QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

March 2, 2018

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT5123
52 New Britain Ave, Rocky Hill, CT 06067
N 41-39-36.87
W 72-40-50.33

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 168-foot level of the existing 182-foot Self-Support Tower at 52 New Britain Ave, Rocky Hill, CT. The tower is owned by Crown Castle and the property is owned by the Town of Rocky Hill. AT&T now intends to remove (3) KMW antennas and replace them with three (3) CCI HPA-65R-BUU-H6 antennas. These antennas would be installed at the 168-foot level of the tower. AT&T also intends to add three (3) Ericsson remote radio units (RRUS-32 B66), also at the 168-foot level of the tower.

This facility was originally approved by the Town of Rocky Hill. No record of the original approval was found, although records of subsequent site plan modifications do exist.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Claudia Baio, Mayor of the Town of Rocky Hill, as elected official and property owner, to the Rocky Hill Planning & Zoning Division and to the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

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

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

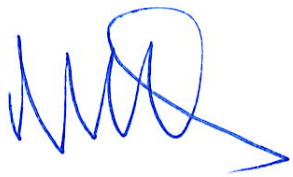
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: The Honorable Claudia Baio - as Elected Official & Property Owner
David Palmberg – Town Planner
Crown Castle– Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							11.47%
AT&T GSM	2	387	168	0.0106	850	0.5667	0.19%
AT&T UMTS	2	375	168	0.0103	1900	1.0000	0.10%
AT&T LTE	1	683	168	0.0094	740	0.4933	0.19%
AT&T LTE	1	2015	168	0.0276	1900	1.0000	0.28%
AT&T LTE	1	595	168	0.0082	2300	1.0000	0.08%
Site Total							12.31%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							11.47%
AT&T UMTS	1	317	168	0.0043	850	0.5667	0.08%
AT&T LTE	2	2951	168	0.0809	740	0.4933	1.64%
AT&T LTE	2	3304	168	0.0905	1900	1.0000	0.91%
AT&T LTE	1	5070	168	0.0695	2100	1.0000	0.69%
AT&T LTE	1	975	168	0.0134	2300	1.0000	0.13%
Site Total							14.92%

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Note: Proposed Loading may also include corrections to certain Existing Loading values

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING TOWER:

- NEW AT&T ANTENNAS: (HPA–65R–BUU–H6) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T RRUS: RRUS 32 B66 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (2) R700–4478 B14 RRUS, 12U RAYCAP IN SHELTER (3' SEPARATION (SIDE–SIDE) BETWEEN 2 & 4), SECOND XMU.

ITEMS TO REMAIN:

- (6) ANTENNAS, (9) RRU'S, (2) SURGE ARRESTOR (12) COAX CABLES, (4) DC POWER & (2) FIBER.

SQUID ALARMING (NOT TO BE DAISY CHAINED).

- THE 1ST SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED RRH/RRU ON THE ALPHA SECTOR, IN THE EVENT THE ALARM CABLE CANNOT BE CONNECTED TO ALPHA IT WILL BE ACCEPTABLE TO ALARM TO THE CLOSEST PHYSICAL SECTOR ON AN EXCEPTION BASIS.
- 2ND SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE BETA SECTOR.
- 3RD SQUID INSTALLED WILL BE ALARMED TO THE LOWEST BAND (OR FIRST INSTALLED) RRH/RRU ON THE GAMMA SECTOR.

SITE ADDRESS:	52 NEW BRITAIN AVENUE ROCKY HILL, CT 06067
LATITUDE:	41.660291° N 41° 39' 37.05" N
LONGITUDE:	72.681098° W 72° 40' 51.95" W
TYPE OF SITE:	MONOPOLE/INDOOR EQUIPMENT
TOWER HEIGHT:	182'–0"±
RAD CENTER:	168'–0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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A–2	ANTENNA LAYOUTS & ELEVATION	1
A–3	DETAILS	1
A–4	SCHEMATIC AND NOTES	1
G–1	GROUNDING DETAILS	1
RF–1	RF PLUMBING DIAGRAM	1

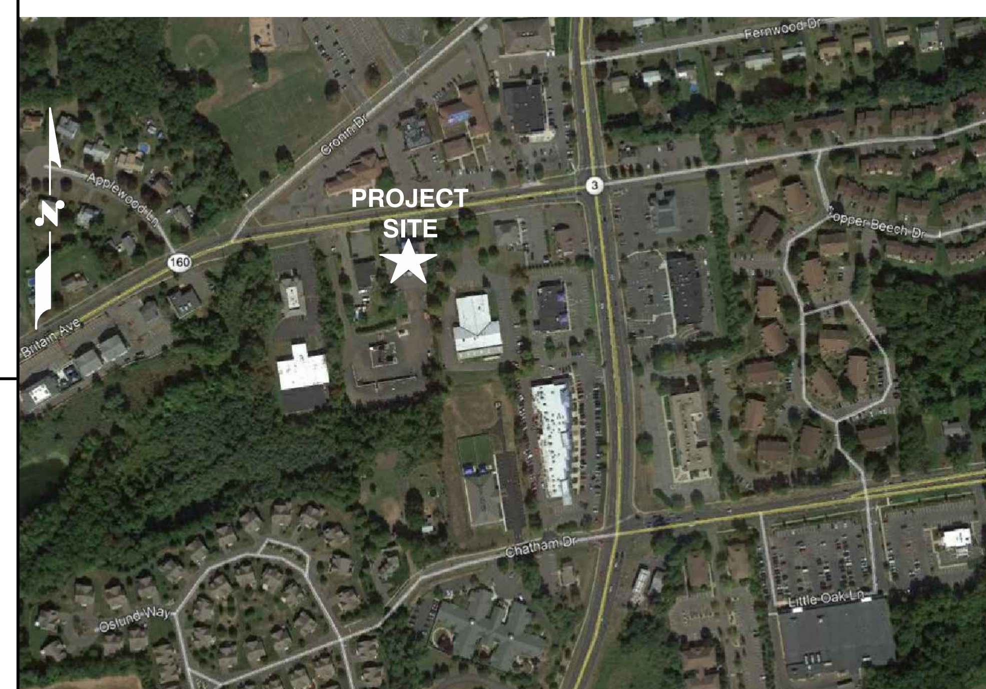
CCI SITE NAME: ROCKY HILL
CCI SITE #: 842872

at&t

SITE NUMBER: CT5123
SITE NAME: ROCKY HILL
PROJECT: LTE 4C/5C 2018 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:
HEAD WEST ON NY–290 W/W MANIUS ST. TOWARD BURNET AVE. TURN RIGHT ONTO NY–635 N. AT THE TRAFFIC CIRCLE, TAKE THE 2ND EXIT ONTO THE I–90 THRUWAY RAMP. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I–90 MERGE ONTO I–90E. MERGE ONTO I–90 E. KEEP RIGHT TO CONTINUE ON GOVERNOR THOMAS E. DEWEY THRUWAY/NEW YORK THRUWAY, FOLLOW SIGNS FOR I–87 S/NEW YORK/BOSTON. CONTINUE ONTO I87 S/GOVERNOR THOMAS E. DEWEY TRUWAY/NEW YORK STATE THRUWAY. TAKE EXIT 21A TOWARD I–90 E//MASS TURNPIKE/BOSTON. CONTINUE ONTO NY–912M E. CONTINUE ONTO I–90 S. TAKE EXIT 32A–32B FOR I–84 TOWARD WATERBURY. MERGE ONTO I–84 KEEP LEFT TO STAY ON I–84 TAKE EXIT 39A FOR CT–9 S. TOWARD NEWINGTON/NEW BRITAIN CONTINUE ONTO CT–9 S. TAKE EXIT 27 ON THE LEFT FOR CHESTNUT ST. TURN LEFT ONTO CHESTNUT ST. TURN RIGHT ONTO KELSEY ST. TURN RIGHT ONTO ROCKY HILL RD.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1–800–922–4455
OR CALL 811

UNDERGROUND SERVICE ALERT

STATE OF CONNECTICUT · DEREK J. CREASER · LICENSED PROFESSIONAL ENGINEER

HUDSON Design Group LLC
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
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SITE NUMBER: CT5123
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

AT&T

TITLE SHEET
(LTE–4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	T–1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION 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 NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. 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.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 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

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. 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. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. 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.

9. 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.

10. 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.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR–ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. 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.

16. CONSTRUCTION SHALL COMPLY WITH LTE SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. 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.

18. 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.

19. 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 TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
    BUILDING CODE: IBC 2012 WITH 2016 CT BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
    LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

    MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–G, STRUCTURAL STANDARDS FOR STEEL

    EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5123
SITE NAME: ROCKY HILL
CROWN CASTLE SITE # : 842872
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 23551 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE–4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	GN–1	1

NOTE:

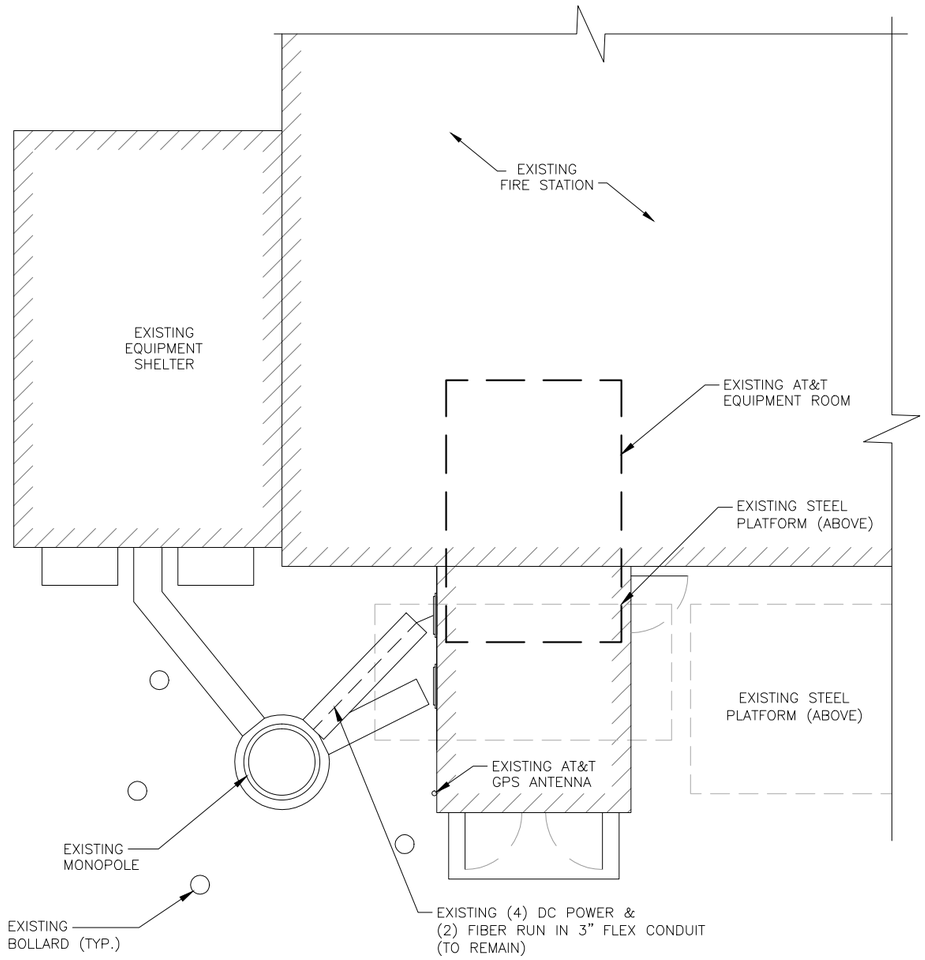
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

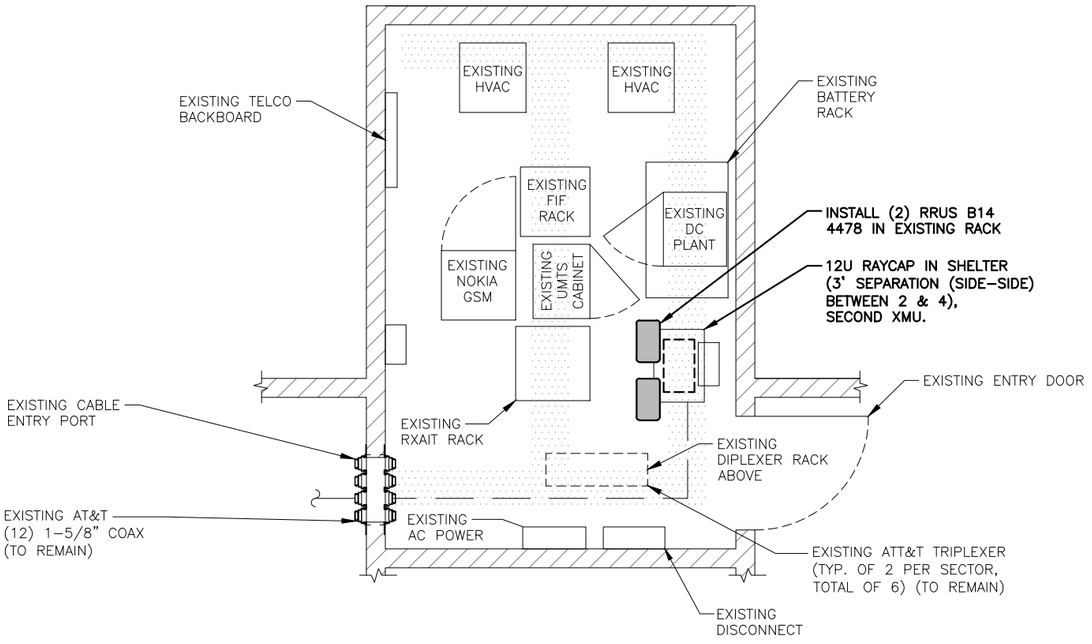
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: FEBRUARY 8, 2018

NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.





13°46'
MAGNETIC NORTH
TRUE NORTH

COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/4"=1'-0"
11x17 SCALE: 1/8"=1'-0"
0 2'-0" 4'-0" 8'-0" 12'-0"

13°46'
MAGNETIC NORTH
TRUE NORTH

EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 1/2"=1'-0"
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STATE OF CONNECTICUT
DEREK J. CREASEY
18,235
LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN (LTE-4C/5C)

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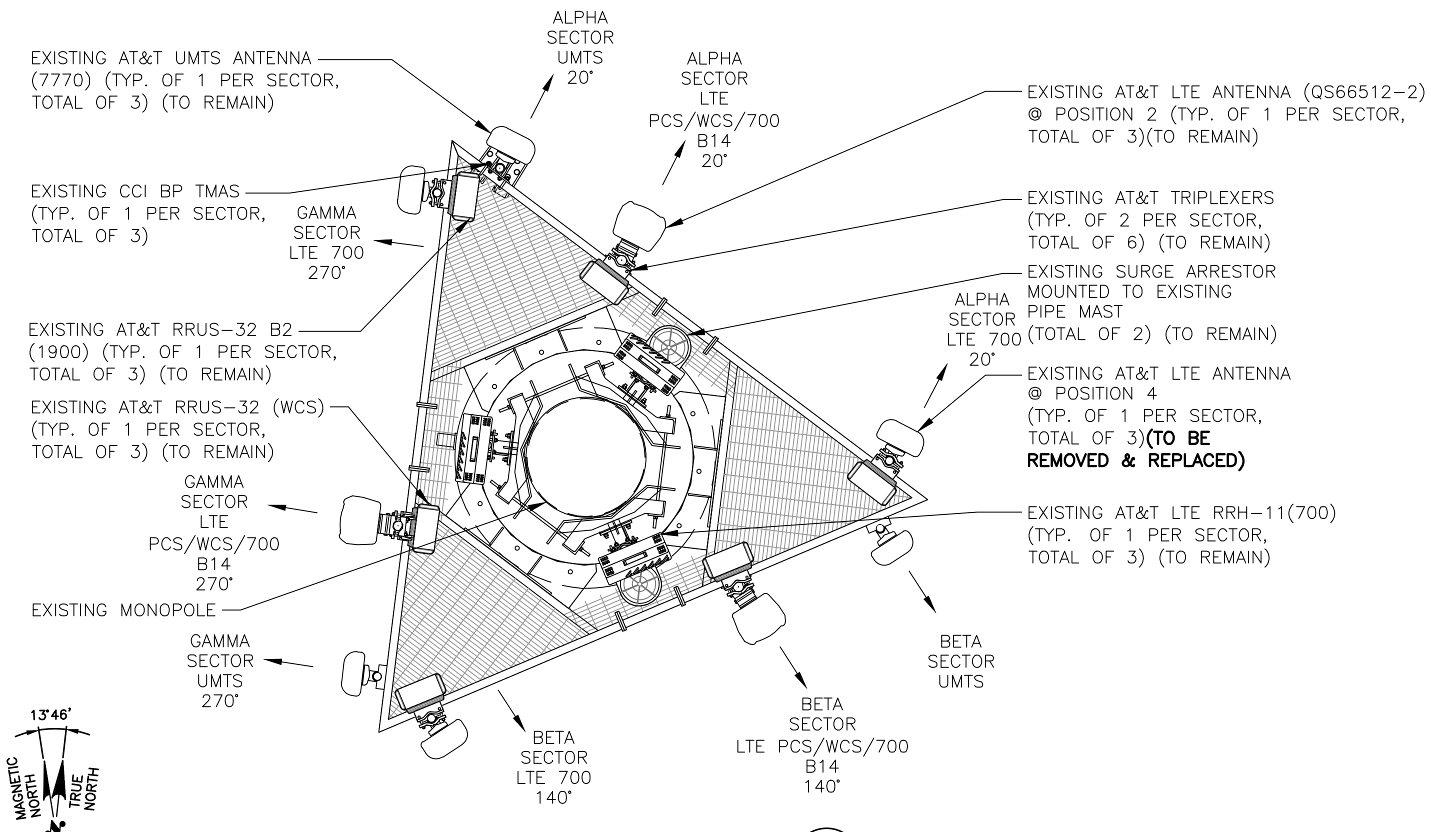
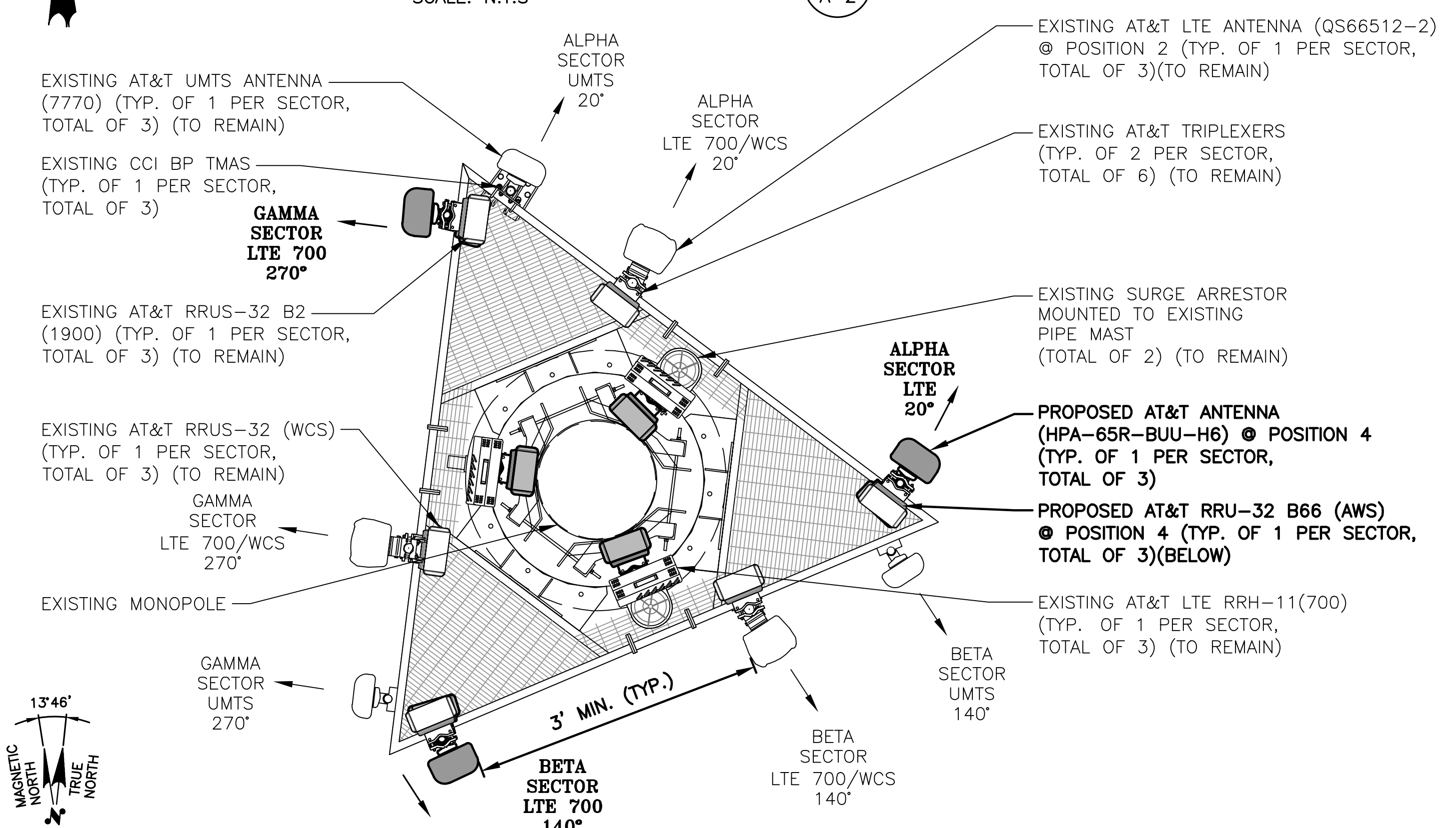
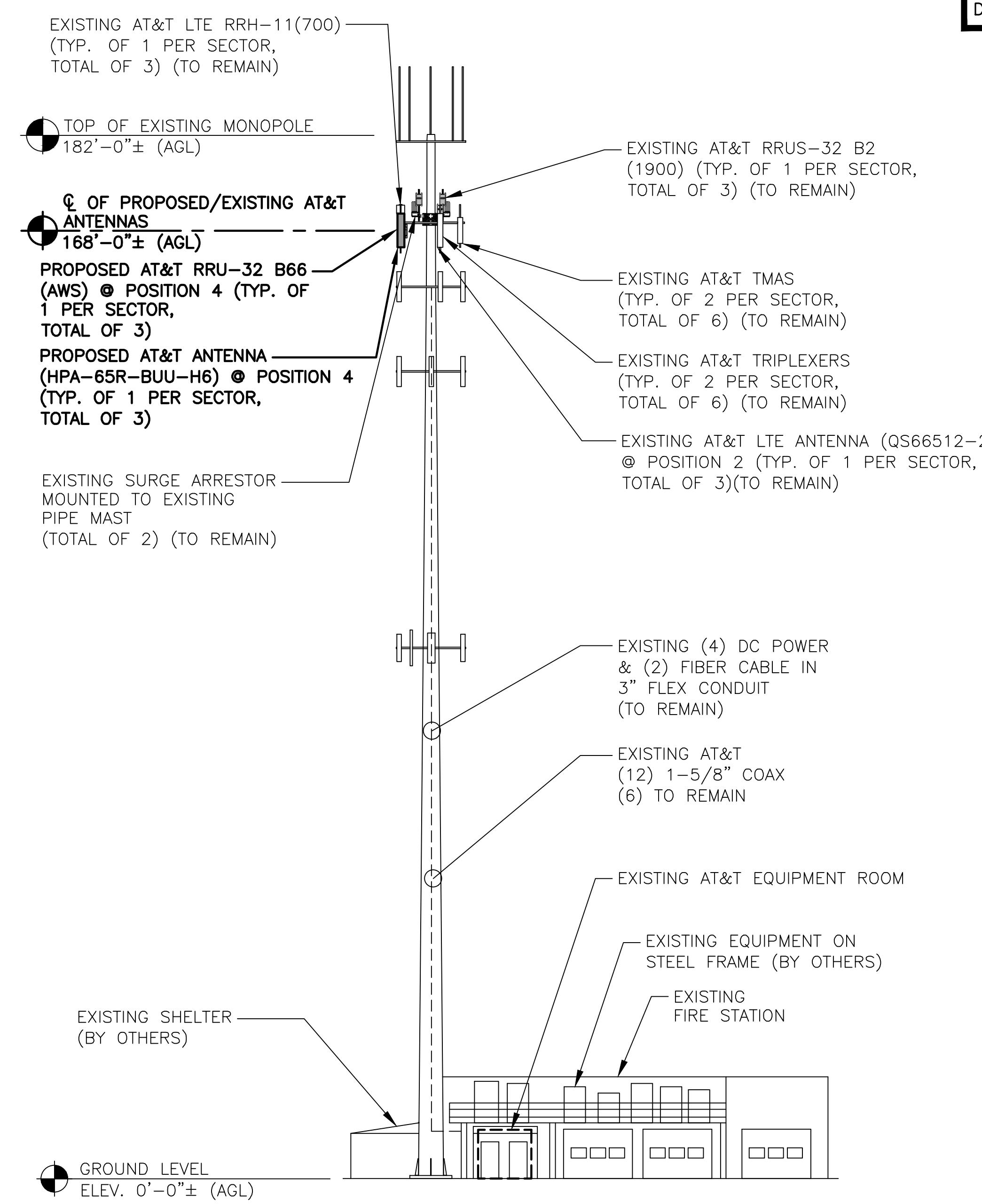


EXISTING ANTENNA PLAN 1 / A-2
SCALE: N.T.S



PROPOSED ANTENNA PLAN 2 / A-2
SCALE: N.T.S



ELEVATION 3 / A-2
22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

0 8'-0" 16'-0" 32'-0" 48'-0"

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45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
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SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT5123
SITE NAME: ROCKY HILL
CROWN CASTLE SITE # : 842872
52 NEW BRITAIN AVENUE
ROCKY HILL, CT 06067
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at&t
500 ENTERPRISE DRIVE, SUITE 3A
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

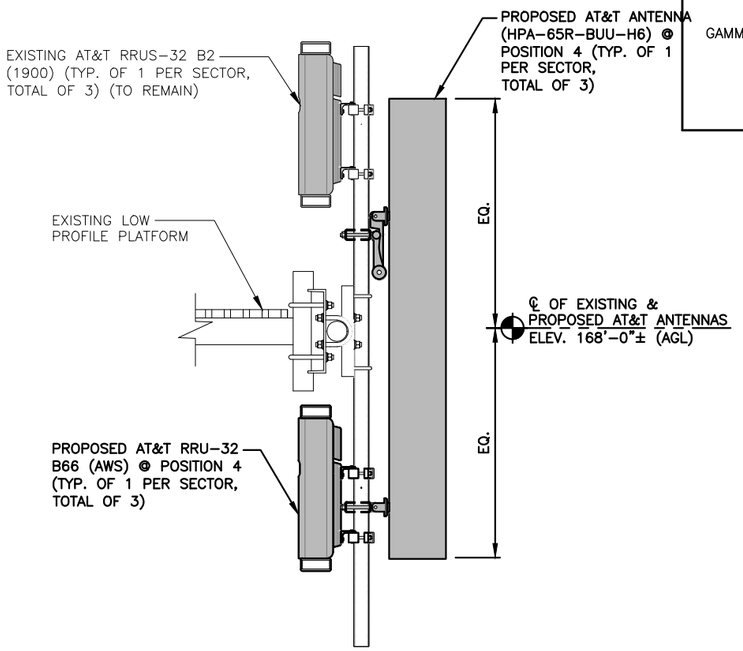
STATE OF CONNECTICUT DEREK J. CREASER LICENSED PROFESSIONAL ENGINEER

AT&T
ANTENNA LAYOUTS & ELEVATION (LTE-4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	A-2	1

