-3111.91
			Max. Vy	8	44.42	-3112.88	4.01
			Max. Vx	14	44.30	3.86	-3111.91
			Max. Torque	3			3.48
L41	41.78 - 40.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.29	0.80	1.23
			Max. Mx	8	-39.60	-3430.99	4.31
			Max. My	14	-39.61	4.15	-3428.88
			Max. Vy	8	46.08	-3430.99	4.31
			Max. Vx	14	45.88	4.15	-3428.88
			Max. Torque	3			3.48
L42	40.78 - 35.78	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.21	0.86	1.25
			Max. Mx	8	-41.99	-3663.87	4.53
			Max. My	14	-42.00	4.35	-3660.63
			Max. Vy	8	47.10	-3663.87	4.53
			Max. Vx	14	46.85	4.35	-3660.63

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	3			3.48
L43	35.78 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.95	0.85	1.28
			Max. Mx	8	-44.18	-3879.22	4.72
			Max. My	14	-44.19	4.53	-3874.85
			Max. Vy	8	48.01	-3879.22	4.72
			Max. Vx	14	47.76	4.53	-3874.85
			Max. Torque	3			3.48
L44	31.25 - 31	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.10	0.85	1.28
			Max. Mx	8	-44.32	-3891.23	4.73
			Max. My	14	-44.33	4.54	-3886.79
			Max. Vy	8	48.05	-3891.23	4.73
			Max. Vx	14	47.79	4.54	-3886.79
			Max. Torque	3			3.48
L45	31 - 27.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.39	0.84	1.26
			Max. Mx	8	-46.12	-4072.76	4.89
			Max. My	14	-46.13	4.69	-4067.34
			Max. Vy	8	48.79	-4072.76	4.89
			Max. Vx	14	48.53	4.69	-4067.34
			Max. Torque	3			3.48
L46	27.25 - 27	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-78.55	0.84	1.25
			Max. Mx	8	-46.28	-4084.95	4.90
			Max. My	14	-46.28	4.70	-4079.47
			Max. Vy	8	48.82	-4084.95	4.90
			Max. Vx	14	48.55	4.70	-4079.47
			Max. Torque	3			3.48
L47	27 - 22	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.84	0.79	1.07
			Max. Mx	8	-48.96	-4331.35	5.11
			Max. My	14	-48.96	4.90	-4324.47
			Max. Vy	8	49.76	-4331.35	5.11
			Max. Vx	14	49.47	4.90	-4324.47
			Max. Torque	3			3.48
L48	22 - 17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-85.13	0.72	0.95
			Max. Mx	8	-51.68	-4582.19	5.32
			Max. My	14	-51.69	5.10	-4573.86
			Max. Vy	8	50.61	-4582.19	5.32
			Max. Vx	14	50.32	5.10	-4573.86
			Max. Torque	3			3.48
L49	17 - 12	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-88.43	0.65	0.83
			Max. Mx	8	-54.45	-4837.19	5.52
			Max. My	14	-54.45	5.29	-4827.40
			Max. Vy	8	51.42	-4837.19	5.52
			Max. Vx	14	51.13	5.29	-4827.40
			Max. Torque	3			3.48
L50	12 - 7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-91.74	0.58	0.71
			Max. Mx	8	-57.25	-5096.23	5.73
			Max. My	14	-57.25	5.48	-5084.98
			Max. Vy	8	52.23	-5096.23	5.73
			Max. Vx	14	51.94	5.48	-5084.98
			Max. Torque	3			3.48
L51	7 - 2	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.03	0.51	0.60
			Max. Mx	8	-60.09	-5359.31	5.94
			Max. My	14	-60.09	5.67	-5346.62
			Max. Vy	8	53.04	-5359.31	5.94
			Max. Vx	14	52.75	5.67	-5346.62
			Max. Torque	3			3.48
L52	2 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.32	0.49	0.56
			Max. Mx	8	-61.24	-5465.68	6.02
			Max. My	14	-61.24	5.75	-5452.41

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	53.37	-5465.68	6.02
			Max. Vx	14	53.08	5.75	-5452.41
			Max. Torque	3			3.48

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	96.32	-0.00	-0.00
	Max. H_x	21	45.94	52.77	-0.04
	Max. H_z	3	45.94	-0.04	52.76
	Max. M_x	2	5422.53	-0.04	52.76
	Max. M_z	8	5465.68	-53.34	0.04
	Max. Torsion	3	3.48	-0.04	52.76
	Min. Vert	9	45.94	-53.34	0.04
	Min. H_x	8	61.26	-53.34	0.04
	Min. H_z	15	45.94	0.04	-53.06
	Min. M_x	14	-5452.41	0.04	-53.06
	Min. M_z	20	-5384.22	52.77	-0.04
	Min. Torsion	17	-3.46	26.57	-46.05

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	51.05	-0.00	-0.00	-0.23	0.03	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	61.26	0.04	-52.76	-5422.53	-5.71	-3.46
0.9 Dead+1.0 Wind 0 deg - No Ice	45.94	0.04	-52.76	-5381.12	-5.67	-3.48
1.2 Dead+1.0 Wind 30 deg - No Ice	61.26	26.56	-46.05	-4688.46	-2703.43	-3.46
0.9 Dead+1.0 Wind 30 deg - No Ice	45.94	26.56	-46.05	-4652.72	-2682.88	-3.46
1.2 Dead+1.0 Wind 60 deg - No Ice	61.26	45.94	-26.60	-2729.96	-4710.80	-2.52
0.9 Dead+1.0 Wind 60 deg - No Ice	45.94	45.94	-26.60	-2709.12	-4674.99	-2.52
1.2 Dead+1.0 Wind 90 deg - No Ice	61.26	53.34	-0.04	-6.02	-5465.68	-0.92
0.9 Dead+1.0 Wind 90 deg - No Ice	45.94	53.34	-0.04	-5.89	-5424.17	-0.91
1.2 Dead+1.0 Wind 120 deg - No Ice	61.26	45.67	26.39	2708.15	-4685.47	0.92
0.9 Dead+1.0 Wind 120 deg - No Ice	45.94	45.67	26.39	2687.59	-4649.80	0.94
1.2 Dead+1.0 Wind 150 deg - No Ice	61.26	26.27	45.62	4678.92	-2691.65	2.52
0.9 Dead+1.0 Wind 150 deg - No Ice	45.94	26.27	45.62	4643.39	-2671.18	2.54
1.2 Dead+1.0 Wind 180 deg - No Ice	61.26	-0.04	53.06	5452.41	5.75	3.45
0.9 Dead+1.0 Wind 180 deg - No Ice	45.94	-0.04	53.06	5411.03	5.69	3.46
1.2 Dead+1.0 Wind 210 deg - No Ice	61.26	-26.57	46.05	4736.30	2731.43	3.45
0.9 Dead+1.0 Wind 210 deg - No Ice	45.94	-26.57	46.05	4700.35	2710.65	3.46
1.2 Dead+1.0 Wind 240 deg - No Ice	61.26	-43.81	25.36	2670.06	4608.09	2.54
0.9 Dead+1.0 Wind 240 deg - No Ice	45.94	-43.81	25.36	2649.57	4572.60	2.53

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
1.2 Dead+1.0 Wind 270 deg - No Ice	61.26	-52.77	0.04	5.44	5384.22	0.94
0.9 Dead+1.0 Wind 270 deg - No Ice	45.94	-52.77	0.04	5.47	5343.23	0.92
1.2 Dead+1.0 Wind 300 deg - No Ice	61.26	-44.39	-25.65	-2677.85	4632.04	-0.92
0.9 Dead+1.0 Wind 300 deg - No Ice	45.94	-44.39	-25.65	-2657.23	4596.49	-0.94
1.2 Dead+1.0 Wind 330 deg - No Ice	61.26	-26.72	-46.40	-4734.45	2723.41	-2.53
0.9 Dead+1.0 Wind 330 deg - No Ice	45.94	-26.72	-46.40	-4698.39	2702.71	-2.55
1.2 Dead+1.0 Ice+1.0 Temp	96.32	0.00	0.00	-0.56	0.49	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	96.32	0.01	-9.90	-1123.97	-0.63	-0.81
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	96.32	5.00	-8.67	-977.58	-562.90	-0.83
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	96.32	8.57	-4.96	-563.98	-971.66	-0.63
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	96.32	9.95	-0.01	-1.97	-1125.83	-0.26
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	96.32	8.56	4.95	560.15	-970.05	0.18
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	96.32	4.95	8.60	974.41	-560.50	0.57
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	96.32	-0.01	9.90	1124.10	1.83	0.81
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	96.32	-4.96	8.60	975.82	563.93	0.83
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	96.32	-8.51	4.92	560.93	970.14	0.63
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	96.32	-9.95	0.01	0.49	1123.57	0.26
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	96.32	-8.55	-4.94	-561.22	970.55	-0.18
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	96.32	-4.98	-8.64	-976.53	562.06	-0.57
Dead+Wind 0 deg - Service	51.05	0.01	-9.82	-1005.50	-1.02	-0.65
Dead+Wind 30 deg - Service	51.05	4.94	-8.57	-869.42	-501.17	-0.65
Dead+Wind 60 deg - Service	51.05	8.55	-4.95	-506.33	-873.35	-0.48
Dead+Wind 90 deg - Service	51.05	9.92	-0.01	-1.31	-1013.24	-0.17
Dead+Wind 120 deg - Service	51.05	8.50	4.91	501.89	-868.64	0.18
Dead+Wind 150 deg - Service	51.05	4.89	8.49	867.26	-498.99	0.48
Dead+Wind 180 deg - Service	51.05	-0.01	9.87	1010.67	1.10	0.65
Dead+Wind 210 deg - Service	51.05	-4.94	8.57	877.93	506.45	0.65
Dead+Wind 240 deg - Service	51.05	-8.15	4.72	494.81	854.33	0.48
Dead+Wind 270 deg - Service	51.05	-9.82	0.01	0.82	998.17	0.18
Dead+Wind 300 deg - Service	51.05	-8.26	-4.77	-496.64	858.77	-0.18
Dead+Wind 330 deg - Service	51.05	-4.97	-8.63	-877.96	504.96	-0.48

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.00	-51.05	0.00	0.00	51.05	0.00	0.000%
2	0.04	-61.26	-52.76	-0.04	61.26	52.76	0.000%
3	0.04	-45.94	-52.76	-0.04	45.94	52.76	0.000%
4	26.56	-61.26	-46.05	-26.56	61.26	46.05	0.000%
5	26.56	-45.94	-46.05	-26.56	45.94	46.05	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
6	45.94	-61.26	-26.60	-45.94	61.26	26.60	0.000%
7	45.94	-45.94	-26.60	-45.94	45.94	26.60	0.000%
8	53.34	-61.26	-0.04	-53.34	61.26	0.04	0.000%
9	53.34	-45.94	-0.04	-53.34	45.94	0.04	0.001%
10	45.67	-61.26	26.39	-45.67	61.26	-26.39	0.000%
11	45.67	-45.94	26.39	-45.67	45.94	-26.39	0.000%
12	26.27	-61.26	45.62	-26.27	61.26	-45.62	0.000%
13	26.27	-45.94	45.62	-26.27	45.94	-45.62	0.000%
14	-0.04	-61.26	53.06	0.04	61.26	-53.06	0.000%
15	-0.04	-45.94	53.06	0.04	45.94	-53.06	0.000%
16	-26.57	-61.26	46.05	26.57	61.26	-46.05	0.000%
17	-26.57	-45.94	46.05	26.57	45.94	-46.05	0.000%
18	-43.81	-61.26	25.36	43.81	61.26	-25.36	0.000%
19	-43.81	-45.94	25.36	43.81	45.94	-25.36	0.000%
20	-52.77	-61.26	0.04	52.77	61.26	-0.04	0.001%
21	-52.77	-45.94	0.04	52.77	45.94	-0.04	0.001%
22	-44.39	-61.26	-25.65	44.39	61.26	25.65	0.000%
23	-44.39	-45.94	-25.65	44.39	45.94	25.65	0.000%
24	-26.72	-61.26	-46.40	26.72	61.26	46.40	0.000%
25	-26.72	-45.94	-46.40	26.72	45.94	46.40	0.000%
26	0.00	-96.32	0.00	-0.00	96.32	-0.00	0.001%
27	0.01	-96.32	-9.90	-0.01	96.32	9.90	0.000%
28	5.00	-96.32	-8.67	-5.00	96.32	8.67	0.000%
29	8.57	-96.32	-4.96	-8.57	96.32	4.96	0.000%
30	9.95	-96.32	-0.01	-9.95	96.32	0.01	0.000%
31	8.56	-96.32	4.95	-8.56	96.32	-4.95	0.000%
32	4.95	-96.32	8.60	-4.95	96.32	-8.60	0.000%
33	-0.01	-96.32	9.90	0.01	96.32	-9.90	0.000%
34	-4.96	-96.32	8.60	4.96	96.32	-8.60	0.000%
35	-8.51	-96.32	4.92	8.51	96.32	-4.92	0.000%
36	-9.95	-96.32	0.01	9.95	96.32	-0.01	0.000%
37	-8.55	-96.32	-4.94	8.55	96.32	4.94	0.000%
38	-4.98	-96.32	-8.64	4.98	96.32	8.64	0.000%
39	0.01	-51.05	-9.82	-0.01	51.05	9.82	0.001%
40	4.94	-51.05	-8.57	-4.94	51.05	8.57	0.000%
41	8.55	-51.05	-4.95	-8.55	51.05	4.95	0.000%
42	9.92	-51.05	-0.01	-9.92	51.05	0.01	0.001%
43	8.50	-51.05	4.91	-8.50	51.05	-4.91	0.000%
44	4.89	-51.05	8.49	-4.89	51.05	-8.49	0.000%
45	-0.01	-51.05	9.87	0.01	51.05	-9.87	0.001%
46	-4.94	-51.05	8.57	4.94	51.05	-8.57	0.000%
47	-8.15	-51.05	4.72	8.15	51.05	-4.72	0.000%
48	-9.82	-51.05	0.01	9.82	51.05	-0.01	0.001%
49	-8.26	-51.05	-4.77	8.26	51.05	4.77	0.000%
50	-4.97	-51.05	-8.63	4.97	51.05	8.63	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00000001	0.00008135
3	Yes	17	0.00000001	0.00005994
4	Yes	20	0.00000001	0.00006321
5	Yes	19	0.00000001	0.00012518
6	Yes	20	0.00000001	0.00006750
7	Yes	19	0.00000001	0.00013377
8	Yes	16	0.00000001	0.00007658
9	Yes	15	0.00000001	0.00014472
10	Yes	20	0.00000001	0.00006601
11	Yes	19	0.00000001	0.00013090
12	Yes	20	0.00000001	0.00006336
13	Yes	19	0.00000001	0.00012555
14	Yes	17	0.00000001	0.00008885
15	Yes	17	0.00000001	0.00006530
16	Yes	20	0.00000001	0.00006860
17	Yes	19	0.00000001	0.00013593
18	Yes	20	0.00000001	0.00006424
19	Yes	19	0.00000001	0.00012759
20	Yes	15	0.00000001	0.00014938
21	Yes	15	0.00000001	0.00010698
22	Yes	20	0.00000001	0.00006493
23	Yes	19	0.00000001	0.00012886
24	Yes	20	0.00000001	0.00006764
25	Yes	19	0.00000001	0.00013399
26	Yes	6	0.00000001	0.00010387
27	Yes	18	0.00000001	0.00008219
28	Yes	18	0.00000001	0.00009574
29	Yes	18	0.00000001	0.00009638
30	Yes	18	0.00000001	0.00008167
31	Yes	18	0.00000001	0.00009520
32	Yes	18	0.00000001	0.00009502
33	Yes	18	0.00000001	0.00008180
34	Yes	18	0.00000001	0.00009663
35	Yes	18	0.00000001	0.00009533
36	Yes	18	0.00000001	0.00008182
37	Yes	18	0.00000001	0.00009582
38	Yes	18	0.00000001	0.00009662
39	Yes	14	0.00000001	0.00008772
40	Yes	15	0.00000001	0.00010299
41	Yes	15	0.00000001	0.00012712
42	Yes	13	0.00000001	0.00010781
43	Yes	15	0.00000001	0.00011760
44	Yes	15	0.00000001	0.00010390
45	Yes	14	0.00000001	0.00008889
46	Yes	15	0.00000001	0.00013353
47	Yes	15	0.00000001	0.00010484
48	Yes	13	0.00000001	0.00010542
49	Yes	15	0.00000001	0.00010970
50	Yes	15	0.00000001	0.00012790

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	144.5 - 139.5	18.88	46	1.31	0.01
L2	139.5 - 134.5	17.52	46	1.30	0.01
L3	134.5 - 129.5	16.17	46	1.28	0.01
L4	129.5 - 124.5	14.86	46	1.23	0.00
L5	124.5 - 117.65	13.60	46	1.16	0.00
L6	121.51 - 116.51	12.89	46	1.12	0.00
L7	116.51 - 112.58	11.74	46	1.07	0.00
L8	112.58 - 112.33	10.89	46	1.00	0.00
L9	112.33 - 107.33	10.84	46	1.00	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L10	107.33 - 106	9.82	46	0.94	0.00
L11	106 - 105.75	9.56	46	0.93	0.00
L12	105.75 - 103.5	9.51	46	0.93	0.00
L13	103.5 - 103.25	9.08	46	0.91	0.00
L14	103.25 - 98.5	9.03	46	0.90	0.00
L15	98.5 - 98.25	8.16	46	0.85	0.00
L16	98.25 - 98	8.11	46	0.85	0.00
L17	98 - 97.75	8.07	46	0.85	0.00
L18	97.75 - 92.75	8.02	46	0.85	0.00
L19	92.75 - 86.85	7.16	46	0.80	0.00
L20	91.48 - 85.85	6.95	46	0.78	0.00
L21	85.85 - 83	6.05	46	0.74	0.00
L22	83 - 82.75	5.63	46	0.69	0.00
L23	82.75 - 77.75	5.59	46	0.69	0.00
L24	77.75 - 77.25	4.90	46	0.63	0.00
L25	77.25 - 77	4.84	46	0.62	0.00
L26	77 - 76.75	4.80	46	0.62	0.00
L27	76.75 - 71.75	4.77	46	0.62	0.00
L28	71.75 - 69	4.15	46	0.57	0.00
L29	69 - 68.75	3.83	46	0.54	0.00
L30	68.75 - 63.75	3.80	46	0.54	0.00
L31	63.75 - 60	3.26	46	0.50	0.00
L32	60 - 59.75	2.88	46	0.47	0.00
L33	59.75 - 58.5	2.86	46	0.46	0.00
L34	58.5 - 58.25	2.74	46	0.45	0.00
L35	58.25 - 58	2.72	46	0.45	0.00
L36	58 - 57.75	2.69	46	0.45	0.00
L37	57.75 - 56.75	2.67	46	0.45	0.00
L38	56.75 - 56.5	2.58	46	0.44	0.00
L39	56.5 - 51.5	2.55	46	0.43	0.00
L40	51.5 - 41.78	2.12	46	0.39	0.00
L41	47.81 - 40.78	1.83	46	0.36	0.00
L42	40.78 - 35.78	1.33	46	0.32	0.00
L43	35.78 - 31.25	1.01	46	0.28	0.00
L44	31.25 - 31	0.77	46	0.24	0.00
L45	31 - 27.25	0.75	46	0.24	0.00
L46	27.25 - 27	0.58	46	0.20	0.00
L47	27 - 22	0.57	46	0.20	0.00
L48	22 - 17	0.38	46	0.16	0.00
L49	17 - 12	0.22	46	0.13	0.00
L50	12 - 7	0.11	46	0.09	0.00
L51	7 - 2	0.04	46	0.05	0.00
L52	2 - 0	0.00	46	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
145.0000	SBNH-1D6565C w/ Mount Pipe	46	18.88	1.31	0.01	14998
135.0000	LNX-6512DS-VTM w/ Mount Pipe	46	16.30	1.28	0.01	8310
128.0000	LNX-6515DS-A1M w/ Mount Pipe	46	14.47	1.21	0.00	4563
118.0000	APXVSPP18-C-A20 w/ Mount Pipe	46	12.08	1.09	0.00	4604
108.0000	TME-800MHz 2X50W RRH W/FILTER	46	9.95	0.95	0.00	5157

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	144.5 - 139.5	101.69	16	7.07	0.03