FINAL ANTENNA SCHEDULE

SECTOR	BAND	ANTENNA		SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	TMA'S		RRU'S		SIZE (INCHES) (L X W X D)	COAX JUMPERS	FIBER JUMPERS	COAX
ALPHA	UMTS	EXISTING	7770	55x11x5	168'-0"±	20°	EXISTING	(2) LGP-21401	–	–	–	–	–	(2)1-5/8
	LTE PCS/WCS/700 B14	EXISTING	QS66512-2	72.0x12.0x9.6	168'-0"±	20°	–	–	EXISTING EXISTING PROPOSED (G)	RRUS-32 B2 (PCS) RRUS-32 (WCS) B14 4478 (700)	– 19.7X17.0X7.2	– – 1*	– – 1**	(2)1-5/8
	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	LTE 700 AWS	PROPOSED	HPA-65R-BUU-H6	72x14.8x9	168'-0"±	20°	–	–	PROPOSED EXISTING	RRUS-32 B66 (AWS) RRUS-11 (700)	27.2X12.1X7.0 –	1* –	2** –	–
BETA	UMTS	EXISTING	7770	55x11x5	168'-0"±	140°	EXISTING	(2) LGP-21401	–	–	–	–	–	(2)1-5/8
	LTE PCS/WCS/700 B14	EXISTING	QS66512-2	72.0x12.0x9.6	168'-0"±	140°	–	–	EXISTING EXISTING PROPOSED (G)	RRUS-32 B2 (PCS) RRUS-32 (WCS) B14 4478 (700)	– 19.7X17.0X7.2	– –	– –	(2)1-5/8
	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	LTE 700 AWS	PROPOSED	HPA-65R-BUU-H6	72x14.8x9	168'-0"±	140°	–	–	PROPOSED EXISTING	RRUS-32 B66 (AWS) RRUS-11 (700)	27.2X12.1X7.0 –	1* –	2** –	–
GAMMA	UMTS	EXISTING	7770	55x11x5	168'-0"±	270°	EXISTING	(2) LGP-21401	–	–	–	–	–	(2)1-5/8
	LTE PCS/WCS/700 B14	EXISTING	QS66512-2	72.0x12.0x9.6	168'-0"±	270°	–	–	EXISTING EXISTING	RRUS-32 B2 (PCS) RRUS-32 (WCS)	– –	– –	– –	(2)1-5/8
	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	LTE 700 AWS	PROPOSED	HPA-65R-BUU-H6	72x14.8x9	168'-0"±	270°	–	–	PROPOSED EXISTING	RRUS-32 B66 (AWS) RRUS-11 (700)	27.2X12.1X7.0 –	1* –	2** –	–

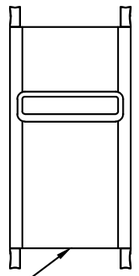


PROPOSED ANTENNA & RRU'S MOUNTING DETAIL (1 / A-3)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

FINAL ANTENNA CONFIGURATION TABLE (3 / A-3)

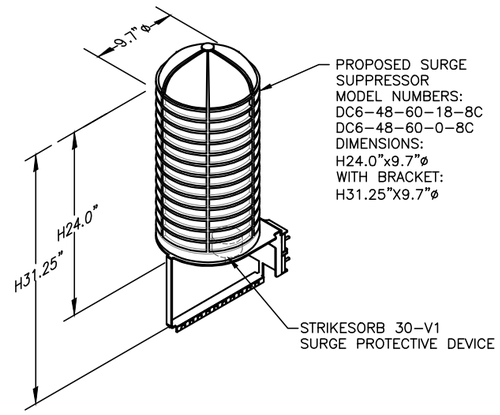
RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
2(P)(G)	RRUS B14 4478	19.7"	17.0"	7.2"
3(P), 6(E)	RRUS-32	27.2"	12.1"	7.0"
NOTE: MOUNT PER MANUFACTURER'S SPECIFICATIONS				



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

RRU DETAIL (2 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (4 / A-3)
SCALE: N.T.S

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: FEBRUARY 8, 2018

*COAX JUMPER NOTE:
COAX JUMPERS (1) PER RRU (TOTAL OF 2)

**FIBER JUMPER NOTE:
FIBER JUMPERS (1) PER RRU (TOTAL OF 3).

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

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STATE OF CONNECTICUT
DEREK J. CREASEY
No. 26551
LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS (LTE-4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	A-3	1

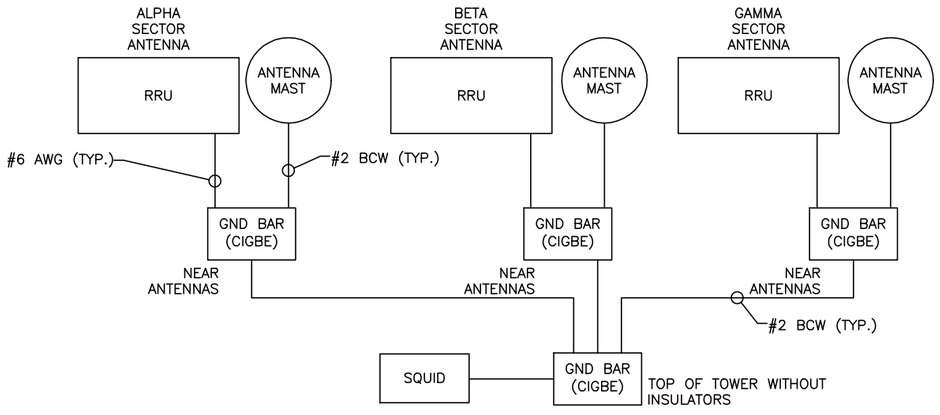
COAX COLOR CODING AND IDENTIFICATION NOTES

1. SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION TO REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SITE TO DETERMINE THE ANTENNA LOCATION AND FUNCTION OF EACH TOWER SECTOR FACE.
2. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE EXCEPT IN LOCATIONS WHERE ENVIRONMENTAL CONDITIONS CAUSE PHYSICAL DAMAGE, THE PHYSICAL TAGS ARE PREFERRED.
3. THE STANDARD IS BASED ON 8 COLORED TAPES–RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTIRCAL COLOR CODING TAPE AND SHOULD BE READILY AVALIBLE TO THE ELECTRICIAN OR SUBCONTRACTOR ON SITE.
4. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
5. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN GSM/3G AND IS–136/TDMA IS ENCOUNTERED, THE SUBCONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING AND TAGGING STANDARD THAT IS OUTLINED IN THE CURRENT VERSION OF ND–00027. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THE GUIDELINE SHALL BE IMPLEMENTED AT THE SITE REGARDLESS OF TECHNOLOGY.
6. ALL COLOR CODE TAPE SHALL BE 3M–35 AND SHALL BE INSTALLED USING A MINIMUM OF 3 WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SI AS TO AVOID UNRAVELING.
7. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
8. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE.
9. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE GSM TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING TAGS

WHEN USING THE ALTERNATIVE LABELING METHOD, EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL ID TAG MADE OF STAINLESS STEEL OR BRASS, THE TAG SHALL BE 1 1/2" IN DIAMETER WITH 1/4" STAMPED LETTERS AND NUMBERS INDICATING THE SECTOR, ANTENNA POSITION, AND CABLE NUMBER. THE ID MARKING LOCATIONS SHOULD BE AS PER CABLING MARKING LOCATIONS TABLE. THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE AT THE SAME LOCATION AS DEFINED ABOVE. THE TAG SHOULD BE LABELED AS SHOWN ON THE GSM AND UMTS LINE TAG DETAIL.

CABLE MARKING LOCATIONS TABLE	
NO.	LOCATIONS
①	EACH TOP JUMPER SHALL BE COLOR CODED WITH 1 SET OF 3" WIDE BANDS
②	EACH MAIN COAX SHALL BE COLORED RED WITH 1 SET OF 3" WIDE BANDS NEAR THE TOP JUMPER CONNECTION AND WITH 1 SET OF 3/4" WIDE COLOR BANDS. JUST PRIOR TO ENTERING THE BTS FOR THE TRANSMITTER BUILDING.
③	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
④	ALL BOTTOM JUMPERS SHALL BE COLORED WITH 1 SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPERS.
⑤	ALL BOTTOM JUMPERS SHALL BE COLORED WITH 1 SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPERS.



SCHEMATIC DIAGRAM GROUNDING SYSTEM

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5123
SITE NAME: ROCKY HILL
CROWN CASTLE SITE # : 842872
52 NEW BRITAIN AVENUE
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HARTFORD COUNTY

at&t
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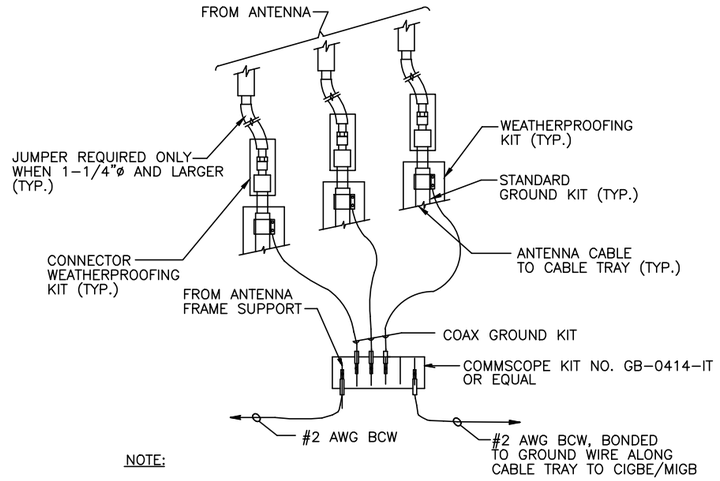
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: MR

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 25351
LICENSED PROFESSIONAL ENGINEER

AT&T

SCHEMATIC AND NOTES (LTE–4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	A–4	1



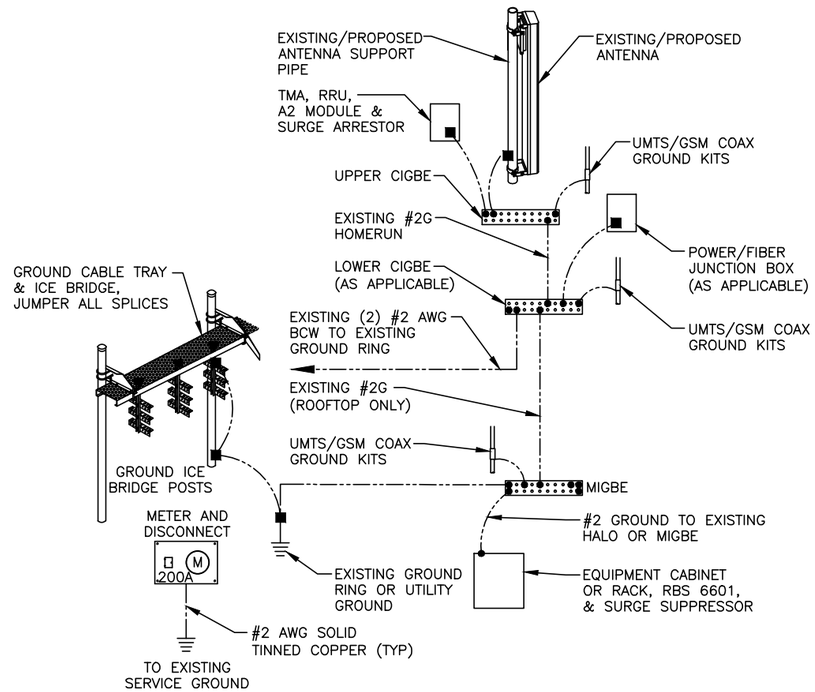
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

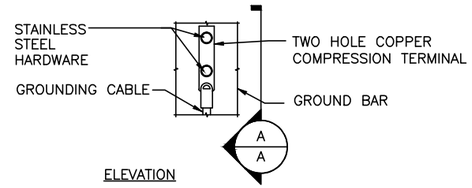
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

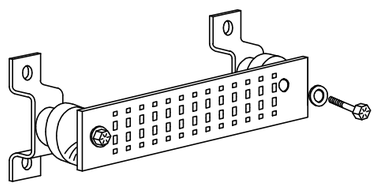
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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)



GROUND BAR - DETAIL

SCALE: N.T.S

4 / G-1

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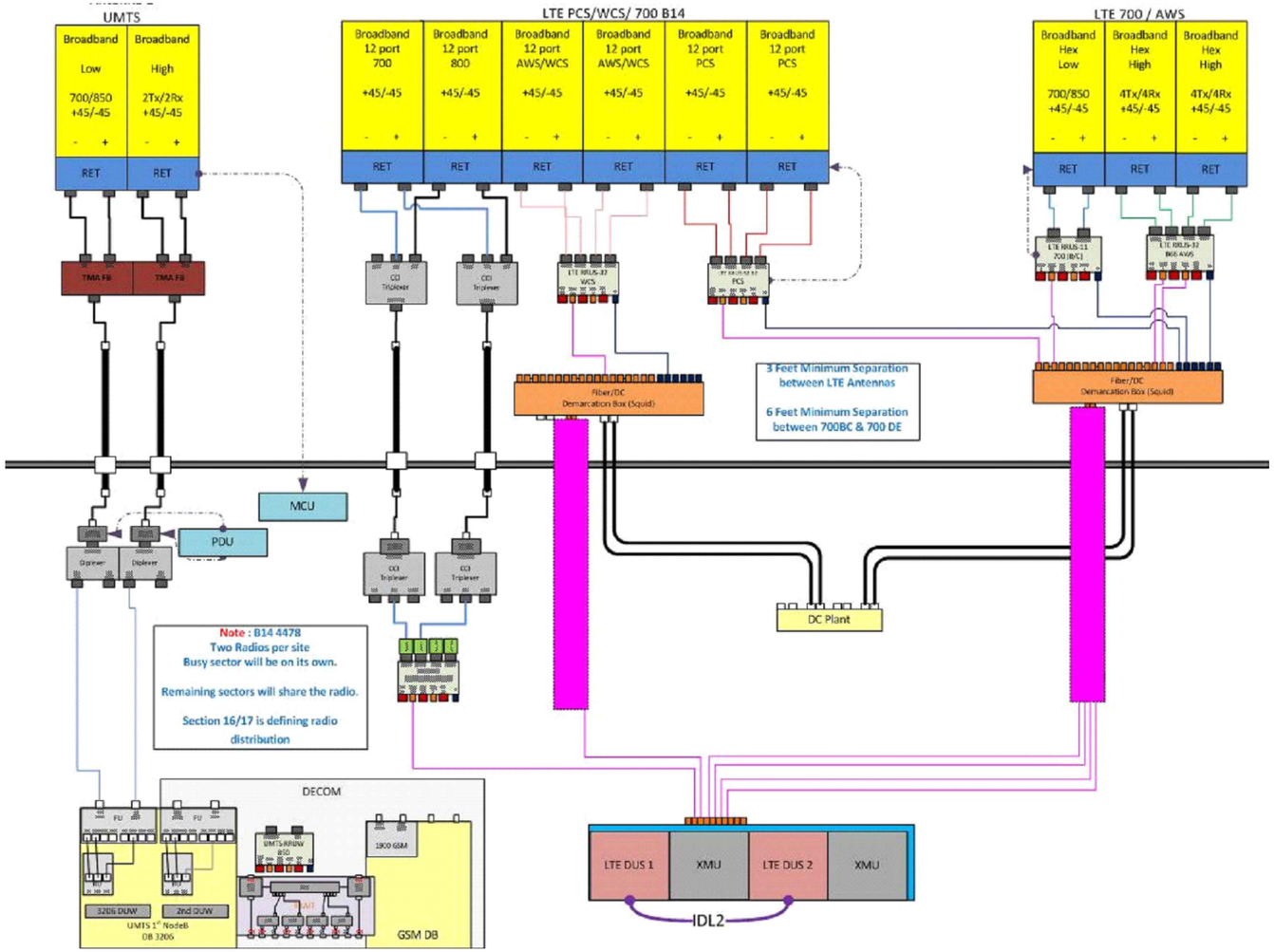
STATE OF CONNECTICUT
DEREK J. CREASEY
No. 24551
LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS (LTE-4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	G-1	1



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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AT&T

RF PLUMBING DIAGRAM
(LTE–4C/5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5123	RF–1	1

Date: **January 26, 2018**

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

Black & Veatch Corp.
6800 W. 115th St., Suite 2292
Overland Park, KS 66211
(913) 458-8145

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5123
	Carrier Site Name:	ROCKY HILL
Crown Castle Designation:	**Crown Castle BU Number:**	842872
	Crown Castle Site Name:	ROCKY HILL
	Crown Castle JDE Job Number:	477478
	Crown Castle Work Order Number:	1516089
	Crown Castle Application Number:	420726 Rev. 1
Engineering Firm Designation:	**Black & Veatch Corp. Project Number:**	194393
Site Data:	**52 New Britain Avenue, Rocky Hill, Hartford County, CT** **Latitude *41° 39' 36.89"*, Longitude *-72° 40' 50.58"*** **181.833 Foot - Monopole Tower**	

Dear Charles McGuirt,

Black & Veatch Corp. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1132566, in accordance with application 420726, revision 1.

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: Existing/Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis. Seismic forces have been evaluated based on Site Class D with spectral response factors S_S of 0.181g and S_1 of 0.063g.

We at *Black & Veatch Corp.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Suttinee Somchana/Changzhi Zang

Respectfully submitted by:

Ping Jiang, P.E.
Professional Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 181.833 ft Monopole tower designed by Engineered Endeavors, Inc. in August of 1999. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

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

The tower has been modified per reinforcement drawings prepared by B+T Group, in June of 2012. Reinforcement consists of addition of stiffener plates on base plate. Refer to legacy modification inspection report by GPD Engineering and Architecture Professional Corporation, in December of 2015. This modification has been considered ineffective in this analysis.

The tower was later reinforced per modification drawings prepared by B+T Group, in May of 2013. Reinforcement consists of addition of reinforcement plates at elevation 47' - 87' and additional rebars to foundation. Refer to modification inspection report by B+T Group, in February of 2014. This modification has been considered effective in this analysis.

The tower was later reinforced per modification drawings prepared by B+T Group, in October of 2016. Reinforcement consists of repairing existing shaft to base plate weld, removed existing welds and install new weld to existing base plate stiffeners. Refer to modification inspection report by Tower Engineering Professionals, in January of 2017. This modification has been considered effective in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1 and crest height of 0 feet. Seismic forces have been evaluated based on Site Class D with spectral response factors S_S of 0.181g and S_1 of 0.063g.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
170.0	168.0	3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	-	-	1
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 32 B66			
		3	quintel technology	QS66512-2 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8C			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
178.0	191.0	1	austin antenna company	APC-1362	9	7/8	1
		1	austin antenna company	APC-2163			
		1	austin antenna company	APC-301			
		1	austin antenna company	APC-4065			
	190.0	2	dbspectra	DS4C06F36D-D	3	7/8	2
	178.0	1	cci tower mounts	Side Arm Mount [SO 702-3]	-	-	1
		2	radiowaves	HPD2-4.7			
	175.0	1	telewave	ANT450D6-9			
170.0	170.0	1	cci tower mounts	Platform Mount [LP 601-1]	2 4 12 1	3/8 3/4 1-5/8 2-1/2 conduit	1
	168.0	6	powerwave technologies	LGP21401			
		4	cci antennas	TPX-070821			
		3	ericsson	RRUS 11			
		3	powerwave technologies	7770.00 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
		2	cci antennas	TPX-070821	-	-	3
		3	ericsson	RRUS 11			
		3	ericsson	RRUS 32			
		3	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe			
		3	quintel technology	QS66512-2 w/ Mount Pipe			
		1	raycap	DC6-48-60-18-8F			
157.0	158.0	3	rfs celwave	ATMAA1412D-1A20	2 12	1-1/4 1-5/8	1
		3	ericsson	RRUS 11 B12			
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe			
	157.0	1	cci tower mounts	Platform Mount [LP 305-1]			
140.0	144.0	2	andrew	VHLP2.5-10W	4 2	1/2 2-1/4	1
		2	dragonwave	Horizon Compact			
	140.0	3	kathrein	840 10054 w/ Mount Pipe			
		3	samsung telecommunications	URAS-FLEXIBLE			
		3	alcatel lucent	1900MHz RRH (65MHz)	3	1-1/4	
		3	alcatel lucent	800 EXTERNAL NOTCH FILTER			
		3	alcatel lucent	800MHZ RRH			
		2	cci tower mounts	Platform Mount [LP 712-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe	1	1-1/4	2
		3	alcatel lucent	TD-RRH8x20-25			
90.0	93.0	1	gps	GPS_A	1 13	1/2 1-5/8	1
	92.0	6	rfs celwave	FD9R6004/2C-3L			
		3	alcatel lucent	RRH2X60-AWS			
		3	alcatel lucent	RRH2X60-PCS			
		6	andrew	HBXX-6517DS-A2M w/ Mount Pipe			
		1	andrew	LNX-6514DS-T6M w/ Mount Pipe			
		2	antel	BXA-70063-6CF-EDIN-4 w/ Mount Pipe			
		3	antel	BXA-70080-4BF-EDIN-0 w/ Mount Pipe			
		2	rfs celwave	DB-T1-6Z-8AB-0Z			
	90.0	1	cci tower mounts	Platform Mount [LP 712-1]			
73.0	73.0	1	cci tower mounts	Side Arm Mount [SO 701-1]	1	1/2	1
		1	gps	GPS_A			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Existing Equipment To Be Removed; Not Considered in This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
180	180	6	cellwave	omni	-	-
170	170	12	allgon	7184.15	-	-
160	160	12	allgon	7184.15	-	-
150	150	12	allgon	7184.15	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Delta Oaks Group	4713251	CCISITES
4-POST-MODIFICATION INSPECTION	B+T Group	4904967	CCISITES
4-POST-MODIFICATION INSPECTION	GPD Engineering and Architecture Professional Corporation	6040534	CCISITES

Document	Remarks	Reference	Source
4-POST-MODIFICATION INSPECTION	Tower Engineering Professionals	6647989	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Tower Engineering Professionals (Mapped)	4713252	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors, Inc.	4844402	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	4740398	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	4904956	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	B+T Group	6525881	CCISITES
4-TOWER STRUCTURAL ANALYSIS REPORTS	Black & Veatch Corp.	7031961	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), 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) This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. The existing/proposed loading on the structure is based on CAD level drawings and carrier applications provided by the owner. If any of this information is not current and correct, this report should be considered obsolete and further analysis will be required.

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

4) ANALYSIS RESULTS

4.1) Wind Results

Table 5 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
181.83 - 176.83	Pole	TP15.678x14.5x0.25	Pole	7.7%	Pass
176.83 - 171.83	Pole	TP16.856x15.678x0.25	Pole	11.1%	Pass
171.83 - 166.83	Pole	TP18.033x16.856x0.25	Pole	17.9%	Pass
166.83 - 161.83	Pole	TP19.211x18.033x0.25	Pole	28.3%	Pass
161.83 - 156.83	Pole	TP20.389x19.211x0.25	Pole	37.2%	Pass
156.83 - 151.83	Pole	TP21.567x20.389x0.25	Pole	47.0%	Pass
151.83 - 146.83	Pole	TP22.745x21.567x0.25	Pole	54.9%	Pass
146.83 - 141.83	Pole	TP23.922x22.745x0.25	Pole	61.5%	Pass
141.83 - 136.83	Pole	TP25.1x23.922x0.25	Pole	69.5%	Pass
136.83 - 136.67	Pole	TP26.023x25.1x0.25	Pole	69.8%	Pass
136.67 - 131.67	Pole	TP25.806x24.639x0.375	Pole	54.4%	Pass
131.67 - 126.67	Pole	TP26.973x25.806x0.375	Pole	58.8%	Pass
126.67 - 121.67	Pole	TP28.14x26.973x0.375	Pole	62.3%	Pass
121.67 - 116.67	Pole	TP29.307x28.14x0.375	Pole	65.3%	Pass
116.67 - 111.67	Pole	TP30.474x29.307x0.375	Pole	67.8%	Pass
111.67 - 106.67	Pole	TP31.641x30.474x0.375	Pole	69.8%	Pass
106.67 - 101.67	Pole	TP32.808x31.641x0.375	Pole	71.5%	Pass
101.67 - 96.67	Pole	TP33.975x32.808x0.375	Pole	73.0%	Pass
96.67 - 92.32	Pole	TP36.161x33.975x0.375	Pole	74.1%	Pass
92.32 - 86.3	Pole	TP35.642x34.239x0.375	Pole	79.9%	Pass
86.3 - 85	Pole	TP35.945x35.642x0.375	Pole	80.4%	Pass
85 - 84.75	Pole	TP36.004x35.945x0.375	Pole	80.5%	Pass
84.75 - 79.75	Pole	TP37.169x36.004x0.375	Pole	82.2%	Pass
79.75 - 75	Pole	TP38.276x37.169x0.375	Pole	83.8%	Pass
75 - 74.75	Pole + Reinf.	TP38.334x38.276x0.6625	Reinf. 1 Tension Rupture	78.9%	Pass
74.75 - 74	Pole + Reinf.	TP38.509x38.334x0.6625	Reinf. 1 Tension Rupture	79.3%	Pass

74 - 73.75	Pole	TP38.567x38.509x0.375	Pole	84.3%	Pass
73.75 - 68.75	Pole	TP39.733x38.567x0.375	Pole	86.1%	Pass
68.75 - 63.75	Pole	TP40.898x39.733x0.375	Pole	87.8%	Pass
63.75 - 58.75	Pole	TP42.064x40.898x0.375	Pole	89.3%	Pass
58.75 - 53.75	Pole	TP43.229x42.064x0.375	Pole	90.7%	Pass
53.75 - 49	Pole	TP44.336x43.229x0.375	Pole	91.9%	Pass
49 - 48.93	Pole	TP45.805x44.336x0.375	Pole	91.9%	Pass
48.93 - 41.7	Pole	TP45.287x43.603x0.4375	Pole	79.3%	Pass
41.7 - 36.7	Pole	TP46.452x45.287x0.4375	Pole	80.0%	Pass
36.7 - 31.7	Pole	TP47.616x46.452x0.4375	Pole	80.6%	Pass
31.7 - 26.7	Pole	TP48.781x47.616x0.4375	Pole	81.2%	Pass
26.7 - 21.7	Pole	TP49.946x48.781x0.4375	Pole	81.8%	Pass
21.7 - 16.7	Pole	TP51.11x49.946x0.4375	Pole	82.3%	Pass
16.7 - 11.7	Pole	TP52.275x51.11x0.4375	Pole	82.7%	Pass
11.7 - 6.7	Pole	TP53.44x52.275x0.4375	Pole	83.2%	Pass
6.7 - 1.7	Pole	TP54.604x53.44x0.4375	Pole	83.5%	Pass
1.7 - 0	Pole	TP55x54.604x0.4375	Pole	83.7%	Pass
				Summary	
			Pole	91.9%	Pass
			Reinforcement	79.3%	Pass
			Overall	91.9%	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	91.6	Pass
	Base Plate		71.6	Pass
	Plate Stiffeners		99.7	Pass
	Pole Punching Shear		4.3	Pass
1	Base Foundation	0	87.6	Pass
	Base Foundation Soil Interaction		78.2	Pass

4.2) Seismic Results

Tower and foundation have been analyzed based on the seismic criteria outlined in section 2 of this report. Based on the analysis, seismic loading is not governing the tower and foundation stress. Wind loading is governing the tower and foundation stress.