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L2	139.5 - 134.5	94.35	16	7.01	0.03
L3	134.5 - 129.5	87.10	16	6.87	0.03
L4	129.5 - 124.5	80.05	16	6.63	0.02
L5	124.5 - 117.65	73.31	16	6.28	0.02
L6	121.51 - 116.51	69.47	16	6.02	0.02
L7	116.51 - 112.58	63.29	16	5.76	0.02
L8	112.58 - 112.33	58.70	16	5.41	0.01
L9	112.33 - 107.33	58.42	16	5.40	0.01
L10	107.33 - 106	52.93	16	5.10	0.01
L11	106 - 105.75	51.53	16	5.02	0.01
L12	105.75 - 103.5	51.27	16	5.00	0.01
L13	103.5 - 103.25	48.94	16	4.88	0.01
L14	103.25 - 98.5	48.69	16	4.87	0.01
L15	98.5 - 98.25	43.98	16	4.60	0.01
L16	98.25 - 98	43.74	16	4.59	0.01
L17	98 - 97.75	43.50	16	4.58	0.01
L18	97.75 - 92.75	43.26	16	4.57	0.01
L19	92.75 - 86.85	38.63	16	4.29	0.01
L20	91.48 - 85.85	37.50	16	4.22	0.01
L21	85.85 - 83	32.65	16	3.97	0.01
L22	83 - 82.75	30.36	16	3.72	0.01
L23	82.75 - 77.75	30.17	16	3.70	0.01
L24	77.75 - 77.25	26.45	16	3.40	0.00
L25	77.25 - 77	26.10	16	3.37	0.00
L26	77 - 76.75	25.92	16	3.36	0.00
L27	76.75 - 71.75	25.74	16	3.34	0.00
L28	71.75 - 69	22.39	16	3.07	0.00
L29	69 - 68.75	20.67	16	2.91	0.00
L30	68.75 - 63.75	20.52	16	2.90	0.00
L31	63.75 - 60	17.60	16	2.68	0.00
L32	60 - 59.75	15.56	16	2.51	0.00
L33	59.75 - 58.5	15.43	16	2.50	0.00
L34	58.5 - 58.25	14.78	16	2.44	0.00
L35	58.25 - 58	14.65	16	2.43	0.00
L36	58 - 57.75	14.52	16	2.42	0.00
L37	57.75 - 56.75	14.40	16	2.41	0.00
L38	56.75 - 56.5	13.90	16	2.35	0.00
L39	56.5 - 51.5	13.78	16	2.34	0.00
L40	51.5 - 41.78	11.45	16	2.10	0.00
L41	47.81 - 40.78	9.89	16	1.93	0.00
L42	40.78 - 35.78	7.18	16	1.74	0.00
L43	35.78 - 31.25	5.48	16	1.52	0.00
L44	31.25 - 31	4.14	16	1.31	0.00
L45	31 - 27.25	4.07	16	1.30	0.00
L46	27.25 - 27	3.13	16	1.10	0.00
L47	27 - 22	3.07	16	1.09	0.00
L48	22 - 17	2.03	16	0.89	0.00
L49	17 - 12	1.21	16	0.68	0.00
L50	12 - 7	0.60	16	0.48	0.00
L51	7 - 2	0.20	16	0.28	0.00
L52	2 - 0	0.02	16	0.08	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
145.0000	SBNH-1D6565C w/ Mount Pipe	16	101.69	7.07	0.03	2947
135.0000	LNX-6512DS-VTM w/ Mount Pipe	16	87.82	6.89	0.03	1610
128.0000	LNX-6515DS-A1M w/ Mount Pipe	16	77.99	6.54	0.02	874
118.0000	APXVSPP18-C-A20 w/ Mount Pipe	16	65.10	5.86	0.02	874
108.0000	TME-800MHz 2X50W RRH W/FILTER	16	53.65	5.14	0.01	973

Compression Checks
Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L1	144.5 - 139.5 (1)	TP22.094x21x0.1875	5.0000	0.0000	0.0	13.0371	-3.19
L2	139.5 - 134.5 (2)	TP23.1881x22.094x0.1875	5.0000	0.0000	0.0	13.6882	-5.66
L3	134.5 - 129.5 (3)	TP24.2821x23.1881x0.1875	5.0000	0.0000	0.0	14.3393	-6.07
L4	129.5 - 124.5 (4)	TP25.3762x24.2821x0.1875	5.0000	0.0000	0.0	14.9904	-8.71
L5	124.5 - 117.65 (5)	TP26.875x25.3762x0.1875	6.8500	0.0000	0.0	15.3798	-9.06
L6	117.65 - 116.51 (6)	TP26.7131x25.6554x0.25	5.0000	0.0000	0.0	20.9984	-11.87
L7	116.51 - 112.58 (7)	TP27.5444x26.7131x0.25	3.9300	0.0000	0.0	21.6581	-12.50
L8	112.58 - 112.33 (8)	TP27.5973x27.5444x0.425	0.2500	0.0000	0.0	36.6540	-12.58
L9	112.33 - 107.33 (9)	TP28.6549x27.5973x0.4188	5.0000	0.0000	0.0	37.5291	-14.04
L10	107.33 - 106 (10)	TP28.9363x28.6549x0.4188	1.3300	0.0000	0.0	37.9030	-14.30
L11	106 - 105.75 (11)	TP28.9891x28.9363x0.5313	0.2500	0.0000	0.0	47.9853	-14.38
L12	105.75 - 103.5 (12)	TP29.4651x28.9891x0.525	2.2500	0.0000	0.0	48.2243	-14.89
L13	103.5 - 103.25 (13)	TP29.518x29.4651x0.525	0.2500	0.0000	0.0	48.3124	-14.97
L14	103.25 - 98.5 (14)	TP30.5228x29.518x0.5125	4.7500	0.0000	0.0	48.8169	-16.07
L15	98.5 - 98.25 (15)	TP30.5756x30.5228x0.675	0.2500	0.0000	0.0	64.0606	-16.16
L16	98.25 - 98 (16)	TP30.6285x30.5756x0.675	0.2500	0.0000	0.0	64.1739	-16.23
L17	98 - 97.75 (17)	TP30.6814x30.6285x0.575	0.2500	0.0000	0.0	54.9457	-16.30
L18	97.75 - 92.75 (18)	TP31.7391x30.6814x0.5625	5.0000	0.0000	0.0	55.6619	-17.60
L19	92.75 - 86.85 (19)	TP32.9871x31.7391x0.55	5.9000	0.0000	0.0	54.9157	-17.94
L20	86.85 - 85.85 (20)	TP32.7205x31.5077x0.375	5.6300	0.0000	0.0	38.4992	-20.12
L21	85.85 - 83 (21)	TP33.3344x32.7205x0.375	2.8500	0.0000	0.0	39.2299	-20.78
L22	83 - 82.75 (22)	TP33.3882x33.3344x0.575	0.2500	0.0000	0.0	59.8858	-20.90
L23	82.75 - 77.75 (23)	TP34.4653x33.3882x0.5625	5.0000	0.0000	0.0	60.5291	-22.37
L24	77.75 - 77.25 (24)	TP34.573x34.4653x0.5625	0.5000	0.0000	0.0	60.7214	-22.53
L25	77.25 - 77 (25)	TP34.6268x34.573x0.825	0.2500	0.0000	0.0	88.5118	-22.64
L26	77 - 76.75 (26)	TP34.6807x34.6268x0.6375	0.2500	0.0000	0.0	68.8838	-22.72
L27	76.75 - 71.75 (27)	TP35.7577x34.6807x0.625	5.0000	0.0000	0.0	69.6945	-24.35
L28	71.75 - 69 (28)	TP36.3501x35.7577x0.625	2.7500	0.0000	0.0	70.8696	-25.26
L29	69 - 68.75 (29)	TP36.4039x36.3501x0.8	0.2500	0.0000	0.0	90.4055	-25.39
L30	68.75 - 63.75 (30)	TP37.481x36.4039x0.7875	5.0000	0.0000	0.0	91.7163	-27.40
L31	63.75 - 60 (31)	TP38.2888x37.481x0.775	3.7500	0.0000	0.0	92.2782	-28.94
L32	60 - 59.75 (32)	TP38.3426x38.2888x0.775	0.2500	0.0000	0.0	92.4107	-29.06

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K
L33	59.75 - 58.5 (33)	TP38.6119x38.3426x0.775	1.2500	0.0000	0.0	93.0730	-29.56
L34	58.5 - 58.25 (34)	TP38.6657x38.6119x0.7875	0.2500	0.0000	0.0	94.6776	-29.70
L35	58.25 - 58 (35)	TP38.7196x38.6657x0.775	0.2500	0.0000	0.0	93.3380	-29.81
L36	58 - 57.75 (36)	TP38.7734x38.7196x0.6125	0.2500	0.0000	0.0	74.1877	-29.91
L37	57.75 - 56.75 (37)	TP38.9888x38.7734x0.6125	1.0000	0.0000	0.0	74.6065	-30.29
L38	56.75 - 56.5 (38)	TP39.0427x38.9888x0.7375	0.2500	0.0000	0.0	89.6657	-30.41
L39	56.5 - 51.5 (39)	TP40.1197x39.0427x0.725	5.0000	0.0000	0.0	90.6532	-32.54
L40	51.5 - 41.78 (40)	TP42.2135x40.1197x0.7125	9.7200	0.0000	0.0	90.9160	-34.14
L41	41.78 - 40.78 (41)	TP41.6843x40.1646x0.7875	7.0300	0.0000	0.0	102.2230	-39.61
L42	40.78 - 35.78 (42)	TP42.7652x41.6843x0.7875	5.0000	0.0000	0.0	104.9240	-41.99
L43	35.78 - 31.25 (43)	TP43.7445x42.7652x0.775	4.5300	0.0000	0.0	105.6980	-44.19
L44	31.25 - 31 (44)	TP43.7985x43.7445x0.65	0.2500	0.0000	0.0	89.0197	-44.32
L45	31 - 27.25 (45)	TP44.6092x43.7985x0.65	3.7500	0.0000	0.0	90.6922	-46.12
L46	27.25 - 27 (46)	TP44.6632x44.6092x0.85	0.2500	0.0000	0.0	118.2040	-46.28
L47	27 - 22 (47)	TP45.7441x44.6632x0.8375	5.0000	0.0000	0.0	119.3720	-48.96
L48	22 - 17 (48)	TP46.825x45.7441x0.8375	5.0000	0.0000	0.0	122.2450	-51.68
L49	17 - 12 (49)	TP47.9059x46.825x0.8125	5.0000	0.0000	0.0	121.4480	-54.45
L50	12 - 7 (50)	TP48.9868x47.9059x0.8125	5.0000	0.0000	0.0	124.2350	-57.25
L51	7 - 2 (51)	TP50.0676x48.9868x0.8	5.0000	0.0000	0.0	125.1000	-60.09
L52	2 - 0 (52)	TP50.5x50.0676x0.8	2.0000	0.0000	0.0	126.1980	-61.24

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft
L1	144.5 - 139.5 (1)	TP22.094x21x0.1875	56.47
L2	139.5 - 134.5 (2)	TP23.1881x22.094x0.1875	124.62
L3	134.5 - 129.5 (3)	TP24.2821x23.1881x0.1875	221.45
L4	129.5 - 124.5 (4)	TP25.3762x24.2821x0.1875	338.12
L5	124.5 - 117.65 (5)	TP26.875x25.3762x0.1875	414.28
L6	117.65 - 116.51 (6)	TP26.7131x25.6554x0.25	549.46
L7	116.51 - 112.58 (7)	TP27.5444x26.7131x0.25	670.55
L8	112.58 - 112.33 (8)	TP27.5973x27.5444x0.425	678.30
L9	112.33 - 107.33 (9)	TP28.6549x27.5973x0.4188	835.65
L10	107.33 - 106 (10)	TP28.9363x28.6549x0.4188	879.42
L11	106 - 105.75 (11)	TP28.9891x28.9363x0.5313	887.69

Section No.	Elevation ft	Size	M_{ux} kip-ft
L12	105.75 - 103.5 (12)	TP29.4651x28.9891x0.525	962.63
L13	103.5 - 103.25 (13)	TP29.518x29.4651x0.525	971.01
L14	103.25 - 98.5 (14)	TP30.5228x29.518x0.5125	1132.99
L15	98.5 - 98.25 (15)	TP30.5756x30.5228x0.675	1141.64
L16	98.25 - 98 (16)	TP30.6285x30.5756x0.675	1150.31
L17	98 - 97.75 (17)	TP30.6814x30.6285x0.575	1158.98
L18	97.75 - 92.75 (18)	TP31.7391x30.6814x0.5625	1335.18
L19	92.75 - 86.85 (19)	TP32.9871x31.7391x0.55	1380.67
L20	86.85 - 85.85 (20)	TP32.7205x31.5077x0.375	1584.76
L21	85.85 - 83 (21)	TP33.3344x32.7205x0.375	1689.73
L22	83 - 82.75 (22)	TP33.3882x33.3344x0.575	1699.02
L23	82.75 - 77.75 (23)	TP34.4653x33.3882x0.5625	1887.13
L24	77.75 - 77.25 (24)	TP34.573x34.4653x0.5625	1906.22
L25	77.25 - 77 (25)	TP34.6268x34.573x0.825	1915.79
L26	77 - 76.75 (26)	TP34.6807x34.6268x0.6375	1925.37
L27	76.75 - 71.75 (27)	TP35.7577x34.6807x0.625	2119.47
L28	71.75 - 69 (28)	TP36.3501x35.7577x0.625	2228.33
L29	69 - 68.75 (29)	TP36.4039x36.3501x0.8	2238.31
L30	68.75 - 63.75 (30)	TP37.481x36.4039x0.7875	2440.63
L31	63.75 - 60 (31)	TP38.2888x37.481x0.775	2595.92
L32	60 - 59.75 (32)	TP38.3426x38.2888x0.775	2606.38
L33	59.75 - 58.5 (33)	TP38.6119x38.3426x0.775	2658.90
L34	58.5 - 58.25 (34)	TP38.6657x38.6119x0.7875	2669.45
L35	58.25 - 58 (35)	TP38.7196x38.6657x0.775	2680.02
L36	58 - 57.75 (36)	TP38.7734x38.7196x0.6125	2690.59
L37	57.75 - 56.75 (37)	TP38.9888x38.7734x0.6125	2733.03
L38	56.75 - 56.5 (38)	TP39.0427x38.9888x0.7375	2743.68
L39	56.5 - 51.5 (39)	TP40.1197x39.0427x0.725	2959.32
L40	51.5 - 41.78 (40)	TP42.2135x40.1197x0.7125	3121.76
L41	41.78 - 40.78 (41)	TP41.6843x40.1646x0.7875	3439.50
L42	40.78 - 35.78 (42)	TP42.7652x41.6843x0.7875	3671.81
L43	35.78 - 31.25 (43)	TP43.7445x42.7652x0.775	3886.53
L44	31.25 - 31 (44)	TP43.7985x43.7445x0.65	3898.49
L45	31 - 27.25 (45)	TP44.6092x43.7985x0.65	4079.45
L46	27.25 - 27 (46)	TP44.6632x44.6092x0.85	4091.61

Section No.	Elevation ft	Size	M_{ux} kip-ft
L47	27 - 22 (47)	TP45.7441x44.6632x0.8375	4337.15
L48	22 - 17 (48)	TP46.825x45.7441x0.8375	4587.09
L49	17 - 12 (49)	TP47.9059x46.825x0.8125	4841.18
L50	12 - 7 (50)	TP48.9868x47.9059x0.8125	5099.30
L51	7 - 2 (51)	TP50.0676x48.9868x0.8	5361.47
L52	2 - 0 (52)	TP50.5x50.0676x0.8	5467.48

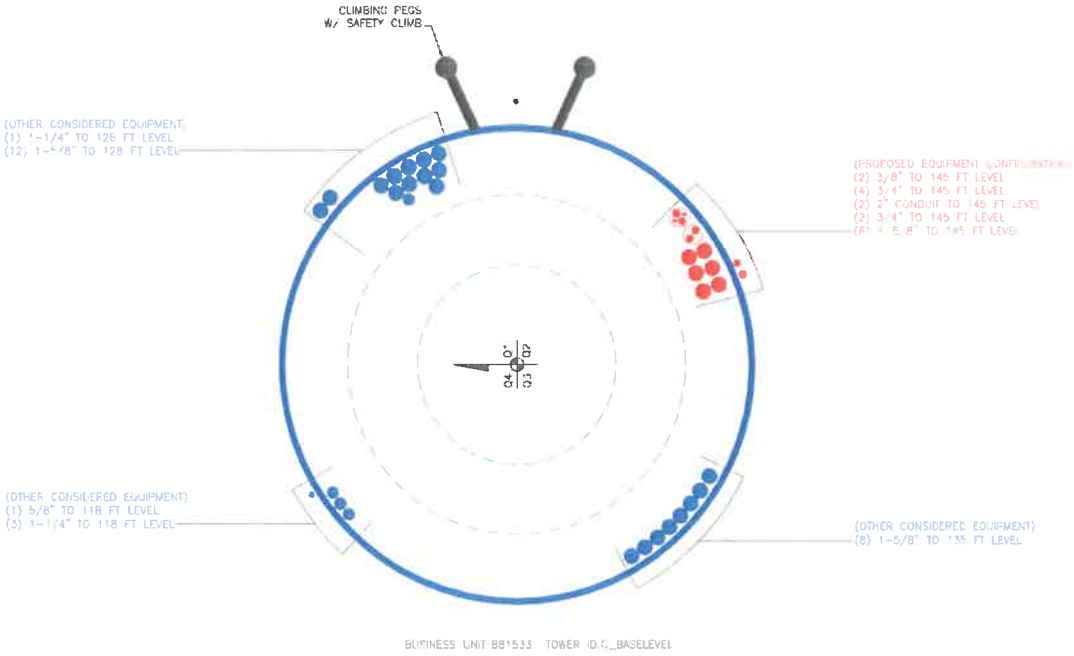
Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L1	144.5 - 139.5 (1)	TP22.094x21x0.1875	10.50	1.59
L2	139.5 - 134.5 (2)	TP23.1881x22.094x0.1875	19.13	1.23
L3	134.5 - 129.5 (3)	TP24.2821x23.1881x0.1875	19.60	1.23
L4	129.5 - 124.5 (4)	TP25.3762x24.2821x0.1875	25.34	2.35
L5	124.5 - 117.65 (5)	TP26.875x25.3762x0.1875	25.62	2.35
L6	117.65 - 116.51 (6)	TP26.7131x25.6554x0.25	30.64	3.49
L7	116.51 - 112.58 (7)	TP27.5444x26.7131x0.25	31.01	3.49
L8	112.58 - 112.33 (8)	TP27.5973x27.5444x0.425	31.04	3.49
L9	112.33 - 107.33 (9)	TP28.6549x27.5973x0.4188	32.80	3.49
L10	107.33 - 106 (10)	TP28.9363x28.6549x0.4188	33.05	3.49
L11	106 - 105.75 (11)	TP28.9891x28.9363x0.5313	33.08	3.49
L12	105.75 - 103.5 (12)	TP29.4651x28.9891x0.525	33.54	3.49
L13	103.5 - 103.25 (13)	TP29.518x29.4651x0.525	33.58	3.49
L14	103.25 - 98.5 (14)	TP30.5228x29.518x0.5125	34.59	3.48
L15	98.5 - 98.25 (15)	TP30.5756x30.5228x0.675	34.64	3.48
L16	98.25 - 98 (16)	TP30.6285x30.5756x0.675	34.70	3.48
L17	98 - 97.75 (17)	TP30.6814x30.6285x0.575	34.75	3.48
L18	97.75 - 92.75 (18)	TP31.7391x30.6814x0.5625	35.75	3.47
L19	92.75 - 86.85 (19)	TP32.9871x31.7391x0.55	35.90	3.47
L20	86.85 - 85.85 (20)	TP32.7205x31.5077x0.375	36.61	3.47
L21	85.85 - 83 (21)	TP33.3344x32.7205x0.375	37.10	3.47
L22	83 - 82.75 (22)	TP33.3882x33.3344x0.575	37.14	3.47
L23	82.75 - 77.75 (23)	TP34.4653x33.3882x0.5625	38.14	3.47
L24	77.75 - 77.25 (24)	TP34.573x34.4653x0.5625	38.23	3.47
L25	77.25 - 77 (25)	TP34.6268x34.573x0.825	38.29	3.47
L26	77 - 76.75 (26)	TP34.6807x34.6268x0.6375	38.34	3.47

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L27	76.75 - 71.75 (27)	TP35.7577x34.6807x0.625	39.32	3.47
L28	71.75 - 69 (28)	TP36.3501x35.7577x0.625	39.89	3.46
L29	69 - 68.75 (29)	TP36.4039x36.3501x0.8	39.93	3.46
L30	68.75 - 63.75 (30)	TP37.481x36.4039x0.7875	41.02	3.46
L31	63.75 - 60 (31)	TP38.2888x37.481x0.775	41.83	3.46
L32	60 - 59.75 (32)	TP38.3426x38.2888x0.775	41.88	3.46
L33	59.75 - 58.5 (33)	TP38.6119x38.3426x0.775	42.18	3.46
L34	58.5 - 58.25 (34)	TP38.6657x38.6119x0.7875	42.23	3.46
L35	58.25 - 58 (35)	TP38.7196x38.6657x0.775	42.28	3.46
L36	58 - 57.75 (36)	TP38.7734x38.7196x0.6125	42.34	3.46
L37	57.75 - 56.75 (37)	TP38.9888x38.7734x0.6125	42.57	3.46
L38	56.75 - 56.5 (38)	TP39.0427x38.9888x0.7375	42.62	3.46
L39	56.5 - 51.5 (39)	TP40.1197x39.0427x0.725	43.66	3.46
L40	51.5 - 41.78 (40)	TP42.2135x40.1197x0.7125	44.41	3.46
L41	41.78 - 40.78 (41)	TP41.6843x40.1646x0.7875	45.99	3.46
L42	40.78 - 35.78 (42)	TP42.7652x41.6843x0.7875	46.97	3.46
L43	35.78 - 31.25 (43)	TP43.7445x42.7652x0.775	47.87	3.46
L44	31.25 - 31 (44)	TP43.7985x43.7445x0.65	47.91	3.46
L45	31 - 27.25 (45)	TP44.6092x43.7985x0.65	48.64	3.46
L46	27.25 - 27 (46)	TP44.6632x44.6092x0.85	48.66	3.46
L47	27 - 22 (47)	TP45.7441x44.6632x0.8375	49.58	3.46
L48	22 - 17 (48)	TP46.825x45.7441x0.8375	50.44	3.46
L49	17 - 12 (49)	TP47.9059x46.825x0.8125	51.24	3.45
L50	12 - 7 (50)	TP48.9868x47.9059x0.8125	52.05	3.45
L51	7 - 2 (51)	TP50.0676x48.9868x0.8	52.86	3.45
L52	2 - 0 (52)	TP50.5x50.0676x0.8	53.19	3.45