Structure Rating (max from all components) =	99.7%

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

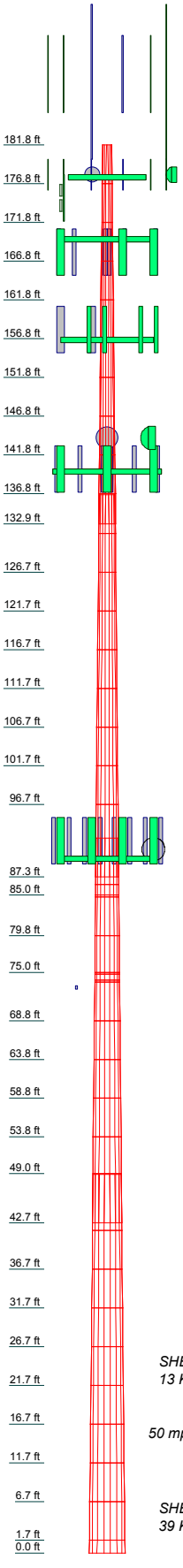
4.3) Recommendations

The tower and its foundations have sufficient capacity to carry the existing, reserved and proposed loads. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
Length (ft)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	6.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	4.75	7.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	1.70
Number of Sides	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Thickness (in)	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.2500	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.3750	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375	0.4375
Socket Length (ft)										3.75									5.02														6.23												
Top Dia (in)	14.5000	15.6778	16.8556	18.0334	19.2112	20.3890	21.5668	22.7446	23.9224	25.1002	26.2780	27.4558	28.6336	29.8114	30.9892	32.1670	33.3448	34.5226	36.1606	37.3384	38.5162	39.6940	40.8718	42.0496	43.2274	44.4052	45.5830	46.7608	47.9386	49.1164	50.2942	51.4720	52.6498	53.8276	55.0054	56.1832	57.3610	58.5388	59.7166	60.8944	62.0722	63.2500	64.4278
Bot Dia (in)	15.6778	16.8556	18.0334	19.2112	20.3890	21.5668	22.7446	23.9224	25.1002	26.2780	27.4558	28.6336	29.8114	30.9892	32.1670	33.3448	34.5226	35.7004	37.3384	38.5162	39.6940	40.8718	42.0496	43.2274	44.4052	45.5830	46.7608	47.9386	49.1164	50.2942	51.4720	52.6498	53.8276	55.0054	56.1832	57.3610	58.5388	59.7166	60.8944	62.0722	63.2500	64.4278	65.6056
Grade	A572-65																																										
Weight (K)	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	1.3	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.8	1.1	1.5	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	0.4



ALL REACTIONS ARE FACTORED

AXIAL 114 K

SHEAR 13 K *MOMENT 1786 kip-ft*

TORQUE 1 kip-ft

50 mph WIND - 1.0000 in ICE

AXIAL 55 K

SHEAR 39 K *MOMENT 4893 kip-ft*

TORQUE 2 kip-ft

REACTIONS - 97 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Side Arm Mount [SO 702-3]	178	RRUS 11 B12	157
6' x 2" Mount Pipe	178	ATMAA1412D-1A20	157
6' x 2" Mount Pipe	178	ATMAA1412D-1A20	157
6' x 2" Mount Pipe	178	ATMAA1412D-1A20	157
6' x 2" Mount Pipe	178	Platform Mount [LP 305-1]	157
6' x 2" Mount Pipe	178	6' x 2" Mount Pipe	157
6' x 2" Mount Pipe	178	APXVSPP18-C-A20 w/ Mount Pipe	140
DS4C06F36D-D	178	APXVSPP18-C-A20 w/ Mount Pipe	140
DS4C06F36D-D	178	APXVTM14-C-120 w/ Mount Pipe	140
APC-2163	178	APXVTM14-C-120 w/ Mount Pipe	140
APC-1362	178	APXVTM14-C-120 w/ Mount Pipe	140
APC-301	178	800MHZ RRH	140
ANT450D6-9	178	800MHZ RRH	140
APC-4065	178	800MHZ RRH	140
HPD2-4.7	178	800 EXTERNAL NOTCH FILTER	140
HPD2-4.7	178	800 EXTERNAL NOTCH FILTER	140
7770.00 w/ Mount Pipe	170	800 EXTERNAL NOTCH FILTER	140
7770.00 w/ Mount Pipe	170	1900MHz RRH (65MHz)	140
7770.00 w/ Mount Pipe	170	1900MHz RRH (65MHz)	140
QS66512-2 w/ Mount Pipe	170	1900MHz RRH (65MHz)	140
QS66512-2 w/ Mount Pipe	170	TD-RRH8x20-25	140
QS66512-2 w/ Mount Pipe	170	TD-RRH8x20-25	140
HPA-65R-BUU-H6 w/ Mount Pipe	170	TD-RRH8x20-25	140
HPA-65R-BUU-H6 w/ Mount Pipe	170	840 10054 w/ Mount Pipe	140
HPA-65R-BUU-H6 w/ Mount Pipe	170	840 10054 w/ Mount Pipe	140
LGP21401	170	840 10054 w/ Mount Pipe	140
LGP21401	170	URAS-FLEXIBLE	140
LGP21401	170	URAS-FLEXIBLE	140
LGP21401	170	URAS-FLEXIBLE	140
LGP21401	170	Horizon Compact	140
LGP21401	170	Horizon Compact	140
RRUS 32 B2	170	Platform Mount [LP 712-1]	140
RRUS 32 B2	170	APXVSPP18-C-A20 w/ Mount Pipe	140
RRUS 32 B2	170	VHLP2.5-10W	140
RRUS 32	170	VHLP2.5-10W	140
RRUS 32	170	HBXX-6517DS-A2M w/ Mount Pipe	90
RRUS 32	170	HBXX-6517DS-A2M w/ Mount Pipe	90
RRUS 11	170	HBXX-6517DS-A2M w/ Mount Pipe	90
RRUS 11	170	HBXX-6517DS-A2M w/ Mount Pipe	90
RRUS 11	170	BXA-70063-6CF-EDIN-4 w/ Mount Pipe	90
RRUS 32 B66	170	BXA-70063-6CF-EDIN-4 w/ Mount Pipe	90
RRUS 32 B66	170	LNX-6514DS-T6M w/ Mount Pipe	90
RRUS 32 B66	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe	90
(2) TPX-070821	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe	90
(2) TPX-070821	170	BXA-70080-4BF-EDIN-0 w/ Mount Pipe	90
DC6-48-60-18-8F	170	RRH2X60-AWS	90
DC6-48-60-18-8C	170	RRH2X60-AWS	90
Platform Mount [LP 601-1]	170	RRH2X60-AWS	90
Transition Ladder	170	RRH2X60-PCS	90
6' x 2" Mount Pipe	157	RRH2X60-PCS	90
6' x 2" Mount Pipe	157	RRH2X60-PCS	90
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	157	(2) FD9R6004/2C-3L	90
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	157	(2) FD9R6004/2C-3L	90
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	157	(2) FD9R6004/2C-3L	90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	157	DB-T1-6Z-8AB-0Z	90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	157	DB-T1-6Z-8AB-0Z	90
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	157	Platform Mount [LP 712-1]	90
RRUS 11 B12	157	GPS_A	90
RRUS 11 B12	157	HBXX-6517DS-A2M w/ Mount Pipe	90
		HBXX-6517DS-A2M w/ Mount Pipe	90
		Side Arm Mount [SO 701-1]	73
		GPS_A	73

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft

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Job: *ROCKY HILL (BU#842872)*			
Project: *194393 (842872.1516089)*			
Client: Crown Castle	Drawn by: zan86134	App'd:	
Code: TIA-222-G	Date: 01/26/18	Scale: NTS	
Path: C:\Users\zan86134\Desktop\842872.1516089\842872.1516089 - TIA\Structural Analysis - Mod\tnxt		Dwg No. E-1	

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:
Tower is located in Hartford County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56.00 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

Tapered Pole Section Geometry

Section	*Elevation*	*Section Length*	*Splice Length*	*Number of Sides*	*Top Diameter*	*Bottom Diameter*	*Wall Thickness*	*Bend Radius*	*Pole Grade*
	ft	*ft*	*ft*		*in*	*in*	*in*	*in*	
L1	181.83-176.83	5.00	0.00	18	14.5000	15.6778	0.2500	1.0000	A572-65 (65 ksi)
L2	176.83-171.83	5.00	0.00	18	15.6778	16.8556	0.2500	1.0000	A572-65 (65 ksi)
L3	171.83-166.83	5.00	0.00	18	16.8556	18.0334	0.2500	1.0000	A572-65 (65 ksi)
L4	166.83-161.83	5.00	0.00	18	18.0334	19.2112	0.2500	1.0000	A572-65 (65 ksi)
L5	161.83-156.83	5.00	0.00	18	19.2112	20.3890	0.2500	1.0000	A572-65 (65 ksi)
L6	156.83-151.83	5.00	0.00	18	20.3890	21.5668	0.2500	1.0000	A572-65 (65 ksi)
L7	151.83-146.83	5.00	0.00	18	21.5668	22.7446	0.2500	1.0000	A572-65 (65 ksi)
L8	146.83-141.83	5.00	0.00	18	22.7446	23.9224	0.2500	1.0000	A572-65

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
L9	141.83-136.83	5.00	0.00	18	23.9224	25.1001	0.2500	1.0000	(65 ksi) A572-65 (65 ksi)
L10	136.83-132.91	3.92	3.75	18	25.1001	26.0233	0.2500	1.0000	A572-65 (65 ksi)
L11	132.91-131.67	5.00	0.00	18	24.6392	25.8062	0.3750	1.5000	A572-65 (65 ksi)
L12	131.67-126.67	5.00	0.00	18	25.8062	26.9732	0.3750	1.5000	A572-65 (65 ksi)
L13	126.67-121.67	5.00	0.00	18	26.9732	28.1401	0.3750	1.5000	A572-65 (65 ksi)
L14	121.67-116.67	5.00	0.00	18	28.1401	29.3071	0.3750	1.5000	A572-65 (65 ksi)
L15	116.67-111.67	5.00	0.00	18	29.3071	30.4740	0.3750	1.5000	A572-65 (65 ksi)
L16	111.67-106.67	5.00	0.00	18	30.4740	31.6410	0.3750	1.5000	A572-65 (65 ksi)
L17	106.67-101.67	5.00	0.00	18	31.6410	32.8079	0.3750	1.5000	A572-65 (65 ksi)
L18	101.67-96.67	5.00	0.00	18	32.8079	33.9749	0.3750	1.5000	A572-65 (65 ksi)
L19	96.67-87.30	9.37	5.02	18	33.9749	36.1606	0.3750	1.5000	A572-65 (65 ksi)
L20	87.30-86.30	6.02	0.00	18	34.2387	35.6420	0.3750	1.5000	A572-65 (65 ksi)
L21	86.30-85.00	1.30	0.00	18	35.6420	35.9455	0.3750	1.5000	A572-65 (65 ksi)
L22	85.00-84.75	0.25	0.00	18	35.9455	36.0038	0.3750	1.5000	A572-65 (65 ksi)
L23	84.75-79.75	5.00	0.00	18	36.0038	37.1691	0.3750	1.5000	A572-65 (65 ksi)
L24	79.75-75.00	4.75	0.00	18	37.1691	38.2762	0.3750	1.5000	A572-65 (65 ksi)
L25	75.00-74.75	0.25	0.00	18	38.2762	38.3344	0.6625	2.6500	A572-65 (65 ksi)
L26	74.75-74.00	0.75	0.00	18	38.3344	38.5092	0.6625	2.6500	A572-65 (65 ksi)
L27	74.00-73.75	0.25	0.00	18	38.5092	38.5675	0.3750	1.5000	A572-65 (65 ksi)
L28	73.75-68.75	5.00	0.00	18	38.5675	39.7328	0.3750	1.5000	A572-65 (65 ksi)
L29	68.75-63.75	5.00	0.00	18	39.7328	40.8982	0.3750	1.5000	A572-65 (65 ksi)
L30	63.75-58.75	5.00	0.00	18	40.8982	42.0635	0.3750	1.5000	A572-65 (65 ksi)
L31	58.75-53.75	5.00	0.00	18	42.0635	43.2288	0.3750	1.5000	A572-65 (65 ksi)
L32	53.75-49.00	4.75	0.00	18	43.2288	44.3359	0.3750	1.5000	A572-65 (65 ksi)
L33	49.00-42.70	6.30	6.23	18	44.3359	45.8047	0.3750	1.5000	A572-65 (65 ksi)
L34	42.70-41.70	7.23	0.00	18	43.6034	45.2869	0.4375	1.7500	A572-65 (65 ksi)
L35	41.70-36.70	5.00	0.00	18	45.2869	46.4516	0.4375	1.7500	A572-65 (65 ksi)
L36	36.70-31.70	5.00	0.00	18	46.4516	47.6163	0.4375	1.7500	A572-65 (65 ksi)
L37	31.70-26.70	5.00	0.00	18	47.6163	48.7810	0.4375	1.7500	A572-65 (65 ksi)
L38	26.70-21.70	5.00	0.00	18	48.7810	49.9457	0.4375	1.7500	A572-65 (65 ksi)
L39	21.70-16.70	5.00	0.00	18	49.9457	51.1104	0.4375	1.7500	A572-65 (65 ksi)
L40	16.70-11.70	5.00	0.00	18	51.1104	52.2751	0.4375	1.7500	A572-65 (65 ksi)
L41	11.70-6.70	5.00	0.00	18	52.2751	53.4398	0.4375	1.7500	A572-65 (65 ksi)
L42	6.70-1.70	5.00	0.00	18	53.4398	54.6045	0.4375	1.7500	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
L43	1.70-0.00	1.70		18	54.6045	55.0000	0.4375	1.7500	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	14.7237	11.3074	290.0875	5.0587	7.3660	39.3820	580.5566	5.6548	2.1120	8.448
	15.9196	12.2420	368.1255	5.4769	7.9643	46.2218	736.7353	6.1221	2.3193	9.277
L2	15.9196	12.2420	368.1255	5.4769	7.9643	46.2218	736.7353	6.1221	2.3193	9.277
	17.1156	13.1765	459.0364	5.8950	8.5626	53.6092	918.6768	6.5895	2.5266	10.106
L3	17.1156	13.1765	459.0364	5.8950	8.5626	53.6092	918.6768	6.5895	2.5266	10.106
	18.3116	14.1111	563.8031	6.3131	9.1610	61.5441	1128.3480	7.0569	2.7339	10.936
L4	18.3116	14.1111	563.8031	6.3131	9.1610	61.5441	1128.3480	7.0569	2.7339	10.936
	19.5075	15.0457	683.4082	6.7312	9.7593	70.0265	1367.7156	7.5243	2.9412	11.765
L5	19.5075	15.0457	683.4082	6.7312	9.7593	70.0265	1367.7156	7.5243	2.9412	11.765
	20.7035	15.9803	818.8345	7.1493	10.3576	79.0564	1638.7464	7.9917	3.1485	12.594
L6	20.7035	15.9803	818.8345	7.1493	10.3576	79.0564	1638.7464	7.9917	3.1485	12.594
	21.8995	16.9149	971.0647	7.5675	10.9559	88.6338	1943.4072	8.4590	3.3558	13.423
L7	21.8995	16.9149	971.0647	7.5675	10.9559	88.6338	1943.4072	8.4590	3.3558	13.423
	23.0954	17.8494	1141.0817	7.9856	11.5542	98.7587	2283.6648	8.9264	3.5630	14.252
L8	23.0954	17.8494	1141.0817	7.9856	11.5542	98.7587	2283.6648	8.9264	3.5630	14.252
	24.2914	18.7840	1329.8681	8.4037	12.1526	109.4312	2661.4861	9.3938	3.7703	15.081
L9	24.2914	18.7840	1329.8681	8.4037	12.1526	109.4312	2661.4861	9.3938	3.7703	15.081
	25.4874	19.7186	1538.4067	8.8218	12.7509	120.6511	3078.8377	9.8612	3.9776	15.911
L10	25.4874	19.7186	1538.4067	8.8218	12.7509	120.6511	3078.8377	9.8612	3.9776	15.911
	26.4248	20.4511	1716.3050	9.1495	13.2198	129.8280	3434.8684	10.2275	4.1401	16.56
L11	25.9088	28.8805	2148.2071	8.6138	12.5167	171.6268	4299.2408	14.4430	3.6765	9.804
	26.2043	30.2695	2473.2976	9.0281	13.1096	188.6638	4949.8496	15.1376	3.8819	10.352
L12	26.2043	30.2695	2473.2976	9.0281	13.1096	188.6638	4949.8496	15.1376	3.8819	10.352
	27.3893	31.6585	2829.6347	9.4423	13.7024	206.5070	5662.9927	15.8322	4.0873	10.899
L13	27.3893	31.6585	2829.6347	9.4423	13.7024	206.5070	5662.9927	15.8322	4.0873	10.899
	28.5742	33.0474	3218.6522	9.8566	14.2952	225.1565	6441.5396	16.5269	4.2927	11.447
L14	28.5742	33.0474	3218.6522	9.8566	14.2952	225.1565	6441.5396	16.5269	4.2927	11.447
	29.7592	34.4364	3641.7838	10.2709	14.8880	244.6122	7288.3597	17.2215	4.4980	11.995
L15	29.7592	34.4364	3641.7838	10.2709	14.8880	244.6122	7288.3597	17.2215	4.4980	11.995
	30.9441	35.8254	4100.4635	10.6852	15.4808	264.8740	8206.3225	17.9161	4.7034	12.542
L16	30.9441	35.8254	4100.4635	10.6852	15.4808	264.8740	8206.3225	17.9161	4.7034	12.542
	32.1291	37.2143	4596.1249	11.0994	16.0736	285.9421	9198.2976	18.6107	4.9088	13.09
L17	32.1291	37.2143	4596.1249	11.0994	16.0736	285.9421	9198.2976	18.6107	4.9088	13.09
	33.3141	38.6033	5130.2020	11.5137	16.6664	307.8165	10267.1544	19.3053	5.1142	13.638
L18	33.3141	38.6033	5130.2020	11.5137	16.6664	307.8165	10267.1544	19.3053	5.1142	13.638
	34.4990	39.9923	5704.1284	11.9280	17.2592	330.4970	11415.7625	19.9999	5.3196	14.186
L19	34.4990	39.9923	5704.1284	11.9280	17.2592	330.4970	11415.7625	19.9999	5.3196	14.186
	36.7184	42.5938	6891.2904	12.7039	18.3696	375.1468	13791.6485	21.3010	5.7043	15.211
L20	35.9552	40.3063	5839.5654	12.0216	17.3933	335.7368	11686.8147	20.1570	5.3660	14.309
	36.1919	41.9766	6596.0310	12.5198	18.1062	364.2977	13200.7413	20.9923	5.6130	14.968
L21	36.1919	41.9766	6596.0310	12.5198	18.1062	364.2977	13200.7413	20.9923	5.6130	14.968
	36.5000	42.3378	6767.7659	12.6275	18.2603	370.6271	13544.4370	21.1729	5.6664	15.11
L22	36.5000	42.3378	6767.7659	12.6275	18.2603	370.6271	13544.4370	21.1729	5.6664	15.11
	36.5592	42.4071	6801.0785	12.6482	18.2899	371.8487	13611.1061	21.2076	5.6767	15.138
L23	36.5592	42.4071	6801.0785	12.6482	18.2899	371.8487	13611.1061	21.2076	5.6767	15.138
	37.7425	43.7942	7490.4872	13.0619	18.8819	396.7020	14990.8305	21.9012	5.8818	15.685
L24	37.7425	43.7942	7490.4872	13.0619	18.8819	396.7020	14990.8305	21.9012	5.8818	15.685
	38.8666	45.1119	8187.1610	13.4549	19.4443	421.0573	16385.0948	22.5602	6.0766	16.204
L25	38.8666	79.0931	14137.3243	13.3529	19.4443	727.0681	28293.2509	39.5541	5.5706	8.408
	38.9258	79.2156	14203.1259	13.3735	19.4739	729.3419	28424.9407	39.6153	5.5809	8.424
L26	38.9258	79.2156	14203.1259	13.3735	19.4739	729.3419	28424.9407	39.6153	5.5809	8.424
	39.1033	79.5832	14401.7552	13.4356	19.5627	736.1848	28822.4606	39.7991	5.6116	8.47
L27	39.1033	45.3893	8339.1285	13.5377	19.5627	426.2772	16689.2299	22.6989	6.1176	16.314
	39.1625	45.4586	8377.4120	13.5583	19.5923	427.5872	16765.8472	22.7336	6.1279	16.341
L28	39.1625	45.4586	8377.4120	13.5583	19.5923	427.5872	16765.8472	22.7336	6.1279	16.341
	40.3458	46.8457	9167.8867	13.9720	20.1843	454.2092	18347.8368	23.4273	6.3330	16.888
L29	40.3458	46.8457	9167.8867	13.9720	20.1843	454.2092	18347.8368	23.4273	6.3330	16.888
	41.5291	48.2327	10006.5851	14.3857	20.7763	481.6353	20026.3372	24.1209	6.5381	17.435

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L30	41.5291	48.2327	10006.5851	14.3857	20.7763	481.6353	20026.3372	24.1209	6.5381	17.435
	42.7124	49.6197	10894.9350	14.7994	21.3683	509.8653	21804.2059	24.8146	6.7432	17.982
L31	42.7124	49.6197	10894.9350	14.7994	21.3683	509.8653	21804.2059	24.8146	6.7432	17.982
	43.8957	51.0068	11834.3642	15.2131	21.9603	538.8993	23684.3004	25.5082	6.9483	18.529
L32	43.8957	51.0068	11834.3642	15.2131	21.9603	538.8993	23684.3004	25.5082	6.9483	18.529
	45.0199	52.3245	12775.4348	15.6061	22.5226	567.2263	25567.6798	26.1672	7.1431	19.048
L33	45.0199	52.3245	12775.4348	15.6061	22.5226	567.2263	25567.6798	26.1672	7.1431	19.048
	46.5113	54.0727	14099.2252	16.1275	23.2688	605.9287	28217.0025	27.0415	7.4016	19.738
L34	45.7489	59.9412	14110.5700	15.3239	22.1505	637.0310	28239.7070	29.9763	6.9042	15.781
	45.9855	62.2789	15826.7202	15.9215	23.0057	687.9472	31674.2656	31.1454	7.2005	16.458
L35	45.9855	62.2789	15826.7202	15.9215	23.0057	687.9472	31674.2656	31.1454	7.2005	16.458
	47.1681	63.8963	17092.0400	16.3350	23.5974	724.3191	34206.5702	31.9542	7.4055	16.927
L36	47.1681	63.8963	17092.0400	16.3350	23.5974	724.3191	34206.5702	31.9542	7.4055	16.927
	48.3508	65.5136	18423.0641	16.7485	24.1891	761.6280	36870.3698	32.7630	7.6105	17.395
L37	48.3508	65.5136	18423.0641	16.7485	24.1891	761.6280	36870.3698	32.7630	7.6105	17.395
	49.5335	67.1309	19821.4556	17.1619	24.7807	799.8739	39668.9929	33.5718	7.8154	17.864
L38	49.5335	67.1309	19821.4556	17.1619	24.7807	799.8739	39668.9929	33.5718	7.8154	17.864
	50.7162	68.7483	21288.8777	17.5754	25.3724	839.0567	42605.7678	34.3807	8.0204	18.332
L39	50.7162	68.7483	21288.8777	17.5754	25.3724	839.0567	42605.7678	34.3807	8.0204	18.332
	51.8988	70.3656	22826.9933	17.9889	25.9641	879.1765	45684.0229	35.1895	8.2254	18.801
L40	51.8988	70.3656	22826.9933	17.9889	25.9641	879.1765	45684.0229	35.1895	8.2254	18.801
	53.0815	71.9829	24437.4656	18.4023	26.5557	920.2332	48907.0867	35.9983	8.4304	19.27
L41	53.0815	71.9829	24437.4656	18.4023	26.5557	920.2332	48907.0867	35.9983	8.4304	19.27
	54.2642	73.6003	26121.9577	18.8158	27.1474	962.2268	52278.2874	36.8071	8.6354	19.738
L42	54.2642	73.6003	26121.9577	18.8158	27.1474	962.2268	52278.2874	36.8071	8.6354	19.738
	55.4468	75.2176	27882.1327	19.2293	27.7391	1005.1575	55800.9535	37.6159	8.8404	20.207
L43	55.4468	75.2176	27882.1327	19.2293	27.7391	1005.1575	55800.9535	37.6159	8.8404	20.207
	55.8485	75.7669	28497.3983	19.3697	27.9400	1019.9498	57032.2943	37.8906	8.9100	20.366

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 181.83-176.83				1	1	1			
L2 176.83-171.83				1	1	1			
L3 171.83-166.83				1	1	1			
L4 166.83-161.83				1	1	1			
L5 161.83-156.83				1	1	1			
L6 156.83-151.83				1	1	1			
L7 151.83-146.83				1	1	1			
L8 146.83-141.83				1	1	1			
L9 141.83-136.83				1	1	1			
L10 136.83-132.91				1	1	1			
L11 132.91-131.67				1	1	1			
L12 131.67-126.67				1	1	1			
L13 126.67-121.67				1	1	1			
L14 121.67-116.67				1	1	1			
L15 116.67-111.67				1	1	1			
L16 111.67-106.67				1	1	1			
L17 106.67-101.67				1	1	1			
L18 101.67-				1	1	1			

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
96.67									
L19 96.67-87.30				1	1	1			
L20 87.30-86.30				1	1	1			
L21 86.30-85.00				1	1	1			
L22 85.00-84.75				1	1	1			
L23 84.75-79.75				1	1	1			
L24 79.75-75.00				1	1	1			
L25 75.00-74.75				1	1	1.00589			
L26 74.75-74.00				1	1	1.00386			
L27 74.00-73.75				1	1	1			
L28 73.75-68.75				1	1	1			
L29 68.75-63.75				1	1	1			
L30 63.75-58.75				1	1	1			
L31 58.75-53.75				1	1	1			
L32 53.75-49.00				1	1	1			
L33 49.00-42.70				1	1	1			
L34 42.70-41.70				1	1	1			
L35 41.70-36.70				1	1	1			
L36 36.70-31.70				1	1	1			
L37 31.70-26.70				1	1	1			
L38 26.70-21.70				1	1	1			
L39 21.70-16.70				1	1	1			
L40 16.70-11.70				1	1	1			
L41 11.70-6.70				1	1	1			
L42 6.70-1.70				1	1	1			
L43 1.70-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Safety Line 3/8	B	Surface Ar (CaAa)	181.83 - 10.00	1	1	0.000 0.010	0.3750		0.22
***									
LDF4-50A(1/2)	A	Surface Ar (CaAa)	140.00 - 12.00	4	1	0.184 0.200	0.6250		0.15
LDF12-50A(2-1/4)	A	Surface Ar (CaAa)	140.00 - 12.00	2	2	0.023 0.140	0.0000		1.22
(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-	A	Surface Ar (CaAa)	140.00 - 12.00	4	4	0.264 0.500	1.5400		1.22

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
M5F(1-1/4) HB158-1-08U8-S8J18(1-5/8)	A	Surface Ar (CaAa)	90.00 - 12.00	1	1	-0.400 -0.360	1.9800		1.30
***									
LDF4-50A(1/2)	A	Surface Ar (CaAa)	73.00 - 0.00	1	1	-0.030 -0.017	0.6250		0.15
***									
PL1x5.75 Reinforcement - Wind Area	A	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	B	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	C	Surface Af (CaAa)	87.00 - 72.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	A	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	B	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	0.00
PL1x5.75 Reinforcement - Wind Area	C	Surface Af (CaAa)	77.00 - 47.00	1	1	0.000 0.000	5.7500	13.5000	0.00
***									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
***								
LDF5-50A(7/8)	B	No	Inside Pole	178.00 - 6.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
AVA5-50FX(7/8)	B	No	Inside Pole	178.00 - 6.00	2	No Ice	0.00	0.29
						1/2" Ice	0.00	0.29
						1" Ice	0.00	0.29
LDF5-50A(7/8)	B	No	Inside Pole	178.00 - 6.00	7	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
AVA5-50FX(7/8)	B	No	Inside Pole	178.00 - 6.00	2	No Ice	0.00	0.29
						1/2" Ice	0.00	0.29
						1" Ice	0.00	0.29
***								
2 1/2" Rigid Conduit	B	No	Inside Pole	170.00 - 7.67	1	No Ice	0.00	3.00
						1/2" Ice	0.00	3.00
						1" Ice	0.00	3.00
FB-L98B-034-XXX(3/8)	B	No	Inside Pole	170.00 - 7.67	2	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	B	No	Inside Pole	170.00 - 7.67	4	No Ice	0.00	0.58
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
LDF7-50A(1-5/8)	B	No	Inside Pole	170.00 - 7.67	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
MLE Hybrid 3Power/6Fiber RL 2(1-1/4)	A	No	Inside Pole	157.00 - 5.00	2	No Ice	0.00	0.68
						1/2" Ice	0.00	0.68
						1" Ice	0.00	0.68
LDF7-50A(1-5/8)	A	No	Inside Pole	157.00 - 5.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
***								
LDF4-50A(1/2)	A	No	Inside Pole	90.00 - 12.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
HJ7-50A(1-5/8)	A	No	Inside Pole	90.00 - 12.00	12	No Ice	0.00	1.04
						1/2" Ice	0.00	1.04
						1" Ice	0.00	1.04

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***							

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	181.83-176.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.00
L2	176.83-171.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L3	171.83-166.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.07
		C	0.000	0.000	0.000	0.000	0.00
L4	166.83-161.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L5	161.83-156.83	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L6	156.83-151.83	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L7	151.83-146.83	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L8	146.83-141.83	A	0.000	0.000	0.000	0.000	0.06
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L9	141.83-136.83	A	0.000	0.000	2.149	0.000	0.08
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L10	136.83-132.91	A	0.000	0.000	2.659	0.000	0.07
		B	0.000	0.000	0.147	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00
L11	132.91-131.67	A	0.000	0.000	0.846	0.000	0.02
		B	0.000	0.000	0.047	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L12	131.67-126.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L13	126.67-121.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L14	121.67-116.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L15	116.67-111.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L16	111.67-106.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L17	106.67-101.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L18	101.67-96.67	A	0.000	0.000	3.393	0.000	0.10
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L19	96.67-87.30	A	0.000	0.000	6.888	0.000	0.22
		B	0.000	0.000	0.351	0.000	0.18
		C	0.000	0.000	0.000	0.000	0.00
L20	87.30-86.30	A	0.000	0.000	1.545	0.000	0.03
		B	0.000	0.000	0.706	0.000	0.02