APPENDIX B

BASE LEVEL DRAWING


CLIMBING PEGS
W/ SAFETY CLIMB
(OTHER CONSIDERED EQUIPMENT)
(1) 1-1/4" TO 128 FT LEVEL
(12) 1-5/8" TO 128 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(2) 3/8" TO 145 FT LEVEL
(4) 3/4" TO 145 FT LEVEL
(2) 2" CONDUIT TO 145 FT LEVEL
(2) 3/4" TO 145 FT LEVEL
(6) 1-5/8" TO 145 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 5/8" TO 118 FT LEVEL
(3) 1-1/4" TO 118 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(8) 1-5/8" TO 135 FT LEVEL
D4
D3
D2
D1
BUSINESS UNIT 881533 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 881533

Work Order: _____

CROWN CASTLE

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	144.5	26.85	3.86	18	21	26.875	0.1875	Auto	A572-65
2	121.51	34.66	4.63	18	25.66	32.9871	0.25	Auto	A572-65
3	91.48	49.7	6.03	18	31.51	42.2135	0.375	Auto	A572-65
4	47.81	47.81	0	18	40.16	50.5	0.4375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	91.48	98.5	plate	CCI-SFP-045100	3		o						o						o				
2	0	31.25	plate	I-085125; (1) (1.1875)	3		o								o						o		
3	31.25	60	plate	CCI-SFP-065125	3				o						o						o		
4	60	77.25	plate	CCI-SFP-065125	3				o						o						o		
5	91.48	103.5	plate	CCI-SFP-045100	3			o						o						o			
6	77	83	plate	CCI-SFP-060100	3		o						o						o				
7	103.5	112.58	plate	CCI-SFP-045100	3						o						o						o
8	0	27.25	plate	5.5 x 1.25; (1) (1.1875	2					o							o						
9	0	27.25	plate	6.5 x 1.25; (1) (1.1875	1															o			
10	31.25	58.5	plate	CCI-SFP-085125	1							o											
11	98	106	plate	CCI-SFP-040075	3	o						o						o					
12	27.25	56.75	plate	CCI-SFP-065125	1													o					
13	58	69	plate	CCI-SFP-060100	3						o						o						o
14																							

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	8.5	1.25	10.625	0.625	n/a	n/a	17.000	9.063	1.1875	A572-65
3	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
4	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
5	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
6	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
7	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
8	5.5	1.25	6.875	0.625	n/a	27.000	19.000	5.313	1.1875	A572-65
9	6.5	1.25	8.125	0.625	n/a	33.000	21.000	6.563	1.1875	A572-65
10	8.5	1.25	10.625	0.625	45.000	45.000	17.000	9.063	1.1875	A572-65
11	4	0.75	3	0.375	12.000	12.000	16.000	2.063	1.1875	A572-65
12	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
13	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	144.5 - 139.5	5		18	21.000	22.094	0.1875	A572-65	1.000
2	139.5 - 134.5	5		18	22.094	23.188	0.1875	A572-65	1.000
3	134.5 - 129.5	5		18	23.188	24.282	0.1875	A572-65	1.000
4	129.5 - 124.5	5		18	24.282	25.376	0.1875	A572-65	1.000
5	124.5 - 121.51	6.85	3.86	18	25.376	26.875	0.1875	A572-65	1.000
6	121.51 - 116.51	5		18	25.655	26.713	0.25	A572-65	1.000
7	116.51 - 112.58	3.93		18	26.713	27.544	0.25	A572-65	1.000
8	112.58 - 112.33	0.25		18	27.544	27.597	0.425	A572-65	0.960
9	112.33 - 107.33	5		18	27.597	28.655	0.41875	A572-65	0.960
10	107.33 - 106	1.33		18	28.655	28.936	0.41875	A572-65	0.957
11	106 - 105.75	0.25		18	28.936	28.989	0.53125	A572-65	0.944
12	105.75 - 103.5	2.25		18	28.989	29.465	0.525	A572-65	0.947
13	103.5 - 103.25	0.25		18	29.465	29.518	0.525	A572-65	0.946
14	103.25 - 98.5	4.75		18	29.518	30.523	0.5125	A572-65	0.953
15	98.5 - 98.25	0.25		18	30.523	30.576	0.675	A572-65	0.938
16	98.25 - 98	0.25		18	30.576	30.629	0.675	A572-65	0.937
17	98 - 97.75	0.25		18	30.629	30.681	0.575	A572-65	0.931
18	97.75 - 92.75	5		18	30.681	31.739	0.5625	A572-65	0.934
19	92.75 - 91.48	5.9	4.63	18	31.739	32.987	0.55	A572-65	0.951
20	91.48 - 85.85	5.63		18	31.508	32.720	0.375	A572-65	1.000
21	85.85 - 83	2.85		18	32.720	33.334	0.375	A572-65	1.000
22	83 - 82.75	0.25		18	33.334	33.388	0.575	A572-65	0.957
23	82.75 - 77.75	5		18	33.388	34.465	0.5625	A572-65	0.968
24	77.75 - 77.25	0.5		18	34.465	34.573	0.5625	A572-65	0.967
25	77.25 - 77	0.25		18	34.573	34.627	0.625	A572-65	0.939
26	77 - 76.75	0.25		18	34.627	34.681	0.6375	A572-65	0.947
27	76.75 - 71.75	5		18	34.681	35.758	0.625	A572-65	0.954
28	71.75 - 69	2.75		18	35.758	36.350	0.625	A572-65	0.948
29	69 - 68.75	0.25		18	36.350	36.404	0.8	A572-65	0.943
30	68.75 - 63.75	5		18	36.404	37.481	0.7875	A572-65	0.944
31	63.75 - 60	3.75		18	37.481	38.289	0.775	A572-65	0.948
32	60 - 59.75	0.25		18	38.289	38.343	0.775	A572-65	0.948
33	59.75 - 58.5	1.25		18	38.343	38.612	0.775	A572-65	0.944
34	58.5 - 58.25	0.25		18	38.612	38.666	0.7875	A572-65	1.041
35	58.25 - 58	0.25		18	38.666	38.720	0.775	A572-65	1.057
36	58 - 57.75	0.25		18	38.720	38.773	0.6125	A572-65	1.088
37	57.75 - 56.75	1		18	38.773	38.989	0.6125	A572-65	1.085
38	56.75 - 56.5	0.25		18	38.989	39.043	0.7375	A572-65	0.994
39	56.5 - 51.5	5		18	39.043	40.120	0.725	A572-65	0.998
40	51.5 - 47.81	9.72	6.03	18	40.120	42.214	0.7125	A572-65	1.005
41	47.81 - 40.78	7.03		18	40.165	41.684	0.7875	A572-65	0.982
42	40.78 - 35.78	5		18	41.684	42.765	0.7875	A572-65	0.971
43	35.78 - 31.25	4.53		18	42.765	43.744	0.775	A572-65	0.977
44	31.25 - 31	0.25		18	43.744	43.799	0.65	A572-65	1.126
45	31 - 27.25	3.75		18	43.799	44.609	0.65	A572-65	1.117
46	27.25 - 27	0.25		18	44.609	44.663	0.85	A572-65	0.974
47	27 - 22	5		18	44.663	45.744	0.8375	A572-65	0.977
48	22 - 17	5		18	45.744	46.825	0.8375	A572-65	0.967
49	17 - 12	5		18	46.825	47.906	0.8125	A572-65	0.985
50	12 - 7	5		18	47.906	48.987	0.8125	A572-65	0.975
51	7 - 2	5		18	48.987	50.068	0.8	A572-65	0.981
52	2 - 0	2		18	50.068	50.500	0.8	A572-65	0.977

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	144.5 - 139.5	3.19	56.56	10.49
2	139.5 - 134.5	5.66	124.62	19.13
3	134.5 - 129.5	6.07	221.45	19.60
4	129.5 - 124.5	8.71	338.12	25.34
5	124.5 - 121.51	9.06	414.28	25.62
6	121.51 - 116.51	11.87	549.46	30.64
7	116.51 - 112.58	12.50	670.55	31.01
8	112.58 - 112.33	12.58	678.30	31.04
9	112.33 - 107.33	14.04	835.65	32.80
10	107.33 - 106	14.30	879.43	33.04
11	106 - 105.75	14.38	887.69	33.08
12	105.75 - 103.5	14.89	962.62	33.54
13	103.5 - 103.25	14.95	971.02	33.63
14	103.25 - 98.5	16.07	1132.99	34.59
15	98.5 - 98.25	16.16	1141.64	34.64
16	98.25 - 98	16.23	1150.31	34.70
17	98 - 97.75	16.30	1158.99	34.75
18	97.75 - 92.75	17.60	1335.18	35.75
19	92.75 - 91.48	17.94	1380.66	35.90
20	91.48 - 85.85	20.12	1584.76	36.61
21	85.85 - 83	20.78	1689.74	37.10
22	83 - 82.75	20.90	1699.01	37.14
23	82.75 - 77.75	22.37	1887.14	38.14
24	77.75 - 77.25	22.53	1906.22	38.23
25	77.25 - 77	22.64	1915.79	38.29
26	77 - 76.75	22.72	1925.37	38.34
27	76.75 - 71.75	24.35	2119.47	39.32
28	71.75 - 69	25.26	2228.34	39.89
29	69 - 68.75	25.39	2238.31	39.93
30	68.75 - 63.75	27.40	2440.62	41.02
31	63.75 - 60	28.94	2595.92	41.83
32	60 - 59.75	29.06	2606.38	41.88
33	59.75 - 58.5	29.56	2658.90	42.18
34	58.5 - 58.25	29.70	2669.45	42.23
35	58.25 - 58	29.81	2680.01	42.28
36	58 - 57.75	29.91	2690.59	42.34
37	57.75 - 56.75	30.29	2733.03	42.57
38	56.75 - 56.5	30.41	2743.68	42.62
39	56.5 - 51.5	32.54	2959.33	43.66
40	51.5 - 47.81	34.14	3121.75	44.41
41	47.81 - 40.78	39.61	3439.50	45.99
42	40.78 - 35.78	41.99	3671.81	46.97
43	35.78 - 31.25	44.18	3886.52	47.87
44	31.25 - 31	44.32	3898.49	47.91
45	31 - 27.25	46.12	4079.45	48.64
46	27.25 - 27	46.28	4091.61	48.67
47	27 - 22	48.96	4337.15	49.58
48	22 - 17	51.68	4587.09	50.44
49	17 - 12	54.45	4841.18	51.24
50	12 - 7	57.25	5099.30	52.05
51	7 - 2	60.09	5361.47	52.86
52	2 - 0	61.24	5467.47	53.19

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
144.5 - 139.5	Pole	TP22.094x21x0.1875	Pole	13.5%	Pass
139.5 - 134.5	Pole	TP23.188x22.094x0.1875	Pole	27.2%	Pass
134.5 - 129.5	Pole	TP24.282x23.188x0.1875	Pole	44.4%	Pass
129.5 - 124.5	Pole	TP25.376x24.282x0.1875	Pole	63.0%	Pass
124.5 - 121.51	Pole	TP26.875x25.376x0.1875	Pole	73.8%	Pass
121.51 - 116.51	Pole	TP26.713x25.655x0.25	Pole	64.4%	Pass
116.51 - 112.58	Pole	TP27.544x26.713x0.25	Pole	74.3%	Pass
112.58 - 112.33	Pole + Reinf.	TP27.597x27.544x0.425	Reinf. 7 Tension Rupture	74.9%	Pass
112.33 - 107.33	Pole + Reinf.	TP28.655x27.597x0.4188	Reinf. 7 Tension Rupture	86.8%	Pass
107.33 - 106	Pole + Reinf.	TP28.936x28.655x0.4188	Reinf. 7 Tension Rupture	89.9%	Pass
106 - 105.75	Pole + Reinf.	TP28.989x28.936x0.5313	Reinf. 11 Tension Rupture	75.1%	Pass
105.75 - 103.5	Pole + Reinf.	TP29.465x28.989x0.525	Reinf. 11 Tension Rupture	79.4%	Pass
103.5 - 103.25	Pole + Reinf.	TP29.518x29.465x0.525	Reinf. 11 Tension Rupture	79.9%	Pass
103.25 - 98.5	Pole + Reinf.	TP30.523x29.518x0.5125	Reinf. 11 Tension Rupture	88.7%	Pass
98.5 - 98.25	Pole + Reinf.	TP30.576x30.523x0.675	Reinf. 11 Tension Rupture	68.4%	Pass
98.25 - 98	Pole + Reinf.	TP30.629x30.576x0.675	Reinf. 11 Tension Rupture	68.8%	Pass
98 - 97.75	Pole + Reinf.	TP30.681x30.629x0.575	Reinf. 1 Tension Rupture	78.2%	Pass
97.75 - 92.75	Pole + Reinf.	TP31.739x30.681x0.5625	Reinf. 1 Tension Rupture	85.8%	Pass
92.75 - 91.48	Pole + Reinf.	TP32.987x31.739x0.55	Reinf. 1 Tension Rupture	87.6%	Pass
91.48 - 85.85	Pole	TP32.72x31.508x0.375	Pole	80.3%	Pass
85.85 - 83	Pole	TP33.334x32.72x0.375	Pole	82.4%	Pass
83 - 82.75	Pole + Reinf.	TP33.388x33.334x0.575	Reinf. 6 Tension Rupture	87.4%	Pass
82.75 - 77.75	Pole + Reinf.	TP34.465x33.388x0.5625	Reinf. 6 Tension Rupture	91.9%	Pass
77.75 - 77.25	Pole + Reinf.	TP34.573x34.465x0.5625	Reinf. 6 Tension Rupture	92.4%	Pass
77.25 - 77	Pole + Reinf.	TP34.627x34.573x0.825	Reinf. 6 Tension Rupture	64.1%	Pass
77 - 76.75	Pole + Reinf.	TP34.681x34.627x0.6375	Reinf. 4 Tension Rupture	81.7%	Pass
76.75 - 71.75	Pole + Reinf.	TP35.758x34.681x0.625	Reinf. 4 Tension Rupture	85.6%	Pass
71.75 - 69	Pole + Reinf.	TP36.35x35.758x0.625	Reinf. 4 Tension Rupture	87.6%	Pass
69 - 68.75	Pole + Reinf.	TP36.404x36.35x0.8	Reinf. 13 Tension Rupture	69.6%	Pass
68.75 - 63.75	Pole + Reinf.	TP37.481x36.404x0.7875	Reinf. 13 Tension Rupture	72.7%	Pass
63.75 - 60	Pole + Reinf.	TP38.289x37.481x0.775	Reinf. 13 Tension Rupture	74.9%	Pass
60 - 59.75	Pole + Reinf.	TP38.343x38.289x0.775	Reinf. 13 Tension Rupture	75.0%	Pass
59.75 - 58.5	Pole + Reinf.	TP38.612x38.343x0.775	Reinf. 13 Tension Rupture	75.7%	Pass
58.5 - 58.25	Pole + Reinf.	TP38.666x38.612x0.7875	Reinf. 13 Tension Rupture	76.5%	Pass
58.25 - 58	Pole + Reinf.	TP38.72x38.666x0.775	Reinf. 13 Tension Rupture	76.6%	Pass
58 - 57.75	Pole + Reinf.	TP38.773x38.72x0.6125	Reinf. 3 Tension Rupture	86.7%	Pass
57.75 - 56.75	Pole + Reinf.	TP38.989x38.773x0.6125	Reinf. 3 Tension Rupture	87.3%	Pass
56.75 - 56.5	Pole + Reinf.	TP39.043x38.989x0.7375	Reinf. 3 Tension Rupture	79.3%	Pass
56.5 - 51.5	Pole + Reinf.	TP40.12x39.043x0.725	Reinf. 3 Tension Rupture	81.9%	Pass
51.5 - 47.81	Pole + Reinf.	TP42.214x40.12x0.7125	Reinf. 3 Tension Rupture	83.8%	Pass
47.81 - 40.78	Pole + Reinf.	TP41.684x40.165x0.7875	Reinf. 3 Tension Rupture	82.1%	Pass
40.78 - 35.78	Pole + Reinf.	TP42.765x41.684x0.7875	Reinf. 3 Tension Rupture	84.1%	Pass
35.78 - 31.25	Pole + Reinf.	TP43.744x42.765x0.775	Reinf. 3 Tension Rupture	85.8%	Pass
31.25 - 31	Pole + Reinf.	TP43.799x43.744x0.65	Reinf. 2 Compression	84.4%	Pass
31 - 27.25	Pole + Reinf.	TP44.609x43.799x0.65	Reinf. 2 Compression	85.8%	Pass
27.25 - 27	Pole + Reinf.	TP44.663x44.609x0.85	Reinf. 8 Tension Rupture	87.9%	Pass
27 - 22	Pole + Reinf.	TP45.744x44.663x0.8375	Reinf. 8 Tension Rupture	89.7%	Pass
22 - 17	Pole + Reinf.	TP46.825x45.744x0.8375	Reinf. 8 Tension Rupture	91.4%	Pass
17 - 12	Pole + Reinf.	TP47.906x46.825x0.8125	Reinf. 8 Tension Rupture	93.0%	Pass
12 - 7	Pole + Reinf.	TP48.987x47.906x0.8125	Reinf. 8 Tension Rupture	94.5%	Pass
7 - 2	Pole + Reinf.	TP50.068x48.987x0.8	Reinf. 8 Tension Rupture	96.0%	Pass
2 - 0	Pole + Reinf.	TP50.5x50.068x0.8	Reinf. 8 Tension Rupture	96.5%	Pass
				Summary	
			Pole	82.4%	Pass
			Reinforcement	96.5%	Pass
			Overall	96.5%	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
144.5 - 139.5	790	n/a	790	13.04	n/a	13.04	12.5%													
139.5 - 134.5	915	n/a	915	13.69	n/a	13.69	27.2%													
134.5 - 129.5	1051	n/a	1051	14.34	n/a	14.34	44.4%													
129.5 - 124.5	1201	n/a	1201	14.99	n/a	14.99	63.0%													
124.5 - 121.51	1297	n/a	1297	15.38	n/a	15.38	73.8%													
121.51 - 116.51	1857	n/a	1857	21.00	n/a	21.00	64.4%													
116.51 - 112.58	2038	n/a	2038	21.66	n/a	21.66	74.3%													
112.58 - 112.33	2050	1392	3442	21.70	13.50	35.20	44.0%							74.9%						
112.33 - 107.33	2297	1496	3793	22.54	13.50	36.04	51.8%							86.8%						
107.33 - 106	2366	1524	3890	22.76	13.50	36.26	53.6%							89.9%						
106 - 105.75	2379	2531	4910	22.80	22.50	45.30	43.0%							72.1%				75.1%		
105.75 - 103.5	2499	2611	5110	23.18	22.50	45.68	45.8%							76.3%				79.4%		
103.5 - 103.25	2513	2620	5133	23.22	22.50	45.72	46.1%					76.7%						79.9%		
103.25 - 98.5	2780	2795	5575	24.02	22.50	46.52	51.7%					85.1%						88.7%		
98.5 - 98.25	2795	4459	7254	24.06	36.00	60.06	39.9%	65.7%				65.7%						68.4%		
98.25 - 98	2809	4514	7324	24.10	36.00	60.10	40.2%	66.0%				66.0%						68.8%		
98 - 97.75	2824	3411	6236	24.15	27.00	51.15	47.8%	78.2%				78.2%								
97.75 - 92.75	3129	3641	6770	24.99	27.00	51.99	52.8%	85.6%				85.8%								
92.75 - 91.48	3210	3701	6911	25.20	27.00	52.20	54.1%	87.6%				87.6%								
91.48 - 85.85	5087	n/a	5087	38.50	n/a	38.50	80.3%													
85.85 - 83	5382	n/a	5382	39.23	n/a	39.23	82.4%													
83 - 82.75	5409	2688	8097	39.29	18.00	57.29	54.4%						87.4%							
82.75 - 77.75	5956	2858	8813	40.57	18.00	58.57	57.3%						91.9%							
77.75 - 77.25	6012	2875	8887	40.70	18.00	58.70	57.6%						92.4%							
77.25 - 77	6041	6850	12890	40.77	42.38	83.14	40.9%				63.3%		64.1%							
77 - 76.75	6069	3978	10047	40.83	24.38	65.21	54.7%				81.7%									
76.75 - 71.75	6659	4217	10876	42.11	24.38	66.49	54.2%				85.6%									
71.75 - 69	6995	4352	11351	42.82	24.38	67.19	55.8%				87.8%									
69 - 68.75	7030	7540	14570	42.88	42.38	85.26	43.8%				68.7%									69.6%
68.75 - 63.75	7680	7975	15655	44.16	42.38	86.54	45.9%				71.7%									72.7%
63.75 - 60	8192	8309	16501	45.13	42.38	87.50	47.6%				73.9%									74.9%
60 - 59.75	8227	8331	16559	45.19	42.38	87.56	47.7%			74.0%										75.0%
59.75 - 58.5	8404	8444	16848	45.51	42.38	87.88	48.3%			74.7%										75.7%
58.5 - 58.25	8446	8636	17082	45.57	53.00	98.57	48.7%			68.9%							54.0%			76.5%
58.25 - 58	8481	8659	17141	45.64	53.00	98.64	48.8%			69.1%							52.0%			76.6%
58 - 57.75	8532	5211	13743	45.70	35.00	80.70	62.9%			86.7%							61.6%			
57.75 - 56.75	8676	5266	13943	45.96	35.00	80.96	63.4%			87.3%							62.1%			
56.75 - 56.5	8770	7868	16638	46.02	43.13	89.15	54.5%			79.3%							62.3%		70.9%	
56.5 - 51.5	9521	8291	17811	47.30	43.13	90.43	56.8%			81.9%							64.6%		73.4%	
51.5 - 47.81	10101	8610	18711	48.25	43.13	91.38	58.5%			83.8%							66.2%		75.2%	
47.81 - 40.78	12375	9358	21733	57.27	43.13	100.40	54.6%			82.1%							66.2%		74.8%	
40.78 - 35.78	13371	9832	23203	58.78	43.13	101.90	58.2%			84.1%							68.0%		76.7%	
35.78 - 31.25	14319	10271	24590	60.13	43.13	103.26	57.1%			85.8%							72.3%		78.4%	
31.25 - 31	14713	6741	21454	60.21	40.00	100.21	70.7%		84.4%										79.5%	
31 - 27.25	15543	6991	22534	61.34	40.00	101.34	72.0%		85.8%										80.8%	
27.25 - 27	15466	13505	28970	61.41	53.75	115.16	55.3%		77.0%						87.9%	72.3%				
27 - 22	16619	14149	30768	62.91	53.75	116.66	58.9%		78.7%						89.7%	73.9%				
22 - 17	17828	14808	32636	64.41	53.75	118.16	58.3%		80.2%						91.4%	75.5%				
17 - 12	19094	15483	34577	65.91	53.75	119.66	59.8%		81.7%						93.0%	77.0%				
12 - 7	20419	16174	36593	67.41	53.75	121.16	61.2%		83.1%						94.5%	78.4%				
7 - 2	21804	16880	38683	68.92	53.75	122.67	62.5%		84.5%						96.0%	79.8%				
2 - 0	22375	17166	39541	69.52	53.75	123.27	63.1%		85.0%						96.5%	80.3%				