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.669	0.000	0.00
L21	86.30-85.00	A	0.000	0.000	2.389	0.000	0.04
		B	0.000	0.000	1.297	0.000	0.03
		C	0.000	0.000	1.248	0.000	0.00
L22	85.00-84.75	A	0.000	0.000	0.459	0.000	0.01
		B	0.000	0.000	0.249	0.000	0.00
		C	0.000	0.000	0.240	0.000	0.00
L23	84.75-79.75	A	0.000	0.000	9.174	0.000	0.17
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L24	79.75-75.00	A	0.000	0.000	10.632	0.000	0.16
		B	0.000	0.000	6.647	0.000	0.09
		C	0.000	0.000	6.469	0.000	0.00
L25	75.00-74.75	A	0.000	0.000	0.698	0.000	0.01
		B	0.000	0.000	0.489	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L26	74.75-74.00	A	0.000	0.000	2.095	0.000	0.02
		B	0.000	0.000	1.466	0.000	0.01
		C	0.000	0.000	1.438	0.000	0.00
L27	74.00-73.75	A	0.000	0.000	0.698	0.000	0.01
		B	0.000	0.000	0.489	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L28	73.75-68.75	A	0.000	0.000	11.117	0.000	0.17
		B	0.000	0.000	6.656	0.000	0.10
		C	0.000	0.000	6.469	0.000	0.00
L29	68.75-63.75	A	0.000	0.000	9.487	0.000	0.17
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L30	63.75-58.75	A	0.000	0.000	9.487	0.000	0.17
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L31	58.75-53.75	A	0.000	0.000	9.487	0.000	0.17
		B	0.000	0.000	4.979	0.000	0.10
		C	0.000	0.000	4.792	0.000	0.00
L32	53.75-49.00	A	0.000	0.000	9.012	0.000	0.16
		B	0.000	0.000	4.730	0.000	0.09
		C	0.000	0.000	4.552	0.000	0.00
L33	49.00-42.70	A	0.000	0.000	7.834	0.000	0.21
		B	0.000	0.000	2.153	0.000	0.12
		C	0.000	0.000	1.917	0.000	0.00
L34	42.70-41.70	A	0.000	0.000	0.939	0.000	0.03
		B	0.000	0.000	0.037	0.000	0.02
		C	0.000	0.000	0.000	0.000	0.00
L35	41.70-36.70	A	0.000	0.000	4.695	0.000	0.17
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L36	36.70-31.70	A	0.000	0.000	4.695	0.000	0.17
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L37	31.70-26.70	A	0.000	0.000	4.695	0.000	0.17
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L38	26.70-21.70	A	0.000	0.000	4.695	0.000	0.17
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L39	21.70-16.70	A	0.000	0.000	4.695	0.000	0.17
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L40	16.70-11.70	A	0.000	0.000	4.430	0.000	0.16
		B	0.000	0.000	0.188	0.000	0.10
		C	0.000	0.000	0.000	0.000	0.00
L41	11.70-6.70	A	0.000	0.000	0.313	0.000	0.06
		B	0.000	0.000	0.064	0.000	0.08
		C	0.000	0.000	0.000	0.000	0.00
L42	6.70-1.70	A	0.000	0.000	0.313	0.000	0.02
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L43	1.70-0.00	A	0.000	0.000	0.106	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	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	181.83-176.83	A	2.369	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.556	0.000	0.05
		C		0.000	0.000	0.000	0.000	0.00
L2	176.83-171.83	A	2.362	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.550	0.000	0.06
		C		0.000	0.000	0.000	0.000	0.00
L3	171.83-166.83	A	2.355	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.543	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L4	166.83-161.83	A	2.348	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.536	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.00
L5	161.83-156.83	A	2.341	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	2.529	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.00
L6	156.83-151.83	A	2.334	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	2.521	0.000	0.14
		C		0.000	0.000	0.000	0.000	0.00
L7	151.83-146.83	A	2.326	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	2.513	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L8	146.83-141.83	A	2.318	0.000	0.000	0.000	0.000	0.06
		B		0.000	0.000	2.505	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L9	141.83-136.83	A	2.310	0.000	0.000	7.757	0.000	0.27
		B		0.000	0.000	2.497	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L10	136.83-132.91	A	2.302	0.000	0.000	9.579	0.000	0.31
		B		0.000	0.000	1.952	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.00
L11	132.91-131.67	A	2.298	0.000	0.000	3.048	0.000	0.10
		B		0.000	0.000	0.621	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.00
L12	131.67-126.67	A	2.292	0.000	0.000	12.186	0.000	0.39
		B		0.000	0.000	2.480	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L13	126.67-121.67	A	2.283	0.000	0.000	12.154	0.000	0.39
		B		0.000	0.000	2.471	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L14	121.67-116.67	A	2.274	0.000	0.000	12.121	0.000	0.39
		B		0.000	0.000	2.461	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L15	116.67-111.67	A	2.264	0.000	0.000	12.087	0.000	0.38
		B		0.000	0.000	2.452	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L16	111.67-106.67	A	2.254	0.000	0.000	12.052	0.000	0.38
		B		0.000	0.000	2.442	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L17	106.67-101.67	A	2.244	0.000	0.000	12.015	0.000	0.38
		B		0.000	0.000	2.431	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L18	101.67-96.67	A	2.233	0.000	0.000	11.977	0.000	0.38
		B		0.000	0.000	2.420	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L19	96.67-87.30	A	2.216	0.000	0.000	24.052	0.000	0.77
		B		0.000	0.000	4.501	0.000	0.25
		C		0.000	0.000	0.000	0.000	0.00
L20	87.30-86.30	A	2.203	0.000	0.000	3.920	0.000	0.11
		B		0.000	0.000	1.376	0.000	0.04

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.895	0.000	0.01
L21	86.30-85.00	A	2.200	0.000	0.000	5.586	0.000	0.15
		B		0.000	0.000	2.288	0.000	0.06
		C		0.000	0.000	1.666	0.000	0.02
L22	85.00-84.75	A	2.198	0.000	0.000	1.072	0.000	0.03
		B		0.000	0.000	0.439	0.000	0.01
		C		0.000	0.000	0.320	0.000	0.00
L23	84.75-79.75	A	2.191	0.000	0.000	21.408	0.000	0.59
		B		0.000	0.000	8.774	0.000	0.22
		C		0.000	0.000	6.395	0.000	0.09
L24	79.75-75.00	A	2.178	0.000	0.000	23.062	0.000	0.59
		B		0.000	0.000	11.104	0.000	0.25
		C		0.000	0.000	8.857	0.000	0.12
L25	75.00-74.75	A	2.171	0.000	0.000	1.413	0.000	0.03
		B		0.000	0.000	0.785	0.000	0.02
		C		0.000	0.000	0.667	0.000	0.01
L26	74.75-74.00	A	2.169	0.000	0.000	4.239	0.000	0.10
		B		0.000	0.000	2.355	0.000	0.05
		C		0.000	0.000	2.002	0.000	0.03
L27	74.00-73.75	A	2.168	0.000	0.000	1.413	0.000	0.03
		B		0.000	0.000	0.785	0.000	0.02
		C		0.000	0.000	0.667	0.000	0.01
L28	73.75-68.75	A	2.160	0.000	0.000	26.159	0.000	0.64
		B		0.000	0.000	11.532	0.000	0.25
		C		0.000	0.000	9.185	0.000	0.12
L29	68.75-63.75	A	2.144	0.000	0.000	24.195	0.000	0.61
		B		0.000	0.000	9.268	0.000	0.22
		C		0.000	0.000	6.936	0.000	0.09
L30	63.75-58.75	A	2.128	0.000	0.000	24.086	0.000	0.60
		B		0.000	0.000	9.234	0.000	0.22
		C		0.000	0.000	6.919	0.000	0.09
L31	58.75-53.75	A	2.110	0.000	0.000	23.968	0.000	0.60
		B		0.000	0.000	9.198	0.000	0.22
		C		0.000	0.000	6.901	0.000	0.09
L32	53.75-49.00	A	2.090	0.000	0.000	22.653	0.000	0.56
		B		0.000	0.000	8.702	0.000	0.20
		C		0.000	0.000	6.538	0.000	0.08
L33	49.00-42.70	A	2.067	0.000	0.000	23.959	0.000	0.66
		B		0.000	0.000	5.585	0.000	0.19
		C		0.000	0.000	2.743	0.000	0.03
L34	42.70-41.70	A	2.050	0.000	0.000	3.366	0.000	0.10
		B		0.000	0.000	0.451	0.000	0.03
		C		0.000	0.000	0.000	0.000	0.00
L35	41.70-36.70	A	2.035	0.000	0.000	16.656	0.000	0.49
		B		0.000	0.000	2.222	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L36	36.70-31.70	A	2.007	0.000	0.000	16.504	0.000	0.48
		B		0.000	0.000	2.195	0.000	0.13
		C		0.000	0.000	0.000	0.000	0.00
L37	31.70-26.70	A	1.976	0.000	0.000	16.331	0.000	0.48
		B		0.000	0.000	2.163	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L38	26.70-21.70	A	1.939	0.000	0.000	16.129	0.000	0.47
		B		0.000	0.000	2.126	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L39	21.70-16.70	A	1.894	0.000	0.000	15.884	0.000	0.46
		B		0.000	0.000	2.082	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L40	16.70-11.70	A	1.838	0.000	0.000	14.764	0.000	0.42
		B		0.000	0.000	2.026	0.000	0.12
		C		0.000	0.000	0.000	0.000	0.00
L41	11.70-6.70	A	1.760	0.000	0.000	2.072	0.000	0.08
		B		0.000	0.000	0.661	0.000	0.09
		C		0.000	0.000	0.000	0.000	0.00
L42	6.70-1.70	A	1.627	0.000	0.000	1.940	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L43	1.70-0.00	A	1.387	0.000	0.000	0.577	0.000	0.01
		B		0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	181.83-176.83	0.0480	-0.0271	0.3944	-0.2223
L2	176.83-171.83	0.0481	-0.0271	0.4053	-0.2284
L3	171.83-166.83	0.0481	-0.0271	0.4151	-0.2339
L4	166.83-161.83	0.0481	-0.0271	0.4240	-0.2389
L5	161.83-156.83	0.0481	-0.0271	0.4321	-0.2435
L6	156.83-151.83	0.0481	-0.0271	0.4394	-0.2476
L7	151.83-146.83	0.0481	-0.0271	0.4461	-0.2513
L8	146.83-141.83	0.0481	-0.0271	0.4521	-0.2547
L9	141.83-136.83	-0.1152	-0.5537	-0.1642	-0.9521
L10	136.83-132.91	-0.1863	-0.7844	-0.3256	-1.1497
L11	132.91-131.67	-0.1864	-0.7850	-0.3264	-1.1525
L12	131.67-126.67	-0.1873	-0.7891	-0.3319	-1.1724
L13	126.67-121.67	-0.1887	-0.7954	-0.3405	-1.2038
L14	121.67-116.67	-0.1900	-0.8013	-0.3488	-1.2342
L15	116.67-111.67	-0.1912	-0.8068	-0.3569	-1.2636
L16	111.67-106.67	-0.1924	-0.8121	-0.3647	-1.2920
L17	106.67-101.67	-0.1934	-0.8170	-0.3722	-1.3195
L18	101.67-96.67	-0.1945	-0.8216	-0.3794	-1.3460
L19	96.67-87.30	-0.2623	-0.7958	-0.4894	-1.3187
L20	87.30-86.30	-0.2740	-0.4788	-0.5385	-0.8920
L21	86.30-85.00	-0.2399	-0.4192	-0.4881	-0.8089
L22	85.00-84.75	-0.2405	-0.4203	-0.4897	-0.8116
L23	84.75-79.75	-0.2426	-0.4240	-0.4950	-0.8207
L24	79.75-75.00	-0.2099	-0.3669	-0.4407	-0.7312
L25	75.00-74.75	-0.1761	-0.3080	-0.3792	-0.6295
L26	74.75-74.00	-0.1765	-0.3086	-0.3800	-0.6309
L27	74.00-73.75	-0.1768	-0.3091	-0.3808	-0.6322
L28	73.75-68.75	-0.2471	-0.3965	-0.5706	-0.7984
L29	68.75-63.75	-0.2914	-0.4613	-0.6628	-0.9058
L30	63.75-58.75	-0.2954	-0.4678	-0.6745	-0.9225
L31	58.75-53.75	-0.2994	-0.4741	-0.6857	-0.9387
L32	53.75-49.00	-0.3031	-0.4802	-0.6962	-0.9540
L33	49.00-42.70	-0.4130	-0.6543	-0.8967	-1.2300
L34	42.70-41.70	-0.4918	-0.7792	-1.0252	-1.4063
L35	41.70-36.70	-0.4930	-0.7813	-1.0293	-1.4138
L36	36.70-31.70	-0.4950	-0.7846	-1.0392	-1.4293
L37	31.70-26.70	-0.4970	-0.7877	-1.0479	-1.4435
L38	26.70-21.70	-0.4988	-0.7908	-1.0552	-1.4559
L39	21.70-16.70	-0.5006	-0.7937	-1.0604	-1.4662
L40	16.70-11.70	-0.4781	-0.7589	-1.0244	-1.4357
L41	11.70-6.70	-0.0656	-0.0510	-0.3207	-0.3190
L42	6.70-1.70	-0.0820	-0.0421	-0.4507	-0.2314
L43	1.70-0.00	-0.0820	-0.0421	-0.4022	-0.2065

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	Safety Line 3/8	176.83 - 181.83	1.0000	1.0000
L2	1	Safety Line 3/8	171.83 - 176.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L3	1	Safety Line 3/8	166.83 - 171.83	1.0000	1.0000
L4	1	Safety Line 3/8	161.83 - 166.83	1.0000	1.0000
L5	1	Safety Line 3/8	156.83 - 161.83	1.0000	1.0000
L6	1	Safety Line 3/8	151.83 - 156.83	1.0000	1.0000
L7	1	Safety Line 3/8	146.83 - 151.83	1.0000	1.0000
L8	1	Safety Line 3/8	141.83 - 146.83	1.0000	1.0000
L9	1	Safety Line 3/8	136.83 - 141.83	1.0000	1.0000
L9	17	LDF4-50A(1/2)	136.83 - 140.00	1.0000	1.0000
L9	18	LDF12-50A(2-1/4)	136.83 - 140.00	1.0000	1.0000
L9	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	136.83 - 140.00	1.0000	1.0000
L10	1	Safety Line 3/8	132.91 - 136.83	1.0000	1.0000
L10	17	LDF4-50A(1/2)	132.91 - 136.83	1.0000	1.0000
L10	18	LDF12-50A(2-1/4)	132.91 - 136.83	1.0000	1.0000
L10	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	132.91 - 136.83	1.0000	1.0000
L12	1	Safety Line 3/8	126.67 - 131.67	1.0000	1.0000
L12	17	LDF4-50A(1/2)	126.67 - 131.67	1.0000	1.0000
L12	18	LDF12-50A(2-1/4)	126.67 - 131.67	1.0000	1.0000
L12	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	126.67 - 131.67	1.0000	1.0000
L13	1	Safety Line 3/8	121.67 - 126.67	1.0000	1.0000
L13	17	LDF4-50A(1/2)	121.67 - 126.67	1.0000	1.0000
L13	18	LDF12-50A(2-1/4)	121.67 - 126.67	1.0000	1.0000
L13	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	121.67 - 126.67	1.0000	1.0000
L14	1	Safety Line 3/8	116.67 - 121.67	1.0000	1.0000
L14	17	LDF4-50A(1/2)	116.67 - 121.67	1.0000	1.0000
L14	18	LDF12-50A(2-1/4)	116.67 - 121.67	1.0000	1.0000
L14	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	116.67 - 121.67	1.0000	1.0000
L15	1	Safety Line 3/8	111.67 - 116.67	1.0000	1.0000
L15	17	LDF4-50A(1/2)	111.67 - 116.67	1.0000	1.0000
L15	18	LDF12-50A(2-1/4)	111.67 - 116.67	1.0000	1.0000
L15	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	111.67 - 116.67	1.0000	1.0000
L16	1	Safety Line 3/8	106.67 - 111.67	1.0000	1.0000
L16	17	LDF4-50A(1/2)	106.67 - 111.67	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	18	LDF12-50A(2-1/4)	106.67 - 111.67	1.0000	1.0000
L16	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	106.67 - 111.67	1.0000	1.0000
L17	1	Safety Line 3/8	101.67 - 106.67	1.0000	1.0000
L17	17	LDF4-50A(1/2)	101.67 - 106.67	1.0000	1.0000
L17	18	LDF12-50A(2-1/4)	101.67 - 106.67	1.0000	1.0000
L17	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	101.67 - 106.67	1.0000	1.0000
L18	1	Safety Line 3/8	96.67 - 101.67	1.0000	1.0000
L18	17	LDF4-50A(1/2)	96.67 - 101.67	1.0000	1.0000
L18	18	LDF12-50A(2-1/4)	96.67 - 101.67	1.0000	1.0000
L18	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	96.67 - 101.67	1.0000	1.0000
L19	1	Safety Line 3/8	87.30 - 96.67	1.0000	1.0000
L19	17	LDF4-50A(1/2)	87.30 - 96.67	1.0000	1.0000
L19	18	LDF12-50A(2-1/4)	87.30 - 96.67	1.0000	1.0000
L19	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	87.30 - 96.67	1.0000	1.0000
L19	24	HB158-1-08U8-S8J18(1-5/8)	87.30 - 90.00	1.0000	1.0000
L19	28	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L19	29	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L19	30	PL1x5.75 Reinforcement - Wind Area	87.30 - 87.00	1.0000	1.0000
L21	1	Safety Line 3/8	85.00 - 86.30	1.0000	1.0000
L21	17	LDF4-50A(1/2)	85.00 - 86.30	1.0000	1.0000
L21	18	LDF12-50A(2-1/4)	85.00 - 86.30	1.0000	1.0000
L21	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	85.00 - 86.30	1.0000	1.0000
L21	24	HB158-1-08U8-S8J18(1-5/8)	85.00 - 86.30	1.0000	1.0000
L21	28	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L21	29	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L21	30	PL1x5.75 Reinforcement - Wind Area	85.00 - 86.30	1.0000	1.0000
L22	1	Safety Line 3/8	84.75 - 85.00	1.0000	1.0000
L22	17	LDF4-50A(1/2)	84.75 - 85.00	1.0000	1.0000
L22	18	LDF12-50A(2-1/4)	84.75 - 85.00	1.0000	1.0000
L22	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	84.75 - 85.00	1.0000	1.0000
L22	24	HB158-1-08U8-S8J18(1-5/8)	84.75 - 85.00	1.0000	1.0000
L22	28	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L22	29	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L22	30	PL1x5.75 Reinforcement - Wind Area	84.75 - 85.00	1.0000	1.0000
L23	1	Safety Line 3/8	79.75 - 84.75	1.0000	1.0000
L23	17	LDF4-50A(1/2)	79.75 - 84.75	1.0000	1.0000
L23	18	LDF12-50A(2-1/4)	79.75 - 84.75	1.0000	1.0000
L23	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	79.75 - 84.75	1.0000	1.0000
L23	24	HB158-1-08U8-S8J18(1-5/8)	79.75 - 84.75	1.0000	1.0000
L23	28	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L23	29	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L23	30	PL1x5.75 Reinforcement - Wind Area	79.75 - 84.75	1.0000	1.0000
L24	1	Safety Line 3/8	75.00 - 79.75	1.0000	1.0000
L24	17	LDF4-50A(1/2)	75.00 - 79.75	1.0000	1.0000
L24	18	LDF12-50A(2-1/4)	75.00 - 79.75	1.0000	1.0000
L24	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	75.00 - 79.75	1.0000	1.0000
L24	24	HB158-1-08U8-S8J18(1-5/8)	75.00 - 79.75	1.0000	1.0000
L24	28	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	29	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	30	PL1x5.75 Reinforcement - Wind Area	75.00 - 79.75	1.0000	1.0000
L24	31	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L24	32	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L24	33	PL1x5.75 Reinforcement - Wind Area	75.00 - 77.00	1.0000	1.0000
L25	1	Safety Line 3/8	74.75 - 75.00	1.0000	1.0000
L25	17	LDF4-50A(1/2)	74.75 - 75.00	1.0000	1.0000
L25	18	LDF12-50A(2-1/4)	74.75 - 75.00	1.0000	1.0000
L25	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	74.75 - 75.00	1.0000	1.0000
L25	24	HB158-1-08U8-S8J18(1-5/8)	74.75 - 75.00	1.0000	1.0000
L25	28	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	29	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	30	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	31	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	32	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L25	33	PL1x5.75 Reinforcement - Wind Area	74.75 - 75.00	1.0000	1.0000
L26	1	Safety Line 3/8	74.00 - 74.75	1.0000	1.0000
L26	17	LDF4-50A(1/2)	74.00 - 74.75	1.0000	1.0000
L26	18	LDF12-50A(2-1/4)	74.00 - 74.75	1.0000	1.0000
L26	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	74.00 - 74.75	1.0000	1.0000
L26	24	HB158-1-08U8-S8J18(1-5/8)	74.00 - 74.75	1.0000	1.0000
L26	28	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	29	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	30	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	31	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	32	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L26	33	PL1x5.75 Reinforcement - Wind Area	74.00 - 74.75	1.0000	1.0000
L27	1	Safety Line 3/8	73.75 - 74.00	1.0000	1.0000
L27	17	LDF4-50A(1/2)	73.75 - 74.00	1.0000	1.0000
L27	18	LDF12-50A(2-1/4)	73.75 - 74.00	1.0000	1.0000
L27	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	73.75 - 74.00	1.0000	1.0000
L27	24	HB158-1-08U8-S8J18(1-5/8)	73.75 - 74.00	1.0000	1.0000
L27	28	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	29	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L27	30	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	31	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	32	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L27	33	PL1x5.75 Reinforcement - Wind Area	73.75 - 74.00	1.0000	1.0000
L28	1	Safety Line 3/8	68.75 - 73.75	1.0000	1.0000
L28	17	LDF4-50A(1/2)	68.75 - 73.75	1.0000	1.0000
L28	18	LDF12-50A(2-1/4)	68.75 - 73.75	1.0000	1.0000
L28	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	68.75 - 73.75	1.0000	1.0000
L28	24	HB158-1-08U8-S8J18(1-5/8)	68.75 - 73.75	1.0000	1.0000
L28	26	LDF4-50A(1/2)	68.75 - 73.00	1.0000	1.0000
L28	28	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	29	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	30	PL1x5.75 Reinforcement - Wind Area	72.00 - 73.75	1.0000	1.0000
L28	31	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L28	32	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L28	33	PL1x5.75 Reinforcement - Wind Area	68.75 - 73.75	1.0000	1.0000
L29	1	Safety Line 3/8	63.75 - 68.75	1.0000	1.0000
L29	17	LDF4-50A(1/2)	63.75 - 68.75	1.0000	1.0000
L29	18	LDF12-50A(2-1/4)	63.75 - 68.75	1.0000	1.0000
L29	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	63.75 - 68.75	1.0000	1.0000
L29	24	HB158-1-08U8-S8J18(1-5/8)	63.75 - 68.75	1.0000	1.0000
L29	26	LDF4-50A(1/2)	63.75 - 68.75	1.0000	1.0000
L29	31	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L29	32	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L29	33	PL1x5.75 Reinforcement - Wind Area	63.75 - 68.75	1.0000	1.0000
L30	1	Safety Line 3/8	58.75 - 63.75	1.0000	1.0000
L30	17	LDF4-50A(1/2)	58.75 - 63.75	1.0000	1.0000
L30	18	LDF12-50A(2-1/4)	58.75 - 63.75	1.0000	1.0000
L30	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	58.75 - 63.75	1.0000	1.0000
L30	24	HB158-1-08U8-S8J18(1-5/8)	58.75 - 63.75	1.0000	1.0000
L30	26	LDF4-50A(1/2)	58.75 - 63.75	1.0000	1.0000
L30	31	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L30	32	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L30	33	PL1x5.75 Reinforcement - Wind Area	58.75 - 63.75	1.0000	1.0000
L31	1	Safety Line 3/8	53.75 - 58.75	1.0000	1.0000
L31	17	LDF4-50A(1/2)	53.75 - 58.75	1.0000	1.0000
L31	18	LDF12-50A(2-1/4)	53.75 - 58.75	1.0000	1.0000
L31	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	53.75 - 58.75	1.0000	1.0000
L31	24	HB158-1-08U8-S8J18(1-5/8)	53.75 - 58.75	1.0000	1.0000
L31	26	LDF4-50A(1/2)	53.75 - 58.75	1.0000	1.0000
L31	31	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L31	32	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000
L31	33	PL1x5.75 Reinforcement - Wind Area	53.75 - 58.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L32	1	Safety Line 3/8	49.00 - 53.75	1.0000	1.0000
L32	17	LDF4-50A(1/2)	49.00 - 53.75	1.0000	1.0000
L32	18	LDF12-50A(2-1/4)	49.00 - 53.75	1.0000	1.0000
L32	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	49.00 - 53.75	1.0000	1.0000
L32	24	HB158-1-08U8-S8J18(1-5/8)	49.00 - 53.75	1.0000	1.0000
L32	26	LDF4-50A(1/2)	49.00 - 53.75	1.0000	1.0000
L32	31	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L32	32	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L32	33	PL1x5.75 Reinforcement - Wind Area	49.00 - 53.75	1.0000	1.0000
L33	1	Safety Line 3/8	42.70 - 49.00	1.0000	1.0000
L33	17	LDF4-50A(1/2)	42.70 - 49.00	1.0000	1.0000
L33	18	LDF12-50A(2-1/4)	42.70 - 49.00	1.0000	1.0000
L33	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	42.70 - 49.00	1.0000	1.0000
L33	24	HB158-1-08U8-S8J18(1-5/8)	42.70 - 49.00	1.0000	1.0000
L33	26	LDF4-50A(1/2)	42.70 - 49.00	1.0000	1.0000
L33	31	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L33	32	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L33	33	PL1x5.75 Reinforcement - Wind Area	47.00 - 49.00	1.0000	1.0000
L35	1	Safety Line 3/8	36.70 - 41.70	1.0000	1.0000
L35	17	LDF4-50A(1/2)	36.70 - 41.70	1.0000	1.0000
L35	18	LDF12-50A(2-1/4)	36.70 - 41.70	1.0000	1.0000
L35	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	36.70 - 41.70	1.0000	1.0000
L35	24	HB158-1-08U8-S8J18(1-5/8)	36.70 - 41.70	1.0000	1.0000
L35	26	LDF4-50A(1/2)	36.70 - 41.70	1.0000	1.0000
L36	1	Safety Line 3/8	31.70 - 36.70	1.0000	1.0000
L36	17	LDF4-50A(1/2)	31.70 - 36.70	1.0000	1.0000
L36	18	LDF12-50A(2-1/4)	31.70 - 36.70	1.0000	1.0000
L36	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	31.70 - 36.70	1.0000	1.0000
L36	24	HB158-1-08U8-S8J18(1-5/8)	31.70 - 36.70	1.0000	1.0000
L36	26	LDF4-50A(1/2)	31.70 - 36.70	1.0000	1.0000
L37	1	Safety Line 3/8	26.70 - 31.70	1.0000	1.0000
L37	17	LDF4-50A(1/2)	26.70 - 31.70	1.0000	1.0000
L37	18	LDF12-50A(2-1/4)	26.70 - 31.70	1.0000	1.0000
L37	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	26.70 - 31.70	1.0000	1.0000
L37	24	HB158-1-08U8-S8J18(1-5/8)	26.70 - 31.70	1.0000	1.0000
L37	26	LDF4-50A(1/2)	26.70 - 31.70	1.0000	1.0000
L38	1	Safety Line 3/8	21.70 - 26.70	1.0000	1.0000
L38	17	LDF4-50A(1/2)	21.70 - 26.70	1.0000	1.0000
L38	18	LDF12-50A(2-1/4)	21.70 - 26.70	1.0000	1.0000
L38	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	21.70 - 26.70	1.0000	1.0000
L38	24	HB158-1-08U8-S8J18(1-5/8)	21.70 - 26.70	1.0000	1.0000
L38	26	LDF4-50A(1/2)	21.70 - 26.70	1.0000	1.0000
L39	1	Safety Line 3/8	16.70 - 21.70	1.0000	1.0000
L39	17	LDF4-50A(1/2)	16.70 - 21.70	1.0000	1.0000
L39	18	LDF12-50A(2-1/4)	16.70 - 21.70	1.0000	1.0000
L39	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	16.70 - 21.70	1.0000	1.0000
L39	24	HB158-1-08U8-S8J18(1-5/8)	16.70 - 21.70	1.0000	1.0000
L39	26	LDF4-50A(1/2)	16.70 - 21.70	1.0000	1.0000
L40	1	Safety Line 3/8	11.70 - 16.70	1.0000	1.0000
L40	17	LDF4-50A(1/2)	12.00 - 16.70	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L40	18	LDF12-50A(2-1/4)	12.00 - 16.70	1.0000	1.0000
L40	20	(1) HB114-21U3M12-XXXF(1-1/4) + (3) HB114-1-0813U4-M5F(1-1/4)	12.00 - 16.70	1.0000	1.0000
L40	24	HB158-1-08U8-S8J18(1-5/8)	12.00 - 16.70	1.0000	1.0000
L40	26	LDF4-50A(1/2)	11.70 - 16.70	1.0000	1.0000
L41	1	Safety Line 3/8	10.00 - 11.70	1.0000	1.0000
L41	26	LDF4-50A(1/2)	6.70 - 11.70	1.0000	1.0000
L42	26	LDF4-50A(1/2)	1.70 - 6.70	1.0000	1.0000
L43	26	LDF4-50A(1/2)	0.00 - 1.70	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Side Arm Mount [SO 702-3]	C	None		0.0000	178.00	No Ice	3.22	3.22	0.08
						1/2" Ice	4.15	4.15	0.11
						1" Ice	5.08	5.08	0.15
6' x 2" Mount Pipe	A	From Leg	7.00	0.0000	178.00	No Ice	1.43	1.43	0.02
			-2.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	A	From Leg	7.00	0.0000	178.00	No Ice	1.43	1.43	0.02
			2.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	7.00	0.0000	178.00	No Ice	1.43	1.43	0.02
			-2.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	7.00	0.0000	178.00	No Ice	1.43	1.43	0.02
			2.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	7.00	0.0000	178.00	No Ice	1.43	1.43	0.02
			-2.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	7.00	0.0000	178.00	No Ice	1.43	1.43	0.02
			2.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
DS4C06F36D-D	A	From Leg	7.00	0.0000	178.00	No Ice	5.82	5.82	0.05
			-2.00			1/2" Ice	7.79	7.79	0.09
			12.00			1" Ice	9.78	9.78	0.15
DS4C06F36D-D	B	From Leg	7.00	0.0000	178.00	No Ice	5.82	5.82	0.05
			-2.00			1/2" Ice	7.79	7.79	0.09
			12.00			1" Ice	9.78	9.78	0.15
APC-2163	A	From Leg	7.00	0.0000	178.00	No Ice	3.38	3.38	0.01
			2.00			1/2" Ice	4.75	4.75	0.04
			13.00			1" Ice	6.15	6.15	0.07
APC-1362	B	From Leg	7.00	0.0000	178.00	No Ice	3.50	3.50	0.02
			2.00			1/2" Ice	4.93	4.93	0.04
			13.00			1" Ice	6.38	6.38	0.08
APC-301	C	From Leg	7.00	0.0000	178.00	No Ice	3.00	3.00	0.01
			-2.00			1/2" Ice	4.23	4.23	0.04
			13.00			1" Ice	5.47	5.47	0.07
ANT450D6-9	C	From Leg	7.00	0.0000	178.00	No Ice	0.50	0.50	0.02
			-2.00			1/2" Ice	0.90	0.90	0.02
			-3.00			1" Ice	1.30	1.30	0.03
APC-4065	C	From Leg	7.00	0.0000	178.00	No Ice	3.13	3.13	0.01
			2.00			1/2" Ice	4.40	4.40	0.04
			13.00			1" Ice	5.70	5.70	0.07

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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
Platform Mount [LP 601-1]	C	None		0.0000	170.00	No Ice	28.47	28.47	1.12
						1/2" Ice	33.59	33.59	1.51
						1" Ice	38.71	38.71	1.91
Transition Ladder	C	None		0.0000	170.00	No Ice	6.00	6.00	0.16
						1/2" Ice	8.00	8.00	0.24
						1" Ice	10.00	10.00	0.32
7770.00 w/ Mount Pipe	A	From Face	3.00	20.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2" Ice	6.18	5.01	0.10
			-2.00			1" Ice	6.61	5.71	0.16
7770.00 w/ Mount Pipe	B	From Face	3.00	20.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2" Ice	6.18	5.01	0.10
			-2.00			1" Ice	6.61	5.71	0.16
7770.00 w/ Mount Pipe	C	From Face	3.00	30.0000	170.00	No Ice	5.75	4.25	0.06
			-6.00			1/2" Ice	6.18	5.01	0.10
			-2.00			1" Ice	6.61	5.71	0.16
QS66512-2 w/ Mount Pipe	A	From Face	3.00	20.0000	170.00	No Ice	8.37	8.46	0.14
			-2.00			1/2" Ice	8.93	9.66	0.21
			-2.00			1" Ice	9.46	10.55	0.30
QS66512-2 w/ Mount Pipe	B	From Face	3.00	20.0000	170.00	No Ice	8.37	8.46	0.14
			-2.00			1/2" Ice	8.93	9.66	0.21
			-2.00			1" Ice	9.46	10.55	0.30
QS66512-2 w/ Mount Pipe	C	From Face	3.00	30.0000	170.00	No Ice	8.37	8.46	0.14
			-2.00			1/2" Ice	8.93	9.66	0.21
			-2.00			1" Ice	9.46	10.55	0.30
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Face	3.00	20.0000	170.00	No Ice	9.90	8.11	0.08
			6.00			1/2" Ice	10.47	9.30	0.16
			-2.00			1" Ice	11.01	10.21	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Face	3.00	20.0000	170.00	No Ice	9.90	8.11	0.08
			6.00			1/2" Ice	10.47	9.30	0.16
			-2.00			1" Ice	11.01	10.21	0.25
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Face	3.00	30.0000	170.00	No Ice	9.90	8.11	0.08
			6.00			1/2" Ice	10.47	9.30	0.16
			-2.00			1" Ice	11.01	10.21	0.25
LGP21401	A	From Face	3.00	0.0000	170.00	No Ice	1.10	0.00	0.01
			0.00			1/2" Ice	1.24	0.00	0.02
			-2.00			1" Ice	1.38	0.00	0.03
LGP21401	B	From Face	3.00	0.0000	170.00	No Ice	1.10	0.00	0.01
			0.00			1/2" Ice	1.24	0.00	0.02
			-2.00			1" Ice	1.38	0.00	0.03
LGP21401	C	From Face	3.00	0.0000	170.00	No Ice	1.10	0.00	0.01
			0.00			1/2" Ice	1.24	0.00	0.02
			-2.00			1" Ice	1.38	0.00	0.03
LGP21401	A	From Face	3.00	0.0000	170.00	No Ice	0.00	0.00	0.01
			0.00			1/2" Ice	0.00	0.00	0.02
			-2.00			1" Ice	0.00	0.00	0.03
LGP21401	B	From Face	3.00	0.0000	170.00	No Ice	0.00	0.00	0.01
			0.00			1/2" Ice	0.00	0.00	0.02
			-2.00			1" Ice	0.00	0.00	0.03
LGP21401	C	From Face	3.00	0.0000	170.00	No Ice	0.00	0.00	0.01
			0.00			1/2" Ice	0.00	0.00	0.02
			-2.00			1" Ice	0.00	0.00	0.03
RRUS 32 B2	A	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			-2.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	B	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			-2.00			1" Ice	3.18	2.05	0.10
RRUS 32 B2	C	From Face	3.00	0.0000	170.00	No Ice	2.73	1.67	0.05
			0.00			1/2" Ice	2.95	1.86	0.07
			-2.00			1" Ice	3.18	2.05	0.10
RRUS 32	A	From Face	3.00	0.0000	170.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			-2.00			1" Ice	3.32	2.17	0.10
RRUS 32	B	From Face	3.00	0.0000	170.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08

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
			-2.00			1" Ice	3.32	2.17	0.10
RRUS 32	C	From Face	3.00	0.0000	170.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			-2.00			1" Ice	3.32	2.17	0.10
RRUS 11	A	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			-2.00			1" Ice	3.21	1.49	0.10
RRUS 11	B	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			-2.00			1" Ice	3.21	1.49	0.10
RRUS 11	C	From Face	3.00	0.0000	170.00	No Ice	2.78	1.19	0.05
			0.00			1/2" Ice	2.99	1.33	0.07
			-2.00			1" Ice	3.21	1.49	0.10
RRUS 32 B66	A	From Face	3.00	0.0000	170.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			-2.00			1" Ice	3.19	2.05	0.10
RRUS 32 B66	B	From Face	3.00	0.0000	170.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			-2.00			1" Ice	3.19	2.05	0.10
RRUS 32 B66	C	From Face	3.00	0.0000	170.00	No Ice	2.74	1.67	0.05
			0.00			1/2" Ice	2.96	1.86	0.07
			-2.00			1" Ice	3.19	2.05	0.10
(2) TPX-070821	B	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2" Ice	0.56	0.15	0.01
			-2.00			1" Ice	0.66	0.20	0.02
(2) TPX-070821	C	From Face	3.00	0.0000	170.00	No Ice	0.47	0.10	0.01
			0.00			1/2" Ice	0.56	0.15	0.01
			-2.00			1" Ice	0.66	0.20	0.02
DC6-48-60-18-8F	C	From Face	1.00	0.0000	170.00	No Ice	0.92	0.92	0.02
			0.00			1/2" Ice	1.46	1.46	0.04
			-2.00			1" Ice	1.64	1.64	0.06
DC6-48-60-18-8C	C	From Face	1.00	0.0000	170.00	No Ice	2.74	2.74	0.03
			0.00			1/2" Ice	2.96	2.96	0.05
			-2.00			1" Ice	3.20	3.20	0.08
***									
Platform Mount [LP 305-1]	C	None		0.0000	157.00	No Ice	18.01	18.01	1.12
						1/2" Ice	23.33	23.33	1.35
						1" Ice	28.65	28.65	1.58
6' x 2" Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
6' x 2" Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	1.43	1.43	0.02
			6.00			1/2" Ice	1.92	1.92	0.03
			0.00			1" Ice	2.29	2.29	0.05
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2" Ice	8.37	7.54	0.21
			1.00			1" Ice	8.83	8.29	0.29
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2" Ice	8.37	7.54	0.21
			1.00			1" Ice	8.83	8.29	0.29
Ericsson Air 21 B4A B12P-B8P 4FT w/ Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	7.89	6.69	0.15
			-6.00			1/2" Ice	8.37	7.54	0.21
			1.00			1" Ice	8.83	8.29	0.29
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	3.00	0.0000	157.00	No Ice	6.33	5.64	0.11
			-2.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	3.00	0.0000	157.00	No Ice	6.33	5.64	0.11
			-2.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	3.00	0.0000	157.00	No Ice	6.33	5.64	0.11
			-2.00			1/2" Ice	6.78	6.43	0.17
			1.00			1" Ice	7.21	7.13	0.23

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 11 B12	A	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.45 0.58 0.71	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	B	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.45 0.58 0.71	1.18 1.33 1.48	0.05 0.07 0.10
RRUS 11 B12	C	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.45 0.58 0.71	1.18 1.33 1.48	0.05 0.07 0.10
ATMAA1412D-1A20	A	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.41 0.50 0.59	0.01 0.02 0.03
ATMAA1412D-1A20	B	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.41 0.50 0.59	0.01 0.02 0.03
ATMAA1412D-1A20	C	From Leg	3.00 0.00 1.00	0.0000	157.00	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.41 0.50 0.59	0.01 0.02 0.03
***									
Platform Mount [LP 712-1]	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice	24.53 29.94 35.35	24.53 29.94 35.35	1.34 1.65 1.96
APXVSPP18-C-A20 w/ Mount Pipe	A	From Face	3.00 -6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	B	From Face	3.00 -6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVSPP18-C-A20 w/ Mount Pipe	C	From Face	3.00 -6.00 0.00	-20.0000	140.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	6.95 8.13 9.02	0.08 0.15 0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Face	3.00 6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Face	3.00 6.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Face	3.00 6.00 0.00	-20.0000	140.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
800MHZ RRH	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800MHZ RRH	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.13 2.32 2.51	1.77 1.95 2.13	0.05 0.07 0.10
800 EXTERNAL NOTCH FILTER	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
800 EXTERNAL NOTCH FILTER	C	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	0.66 0.76 0.87	0.32 0.40 0.48	0.01 0.02 0.02
1900MHz RRH (65MHz)	A	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
1900MHz RRH (65MHz)	B	From Face	3.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
1900MHz RRH (65MHz)	C	From Face	3.00	0.0000	140.00	No Ice	2.32	2.24	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	2.53	2.44	0.08
			0.00			1" Ice	2.74	2.65	0.11
TD-RRH8x20-25	A	From Face	3.00	0.0000	140.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	B	From Face	3.00	0.0000	140.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
TD-RRH8x20-25	C	From Face	3.00	0.0000	140.00	No Ice	4.05	1.53	0.07
			0.00			1/2" Ice	4.30	1.71	0.10
			0.00			1" Ice	4.56	1.90	0.13
840 10054 w/ Mount Pipe	A	From Face	3.00	60.0000	140.00	No Ice	4.81	2.39	0.05
			0.00			1/2" Ice	5.16	2.92	0.09
			0.00			1" Ice	5.53	3.47	0.13
840 10054 w/ Mount Pipe	B	From Face	3.00	60.0000	140.00	No Ice	4.81	2.39	0.05
			0.00			1/2" Ice	5.16	2.92	0.09
			0.00			1" Ice	5.53	3.47	0.13
840 10054 w/ Mount Pipe	C	From Face	3.00	60.0000	140.00	No Ice	4.81	2.39	0.05
			0.00			1/2" Ice	5.16	2.92	0.09
			0.00			1" Ice	5.53	3.47	0.13
URAS-FLEXIBLE	A	From Face	3.00	0.0000	140.00	No Ice	1.55	0.68	0.03
			0.00			1/2" Ice	1.70	0.80	0.04
			0.00			1" Ice	1.87	0.92	0.06
URAS-FLEXIBLE	B	From Face	3.00	0.0000	140.00	No Ice	1.55	0.68	0.03
			0.00			1/2" Ice	1.70	0.80	0.04
			0.00			1" Ice	1.87	0.92	0.06
URAS-FLEXIBLE	C	From Face	3.00	0.0000	140.00	No Ice	1.55	0.68	0.03
			0.00			1/2" Ice	1.70	0.80	0.04
			0.00			1" Ice	1.87	0.92	0.06
Horizon Compact	A	From Face	3.00	0.0000	140.00	No Ice	0.72	0.37	0.01
			0.00			1/2" Ice	0.83	0.45	0.02
			4.00			1" Ice	0.94	0.54	0.03
Horizon Compact	B	From Face	3.00	0.0000	140.00	No Ice	0.72	0.37	0.01
			0.00			1/2" Ice	0.83	0.45	0.02
			4.00			1" Ice	0.94	0.54	0.03
***									
Platform Mount [LP 712-1]	C	None		0.0000	90.00	No Ice	24.53	24.53	1.34
						1/2" Ice	29.94	29.94	1.65
						1" Ice	35.35	35.35	1.96
GPS_A	A	From Face	3.00	30.0000	90.00	No Ice	0.26	0.26	0.00
			-6.00			1/2" Ice	0.32	0.32	0.00
			3.00			1" Ice	0.39	0.39	0.01
HBXX-6517DS-A2M w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			-6.00			1/2" Ice	9.34	8.18	0.14
			2.00			1" Ice	9.89	9.14	0.21
HBXX-6517DS-A2M w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			2.00			1/2" Ice	9.34	8.18	0.14
			2.00			1" Ice	9.89	9.14	0.21
HBXX-6517DS-A2M w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			-6.00			1/2" Ice	9.34	8.18	0.14
			2.00			1" Ice	9.89	9.14	0.21
HBXX-6517DS-A2M w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			2.00			1/2" Ice	9.34	8.18	0.14
			2.00			1" Ice	9.89	9.14	0.21
HBXX-6517DS-A2M w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			-6.00			1/2" Ice	9.34	8.18	0.14
			2.00			1" Ice	9.89	9.14	0.21
HBXX-6517DS-A2M w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	8.77	6.96	0.07
			2.00			1/2" Ice	9.34	8.18	0.14
			2.00			1" Ice	9.89	9.14	0.21
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	7.81	5.80	0.04
			-2.00			1/2" Ice	8.36	6.95	0.10
			2.00			1" Ice	8.87	7.82	0.17
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	7.81	5.80	0.04
			-2.00			1/2" Ice	8.36	6.95	0.10

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
			2.00			1" Ice	8.87	7.82	0.17
LNX-6514DS-T6M w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	8.41	7.08	0.06
			-2.00			1/2" Ice	8.97	8.27	0.13
			2.00			1" Ice	9.50	9.18	0.21
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	A	From Face	3.00	30.0000	90.00	No Ice	3.81	3.97	0.03
			6.00			1/2" Ice	4.17	4.58	0.07
			2.00			1" Ice	4.54	5.19	0.11
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	B	From Face	3.00	30.0000	90.00	No Ice	3.81	3.97	0.03
			6.00			1/2" Ice	4.17	4.58	0.07
			2.00			1" Ice	4.54	5.19	0.11
BXA-70080-4BF-EDIN-0 w/ Mount Pipe	C	From Face	3.00	30.0000	90.00	No Ice	3.81	3.97	0.03
			6.00			1/2" Ice	4.17	4.58	0.07
			2.00			1" Ice	4.54	5.19	0.11
RRH2X60-AWS	A	From Face	3.00	0.0000	90.00	No Ice	0.00	2.10	0.06
			0.00			1/2" Ice	0.00	2.34	0.08
			2.00			1" Ice	0.00	2.58	0.11
RRH2X60-AWS	B	From Face	3.00	0.0000	90.00	No Ice	0.00	2.10	0.06
			0.00			1/2" Ice	0.00	2.34	0.08
			2.00			1" Ice	0.00	2.58	0.11
RRH2X60-AWS	C	From Face	3.00	0.0000	90.00	No Ice	0.00	2.10	0.06
			0.00			1/2" Ice	0.00	2.34	0.08
			2.00			1" Ice	0.00	2.58	0.11
RRH2X60-PCS	A	From Face	3.00	0.0000	90.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			2.00			1" Ice	2.59	2.09	0.10
RRH2X60-PCS	B	From Face	3.00	0.0000	90.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			2.00			1" Ice	2.59	2.09	0.10
RRH2X60-PCS	C	From Face	3.00	0.0000	90.00	No Ice	2.20	1.72	0.06
			0.00			1/2" Ice	2.39	1.90	0.08
			2.00			1" Ice	2.59	2.09	0.10
(2) FD9R6004/2C-3L	A	From Face	3.00	0.0000	90.00	No Ice	0.00	0.08	0.00
			0.00			1/2" Ice	0.00	0.12	0.01
			2.00			1" Ice	0.00	0.17	0.01
(2) FD9R6004/2C-3L	B	From Face	3.00	0.0000	90.00	No Ice	0.00	0.08	0.00
			0.00			1/2" Ice	0.00	0.12	0.01
			2.00			1" Ice	0.00	0.17	0.01
(2) FD9R6004/2C-3L	C	From Face	3.00	0.0000	90.00	No Ice	0.00	0.08	0.00
			0.00			1/2" Ice	0.00	0.12	0.01
			2.00			1" Ice	0.00	0.17	0.01
DB-T1-6Z-8AB-0Z	A	From Face	3.00	0.0000	90.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			2.00			1" Ice	5.35	2.39	0.12
DB-T1-6Z-8AB-0Z	C	From Face	3.00	0.0000	90.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			2.00			1" Ice	5.35	2.39	0.12
***									
Side Arm Mount [SO 701-1]	A	From Face	0.00	0.0000	73.00	No Ice	0.85	1.67	0.07
			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
GPS_A	A	From Face	3.00	0.0000	73.00	No Ice	0.26	0.26	0.00
			0.00			1/2" Ice	0.32	0.32	0.00
			0.00			1" Ice	0.39	0.39	0.01
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***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
HPD2-4.7	A	Paraboloid w/Shroud (HP)	From Leg	7.00 -2.00 0.00	15.0000		178.00	2.04	No Ice 1/2" Ice 1" Ice	3.27 3.55 3.82	0.03 0.05 0.06
HPD2-4.7	B	Paraboloid w/Shroud (HP)	From Leg	7.00 -2.00 0.00	-84.0000		178.00	2.04	No Ice 1/2" Ice 1" Ice	3.27 3.55 3.82	0.03 0.05 0.06
***											
VHLP2.5-10W	A	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 4.00	0.0000		140.00	2.92	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.46	0.05 0.08 0.12
VHLP2.5-10W	B	Paraboloid w/Shroud (HP)	From Leg	4.00 0.00 4.00	0.0000		140.00	2.92	No Ice 1/2" Ice 1" Ice	6.68 7.07 7.46	0.05 0.08 0.12

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service

Comb. No.	Description
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	181.833 - 176.833	Pole	Max Tension	17	0.00	9.13	-15.75
			Max. Compression	26	-3.43	-1.64	1.41
			Max. Mx	8	-0.25	-21.66	0.26
			Max. My	2	-0.23	-0.21	21.61
			Max. Vy	20	-2.76	20.85	-0.02
			Max. Vx	14	2.92	0.07	-21.16
			Max. Torque	24			-2.01
L2	176.833 - 171.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-4.03	-1.67	1.44
			Max. Mx	8	-0.48	-36.15	0.94
			Max. My	14	-0.44	0.69	-36.52
			Max. Vy	20	-3.07	35.41	-0.92
			Max. Vx	14	3.23	0.69	-36.52
			Max. Torque	24			-2.01
L3	171.833 - 166.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.43	-1.99	0.79
			Max. Mx	8	-3.00	-65.65	1.61
			Max. My	14	-2.94	1.31	-66.96
			Max. Vy	20	-10.45	64.88	-1.94
			Max. Vx	14	10.59	1.31	-66.96
			Max. Torque	24			-2.01
L4	166.833 - 161.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.19	-2.06	0.87
			Max. Mx	8	-3.39	-118.68	2.47
			Max. My	14	-3.34	2.07	-120.78
			Max. Vy	20	-10.80	117.99	-3.00
			Max. Vx	14	10.94	2.07	-120.78
			Max. Torque	14			1.99
L5	161.833 - 156.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.72	-2.11	0.95
			Max. Mx	8	-5.79	-175.98	3.33
			Max. My	14	-5.73	2.84	-178.87
			Max. Vy	20	-14.69	175.36	-4.07
			Max. Vx	14	14.84	2.84	-178.87
			Max. Torque	14			1.99
L6	156.833 - 151.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-25.61	-2.18	1.05
			Max. Mx	8	-6.33	-250.27	4.21
			Max. My	14	-6.27	3.61	-253.98
			Max. Vy	20	-15.07	249.74	-5.14
			Max. Vx	14	15.21	3.61	-253.98
			Max. Torque	14			1.99
L7	151.833 - 146.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.54	-2.24	1.16
			Max. Mx	8	-6.90	-326.43	5.09
			Max. My	14	-6.85	4.39	-330.97
			Max. Vy	20	-15.45	326.00	-6.22
			Max. Vx	14	15.59	4.39	-330.97
			Max. Torque	14			1.98
L8	146.833 -	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
	141.833						
			Max. Compression	26	-27.95	-3.26	1.82
			Max. Mx	8	-7.54	-406.02	5.80
			Max. My	14	-7.46	4.74	-411.33
			Max. Vy	20	-16.50	405.36	-6.87
			Max. Vx	14	16.72	4.74	-411.33
			Max. Torque	14			2.89
L9	141.833 - 136.833	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.41	-3.19	2.40
			Max. Mx	8	-10.64	-505.62	6.24
			Max. My	14	-10.55	4.65	-512.33
			Max. Vy	20	-22.09	505.53	-6.80
			Max. Vx	14	22.27	4.65	-512.33
			Max. Torque	14			2.88
L10	136.833 - 132.914	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.46	-3.19	2.41
			Max. Mx	8	-10.68	-509.26	6.25
			Max. My	14	-10.59	4.64	-516.03
			Max. Vy	20	-22.10	509.20	-6.79
			Max. Vx	14	22.28	4.64	-516.03
			Max. Torque	14			2.73
L11	132.914 - 131.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.63	-3.04	2.88
			Max. Mx	20	-11.80	621.00	-6.67
			Max. My	14	-11.75	4.50	-628.67
			Max. Vy	20	-22.61	621.00	-6.67
			Max. Vx	14	22.79	4.50	-628.67
			Max. Torque	14			2.72
L12	131.667 - 126.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.23	-2.89	3.35
			Max. Mx	20	-12.75	735.08	-6.55
			Max. My	14	-12.70	4.37	-743.59
			Max. Vy	20	-23.04	735.08	-6.55
			Max. Vx	14	23.22	4.37	-743.59
			Max. Torque	14			2.72
L13	126.667 - 121.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.87	-2.73	3.83
			Max. Mx	20	-13.73	851.33	-6.42
			Max. My	14	-13.68	4.24	-860.67
			Max. Vy	20	-23.47	851.33	-6.42
			Max. Vx	14	23.65	4.24	-860.67
			Max. Torque	14			2.72
L14	121.667 - 116.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.55	-2.56	4.32
			Max. Mx	20	-14.74	969.76	-6.30
			Max. My	14	-14.69	4.11	-979.94
			Max. Vy	20	-23.91	969.76	-6.30
			Max. Vx	14	24.09	4.11	-979.94
			Max. Torque	14			2.72
L15	116.667 - 111.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.27	-2.38	4.83
			Max. Mx	20	-15.79	1090.40	-6.17
			Max. My	14	-15.74	3.98	-1101.41
			Max. Vy	20	-24.36	1090.40	-6.17
			Max. Vx	14	24.54	3.98	-1101.41
			Max. Torque	14			2.71
L16	111.667 - 106.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.03	-2.19	5.34
			Max. Mx	20	-16.87	1213.26	-6.03
			Max. My	14	-16.82	3.85	-1225.10
			Max. Vy	20	-24.80	1213.26	-6.03

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	24.98	3.85	-1225.10
			Max. Torque	14			2.71
L17	106.667 - 101.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.83	-1.99	5.86
			Max. Mx	20	-17.98	1338.36	-5.89
			Max. My	14	-17.94	3.72	-1351.03
			Max. Vy	20	-25.25	1338.36	-5.89
			Max. Vx	14	25.43	3.72	-1351.03
			Max. Torque	14			2.70
L18	101.667 - 96.667	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52.67	-1.78	6.39
			Max. Mx	20	-19.12	1465.72	-5.75
			Max. My	14	-19.08	3.60	-1479.21
			Max. Vy	20	-25.70	1465.72	-5.75
			Max. Vx	14	25.89	3.60	-1479.21
			Max. Torque	14			2.70
L19	96.667 - 87.302	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.34	-1.57	6.85
			Max. Mx	20	-20.16	1578.20	-5.63
			Max. My	14	-20.12	3.50	-1592.41
			Max. Vy	20	-26.10	1578.20	-5.63
			Max. Vx	14	26.28	3.50	-1592.41
			Max. Torque	14			2.70
L20	87.302 - 86.302	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.76	-0.22	6.56
			Max. Mx	20	-24.87	1764.93	-5.29
			Max. My	14	-24.83	3.12	-1780.44
			Max. Vy	20	-32.10	1764.93	-5.29
			Max. Vx	14	32.33	3.12	-1780.44
			Max. Torque	14			2.32
L21	86.302 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.37	-0.13	6.70
			Max. Mx	20	-25.21	1806.79	-5.18
			Max. My	14	-25.17	3.01	-1822.57
			Max. Vy	20	-32.22	1806.79	-5.18
			Max. Vx	14	32.45	3.01	-1822.57
			Max. Torque	14			2.32
L22	85 - 84.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.49	-0.12	6.73
			Max. Mx	20	-25.30	1814.84	-5.15
			Max. My	14	-25.26	2.99	-1830.67
			Max. Vy	20	-32.22	1814.84	-5.15
			Max. Vx	14	32.45	2.99	-1830.67
			Max. Torque	14			2.32
L23	84.75 - 79.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-70.85	0.21	7.26
			Max. Mx	20	-26.65	1977.03	-4.71
			Max. My	14	-26.61	2.57	-1993.89
			Max. Vy	20	-32.66	1977.03	-4.71
			Max. Vx	14	32.88	2.57	-1993.89
			Max. Torque	14			2.32
L24	79.75 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.23	0.53	7.78
			Max. Mx	20	-27.96	2133.05	-4.28
			Max. My	14	-27.93	2.18	-2150.88
			Max. Vy	20	-33.06	2133.05	-4.28
			Max. Vx	14	33.28	2.18	-2150.88
			Max. Torque	14			2.32
L25	75 - 74.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.40	0.55	7.81
			Max. Mx	20	-28.09	2141.31	-4.25
			Max. My	14	-28.05	2.16	-2159.20
			Max. Vy	20	-33.07	2141.31	-4.25
			Max. Vx	14	33.29	2.16	-2159.20
			Max. Torque	14			2.32