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15 5

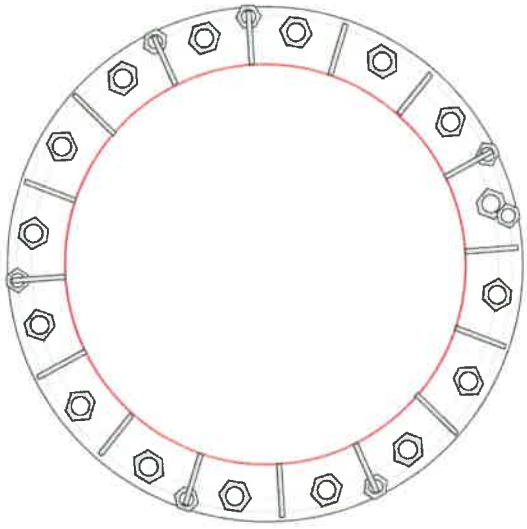
Monopole Base Plate Connection

Site Info	
BU #	881533
Site Name	Groton Tower
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{gr} (in)	0

Applied Loads	
Moment (kip-ft)	5467.47
Axial Force (kips)	61.24
Shear Force (kips)	53.19

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 59" BC

GROUP 2: (7) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 62.61" BC

pos. (deg): 11.3, 26.3, 93.8, 116.3, 183.8, 251.3, 296.3

Base Plate Data

65" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(16) 27"H x 6.75"W x 0.625"T, Notch: 0.75"

plate: Fy= 50 ksi ; weld: Fy= 70 ksi

horiz. weld: 0.625" fillet

vert. weld: 0.375" fillet

Pole Data

50.5" x 0.4375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:		
Pu_c = 226.21	ϕPn_c = 243.75	Stress Rating
Vu = 3.32	ϕVn = 73.13	88.6%
Mu = n/a	ϕMn = n/a	Pass
GROUP 2:		
Pu_c = 137.93	ϕPn_c = 199.5	Stress Rating
Vu = 0	ϕVn = 59.85	65.8%
Mu = n/a	ϕMn = n/a	Pass

Base Plate Summary

Max Stress (ksi):	38.11	(Roark's Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	67.2%	Pass

Stiffener Summary

Horizontal Weld:	70.3%	Pass
Vertical Weld:	28.3%	Pass
Plate Flexure+Shear:	12.0%	Pass
Plate Tension+Shear:	72.8%	Pass
Plate Compression:	66.1%	Pass

Pole Summary

Punching Shear:	5.2%	Pass

Pier and Pad Foundation

BU # :	881533
Site Name:	Groton Tower
App. Number:	

TIA-222 Revision:	H
Tower Type:	Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp}:	61.24	kips
Base Shear, Vu_comp:	53.19	kips
Moment, M_u:	5167.47	ft-kips
Tower Height, H:	145	ft
BP Dist. Above Fdn, bp_{dist}:	3	in
Bolt Circle / Bearing Plate Width, BC:	59	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
Lateral (Sliding) (kips)	249.37	53.19	20.3%	Pass
Bearing Pressure (ksf)	18.00	2.91	16.2%	Pass
*Overturning (kip*ft)*	9302.49	5446.72	58.6%	Pass
*Pad Flexure (kip*ft)*	8739.22	2473.23	27.0%	Pass
Pad Shear - 1-way (kips)	1895.47	254.71	12.8%	Pass
Pad Shear - 2-way (Comp) (ksi)	0.190	0.002	1.2%	Pass
*Flexural 2-way (Comp) (kip*ft)*	8714.86	0.00	0.0%	Pass

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

Soil Rating*:	58.6%
Structural Rating*:	27.0%

Pad Properties		
Depth, D:	5	ft
Pad Width, W:	30	ft
Pad Thickness, T:	5	ft
Pad Rebar Size (Bottom), Sp:	8	
Pad Rebar Quantity (Bottom), mp:	45	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, Fy:	60	ksi
Concrete Compressive Strength, F'c:	4	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	165	pcf
Ultimate Gross Bearing, Qult:	24.000	ksf
Cohesion, Cu:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, N:	3.50	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw:	n/a	ft

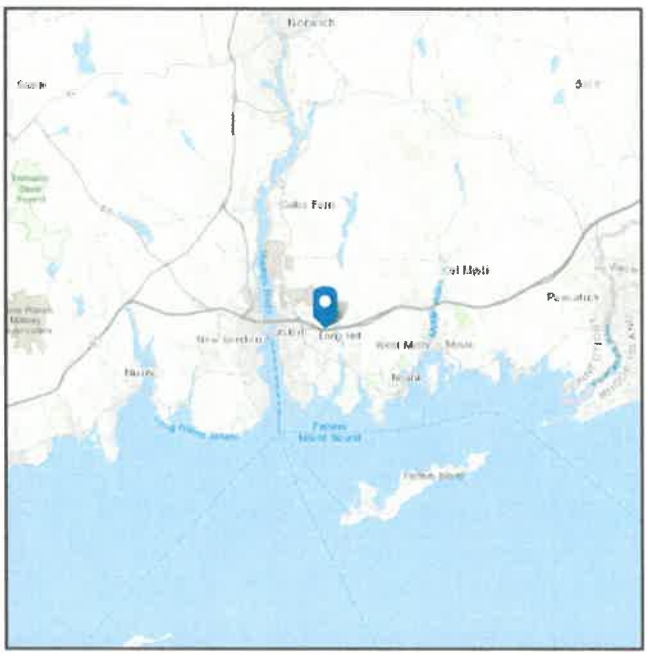
Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 128.26 ft (NAVD 88)
Latitude: 41.360222
Longitude: -72.048639



Wind

Results:

Wind Speed:	135 Vmph
10-year MRI	80 Vmph
25-year MRI	90 Vmph
50-year MRI	99 Vmph
100-year MRI	109 Vmph
Data Source:	ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014
Date Accessed:	Thu Dec 27 2018

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

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

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

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

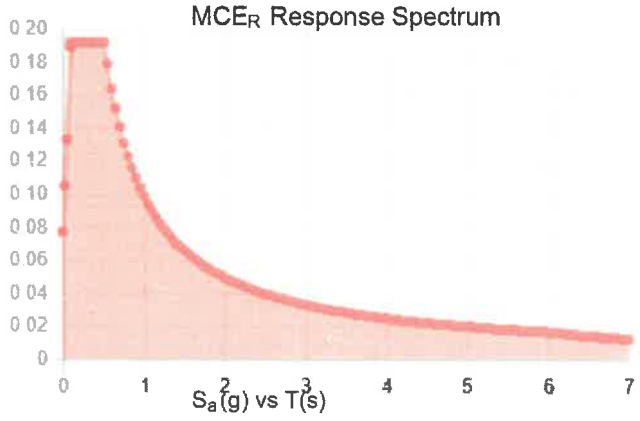
Seismic

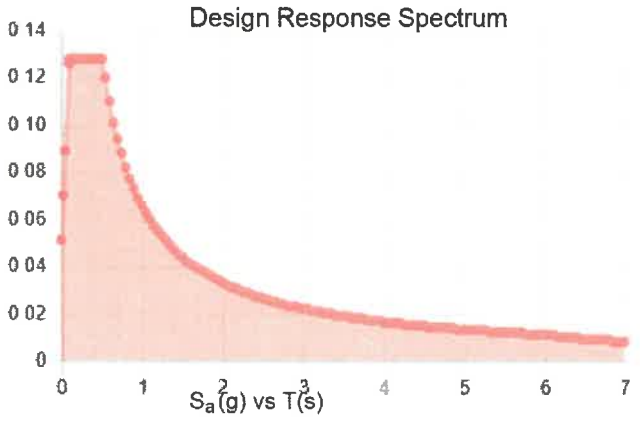
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.16	S_{DS} :	0.128
S_1 :	0.058	S_{D1} :	0.066
F_a :	1.2	T_L :	
F_v :	1.7	PGA :	0.08
S_{MS} :		PGA_M :	0.096
S_{M1} :		F_{PGA} :	1.2
		I_e :	1

Seismic Design Category A





Data Accessed: Thu Dec 27 2018

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

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Thu Dec 27 2018

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

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

RF EMISSIONS COMPLIANCE REPORT

Empire Telecom on behalf of AT&T Mobility, LLC

Site Name: GROTON ROBERTS RD
AT&T Mobility, LLC Site FA #: 10035316
AT&T Mobility, LLC Site USID: 65076
AT&T Mobility, LLC Site ID: CT2182
75 ROBERTS ROAD
GROTON, CT
6/7/2019

Report Status:

AT&T Mobility, LLC Is Compliant

Prepared By:

Sitesafe, LLC

8618 Westwood Center Drive,
Suite 315

Vienna, VA 22182

Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Empire Telecom
GROTON, CT

The reviewer whose signature appears below here by certifies and affirms:

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, LLC in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Empire Telecom (See attached Site Summary and Carrier documents), and that AT&T Mobility, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "GROTON ROBERTS RD" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 2.538% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 2.538% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Samuel Cosgrove

Empire Telecom
GROTON ROBERTS RD
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.33 %
AT&T Mobility, LLC	0.19 %
AT&T Mobility, LLC	0.217 %
AT&T Mobility, LLC	0.12 %
AT&T Mobility, LLC (Proposed)	0.409 %
AT&T Mobility, LLC (Proposed)	0.595 %
AT&T Mobility, LLC (Proposed)	0.677 %
Sprint	0.449 %
Sprint	0.292 %
Sprint	0.292 %
Sprint	0.111 %
Sprint	0.112 %
T-Mobile	0.103 %
T-Mobile	0.136 %
T-Mobile	0.148 %
T-Mobile	0.103 %
Verizon Wireless	0.439 %
Verizon Wireless	0.291 %
Verizon Wireless	0.185 %
Verizon Wireless	0.322 %
Composite Site MPE:	5.522 %