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L26	74.75 - 74	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.91	0.60	7.89
			Max. Mx	20	-28.39	2166.15	-4.19
			Max. My	14	-28.35	2.10	-2184.19
			Max. Vy	20	-33.15	2166.15	-4.19
			Max. Vx	14	33.38	2.10	-2184.19
			Max. Torque	14			2.32
L27	74 - 73.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.04	0.61	7.91
			Max. Mx	20	-28.46	2174.44	-4.16
			Max. My	14	-28.43	2.08	-2192.53
			Max. Vy	20	-33.17	2174.44	-4.16
			Max. Vx	14	33.40	2.08	-2192.53
			Max. Torque	14			2.32
L28	73.75 - 68.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.77	1.31	8.66
			Max. Mx	20	-29.95	2341.74	-3.72
			Max. My	14	-29.92	1.84	-2360.75
			Max. Vy	20	-33.66	2341.74	-3.72
			Max. Vx	14	33.91	1.84	-2360.75
			Max. Torque	14			2.32
L29	68.75 - 63.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.28	1.72	9.24
			Max. Mx	20	-31.41	2511.03	-3.35
			Max. My	14	-31.38	1.52	-2531.15
			Max. Vy	20	-34.07	2511.03	-3.35
			Max. Vx	14	34.32	1.52	-2531.15
			Max. Torque	14			2.16
L30	63.75 - 58.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-81.81	2.13	9.81
			Max. Mx	20	-32.91	2682.34	-2.97
			Max. My	14	-32.88	1.20	-2703.56
			Max. Vy	20	-34.47	2682.34	-2.97
			Max. Vx	14	34.72	1.20	-2703.56
			Max. Torque	14			2.16
L31	58.75 - 53.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-84.38	2.54	10.39
			Max. Mx	20	-34.43	2855.64	-2.59
			Max. My	14	-34.40	0.88	-2877.95
			Max. Vy	20	-34.87	2855.64	-2.59
			Max. Vx	14	35.11	0.88	-2877.95
			Max. Torque	14			2.15
L32	53.75 - 49	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.84	2.93	10.94
			Max. Mx	20	-35.90	3022.10	-2.23
			Max. My	14	-35.88	0.58	-3045.43
			Max. Vy	20	-35.24	3022.10	-2.23
			Max. Vx	14	35.48	0.58	-3045.43
			Max. Torque	14			2.15
L33	49 - 42.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86.88	2.94	10.95
			Max. Mx	20	-35.94	3024.74	-2.22
			Max. My	14	-35.92	0.57	-3048.09
			Max. Vy	20	-35.23	3024.74	-2.22
			Max. Vx	14	35.47	0.57	-3048.09
			Max. Torque	14			2.15
L34	42.698 - 41.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.73	3.55	11.79
			Max. Mx	20	-39.66	3282.19	-1.66
			Max. My	14	-39.64	0.11	-3307.10
			Max. Vy	20	-36.00	3282.19	-1.66
			Max. Vx	14	36.24	0.11	-3307.10
			Max. Torque	14			2.15
L35	41.698 - 36.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-95.29	3.96	12.36
			Max. Mx	20	-41.43	3463.07	-1.28
			Max. My	14	-41.41	-0.20	-3489.05

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-36.38	3463.07	-1.28
			Max. Vx	14	36.62	-0.20	-3489.05
			Max. Torque	14			2.15
L36	36.698 - 31.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.88	4.38	12.93
			Max. Mx	20	-43.23	3645.81	-0.89
			Max. My	14	-43.22	-0.52	-3672.86
			Max. Vy	20	-36.74	3645.81	-0.89
			Max. Vx	14	36.98	-0.52	-3672.86
			Max. Torque	14			2.15
L37	31.698 - 26.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-100.50	4.78	13.46
			Max. Mx	20	-45.07	3830.35	-0.50
			Max. My	14	-45.05	-0.83	-3858.45
			Max. Vy	20	-37.09	3830.35	-0.50
			Max. Vx	14	37.33	-0.83	-3858.45
			Max. Torque	14			2.15
L38	26.698 - 21.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-103.14	5.18	13.97
			Max. Mx	20	-46.93	4016.59	-0.10
			Max. My	14	-46.92	-1.14	-4045.74
			Max. Vy	20	-37.43	4016.59	-0.10
			Max. Vx	14	37.66	-1.14	-4045.74
			Max. Torque	14			2.15
L39	21.698 - 16.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-105.80	5.57	14.48
			Max. Mx	20	-48.83	4204.44	0.29
			Max. My	14	-48.83	-1.44	-4234.62
			Max. Vy	20	-37.73	4204.44	0.29
			Max. Vx	14	37.97	-1.44	-4234.62
			Max. Torque	14			2.15
L40	16.698 - 11.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-108.46	5.93	14.96
			Max. Mx	20	-50.76	4393.76	0.68
			Max. My	14	-50.75	-1.75	-4424.97
			Max. Vy	20	-38.02	4393.76	0.68
			Max. Vx	14	38.25	-1.75	-4424.97
			Max. Torque	14			2.15
L41	11.698 - 6.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-110.74	5.97	14.99
			Max. Mx	20	-52.57	4584.45	0.99
			Max. My	14	-52.57	-2.12	-4616.82
			Max. Vy	20	-38.30	4584.45	0.99
			Max. Vx	14	38.53	-2.12	-4616.82
			Max. Torque	14			2.15
L42	6.698 - 1.698	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-112.86	6.01	15.02
			Max. Mx	20	-54.28	4776.54	1.30
			Max. My	14	-54.28	-2.48	-4810.07
			Max. Vy	20	-38.58	4776.54	1.30
			Max. Vx	14	38.82	-2.48	-4810.07
			Max. Torque	14			2.15
L43	1.698 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-113.56	6.03	15.02
			Max. Mx	20	-54.85	4842.11	1.41
			Max. My	14	-54.85	-2.60	-4876.02
			Max. Vy	20	-38.70	4842.11	1.41
			Max. Vx	14	38.93	-2.60	-4876.02
			Max. Torque	14			2.15

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	29	113.56	-11.20	6.51
	Max. H_x	20	54.88	38.66	0.06
	Max. H_z	2	54.88	0.19	38.73
	Max. M_x	2	4852.13	0.19	38.73
	Max. M_z	8	4824.24	-38.55	0.00
	Max. Torsion	14	2.15	-0.07	-38.89
	Min. Vert	19	41.16	33.73	-19.64
	Min. H_x	8	54.88	-38.55	0.00
	Min. H_z	14	54.88	-0.07	-38.89
	Min. M_x	14	-4876.02	-0.07	-38.89
	Min. M_z	20	-4842.11	38.66	0.06
	Min. Torsion	24	-1.89	19.33	33.66

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	45.73	0.00	0.00	-1.57	0.47	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	54.88	-0.19	-38.73	-4852.13	22.66	1.83
0.9 Dead+1.6 Wind 0 deg - No Ice	41.16	-0.19	-38.73	-4776.94	22.26	1.83
1.2 Dead+1.6 Wind 30 deg - No Ice	54.88	19.20	-33.50	-4198.39	-2404.06	1.59
0.9 Dead+1.6 Wind 30 deg - No Ice	41.16	19.20	-33.50	-4133.22	-2367.14	1.59
1.2 Dead+1.6 Wind 60 deg - No Ice	54.88	33.65	-19.54	-2455.25	-4208.69	0.29
0.9 Dead+1.6 Wind 60 deg - No Ice	41.16	33.65	-19.54	-2416.91	-4144.12	0.29
1.2 Dead+1.6 Wind 90 deg - No Ice	54.88	38.55	-0.00	-10.32	-4824.24	-1.12
0.9 Dead+1.6 Wind 90 deg - No Ice	41.16	38.55	-0.00	-9.54	-4750.11	-1.11
1.2 Dead+1.6 Wind 120 deg - No Ice	54.88	33.34	19.58	2451.91	-4168.06	-1.22
0.9 Dead+1.6 Wind 120 deg - No Ice	41.16	33.34	19.58	2414.68	-4104.08	-1.21
1.2 Dead+1.6 Wind 150 deg - No Ice	54.88	19.24	33.75	4231.77	-2397.79	-1.86
0.9 Dead+1.6 Wind 150 deg - No Ice	41.16	19.24	33.75	4167.06	-2361.16	-1.86
1.2 Dead+1.6 Wind 180 deg - No Ice	54.88	0.07	38.89	4876.02	-2.60	-2.15
0.9 Dead+1.6 Wind 180 deg - No Ice	41.16	0.07	38.89	4801.40	-2.82	-2.14
1.2 Dead+1.6 Wind 210 deg - No Ice	54.88	-19.19	33.72	4231.24	2406.20	-1.75
0.9 Dead+1.6 Wind 210 deg - No Ice	41.16	-19.19	33.72	4166.50	2368.96	-1.75
1.2 Dead+1.6 Wind 240 deg - No Ice	54.88	-33.73	19.64	2468.81	4224.75	-0.53
0.9 Dead+1.6 Wind 240 deg - No Ice	41.16	-33.73	19.64	2431.20	4159.65	-0.53
1.2 Dead+1.6 Wind 270 deg - No Ice	54.88	-38.66	-0.06	-1.41	4842.11	0.70
0.9 Dead+1.6 Wind 270 deg - No Ice	41.16	-38.66	-0.06	-1.04	4767.43	0.69
1.2 Dead+1.6 Wind 300 deg - No Ice	54.88	-33.44	-19.55	-2452.31	4183.55	1.70
0.9 Dead+1.6 Wind 300 deg -	41.16	-33.44	-19.55	-2414.11	4119.07	1.70

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice 1.2 Dead+1.6 Wind 330 deg -	54.88	-19.33	-33.66	-4219.75	2413.22	1.89
No Ice 0.9 Dead+1.6 Wind 330 deg -	41.16	-19.33	-33.66	-4154.30	2376.04	1.88
No Ice 1.2 Dead+1.0 Ice+1.0 Temp	113.56	0.00	-0.00	-15.02	6.03	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	113.56	-0.03	-12.09	-1703.77	9.46	0.58
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	113.56	6.16	-10.73	-1495.78	-843.02	0.43
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	113.56	11.20	-6.51	-913.32	-1533.79	0.03
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	113.56	12.04	-0.01	-19.19	-1672.94	-0.38
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	113.56	10.40	6.08	834.65	-1443.94	-0.47
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	113.56	6.11	10.71	1471.66	-837.22	-0.63
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	113.56	0.00	12.12	1680.66	7.37	-0.65
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	113.56	-6.16	10.78	1474.76	855.76	-0.47
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	113.56	-11.21	6.53	887.63	1549.86	-0.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	113.56	-12.06	0.00	-12.68	1689.20	0.29
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	113.56	-10.42	-6.07	-864.20	1459.48	0.59
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	113.56	-6.13	-10.69	-1497.79	852.98	0.64
Dead+Wind 0 deg - Service	45.73	-0.04	-8.29	-1032.75	5.15	0.41
Dead+Wind 30 deg - Service	45.73	4.11	-7.17	-893.75	-510.74	0.35
Dead+Wind 60 deg - Service	45.73	7.20	-4.18	-523.21	-894.41	0.07
Dead+Wind 90 deg - Service	45.73	8.25	-0.00	-3.43	-1025.20	-0.25
Dead+Wind 120 deg - Service	45.73	7.13	4.19	519.99	-885.72	-0.27
Dead+Wind 150 deg - Service	45.73	4.12	7.22	898.40	-509.42	-0.42
Dead+Wind 180 deg - Service	45.73	0.02	8.32	1035.41	-0.23	-0.48
Dead+Wind 210 deg - Service	45.73	-4.11	7.21	898.33	511.89	-0.39
Dead+Wind 240 deg - Service	45.73	-7.22	4.20	523.65	898.54	-0.12
Dead+Wind 270 deg - Service	45.73	-8.27	-0.01	-1.54	1029.70	0.16
Dead+Wind 300 deg - Service	45.73	-7.15	-4.18	-522.57	889.70	0.38
Dead+Wind 330 deg - Service	45.73	-4.14	-7.20	-898.32	513.36	0.42

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-45.73	0.00	0.00	45.73	0.00	0.000%
2	-0.19	-54.88	-38.73	0.19	54.88	38.73	0.000%
3	-0.19	-41.16	-38.73	0.19	41.16	38.73	0.000%
4	19.20	-54.88	-33.50	-19.20	54.88	33.50	0.000%
5	19.20	-41.16	-33.50	-19.20	41.16	33.50	0.000%
6	33.65	-54.88	-19.54	-33.65	54.88	19.54	0.000%
7	33.65	-41.16	-19.54	-33.65	41.16	19.54	0.000%
8	38.55	-54.88	-0.00	-38.55	54.88	0.00	0.000%
9	38.55	-41.16	-0.00	-38.55	41.16	0.00	0.000%
10	33.34	-54.88	19.58	-33.34	54.88	-19.58	0.000%
11	33.34	-41.16	19.58	-33.34	41.16	-19.58	0.000%
12	19.24	-54.88	33.75	-19.24	54.88	-33.75	0.000%
13	19.24	-41.16	33.75	-19.24	41.16	-33.75	0.000%
14	0.07	-54.88	38.89	-0.07	54.88	-38.89	0.000%
15	0.07	-41.16	38.89	-0.07	41.16	-38.89	0.000%
16	-19.19	-54.88	33.72	19.19	54.88	-33.72	0.000%
17	-19.19	-41.16	33.72	19.19	41.16	-33.72	0.000%
18	-33.73	-54.88	19.64	33.73	54.88	-19.64	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
19	-33.73	-41.16	19.64	33.73	41.16	-19.64	0.000%
20	-38.66	-54.88	-0.06	38.66	54.88	0.06	0.000%
21	-38.66	-41.16	-0.06	38.66	41.16	0.06	0.000%
22	-33.44	-54.88	-19.55	33.44	54.88	19.55	0.000%
23	-33.44	-41.16	-19.55	33.44	41.16	19.55	0.000%
24	-19.33	-54.88	-33.66	19.33	54.88	33.66	0.000%
25	-19.33	-41.16	-33.66	19.33	41.16	33.66	0.000%
26	0.00	-113.56	0.00	-0.00	113.56	0.00	0.000%
27	-0.03	-113.56	-12.09	0.03	113.56	12.09	0.000%
28	6.16	-113.56	-10.73	-6.16	113.56	10.73	0.000%
29	11.20	-113.56	-6.51	-11.20	113.56	6.51	0.000%
30	12.04	-113.56	-0.01	-12.04	113.56	0.01	0.000%
31	10.40	-113.56	6.08	-10.40	113.56	-6.08	0.000%
32	6.11	-113.56	10.71	-6.11	113.56	-10.71	0.000%
33	0.00	-113.56	12.12	-0.00	113.56	-12.12	0.000%
34	-6.16	-113.56	10.78	6.16	113.56	-10.78	0.000%
35	-11.21	-113.56	6.53	11.21	113.56	-6.53	0.000%
36	-12.06	-113.56	0.00	12.06	113.56	-0.00	0.000%
37	-10.42	-113.56	-6.07	10.42	113.56	6.07	0.000%
38	-6.13	-113.56	-10.69	6.13	113.56	10.69	0.000%
39	-0.04	-45.73	-8.29	0.04	45.73	8.29	0.000%
40	4.11	-45.73	-7.17	-4.11	45.73	7.17	0.000%
41	7.20	-45.73	-4.18	-7.20	45.73	4.18	0.000%
42	8.25	-45.73	-0.00	-8.25	45.73	0.00	0.000%
43	7.13	-45.73	4.19	-7.13	45.73	-4.19	0.000%
44	4.12	-45.73	7.22	-4.12	45.73	-7.22	0.000%
45	0.02	-45.73	8.32	-0.02	45.73	-8.32	0.000%
46	-4.11	-45.73	7.21	4.11	45.73	-7.21	0.000%
47	-7.22	-45.73	4.20	7.22	45.73	-4.20	0.000%
48	-8.27	-45.73	-0.01	8.27	45.73	0.01	0.000%
49	-7.15	-45.73	-4.18	7.15	45.73	4.18	0.000%
50	-4.14	-45.73	-7.20	4.14	45.73	7.20	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00026741
3	Yes	6	0.00000001	0.00007322
4	Yes	7	0.00000001	0.00054032
5	Yes	7	0.00000001	0.00010352
6	Yes	7	0.00000001	0.00052906
7	Yes	7	0.00000001	0.00009990
8	Yes	6	0.00000001	0.00031094
9	Yes	6	0.00000001	0.00008527
10	Yes	7	0.00000001	0.00052248
11	Yes	7	0.00000001	0.00009876
12	Yes	7	0.00000001	0.00054630
13	Yes	7	0.00000001	0.00010490
14	Yes	6	0.00000001	0.00038497
15	Yes	6	0.00000001	0.00011053
16	Yes	7	0.00000001	0.00051526
17	Yes	7	0.00000001	0.00009691
18	Yes	7	0.00000001	0.00053519
19	Yes	7	0.00000001	0.00010093
20	Yes	6	0.00000001	0.00020514
21	Yes	6	0.00000001	0.00005055
22	Yes	7	0.00000001	0.00054589
23	Yes	7	0.00000001	0.00010441
24	Yes	7	0.00000001	0.00051756
25	Yes	7	0.00000001	0.00009775
26	Yes	6	0.00000001	0.00041078
27	Yes	9	0.00000001	0.00037672
28	Yes	9	0.00000001	0.00051350

29	Yes	9	0.00000001	0.00054233
30	Yes	9	0.00000001	0.00037148
31	Yes	9	0.00000001	0.00049445
32	Yes	9	0.00000001	0.00050416
33	Yes	9	0.00000001	0.00037162
34	Yes	9	0.00000001	0.00050395
35	Yes	9	0.00000001	0.00053406
36	Yes	9	0.00000001	0.00037191
37	Yes	9	0.00000001	0.00051173
38	Yes	9	0.00000001	0.00051044
39	Yes	5	0.00000001	0.00071891
40	Yes	6	0.00000001	0.00017661
41	Yes	6	0.00000001	0.00017188
42	Yes	5	0.00000001	0.00068840
43	Yes	6	0.00000001	0.00016424
44	Yes	6	0.00000001	0.00017834
45	Yes	5	0.00000001	0.00075013
46	Yes	6	0.00000001	0.00016356
47	Yes	6	0.00000001	0.00017627
48	Yes	5	0.00000001	0.00067154
49	Yes	6	0.00000001	0.00017890
50	Yes	6	0.00000001	0.00016224

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
L1	181.833 - 176.833	45.202	47	2.3478	0.0123
L2	176.833 - 171.833	42.751	47	2.3434	0.0117
L3	171.833 - 166.833	40.314	47	2.3207	0.0099
L4	166.833 - 161.833	37.900	47	2.2923	0.0084
L5	161.833 - 156.833	35.523	47	2.2469	0.0072
L6	156.833 - 151.833	33.201	47	2.1875	0.0062
L7	151.833 - 146.833	30.949	47	2.1145	0.0054
L8	146.833 - 141.833	28.778	47	2.0307	0.0047
L9	141.833 - 136.833	26.699	47	1.9400	0.0040
L10	136.833 - 132.914	24.718	47	1.8435	0.0033
L11	136.667 - 131.667	24.654	47	1.8402	0.0033
L12	131.667 - 126.667	22.751	47	1.7888	0.0030
L13	126.667 - 121.667	20.919	47	1.7108	0.0027
L14	121.667 - 116.667	19.170	47	1.6308	0.0024
L15	116.667 - 111.667	17.504	47	1.5498	0.0021
L16	111.667 - 106.667	15.924	47	1.4687	0.0018
L17	106.667 - 101.667	14.429	47	1.3879	0.0016
L18	101.667 - 96.667	13.018	47	1.3078	0.0014
L19	96.667 - 87.302	11.690	47	1.2289	0.0012
L20	92.323 - 86.302	10.603	47	1.1613	0.0011
L21	86.302 - 85	9.169	47	1.1052	0.0010
L22	85 - 84.75	8.871	47	1.0842	0.0009
L23	84.75 - 79.75	8.814	47	1.0801	0.0009
L24	79.75 - 75	7.725	47	0.9991	0.0008
L25	75 - 74.75	6.769	47	0.9231	0.0007
L26	74.75 - 74	6.721	47	0.9208	0.0007
L27	74 - 73.75	6.577	47	0.9140	0.0007
L28	73.75 - 68.75	6.529	47	0.9100	0.0007
L29	68.75 - 63.75	5.618	47	0.8315	0.0006
L30	63.75 - 58.75	4.788	47	0.7542	0.0006
L31	58.75 - 53.75	4.038	47	0.6784	0.0005
L32	53.75 - 49	3.366	47	0.6040	0.0004
L33	49 - 42.698	2.800	47	0.5347	0.0004
L34	48.925 - 41.698	2.792	47	0.5337	0.0003
L35	41.698 - 36.698	2.021	47	0.4789	0.0003
L36	36.698 - 31.698	1.553	47	0.4163	0.0003
L37	31.698 - 26.698	1.149	47	0.3552	0.0002
L38	26.698 - 21.698	0.808	47	0.2955	0.0002
L39	21.698 - 16.698	0.529	47	0.2372	0.0001
L40	16.698 - 11.698	0.311	47	0.1803	0.0001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L41	11.698 - 6.698	0.151	47	0.1247	0.0001
L42	6.698 - 1.698	0.049	47	0.0705	0.0000
L43	1.698 - 0	0.003	47	0.0175	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	HPD2-4.7	47	43.322	2.3459	0.0130	19515
170.00	Platform Mount [LP 601-1]	47	39.425	2.3113	0.0104	9992
157.00	Platform Mount [LP 305-1]	47	33.278	2.1897	0.0071	4318
144.00	VHLP2.5-10W	47	27.589	1.9800	0.0050	3141
140.00	Platform Mount [LP 712-1]	47	25.961	1.9056	0.0043	3096
90.00	Platform Mount [LP 712-1]	47	10.040	1.1407	0.0012	5280
73.00	Side Arm Mount [SO 701-1]	47	6.387	0.8977	0.0008	3855

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	181.833 - 176.833	211.851	14	11.0349	0.0521
L2	176.833 - 171.833	200.374	14	11.0166	0.0498
L3	171.833 - 166.833	188.962	14	10.9192	0.0411
L4	166.833 - 161.833	177.664	14	10.7923	0.0347
L5	161.833 - 156.833	166.544	18	10.5806	0.0296
L6	156.833 - 151.833	155.712	18	10.3005	0.0256
L7	151.833 - 146.833	145.195	18	9.9577	0.0226
L8	146.833 - 141.833	135.056	18	9.5643	0.0199
L9	141.833 - 136.833	125.338	18	9.1378	0.0170
L10	136.833 - 132.914	116.069	18	8.6836	0.0141
L11	136.667 - 131.667	115.769	18	8.6679	0.0140
L12	131.667 - 126.667	106.861	18	8.4261	0.0128
L13	126.667 - 121.667	98.280	18	8.0588	0.0113
L14	121.667 - 116.667	90.083	18	7.6822	0.0100
L15	116.667 - 111.667	82.276	18	7.3011	0.0089
L16	111.667 - 106.667	74.864	18	6.9189	0.0078
L17	106.667 - 101.667	67.847	18	6.5384	0.0069
L18	101.667 - 96.667	61.221	18	6.1614	0.0060
L19	96.667 - 87.302	54.984	18	5.7894	0.0053
L20	92.323 - 86.302	49.877	18	5.4709	0.0046
L21	86.302 - 85	43.139	18	5.2064	0.0043
L22	85 - 84.75	41.736	18	5.1076	0.0041
L23	84.75 - 79.75	41.470	18	5.0885	0.0041
L24	79.75 - 75	36.352	18	4.7068	0.0036
L25	75 - 74.75	31.857	18	4.3486	0.0032
L26	74.75 - 74	31.630	18	4.3378	0.0032
L27	74 - 73.75	30.952	18	4.3056	0.0032
L28	73.75 - 68.75	30.727	18	4.2869	0.0032
L29	68.75 - 63.75	26.439	18	3.9167	0.0028
L30	63.75 - 58.75	22.533	18	3.5527	0.0024
L31	58.75 - 53.75	19.004	18	3.1952	0.0021
L32	53.75 - 49	15.845	18	2.8447	0.0018
L33	49 - 42.698	13.179	18	2.5184	0.0016
L34	48.925 - 41.698	13.140	18	2.5133	0.0016
L35	41.698 - 36.698	9.513	18	2.2551	0.0014
L36	36.698 - 31.698	7.308	18	1.9603	0.0012
L37	31.698 - 26.698	5.407	18	1.6724	0.0010
L38	26.698 - 21.698	3.804	18	1.3912	0.0008
L39	21.698 - 16.698	2.491	18	1.1167	0.0006

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L40	16.698 - 11.698	1.463	18	0.8487	0.0005
L41	11.698 - 6.698	0.712	18	0.5870	0.0003
L42	6.698 - 1.698	0.231	18	0.3317	0.0002
L43	1.698 - 0	0.015	18	0.0824	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	HPD2-4.7	14	203.049	11.0273	0.0647	4825
170.00	Platform Mount [LP 601-1]	14	184.804	10.8779	0.0521	2372
157.00	Platform Mount [LP 305-1]	18	156.069	10.3109	0.0361	985
144.00	VHLP2.5-10W	18	129.496	9.3257	0.0247	706
140.00	Platform Mount [LP 712-1]	18	121.886	8.9757	0.0213	693
90.00	Platform Mount [LP 712-1]	18	47.232	5.3736	0.0056	1141
73.00	Side Arm Mount [SO 701-1]	18	30.059	4.2287	0.0037	828

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	5.00	0.00	0.0	12.2420	-0.22	909.52	0.000
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	5.00	0.00	0.0	13.1765	-0.46	978.95	0.000
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	5.00	0.00	0.0	14.1111	-2.93	1048.39	0.003
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	5.00	0.00	0.0	15.0457	-3.32	1117.82	0.003
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	5.00	0.00	0.0	15.9803	-5.72	1187.25	0.005
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	5.00	0.00	0.0	16.9149	-6.26	1256.69	0.005
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	5.00	0.00	0.0	17.8494	-6.84	1326.12	0.005
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	5.00	0.00	0.0	18.7840	-7.46	1395.56	0.005
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	5.00	0.00	0.0	19.7186	-10.56	1464.99	0.007
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	3.92	0.00	0.0	19.7496	-10.60	1467.30	0.007
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	5.00	0.00	0.0	30.2695	-11.76	2248.87	0.005
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	5.00	0.00	0.0	31.6585	-12.70	2352.07	0.005
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	5.00	0.00	0.0	33.0474	-13.69	2455.26	0.006
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	5.00	0.00	0.0	34.4364	-14.70	2558.45	0.006
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	5.00	0.00	0.0	35.8254	-15.75	2661.65	0.006
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	5.00	0.00	0.0	37.2143	-16.83	2764.84	0.006
L17	106.667 -	TP32.8079x31.641x0.375	5.00	0.00	0.0	38.6033	-17.91	2868.03	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	101.667 (17)								
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	5.00	0.00	0.0	39.9923	-19.06	2971.23	0.006
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	9.36	0.00	0.0	41.1990	-20.10	3060.88	0.007
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	6.02	0.00	0.0	41.9766	-24.81	3118.65	0.008
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	1.30	0.00	0.0	42.3378	-25.15	3145.49	0.008
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	0.25	0.00	0.0	42.4071	-25.24	3150.64	0.008
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	5.00	0.00	0.0	43.7942	-26.59	3253.69	0.008
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	4.75	0.00	0.0	45.1119	-27.91	3343.12	0.008
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.6625	0.25	0.00	0.0	79.2156	-28.04	5885.32	0.005
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.6625	0.75	0.00	0.0	79.5832	-28.33	5912.63	0.005
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	0.25	0.00	0.0	45.4586	-28.41	3362.23	0.008
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	5.00	0.00	0.0	46.8457	-29.90	3437.70	0.009
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	5.00	0.00	0.0	48.2327	-31.37	3511.56	0.009
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	5.00	0.00	0.0	49.6197	-32.86	3583.82	0.009
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	5.00	0.00	0.0	51.0068	-34.39	3654.47	0.009
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	4.75	0.00	0.0	52.3245	-35.86	3720.10	0.010
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	6.30	0.00	0.0	52.3453	-35.91	3721.12	0.010
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	7.23	0.00	0.0	62.2789	-39.63	4598.58	0.009
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	5.00	0.00	0.0	63.8963	-41.40	4686.31	0.009
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.4375	5.00	0.00	0.0	65.5136	-43.21	4772.43	0.009
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	5.00	0.00	0.0	67.1309	-45.05	4856.96	0.009
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	5.00	0.00	0.0	68.7483	-46.92	4939.87	0.009
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	5.00	0.00	0.0	70.3656	-48.82	5021.19	0.010
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	5.00	0.00	0.0	71.9829	-50.75	5100.90	0.010
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	5.00	0.00	0.0	73.6003	-52.57	5179.00	0.010
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	5.00	0.00	0.0	75.2176	-54.28	5255.50	0.010
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	1.70	0.00	0.0	75.7669	-54.85	5281.12	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	21.81	286.17	0.076	0.00	286.17	0.000
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	36.82	331.91	0.111	0.00	331.91	0.000
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	67.10	381.04	0.176	0.00	381.04	0.000
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	121.22	433.55	0.280	0.00	433.55	0.000
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	179.61	489.46	0.367	0.00	489.46	0.000
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	255.02	548.75	0.465	0.00	548.75	0.000
L7	151.833 -	TP22.7446x21.5668x0.25	332.30	611.44	0.543	0.00	611.44	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	146.833 (7)							
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	412.70	677.52	0.609	0.00	677.52	0.000
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	513.58	746.98	0.688	0.00	746.98	0.000
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	517.27	749.35	0.690	0.00	749.35	0.000
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	629.73	1168.07	0.539	0.00	1168.07	0.000
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	744.47	1278.53	0.582	0.00	1278.53	0.000
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	861.38	1394.00	0.618	0.00	1394.00	0.000
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	980.47	1514.46	0.647	0.00	1514.46	0.000
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	1101.76	1639.90	0.672	0.00	1639.90	0.000
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	1225.28	1770.34	0.692	0.00	1770.34	0.000
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	1351.44	1905.77	0.709	0.00	1905.77	0.000
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	1480.56	2046.19	0.724	0.00	2046.19	0.000
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	1594.65	2172.24	0.734	0.00	2172.24	0.000
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	1783.56	2255.46	0.791	0.00	2255.46	0.000
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	1825.88	2294.64	0.796	0.00	2294.64	0.000
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	1834.03	2302.21	0.797	0.00	2302.21	0.000
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	1998.03	2456.08	0.814	0.00	2456.08	0.000
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	2155.78	2600.28	0.829	0.00	2600.28	0.000
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.6625	2164.14	4515.54	0.479	0.00	4515.54	0.000
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.6625	2189.25	4557.91	0.480	0.00	4557.91	0.000
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	2197.63	2635.45	0.834	0.00	2635.45	0.000
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	2366.81	2777.63	0.852	0.00	2777.63	0.000
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	2538.03	2922.11	0.869	0.00	2922.11	0.000
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	2711.27	3068.78	0.883	0.00	3068.78	0.000
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	2886.48	3217.53	0.897	0.00	3217.53	0.000
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	3054.76	3360.66	0.909	0.00	3360.66	0.000
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	3057.43	3362.93	0.909	0.00	3362.93	0.000
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	3317.63	4233.07	0.784	0.00	4233.07	0.000
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	3500.41	4426.94	0.791	0.00	4426.94	0.000
L36	36.698 - 31.698 (36)	TP47.6163x46.4516x0.4375	3685.04	4623.49	0.797	0.00	4623.49	0.000
L37	31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	3871.47	4822.61	0.803	0.00	4822.61	0.000
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	4059.58	5024.17	0.808	0.00	5024.17	0.000
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	4249.29	5228.07	0.813	0.00	5228.07	0.000
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	4440.47	5434.18	0.817	0.00	5434.18	0.000
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	4633.04	5642.39	0.821	0.00	5642.39	0.000
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	4827.02	5852.58	0.825	0.00	5852.58	0.000
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	4893.22	5924.40	0.826	0.00	5924.40	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	181.833 - 176.833 (1)	TP15.6778x14.5x0.25	2.85	454.76	0.006	0.95	573.04	0.002
L2	176.833 - 171.833 (2)	TP16.8556x15.6778x0.25	3.16	489.48	0.006	0.95	664.63	0.001
L3	171.833 - 166.833 (3)	TP18.0334x16.8556x0.25	10.65	524.19	0.020	1.37	763.00	0.002
L4	166.833 - 161.833 (4)	TP19.2112x18.0334x0.25	11.00	558.91	0.020	1.37	868.17	0.002
L5	161.833 - 156.833 (5)	TP20.389x19.2112x0.25	14.90	593.63	0.025	1.36	980.12	0.001
L6	156.833 - 151.833 (6)	TP21.5668x20.389x0.25	15.27	628.34	0.024	1.36	1098.85	0.001
L7	151.833 - 146.833 (7)	TP22.7446x21.5668x0.25	15.65	663.06	0.024	1.36	1224.38	0.001
L8	146.833 - 141.833 (8)	TP23.9224x22.7446x0.25	16.71	697.78	0.024	2.23	1356.69	0.002
L9	141.833 - 136.833 (9)	TP25.1001x23.9224x0.25	22.24	732.50	0.030	2.10	1495.79	0.001
L10	136.833 - 132.914 (10)	TP26.0233x25.1001x0.25	22.25	733.65	0.030	2.10	1500.53	0.001
L11	132.914 - 131.667 (11)	TP25.8062x24.6392x0.375	22.75	1124.44	0.020	2.10	2338.98	0.001
L12	131.667 - 126.667 (12)	TP26.9732x25.8062x0.375	23.18	1176.03	0.020	2.09	2560.20	0.001
L13	126.667 - 121.667 (13)	TP28.1401x26.9732x0.375	23.61	1227.63	0.019	2.09	2791.41	0.001
L14	121.667 - 116.667 (14)	TP29.3071x28.1401x0.375	24.05	1279.23	0.019	2.09	3032.62	0.001
L15	116.667 - 111.667 (15)	TP30.474x29.3071x0.375	24.50	1330.82	0.018	2.09	3283.82	0.001
L16	111.667 - 106.667 (16)	TP31.641x30.474x0.375	24.94	1382.42	0.018	2.08	3545.01	0.001
L17	106.667 - 101.667 (17)	TP32.8079x31.641x0.375	25.60	1434.02	0.018	0.55	3816.20	0.000
L18	101.667 - 96.667 (18)	TP33.9749x32.8079x0.375	26.08	1485.61	0.018	0.55	4097.38	0.000
L19	96.667 - 87.302 (19)	TP36.1606x33.9749x0.375	26.48	1530.44	0.017	0.55	4349.79	0.000
L20	87.302 - 86.302 (20)	TP35.642x34.2387x0.375	32.47	1559.33	0.021	0.69	4516.43	0.000
L21	86.302 - 85 (21)	TP35.9455x35.642x0.375	32.59	1572.74	0.021	0.69	4594.90	0.000
L22	85 - 84.75 (22)	TP36.0038x35.9455x0.375	32.59	1575.32	0.021	0.69	4610.05	0.000
L23	84.75 - 79.75 (23)	TP37.1691x36.0038x0.375	33.03	1626.84	0.020	0.69	4918.17	0.000
L24	79.75 - 75 (24)	TP38.2762x37.1691x0.375	33.43	1671.56	0.020	0.69	5206.93	0.000
L25	75 - 74.75 (25)	TP38.3344x38.2762x0.6625	33.45	2942.66	0.011	0.69	9042.08	0.000
L26	74.75 - 74 (26)	TP38.5092x38.3344x0.6625	33.53	2956.32	0.011	0.69	9126.92	0.000
L27	74 - 73.75 (27)	TP38.5675x38.5092x0.375	33.55	1681.12	0.020	0.69	5277.35	0.000
L28	73.75 - 68.75 (28)	TP39.7328x38.5675x0.375	34.06	1718.85	0.020	0.53	5562.04	0.000
L29	68.75 - 63.75 (29)	TP40.8982x39.7328x0.375	34.47	1755.78	0.020	0.53	5851.36	0.000
L30	63.75 - 58.75 (30)	TP42.0635x40.8982x0.375	34.87	1791.91	0.019	0.53	6145.07	0.000
L31	58.75 - 53.75 (31)	TP43.2288x42.0635x0.375	35.26	1827.23	0.019	0.53	6442.93	0.000
L32	53.75 - 49 (32)	TP44.3359x43.2288x0.375	35.63	1860.05	0.019	0.53	6729.54	0.000
L33	49 - 42.698 (33)	TP45.8047x44.3359x0.375	35.62	1860.56	0.019	0.53	6734.09	0.000
L34	42.698 - 41.698 (34)	TP45.2869x43.6034x0.4375	36.39	2299.29	0.016	0.53	8476.50	0.000
L35	41.698 - 36.698 (35)	TP46.4516x45.2869x0.4375	36.76	2343.15	0.016	0.53	8864.75	0.000
L36	36.698 -	TP47.6163x46.4516x0.4375	37.13	2386.22	0.016	0.53	9258.33	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L37	31.698 (36) 31.698 - 26.698 (37)	TP48.781x47.6163x0.4375	37.48	2428.48	0.015	0.53	9657.00	0.000
L38	26.698 - 21.698 (38)	TP49.9457x48.781x0.4375	37.81	2469.94	0.015	0.53	10060.67	0.000
L39	21.698 - 16.698 (39)	TP51.1104x49.9457x0.4375	38.12	2510.59	0.015	0.53	10468.92	0.000
L40	16.698 - 11.698 (40)	TP52.2751x51.1104x0.4375	38.40	2550.45	0.015	0.53	10881.67	0.000
L41	11.698 - 6.698 (41)	TP53.4398x52.2751x0.4375	38.68	2589.50	0.015	0.53	11298.58	0.000
L42	6.698 - 1.698 (42)	TP54.6045x53.4398x0.4375	38.96	2627.75	0.015	0.53	11719.50	0.000
L43	1.698 - 0 (43)	TP55x54.6045x0.4375	39.07	2640.56	0.015	0.53	11863.25	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	181.833 - 176.833 (1)	0.000	0.076	0.000	0.006	0.002	0.077	1.000	4.8.2
L2	176.833 - 171.833 (2)	0.000	0.111	0.000	0.006	0.001	0.111	1.000	4.8.2
L3	171.833 - 166.833 (3)	0.003	0.176	0.000	0.020	0.002	0.179	1.000	4.8.2
L4	166.833 - 161.833 (4)	0.003	0.280	0.000	0.020	0.002	0.283	1.000	4.8.2
L5	161.833 - 156.833 (5)	0.005	0.367	0.000	0.025	0.001	0.372	1.000	4.8.2
L6	156.833 - 151.833 (6)	0.005	0.465	0.000	0.024	0.001	0.470	1.000	4.8.2
L7	151.833 - 146.833 (7)	0.005	0.543	0.000	0.024	0.001	0.549	1.000	4.8.2
L8	146.833 - 141.833 (8)	0.005	0.609	0.000	0.024	0.002	0.615	1.000	4.8.2
L9	141.833 - 136.833 (9)	0.007	0.688	0.000	0.030	0.001	0.696	1.000	4.8.2
L10	136.833 - 132.914 (10)	0.007	0.690	0.000	0.030	0.001	0.699	1.000	4.8.2
L11	132.914 - 131.667 (11)	0.005	0.539	0.000	0.020	0.001	0.545	1.000	4.8.2
L12	131.667 - 126.667 (12)	0.005	0.582	0.000	0.020	0.001	0.588	1.000	4.8.2
L13	126.667 - 121.667 (13)	0.006	0.618	0.000	0.019	0.001	0.624	1.000	4.8.2
L14	121.667 - 116.667 (14)	0.006	0.647	0.000	0.019	0.001	0.654	1.000	4.8.2
L15	116.667 - 111.667 (15)	0.006	0.672	0.000	0.018	0.001	0.678	1.000	4.8.2
L16	111.667 - 106.667 (16)	0.006	0.692	0.000	0.018	0.001	0.699	1.000	4.8.2
L17	106.667 - 101.667 (17)	0.006	0.709	0.000	0.018	0.000	0.716	1.000	4.8.2
L18	101.667 - 96.667 (18)	0.006	0.724	0.000	0.018	0.000	0.730	1.000	4.8.2
L19	96.667 - 87.302 (19)	0.007	0.734	0.000	0.017	0.000	0.741	1.000	4.8.2
L20	87.302 - 86.302 (20)	0.008	0.791	0.000	0.021	0.000	0.799	1.000	4.8.2
L21	86.302 - 85 (21)	0.008	0.796	0.000	0.021	0.000	0.804	1.000	4.8.2
L22	85 - 84.75 (22)	0.008	0.797	0.000	0.021	0.000	0.805	1.000	4.8.2

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L23	84.75 - 79.75 (23)	0.008	0.814	0.000	0.020	0.000	0.822	1.000	4.8.2
L24	79.75 - 75 (24)	0.008	0.829	0.000	0.020	0.000	0.838	1.000	4.8.2
L25	75 - 74.75 (25)	0.005	0.479	0.000	0.011	0.000	0.484	1.000	4.8.2
L26	74.75 - 74 (26)	0.005	0.480	0.000	0.011	0.000	0.485	1.000	4.8.2
L27	74 - 73.75 (27)	0.008	0.834	0.000	0.020	0.000	0.843	1.000	4.8.2
L28	73.75 - 68.75 (28)	0.009	0.852	0.000	0.020	0.000	0.861	1.000	4.8.2
L29	68.75 - 63.75 (29)	0.009	0.869	0.000	0.020	0.000	0.878	1.000	4.8.2
L30	63.75 - 58.75 (30)	0.009	0.883	0.000	0.019	0.000	0.893	1.000	4.8.2
L31	58.75 - 53.75 (31)	0.009	0.897	0.000	0.019	0.000	0.907	1.000	4.8.2
L32	53.75 - 49 (32)	0.010	0.909	0.000	0.019	0.000	0.919	1.000	4.8.2
L33	49 - 42.698 (33)	0.010	0.909	0.000	0.019	0.000	0.919	1.000	4.8.2
L34	42.698 - 41.698 (34)	0.009	0.784	0.000	0.016	0.000	0.793	1.000	4.8.2
L35	41.698 - 36.698 (35)	0.009	0.791	0.000	0.016	0.000	0.800	1.000	4.8.2
L36	36.698 - 31.698 (36)	0.009	0.797	0.000	0.016	0.000	0.806	1.000	4.8.2
L37	31.698 - 26.698 (37)	0.009	0.803	0.000	0.015	0.000	0.812	1.000	4.8.2
L38	26.698 - 21.698 (38)	0.009	0.808	0.000	0.015	0.000	0.818	1.000	4.8.2
L39	21.698 - 16.698 (39)	0.010	0.813	0.000	0.015	0.000	0.823	1.000	4.8.2
L40	16.698 - 11.698 (40)	0.010	0.817	0.000	0.015	0.000	0.827	1.000	4.8.2
L41	11.698 - 6.698 (41)	0.010	0.821	0.000	0.015	0.000	0.831	1.000	4.8.2
L42	6.698 - 1.698 (42)	0.010	0.825	0.000	0.015	0.000	0.835	1.000	4.8.2
L43	1.698 - 0 (43)	0.010	0.826	0.000	0.015	0.000	0.837	1.000	4.8.2

Section Capacity Table

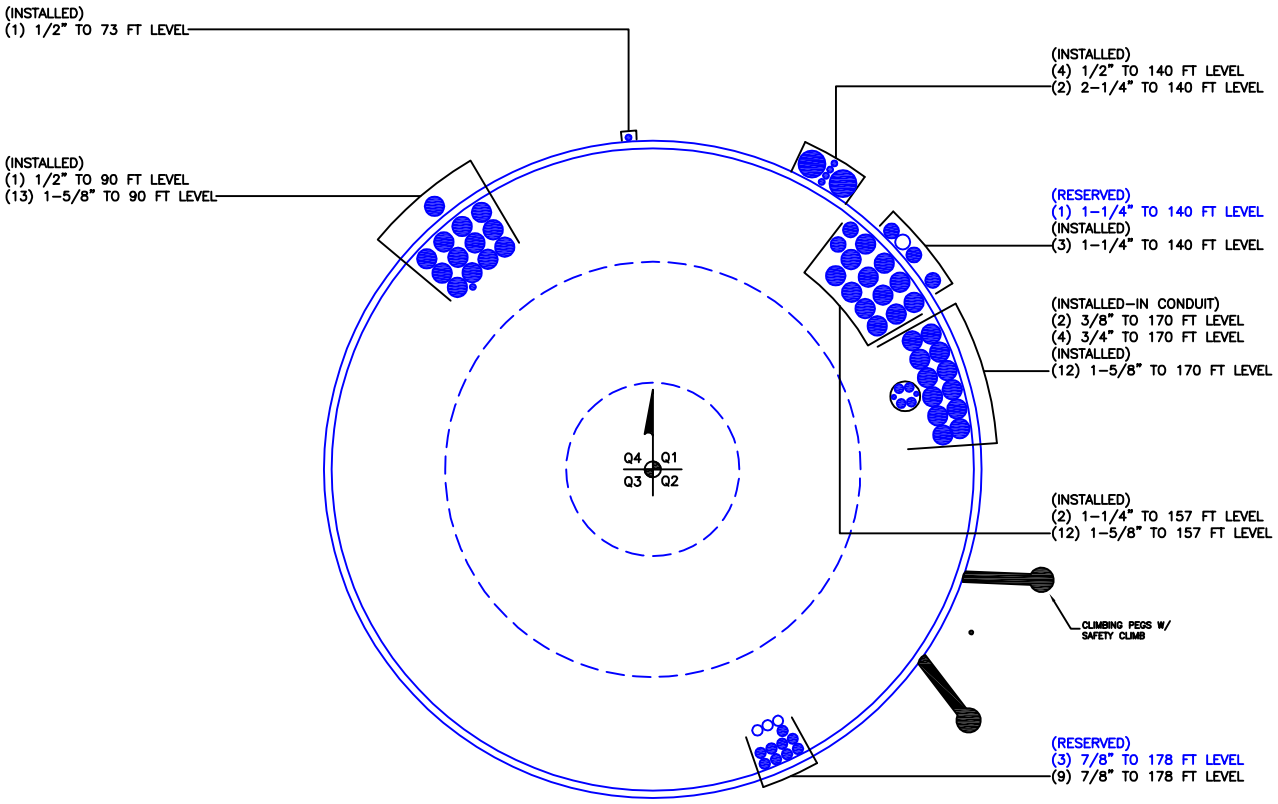
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	181.833 - 176.833	Pole	TP15.6778x14.5x0.25	1	-0.22	909.52	7.7	Pass
L2	176.833 - 171.833	Pole	TP16.8556x15.6778x0.25	2	-0.46	978.95	11.1	Pass
L3	171.833 - 166.833	Pole	TP18.0334x16.8556x0.25	3	-2.93	1048.39	17.9	Pass
L4	166.833 - 161.833	Pole	TP19.2112x18.0334x0.25	4	-3.32	1117.82	28.3	Pass
L5	161.833 - 156.833	Pole	TP20.389x19.2112x0.25	5	-5.72	1187.25	37.2	Pass
L6	156.833 - 151.833	Pole	TP21.5668x20.389x0.25	6	-6.26	1256.69	47.0	Pass
L7	151.833 - 146.833	Pole	TP22.7446x21.5668x0.25	7	-6.84	1326.12	54.9	Pass
L8	146.833 - 141.833	Pole	TP23.9224x22.7446x0.25	8	-7.46	1395.56	61.5	Pass
L9	141.833 - 136.833	Pole	TP25.1001x23.9224x0.25	9	-10.56	1464.99	69.6	Pass
L10	136.833 - 132.914	Pole	TP26.0233x25.1001x0.25	10	-10.60	1467.30	69.9	Pass
L11	132.914 -	Pole	TP25.8062x24.6392x0.375	11	-11.76	2248.87	54.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
	131.667							
L12	131.667 - 126.667	Pole	TP26.9732x25.8062x0.375	12	-12.70	2352.07	58.8	Pass
L13	126.667 - 121.667	Pole	TP28.1401x26.9732x0.375	13	-13.69	2455.26	62.4	Pass
L14	121.667 - 116.667	Pole	TP29.3071x28.1401x0.375	14	-14.70	2558.45	65.4	Pass
L15	116.667 - 111.667	Pole	TP30.474x29.3071x0.375	15	-15.75	2661.65	67.8	Pass
L16	111.667 - 106.667	Pole	TP31.641x30.474x0.375	16	-16.83	2764.84	69.9	Pass
L17	106.667 - 101.667	Pole	TP32.8079x31.641x0.375	17	-17.91	2868.03	71.6	Pass
L18	101.667 - 96.667	Pole	TP33.9749x32.8079x0.375	18	-19.06	2971.23	73.0	Pass
L19	96.667 - 87.302	Pole	TP36.1606x33.9749x0.375	19	-20.10	3060.88	74.1	Pass
L20	87.302 - 86.302	Pole	TP35.642x34.2387x0.375	20	-24.81	3118.65	79.9	Pass
L21	86.302 - 85	Pole	TP35.9455x35.642x0.375	21	-25.15	3145.49	80.4	Pass
L22	85 - 84.75	Pole	TP36.0038x35.9455x0.375	22	-25.24	3150.64	80.5	Pass
L23	84.75 - 79.75	Pole	TP37.1691x36.0038x0.375	23	-26.59	3253.69	82.2	Pass
L24	79.75 - 75	Pole	TP38.2762x37.1691x0.375	24	-27.91	3343.12	83.8	Pass
L25	75 - 74.75	Pole	TP38.3344x38.2762x0.6625	25	-28.04	5885.32	48.4	Pass
L26	74.75 - 74	Pole	TP38.5092x38.3344x0.6625	26	-28.33	5912.63	48.5	Pass
L27	74 - 73.75	Pole	TP38.5675x38.5092x0.375	27	-28.41	3362.23	84.3	Pass
L28	73.75 - 68.75	Pole	TP39.7328x38.5675x0.375	28	-29.90	3437.70	86.1	Pass
L29	68.75 - 63.75	Pole	TP40.8982x39.7328x0.375	29	-31.37	3511.56	87.8	Pass
L30	63.75 - 58.75	Pole	TP42.0635x40.8982x0.375	30	-32.86	3583.82	89.3	Pass
L31	58.75 - 53.75	Pole	TP43.2288x42.0635x0.375	31	-34.39	3654.47	90.7	Pass
L32	53.75 - 49	Pole	TP44.3359x43.2288x0.375	32	-35.86	3720.10	91.9	Pass
L33	49 - 42.698	Pole	TP45.8047x44.3359x0.375	33	-35.91	3721.12	91.9	Pass
L34	42.698 - 41.698	Pole	TP45.2869x43.6034x0.4375	34	-39.63	4598.58	79.3	Pass
L35	41.698 - 36.698	Pole	TP46.4516x45.2869x0.4375	35	-41.40	4686.31	80.0	Pass
L36	36.698 - 31.698	Pole	TP47.6163x46.4516x0.4375	36	-43.21	4772.43	80.6	Pass
L37	31.698 - 26.698	Pole	TP48.781x47.6163x0.4375	37	-45.05	4856.96	81.2	Pass
L38	26.698 - 21.698	Pole	TP49.9457x48.781x0.4375	38	-46.92	4939.87	81.8	Pass
L39	21.698 - 16.698	Pole	TP51.1104x49.9457x0.4375	39	-48.82	5021.19	82.3	Pass
L40	16.698 - 11.698	Pole	TP52.2751x51.1104x0.4375	40	-50.75	5100.90	82.7	Pass
L41	11.698 - 6.698	Pole	TP53.4398x52.2751x0.4375	41	-52.57	5179.00	83.1	Pass
L42	6.698 - 1.698	Pole	TP54.6045x53.4398x0.4375	42	-54.28	5255.50	83.5	Pass
L43	1.698 - 0	Pole	TP55x54.6045x0.4375	43	-54.85	5281.12	83.7	Pass
							Summary	
						Pole (L33)	91.9	Pass
						RATING =	**91.9**	**Pass**

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

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842872 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 842872

Work Order: 1516089

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	181.833	48.919	3.753	18	14.5	26.0233	0.25	1	A572-65
2	136.667	49.365	5.021	18	24.64	36.1606	0.375	1.5	A572-65
3	92.323	49.625	6.227	18	34.24	45.8047	0.375	1.5	A572-65
4	48.925	48.925	0	18	43.60	55	0.4375	1.75	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	74	85	plate	PL 1x5.75	3				E						E						E		
2	49	75	plate	PL 1x5.75	3		E							E						E			
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

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	5.75	1	5.75	0.5	24.000	24.000	14.000	4.438	1.2500	A572-65
2	5.75	1	5.75	0.5	24.000	24.000	14.000	4.438	1.2500	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	181.833 - 176.833	5		18	14.500	15.678	0.25	A572-65	1.000
2	176.833 - 171.833	5		18	15.678	16.856	0.25	A572-65	1.000
3	171.833 - 166.833	5		18	16.856	18.033	0.25	A572-65	1.000
4	166.833 - 161.833	5		18	18.033	19.211	0.25	A572-65	1.000
5	161.833 - 156.833	5		18	19.211	20.389	0.25	A572-65	1.000
6	156.833 - 151.833	5		18	20.389	21.567	0.25	A572-65	1.000
7	151.833 - 146.833	5		18	21.567	22.745	0.25	A572-65	1.000
8	146.833 - 141.833	5		18	22.745	23.922	0.25	A572-65	1.000
9	141.833 - 136.833	5		18	23.922	25.100	0.25	A572-65	1.000
10	136.833 - 136.667	3.919	3.753	18	25.100	26.023	0.25	A572-65	1.000
11	136.667 - 131.667	5		18	24.639	25.806	0.375	A572-65	1.000
12	131.667 - 126.667	5		18	25.806	26.973	0.375	A572-65	1.000
13	126.667 - 121.667	5		18	26.973	28.140	0.375	A572-65	1.000
14	121.667 - 116.667	5		18	28.140	29.307	0.375	A572-65	1.000
15	116.667 - 111.667	5		18	29.307	30.474	0.375	A572-65	1.000
16	111.667 - 106.667	5		18	30.474	31.641	0.375	A572-65	1.000
17	106.667 - 101.667	5		18	31.641	32.808	0.375	A572-65	1.000
18	101.667 - 96.667	5		18	32.808	33.975	0.375	A572-65	1.000
19	96.667 - 92.323	9.365	5.021	18	33.975	36.161	0.375	A572-65	1.000
20	92.323 - 86.302	6.021		18	34.239	35.642	0.375	A572-65	1.000
21	86.302 - 85	1.302		18	35.642	35.945	0.375	A572-65	1.000
22	85 - 84.75	0.25		18	35.945	36.004	0.375	A572-65	1.000
23	84.75 - 79.75	5		18	36.004	37.169	0.375	A572-65	1.000
24	79.75 - 75	4.75		18	37.169	38.276	0.375	A572-65	1.000
25	75 - 74.75	0.25		18	38.276	38.334	0.6625	A572-65	1.006
26	74.75 - 74	0.75		18	38.334	38.509	0.6625	A572-65	1.004
27	74 - 73.75	0.25		18	38.509	38.567	0.375	A572-65	1.000
28	73.75 - 68.75	5		18	38.567	39.733	0.375	A572-65	1.000
29	68.75 - 63.75	5		18	39.733	40.898	0.375	A572-65	1.000
30	63.75 - 58.75	5		18	40.898	42.064	0.375	A572-65	1.000
31	58.75 - 53.75	5		18	42.064	43.229	0.375	A572-65	1.000
32	53.75 - 49	4.75		18	43.229	44.336	0.375	A572-65	1.000
33	49 - 48.925	6.302	6.227	18	44.336	45.805	0.375	A572-65	1.000
34	48.925 - 41.698	7.227		18	43.603	45.287	0.4375	A572-65	1.000
35	41.698 - 36.698	5		18	45.287	46.452	0.4375	A572-65	1.000
36	36.698 - 31.698	5		18	46.452	47.616	0.4375	A572-65	1.000
37	31.698 - 26.698	5		18	47.616	48.781	0.4375	A572-65	1.000
38	26.698 - 21.698	5		18	48.781	49.946	0.4375	A572-65	1.000
39	21.698 - 16.698	5		18	49.946	51.110	0.4375	A572-65	1.000
40	16.698 - 11.698	5		18	51.110	52.275	0.4375	A572-65	1.000
41	11.698 - 6.698	5		18	52.275	53.440	0.4375	A572-65	1.000
42	6.698 - 1.698	5		18	53.440	54.604	0.4375	A572-65	1.000
43	1.698 - 0	1.698		18	54.604	55.000	0.4375	A572-65	1.000