AT&T Mobility, LLC
GROTON ROBERTS RD
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.29919	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.32992	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CCI Antennas	TPA-65R-LCUUUU-H8	145	23	3892	1.835938	0.183594	2.631834	0.263183
CCI Antennas	TPA-65R-LCUUUU-H8	145	143	3892	1.403379	0.140338	2.360334	0.236033
CCI Antennas	TPA-65R-LCUUUU-H8	145	255	3892	2.43398	0.243398	3.216949	0.321695

AT&T Mobility, LLC
GROTON ROBERTS RD
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.8977	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.18977	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
KMW	AM-X-CD-17-65-00T	145	23	2711	1.056381	0.105638	1.093018	0.109302
KMW	AM-X-CD-17-65-00T	145	143	2711	1.044121	0.104412	1.068004	0.1068
ANDREW	SBNH-1D6565C	145	255	1833	1.169328	0.116933	1.539133	0.153913

AT&T Mobility, LLC
GROTON ROBERTS RD
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	µW/cm^2
Maximum power density at ground level:	1.06669	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.2171	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
KMW	AM-X-CD-17-65-00T	145	23	1750	0.839698	0.170902	0.839783	0.170919
KMW	AM-X-CD-17-65-00T	145	143	1750	0.484983	0.098708	0.495291	0.100806
ANDREW	SBNH-1D6565C	145	255	1375	0.828629	0.168649	1.057513	0.215233

AT&T Mobility, LLC
GROTON ROBERTS RD
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	0.6781	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.11967	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	145	143	547	0.340939	0.060166	0.416589	0.073516
Powerwave	7770	145	263	547	0.646569	0.1141	0.660624	0.116581
Powerwave	7770	145	23	547	0.586601	0.103518	0.592822	0.104616

AT&T Mobility, LLC (Proposed)
GROTON ROBERTS RD
Carrier Summary

Frequency:	2300	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	4.09322	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.40932	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10966	145	23	4046	1.948622	0.194862	3.456421	0.345642
Kathrein-Scala	800-10966	145	143	4046	1.817197	0.18172	3.154504	0.31545
Kathrein-Scala	800-10966	145	255	4046	2.190248	0.219025	4.020085	0.402008

AT&T Mobility, LLC (Proposed)
GROTON ROBERTS RD
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	3.37412	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.59543	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10966	145	23	2143	1.172916	0.206985	1.47353	0.260035
Kathrein-Scala	800-10966	145	23	2143	1.172916	0.206985	1.47353	0.260035
Kathrein-Scala	800-10966	145	143	2143	0.93374	0.164778	1.258413	0.222073
Kathrein-Scala	800-10966	145	143	2143	0.93374	0.164778	1.258413	0.222073
Kathrein-Scala	800-10966	145	255	2143	1.340289	0.236522	1.550943	0.273696
Kathrein-Scala	800-10966	145	255	2143	1.340289	0.236522	1.550943	0.273696

AT&T Mobility, LLC (Proposed)
GROTON ROBERTS RD
Carrier Summary

Frequency:	763	MHz
Maximum Permissible Exposure (MPE):	508.67	µW/cm^2
Maximum power density at ground level:	3.44496	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.67725	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10966	145	23	3623	1.87327	0.368271	1.90157	0.373834
Kathrein-Scala	800-10966	145	143	3623	1.559995	0.306683	1.814376	0.356693
Kathrein-Scala	800-10966	145	255	3623	3.286512	0.646103	3.398324	0.668085

Sprint
GROTON ROBERTS RD
Carrier Summary

Frequency:	2500	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	4.49023	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.44902	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVTM14-C-I20	118	0	6168	1.642797	0.16428	3.115918	0.311592
RFS	APXVTM14-C-I20	118	110	6168	1.641884	0.164188	3.115918	0.311592
RFS	APXVTM14-C-I20	118	250	6168	1.642797	0.16428	3.115918	0.311592

Sprint
GROTON ROBERTS RD
Carrier Summary

Frequency:	1990	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.91775	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.29177	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	118	0	3804	1.208974	0.120897	2.51285	0.251285
RFS	APXVSPP18-C-A20	118	110	3804	1.208974	0.120897	2.51285	0.251285
RFS	APXVSPP18-C-A20	118	250	3804	1.208974	0.120897	2.51285	0.251285

Sprint
GROTON ROBERTS RD
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.91775	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.29177	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	118	0	3804	1.208974	0.120897	2.51285	0.251285
RFS	APXVSPP18-C-A20	118	110	3804	1.208974	0.120897	2.51285	0.251285
RFS	APXVSPP18-C-A20	118	250	3804	1.208974	0.120897	2.51285	0.251285

Sprint
GROTON ROBERTS RD
Carrier Summary

Frequency:	866	MHz
Maximum Permissible Exposure (MPE):	577.33	µW/cm^2
Maximum power density at ground level:	0.64224	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.11124	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	118	0	1084	0.569628	0.098665	0.585766	0.101461
RFS	APXVSPP18-C-A20	118	110	1084	0.569628	0.098665	0.585766	0.101461
RFS	APXVSPP18-C-A20	118	250	1084	0.571434	0.098978	0.585766	0.101461

Sprint
GROTON ROBERTS RD
Carrier Summary

Frequency:	862	MHz
Maximum Permissible Exposure (MPE):	574.67	µW/cm^2
Maximum power density at ground level:	0.64224	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.11176	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVSPP18-C-A20	118	0	1084	0.569628	0.099123	0.585766	0.101931
RFS	APXVSPP18-C-A20	118	110	1084	0.569628	0.099123	0.585766	0.101931
RFS	APXVSPP18-C-A20	118	250	1084	0.571434	0.099437	0.585766	0.101931

T-Mobile
GROTON ROBERTS RD
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.03431	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.10343	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B4A B2P	128	30	2061	0.617383	0.061738	0.705295	0.070529
Ericsson	AIR 21 B4A B2P	128	150	2061	0.617612	0.061761	0.705295	0.070529
Ericsson	AIR 21 B4A B2P	128	270	2061	0.617383	0.061738	0.705295	0.070529

T-Mobile
GROTON ROBERTS RD
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	0.63464	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.13599	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVAARR24_43-U-NA20	128	30	1307	0.51656	0.110691	0.544667	0.116714
RFS	APXVAARR24_43-U-NA20	128	150	1307	0.516744	0.110731	0.544667	0.116714
RFS	APXVAARR24_43-U-NA20	128	270	1307	0.516744	0.110731	0.544667	0.116714

T-Mobile
GROTON ROBERTS RD
Carrier Summary

Frequency:	600	MHz
Maximum Permissible Exposure (MPE):	400	µW/cm^2
Maximum power density at ground level:	0.5912	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.1478	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
RFS	APXVAARR24_43-U-NA20	128	30	1251	0.527915	0.131979	0.535683	0.133921
RFS	APXVAARR24_43-U-NA20	128	150	1251	0.526949	0.131737	0.535683	0.133921
RFS	APXVAARR24_43-U-NA20	128	270	1251	0.526949	0.131737	0.535683	0.133921

T-Mobile
GROTON ROBERTS RD
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.03431	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.10343	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B2A B4P	128	30	2061	0.617383	0.061738	0.705295	0.070529
Ericsson	AIR 21 B2A B4P	128	150	2061	0.617612	0.061761	0.705295	0.070529
Ericsson	AIR 21 B2A B4P	128	270	2061	0.617383	0.061738	0.705295	0.070529

Verizon Wireless
GROTON ROBERTS RD
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	4.39499	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.4395	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	HBXX-6517DS-VTM	137	30	8431	2.052385	0.205239	4.015773	0.401577
ANDREW	HBXX-6517DS-VTM	137	150	8431	2.043844	0.204384	4.015773	0.401577
ANDREW	HBXX-6517DS-VTM	137	270	8431	2.052385	0.205239	4.015773	0.401577

Verizon Wireless
GROTON ROBERTS RD
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.90664	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.29066	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	HBXX-6517DS-VTM	137	30	5130	1.37258	0.137258	2.704566	0.270457
ANDREW	HBXX-6517DS-VTM	137	150	5130	1.364731	0.136473	2.704566	0.270457
ANDREW	HBXX-6517DS-VTM	137	270	5130	1.37258	0.137258	2.704567	0.270457

Verizon Wireless
GROTON ROBERTS RD
Carrier Summary

Frequency:	751	MHz
Maximum Permissible Exposure (MPE):	500.67	µW/cm^2
Maximum power density at ground level:	0.92667	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.18509	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Amphenol	QUAD656C0000x	137	30	2085	0.8797	0.175706	0.916135	0.182983
Amphenol	QUAD656C0000x	137	150	2085	0.878216	0.175409	0.916135	0.182983
Amphenol	QUAD656C0000x	137	270	2085	0.8797	0.175706	0.916135	0.182983

Verizon Wireless
GROTON ROBERTS RD
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	1.82392	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.32187	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6512DS-VTM	137	30	2717	1.757171	0.310089	1.813638	0.320054
ANDREW	LNX-6512DS-VTM	137	150	2717	1.756177	0.309914	1.813638	0.320054
ANDREW	LNX-6512DS-VTM	137	270	2717	1.75717	0.310089	1.813638	0.320054

USPS Tracking®

FAQs > (https://www.usps.com/faqs/uspstracking-faqs.htm)

Track Another Package +

Tracking Number: 9405503699300063055718

Remove ×

Expected Delivery on

MONDAY
22 JULY 2019 ⓘ
by
8:00pm ⓘ

Delivered

July 22, 2019 at 9:44 am
Delivered, Left with Individual
GROTON, CT 06340

Get Updates ∨

Feedback

Text & Email Updates ∨

Tracking History ∨

Product Information ∨

See Less ∧

Tracking Number: 9405503699300063055701

Remove ×

Expected Delivery on

MONDAY

22 JULY 2019 ⓘ

by **8:00pm** ⓘ

Delivered

July 22, 2019 at 9:46 am
Delivered, In/At Mailbox
GROTON, CT 06340

Get Updates

See More

Feedback

Remove ×

Tracking Number: 9405503699300063055725

Expected Delivery on

MONDAY

22 JULY 2019 ⓘ

by **8:00pm** ⓘ

Delivered

July 22, 2019 at 11:40 am
Delivered, Front Door/Porch
CLIFTON PARK, NY 12065

Get Updates

See More

Can’t find what you’re looking for?

Go to our FAQs section to find answers to your tracking questions.

FAQs (https://www.usps.com/faqs/uspstracking-faqs.htm)

The easiest tracking number is the one you don't have to know.

With Informed Delivery®, you never have to type in another tracking number. Sign up to:

- See images* of incoming mail.
- Automatically track the packages you're expecting.
- Set up email and text alerts so you don't need to enter tracking numbers.
- Enter USPS Delivery Instructions™ for your mail carrier.

Sign Up

(https://reg.usps.com/entreg/RegistrationAction_input?

*NOTE: Black and white (grayscale) images show the outside, front of letter-sized envelopes and mailpieces that are processed through USPS automated equipment.

app=UspsTools&appURL=https%3A%2F%2Ftools.usps.com%2Fgo