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	TNX Output M_{ux} (kip-ft)	TNX Output V_u (K)
1	181.833 - 176.833	0.76	21.92	2.72
2	176.833 - 171.833	0.46	36.82	3.16
3	171.833 - 166.833	2.93	67.10	10.65
4	166.833 - 161.833	3.32	121.22	11.00
5	161.833 - 156.833	5.72	179.61	14.90
6	156.833 - 151.833	6.26	255.02	15.27
7	151.833 - 146.833	6.84	332.30	15.65
8	146.833 - 141.833	7.46	412.70	16.71
9	141.833 - 136.833	10.56	513.58	22.24
10	136.833 - 136.667	10.60	517.27	22.25
11	136.667 - 131.667	11.76	629.73	22.75
12	131.667 - 126.667	12.70	744.47	23.18
13	126.667 - 121.667	13.69	861.38	23.61
14	121.667 - 116.667	14.70	980.47	24.05
15	116.667 - 111.667	15.75	1101.76	24.50
16	111.667 - 106.667	16.83	1225.27	24.94
17	106.667 - 101.667	17.91	1351.44	25.60
18	101.667 - 96.667	19.06	1480.56	26.08
19	96.667 - 92.323	20.10	1594.65	26.48
20	92.323 - 86.302	24.81	1783.56	32.47
21	86.302 - 85	25.15	1825.88	32.59
22	85 - 84.75	25.24	1834.03	32.59
23	84.75 - 79.75	26.59	1998.03	33.03
24	79.75 - 75	27.91	2155.79	33.43
25	75 - 74.75	28.03	2164.14	33.45
26	74.75 - 74	28.33	2189.25	33.53
27	74 - 73.75	28.41	2197.64	33.55
28	73.75 - 68.75	29.90	2366.81	34.06
29	68.75 - 63.75	31.37	2538.03	34.47
30	63.75 - 58.75	32.86	2711.27	34.87
31	58.75 - 53.75	34.39	2886.49	35.26
32	53.75 - 49	35.86	3054.75	35.63
33	49 - 48.925	35.91	3057.43	35.62
34	48.925 - 41.698	39.63	3317.63	36.39
35	41.698 - 36.698	41.40	3500.41	36.76
36	36.698 - 31.698	43.21	3685.05	37.13
37	31.698 - 26.698	45.05	3871.46	37.48
38	26.698 - 21.698	46.92	4059.58	37.81
39	21.698 - 16.698	48.82	4249.29	38.12
40	16.698 - 11.698	50.75	4440.47	38.40
41	11.698 - 6.698	52.57	4633.04	38.68
42	6.698 - 1.698	54.28	4827.02	38.96
43	1.698 - 0	54.85	4893.21	39.07

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
181.83 - 176.83	Pole	TP15.678x14.5x0.25	Pole	7.7%	Pass
176.83 - 171.83	Pole	TP16.856x15.678x0.25	Pole	11.1%	Pass
171.83 - 166.83	Pole	TP18.033x16.856x0.25	Pole	17.9%	Pass
166.83 - 161.83	Pole	TP19.211x18.033x0.25	Pole	28.3%	Pass
161.83 - 156.83	Pole	TP20.389x19.211x0.25	Pole	37.2%	Pass
156.83 - 151.83	Pole	TP21.567x20.389x0.25	Pole	47.0%	Pass
151.83 - 146.83	Pole	TP22.745x21.567x0.25	Pole	54.9%	Pass
146.83 - 141.83	Pole	TP23.922x22.745x0.25	Pole	61.5%	Pass
141.83 - 136.83	Pole	TP25.1x23.922x0.25	Pole	69.5%	Pass
136.83 - 136.67	Pole	TP26.023x25.1x0.25	Pole	69.8%	Pass
136.67 - 131.67	Pole	TP25.806x24.639x0.375	Pole	54.4%	Pass
131.67 - 126.67	Pole	TP26.973x25.806x0.375	Pole	58.8%	Pass
126.67 - 121.67	Pole	TP28.14x26.973x0.375	Pole	62.3%	Pass
121.67 - 116.67	Pole	TP29.307x28.14x0.375	Pole	65.3%	Pass
116.67 - 111.67	Pole	TP30.474x29.307x0.375	Pole	67.8%	Pass
111.67 - 106.67	Pole	TP31.641x30.474x0.375	Pole	69.8%	Pass
106.67 - 101.67	Pole	TP32.808x31.641x0.375	Pole	71.5%	Pass
101.67 - 96.67	Pole	TP33.975x32.808x0.375	Pole	73.0%	Pass
96.67 - 92.32	Pole	TP36.161x33.975x0.375	Pole	74.1%	Pass
92.32 - 86.3	Pole	TP35.642x34.239x0.375	Pole	79.9%	Pass
86.3 - 85	Pole	TP35.945x35.642x0.375	Pole	80.4%	Pass
85 - 84.75	Pole	TP36.004x35.945x0.375	Pole	80.5%	Pass
84.75 - 79.75	Pole	TP37.169x36.004x0.375	Pole	82.2%	Pass
79.75 - 75	Pole	TP38.276x37.169x0.375	Pole	83.8%	Pass
75 - 74.75	Pole + Reinf.	TP38.334x38.276x0.6625	Reinf. 1 Tension Rupture	78.9%	Pass
74.75 - 74	Pole + Reinf.	TP38.509x38.334x0.6625	Reinf. 1 Tension Rupture	79.3%	Pass
74 - 73.75	Pole	TP38.567x38.509x0.375	Pole	84.3%	Pass
73.75 - 68.75	Pole	TP39.733x38.567x0.375	Pole	86.1%	Pass
68.75 - 63.75	Pole	TP40.898x39.733x0.375	Pole	87.8%	Pass
63.75 - 58.75	Pole	TP42.064x40.898x0.375	Pole	89.3%	Pass
58.75 - 53.75	Pole	TP43.229x42.064x0.375	Pole	90.7%	Pass
53.75 - 49	Pole	TP44.336x43.229x0.375	Pole	91.9%	Pass
49 - 48.93	Pole	TP45.805x44.336x0.375	Pole	91.9%	Pass
48.93 - 41.7	Pole	TP45.287x43.603x0.4375	Pole	79.3%	Pass
41.7 - 36.7	Pole	TP46.452x45.287x0.4375	Pole	80.0%	Pass
36.7 - 31.7	Pole	TP47.616x46.452x0.4375	Pole	80.6%	Pass
31.7 - 26.7	Pole	TP48.781x47.616x0.4375	Pole	81.2%	Pass
26.7 - 21.7	Pole	TP49.946x48.781x0.4375	Pole	81.8%	Pass
21.7 - 16.7	Pole	TP51.11x49.946x0.4375	Pole	82.3%	Pass
16.7 - 11.7	Pole	TP52.275x51.11x0.4375	Pole	82.7%	Pass
11.7 - 6.7	Pole	TP53.44x52.275x0.4375	Pole	83.2%	Pass
6.7 - 1.7	Pole	TP54.604x53.44x0.4375	Pole	83.5%	Pass
1.7 - 0	Pole	TP55x54.604x0.4375	Pole	83.7%	Pass
				Summary	
			Pole	91.9%	Pass
			Reinforcement	79.3%	Pass
			Overall	91.9%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity		
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2
181.83 - 176.83	368	n/a	368	12.24	n/a	12.24	7.7%		
176.83 - 171.83	459	n/a	459	13.18	n/a	13.18	11.1%		
171.83 - 166.83	564	n/a	564	14.11	n/a	14.11	17.9%		
166.83 - 161.83	683	n/a	683	15.05	n/a	15.05	28.3%		
161.83 - 156.83	819	n/a	819	15.98	n/a	15.98	37.2%		
156.83 - 151.83	971	n/a	971	16.91	n/a	16.91	47.0%		
151.83 - 146.83	1141	n/a	1141	17.85	n/a	17.85	54.9%		
146.83 - 141.83	1329	n/a	1329	18.78	n/a	18.78	61.5%		
141.83 - 136.83	1538	n/a	1538	19.72	n/a	19.72	69.5%		
136.83 - 136.67	1545	n/a	1545	19.75	n/a	19.75	69.8%		
136.67 - 131.67	2473	n/a	2473	30.27	n/a	30.27	54.4%		
131.67 - 126.67	2829	n/a	2829	31.66	n/a	31.66	58.8%		
126.67 - 121.67	3218	n/a	3218	33.05	n/a	33.05	62.3%		
121.67 - 116.67	3641	n/a	3641	34.44	n/a	34.44	65.3%		
116.67 - 111.67	4099	n/a	4099	35.82	n/a	35.82	67.8%		
111.67 - 106.67	4595	n/a	4595	37.21	n/a	37.21	69.8%		
106.67 - 101.67	5128	n/a	5128	38.60	n/a	38.60	71.5%		
101.67 - 96.67	5702	n/a	5702	39.99	n/a	39.99	73.0%		
96.67 - 92.32	6234	n/a	6234	41.20	n/a	41.20	74.1%		
92.32 - 86.3	6594	n/a	6594	41.98	n/a	41.98	79.9%		
86.3 - 85	6765	n/a	6765	42.34	n/a	42.34	80.4%		
85 - 84.75	6799	n/a	6799	42.41	n/a	42.41	80.5%		
84.75 - 79.75	7488	n/a	7488	43.79	n/a	43.79	82.2%		
79.75 - 75	8184	n/a	8184	45.11	n/a	45.11	83.8%		
75 - 74.75	8226	6001	14227	45.18	34.50	79.68	49.1%	78.9%	75.4%
74.75 - 74	8340	6054	14394	45.39	34.50	79.89	49.3%	79.3%	75.7%
74 - 73.75	8374	n/a	8374	45.46	n/a	45.46	84.3%		
73.75 - 68.75	9165	n/a	9165	46.84	n/a	46.84	86.1%		
68.75 - 63.75	10003	n/a	10003	48.23	n/a	48.23	87.8%		
63.75 - 58.75	10891	n/a	10891	49.62	n/a	49.62	89.3%		
58.75 - 53.75	11830	n/a	11830	51.00	n/a	51.00	90.7%		
53.75 - 49	12771	n/a	12771	52.32	n/a	52.32	91.9%		
49 - 48.93	12786	n/a	12786	52.34	n/a	52.34	91.9%		
48.93 - 41.7	15821	n/a	15821	62.28	n/a	62.28	79.3%		
41.7 - 36.7	17086	n/a	17086	63.89	n/a	63.89	80.0%		
36.7 - 31.7	18417	n/a	18417	65.51	n/a	65.51	80.6%		
31.7 - 26.7	19814	n/a	19814	67.13	n/a	67.13	81.2%		
26.7 - 21.7	21281	n/a	21281	68.75	n/a	68.75	81.8%		
21.7 - 16.7	22819	n/a	22819	70.36	n/a	70.36	82.3%		
16.7 - 11.7	24429	n/a	24429	71.98	n/a	71.98	82.7%		
11.7 - 6.7	26113	n/a	26113	73.60	n/a	73.60	83.2%		
6.7 - 1.7	27872	n/a	27872	75.21	n/a	75.21	83.5%		
1.7 - 0	28487	n/a	28487	75.76	n/a	75.76	83.7%		

Note: Section capacity checked in 5 degree increments.

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *842872*
Site Name: *ROCKY HILL*
App #: *420726 Rev.1*

Pole Manufacturer:	*Other*

Reactions		
Mu:	4893	ft-kips
Axial, Pu:	55	kips
Shear, Vu:	42	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	64	in

Anchor Rod Results

		Stiffened
Max Rod (Cu+ Vu/ń):	238.0 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	91.6% **Pass**	

Plate Data		
Diam:	70	in
Thick:	2	in
Grade:	60	ksi
Single-Rod B-eff:	10.91	in

Base Plate Results Flexural Check

		Stiffened
Base Plate Stress:	38.7 ksi	AISC LRFD
Allowable Plate Stress:	54.0 ksi	φ*Fy
Base Plate Stress Ratio:	71.6% **Pass**	Y.L. Length:
		N/A, Roark

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.625	in
Fillet V. Weld:	0.375	in
Width:	6.5	in
Height:	36	in
Thick:	1.25	in
Notch:	0.75	in
Grade:	65	ksi
Weld str.:	70	ksi

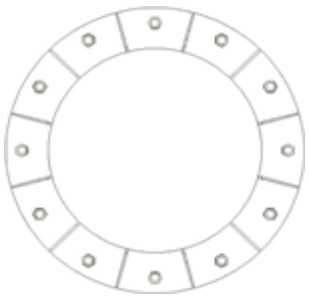
Stiffener Results

Horizontal Weld :	99.7% **Pass**
Vertical Weld:	27.9% **Pass**
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	2.9% **Pass**
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	38.4% **Pass**
Plate Comp. (AISC Bracket):	32.1% **Pass**

Pole Results

Pole Punching Shear Check:	4.3% **Pass**

Pole Data		
Diam:	55	in
Thick:	0.4375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt
** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Drilled Pier Foundation

BU # :	842872
Site Name:	ROCKY HILL
App. Number:	420726 Rev.1

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads	**Comp.**	**Uplift**
Moment (kip-ft)	4893	
Axial Force (kips)	55	
Shear Force (kips)	39	

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

Pier Design Data		
Depth	17.67	ft
Ext. Above Grade	0.83	ft
Pier Section 1		
From 0.83' above grade to 9.92' below grade		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	3	
Rebar Quantity	4	
Rebar Size	11	
Rebar Cage Diameter	71	in
Pier Section 2		
From 9.92' below grade to 17.67' below grade		
Pier Diameter	7	ft
Rebar Quantity	20	
Rebar Size	11	
Clear Cover to Ties	3	in
Tie Size	3	

Analysis Results		
Soil Lateral Capacity	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	6.50	-
Soil Safety Factor	1.70	-
Max Moment (kip-ft)	5139.64	-
Rating	*78.2%*	-
Soil Vertical Capacity	*Compression*	*Uplift*
Skin Friction (kips)	439.95	-
End Bearing (kips)	659.53	-
Weight of Concrete (kips)	101.73	-
Total Capacity (kips)	1099.48	-
Axial (kips)	156.73	-
Rating	*14.3%*	-
Reinforced Concrete Capacity	*Compression*	*Uplift*
Critical Depth (ft from TOC)	6.41	-
Critical Moment (kip-ft)	5139.38	-
Critical Moment Capacity	5867.78	-
Rating	*87.6%*	-

Soil Interaction Rating	**78.2%**
Structural Foundation Rating	**87.6%**

Soil Profile

Groundwater Depth	8.5	ft	
# of Layers	6		

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3	3	110	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3	5	2	120	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
3	5	7	2	110	150	1.75		0.963	0.963	0.96	0.96			Cohesive
4	7	8.5	1.5	135	150	5		2.321	2.321	2.32	2.32			Cohesive
5	8.5	12	3.5	72.6	87.6	5		2.321	2.321	2.32	2.32			Cohesive
6	12	17.67	5.67	72.6	87.6	5		2.321	2.321	2.32	2.32	22.85		Cohesive

Property Location: 52 NEW BRITAIN AVENUE | **MAP ID:** 08/ / 354/ / | **Bldg Name:** CO 2 FIREHOUSE | **State Use:** 907

Vision ID: 6855 | **Account #** 007392 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 01/31/2018 11:56

CURRENT OWNER

ROCKY HILL TOWN OF
CO 2 FIREHOUSE
761 OLD MAIN STREET

ROCKY HILL, CT 06067-1517
Additional Owners:

TOPO.	UTILITIES	STRT./ROAD	LOCATION
1 Level	1 All Public	1 Paved	
	4 Gas		

SUPPLEMENTAL DATA

Other ID:	18-04-005	Clerks Map	
Census Tract	4903.02		
Total Land	0.57		
Zone	4		
Old MBL	18-04-005	Generator	
Dev Lot			
GIS ID:	08-354	*ASSOC PID#*	

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
EXEMPT	BAAX	675,100	472,570
EXEMPT	BAAX	314,000	219,800
EXEMPT	BAAX	20,400	14,280
	Total	1,009,500	706,650

6119
ROCKY HILL, CT

VISION

RECORD OF OWNERSHIP

RECORD OF OWNERSHIP	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
ROCKY HILL TOWN OF	057/ 353	12/15/1957	U	V		29

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2016	BAAX	472,570	2014	BAAX	472,570	2013	BAAX	472,570
2016	BAAX	219,800	2014	BAAX	219,800	2013	BAAX	219,800
2016	BAAX	14,280	2014	BAAX	14,280	2013	BAAX	14,280
	Total:	706,650		*Total:*	706,650		*Total:*	706,650

EXEMPTIONS

Year	Type	Description	Amount
		Total:	

OTHER ASSESSMENTS

Code	Description	Number	Amount	Comm. Int.

This signature acknowledges a visit by a Data Collector or Assessor

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	675,100
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	20,400
Appraised Land Value (Bldg)	314,000
Special Land Value	0
Total Appraised Parcel Value	1,009,500
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	**1,009,500**

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

NOTES

CO 2 FIREHOUSE

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
2018-198	10/31/2017	CM	Commercial	20,000		0		Sprint to add three (3) an
	2017-104	09/10/2016	MS	Miscellaneous	20,000		0	
their existing		2016-135	10/28/2015	EL	Electric	28,000		0
	IGHTS IN FII		2015-457	06/18/2015	SN	Sign	44,000	
0		52 NEW BR		2015-278	01/30/2015	CM	Commercial	15,000
	100		REPLACING ANTEN	2015-253	01/06/2015	CM	Commercial	15,000
	100		SWAP OUT 3 ANTEN	2015-65	08/11/2014	MS	Miscellaneous	48,192

VISIT/ CHANGE HISTORY

Date	Type	IS	ID	Cd.	Purpose/Result
10/04/2012			ST	01	Measured + 1Visit

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units		Unit Price	I. Factor	S.A.		C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing		S Adj Fact	Adj. Unit Price	Land Value
1	907	Fire Vol	C				0.57	AC	400,000.00	1.3772	S		1.00		0.00				1.00		314,000

Total Card Land Units: 0.57 AC | **Parcel Total Land Area:** 0.57 AC | **Total Land Value:** 314,000

Property Location: 52 NEW BRITAIN AVENUE | **MAP ID:** 08/ / 354/ / | **Bldg Name:** CO 2 FIREHOUSE | **State Use:** 907

Vision ID: 6855 | **Account #** 007392 | **Bldg #:** 1 of 1 | **Sec #:** 1 of 1 | **Card** 1 of 1 | **Print Date:** 01/31/2018 11:56

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	59		Fire Station
Model	94		Comm/Ind
Grade	18		B
Stories	2		
Occupancy	1		
Exterior Wall A	20		Brick/Masonry
Exterior Wall B			
Roof Structure	01		Flat
Roof Cover	04		Tar + Gravel
Interior Wall A	05		Drywall/Sheetr
Interior Wall B			
Interior Floor A	14		Carpet
Interior Floor B			
Heating Fuel	03		Gas
Heating Type	04		Forced Air-Duc
AC Type	03		Central
Bldg Use	200		Commercial
Bsmt Garages	0		
Full Baths	1		
Half Baths	1		
Sprinkler %	0		None
Foundation	06		Slab
Heat/AC	01		Heat/AC Packag
Frame Type	03		Masonry
Baths/Plumbing	02		Average
Ceiling/Wall	06		Ceiling & Wall
Rooms/Prtns	02		Average
Wall Height	12		
% Comn Wall	0		

CONSTRUCTION DETAIL (CONTINUED)

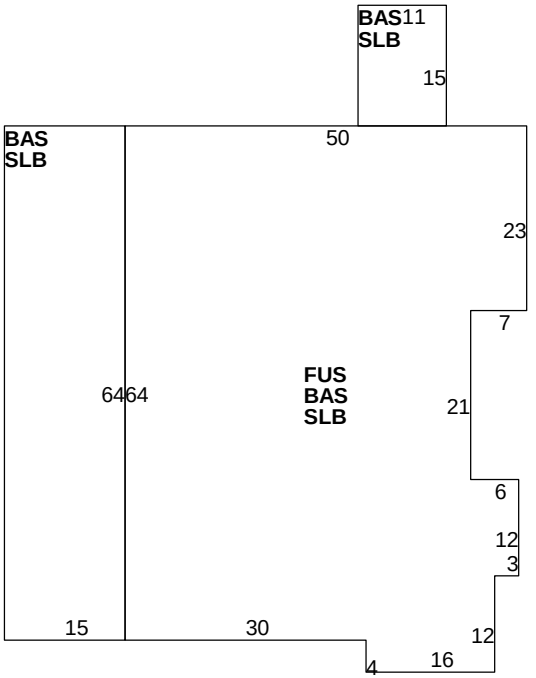
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
907	Fire Vol	100

COST/MARKET VALUATION

Adj. Base Rate:	183.64
	1,335,596
Net Other Adj:	14,546.00
Replace Cost	1,350,142
AYB	1958
EYB	1987
Dep Code	VG
Remodel Rating	
Year Remodeled	
Dep %	50
Functional Obslnc	
External Obslnc	
Cost Trend Factor	1
Condition	
% Complete	
Overall % Cond	50
Apprais Val	675,100
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



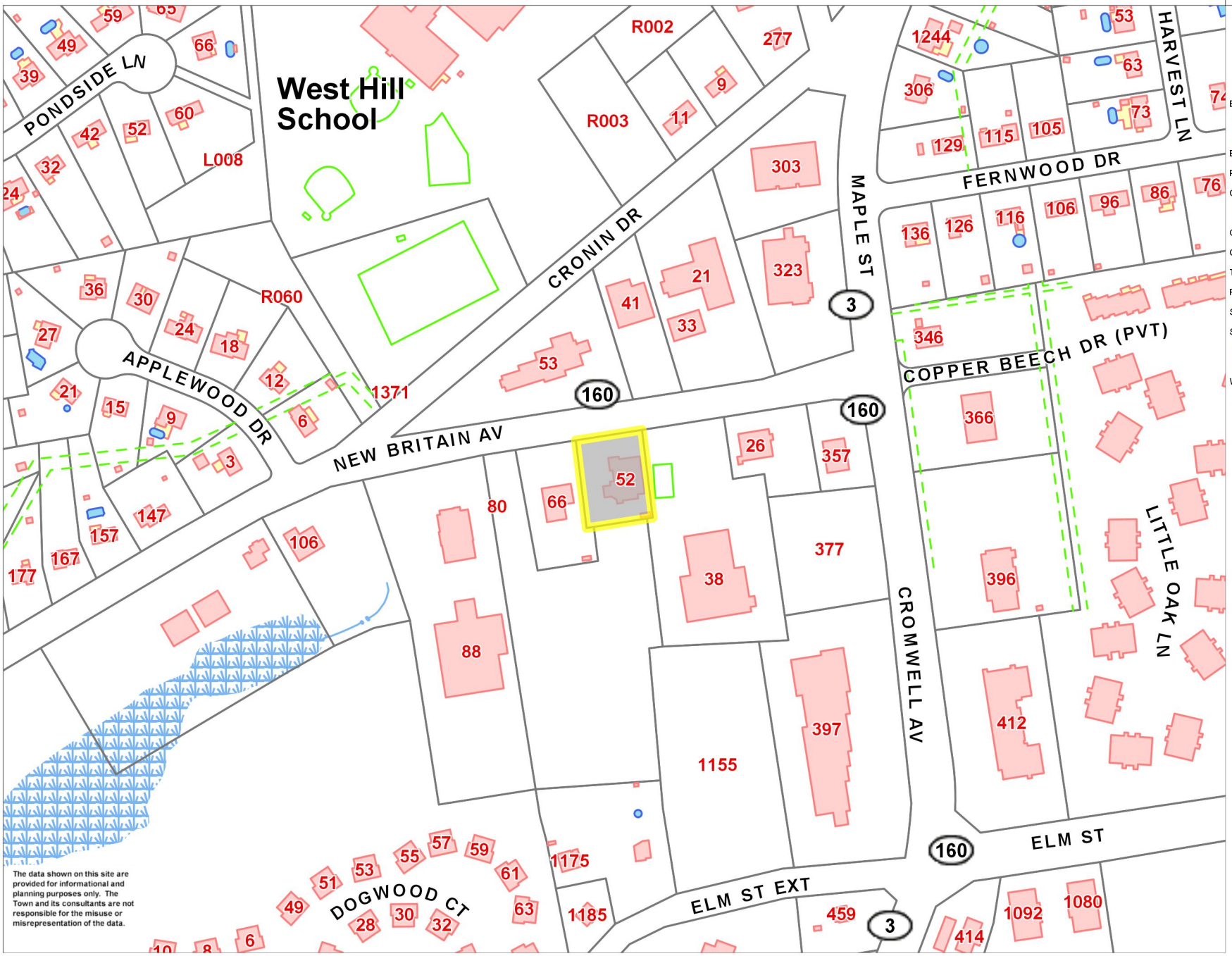
OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
PAV1	Paving Asphalt			L	17,000	2.40	1958		0		50	20,400

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
BAS	First Floor	4,199	4,199		183.64	771,094
FUS	Finished Upper Story	3,074	3,074		183.64	564,502
SLB	Slab	0	4,199		0.00	0
	Ttl. Gross Liv/Lease Area:	7,273	11,472			1,350,142

08-354-001 12/09/2012



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Buildings
- Building
- Deck
- Greenhouse
- Pool

Easements

Parcels

CT Highways
- Interstate
- US Highway
- State Highway

CT Communities

CT Communities Opaque

Town Boundary

Recreation

Streets

Streams
- Culvert
- Dam
- Drainage Ditch
- Perenial Stream

Water Bodies

0 360 720 ft

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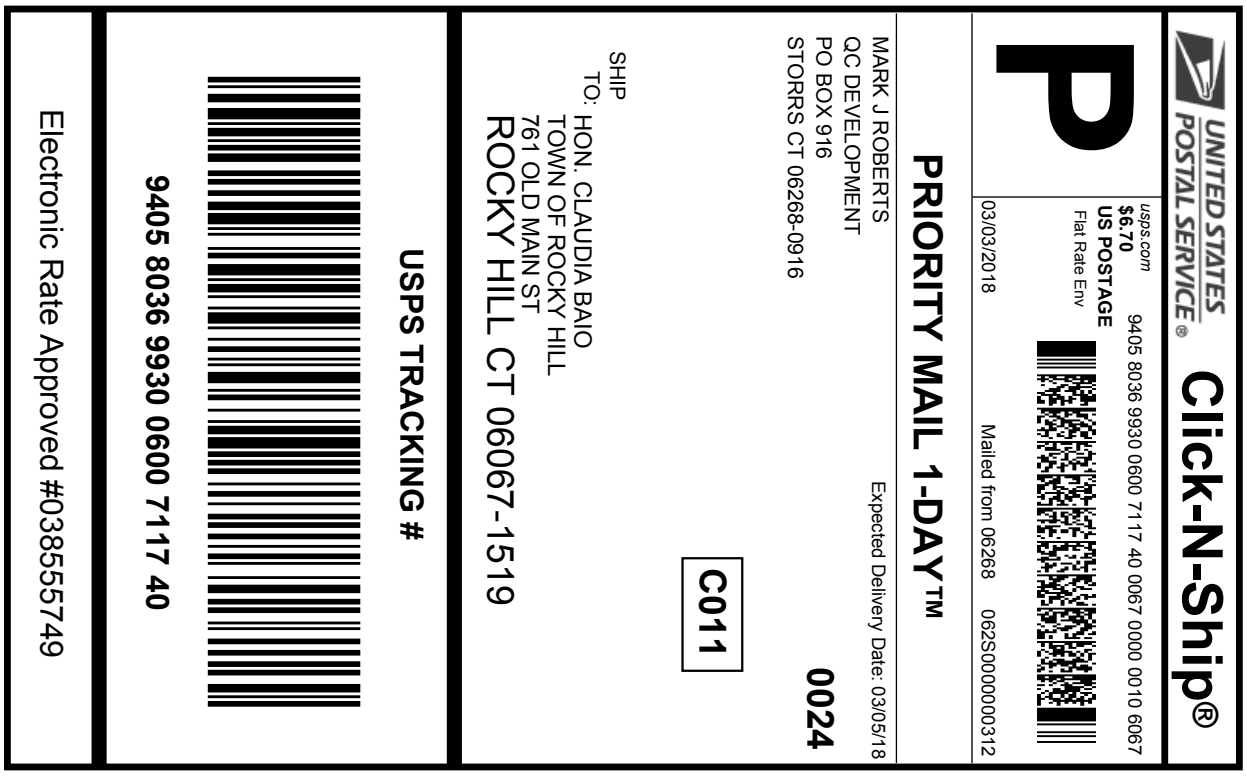

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2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # / Insurance Number:
9405 8036 9930 0600 7117 40

Trans. #:	428911728
Print Date:	03/02/2018
Ship Date:	03/03/2018
Expected Delivery Date:	03/05/2018
Insured Value:	$50.00

Priority Mail® Postage:	**$6.70**
Insurance Fee	**$0.00**
Total	**$6.70**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: HON. CLAUDIA BAIO
TOWN OF ROCKY HILL
761 OLD MAIN ST
ROCKY HILL CT 06067-1519

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