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

October 31, 2018

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT5255
130 Birdseye Road, Farmington, CT 06032
N 41.71538889
W 72.80855556

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 130-foot level of the existing 140-foot Monopole at 130 Birdseye Road, Farmington, CT. The tower is owned by Crown Castle and the property is owned by GOIS Holdings of Connecticut LLC. AT&T now intends to add three (3) new KMW EPBQ-654L8H8-L2 antennas. AT&T will also install (3) Ericsson RRUS-32, (3) 4426-B66 and (3) 4478-B5 Remote Radio Units (RRU). The new antennas and RRUs will be installed at the 130-foot level of the tower.

A Zoning Permit was issued for this facility by the Town of Farmington on November 26, 1997. This approval was for a 140' tower. Since no change to the existing tower height is proposed, this modification therefore complies with the aforementioned approval.

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 Ms. Nancy Nickerson, Town Council Chair for the Town of Farmington, and the Farmington Planning & Zoning Department as well as the property and 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.

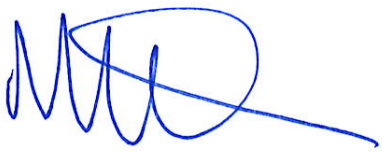
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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: Nancy Nickerson - as Elected Official
William Warner – as Town Planner
GOIS Holdings of CT – as Property Owner
Crown Castle - as 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*							12.96%
AT&T GSM	2	565	130	0.0264	880	0.5867	0.45%
AT&T GSM	2	875	130	0.0409	1900	1.0000	0.41%
AT&T UMTS	1	203	130	0.0047	880	0.5867	0.08%
AT&T UMTS	4	267	130	0.0250	1900	1.0000	0.25%
AT&T LTE	1	828	130	0.0194	734	0.4893	0.40%
AT&T LTE	1	3258	130	0.0762	1900	1.0000	0.76%
Site Total							15.30%

*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*							12.96%
AT&T UMTS	1	203	130	0.0047	850	0.5667	0.08%
AT&T UMTS	1	267	130	0.0062	1900	1.0000	0.06%
AT&T LTE	1	1476	130	0.0345	700	0.4667	0.74%
AT&T LTE	1	1000	130	0.0234	850	0.5667	0.41%
AT&T LTE	1	1000	130	0.0234	850	0.5667	0.41%
AT&T LTE	2	4842	130	0.2265	1900	1.0000	2.26%
AT&T LTE	1	5070	130	0.1186	2100	1.0000	1.19%
AT&T LTE	1	1285	130	0.0301	2300	1.0000	0.30%
Site Total							18.42%

*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

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T ANTENNA: (EPBQ-654L8H8-L2) @ POSITION 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B66 4426 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 32 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B5 4478 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW SURGE ARRESTOR (DC6-48-60-18-8C) (TOTAL OF 1) WITH (4) DC POWER & (2) FIBER RUNS (TO FOLLOW EXISTING ROUTE.)
- PROPOSED 3" STD (3.5" O.D.) STEEL PIPE BRACE, SECURED TO EXISTING MOUNT AND MONOPOLE (TYP. OF 2 PER SECTOR, TOTAL OF 6)
- PROPOSE NEW 2.5" (2.88" O.D.) PIPE MAST, SECURE TO EXISTING MOUNT (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- PROPOSED BACK TO BACK RRU MOUNT ERICSSON PART# SXK1250461-1 (OR APPROVED EQUAL) (TYP.)

ITEMS TO BE MOUNTED INSIDE EXISTING EQUIPMENT SHELTER:
- ADD RBS 6630
- SWAP DUS WITH RBS5216
- ADD 2ND XMU
- ADD FIBER MANAGEMENT BOX

ITEMS TO REMAIN:
- (6) ANTENNAS, (6) RRU'S, (6) 7/8" COAX (2) DC POWER CABLES, & (1) FIBER RUNS.

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:	130 BIRDSEYE ROAD FARMINGTON, CT 06032
LATITUDE:	41.7157919° N 41° 42' 56.85" N
LONGITUDE:	72.8105989° W 72° 48' 38.15" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	140'-0"± A.G.L
RAD CENTER:	130'-0"± A.G.L
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLANS	2
A-2	ANTENNA LAYOUTS & ELEVATION	2
A-3	DETAILS	2
SN-1	STRUCTURAL NOTES	2
S-1	STRUCTURAL DETAIL	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM	2

CROWN CASTLE SITE NAME: EAST FARMINGTON
CROWN CASTLE SITE #: 876335

SITE NUMBER: CT5255

SITE NAME: FARMINGTON - DEAD SWAMP WOOD

FA CODE: 10071036

PACE ID: MRCTB031098, MRCTB031449, MRCTB031564

PROJECT: LTE 3C,4C,5C 2018 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:
TAKE I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON. CONTINUE STRAIGHT PARTIAL TOLL ROAD. TAKE THE RAMP ONTO I-90 E. TAKE EXIT 14 FOR I-95 N TOWARD N.H – MAINE PARTIAL TOLL ROAD. FOLLOW SIGNS FOR I-95 N/WALTHAM/PORTSMOUTH NH AND MERGE ONTO I-95 N. SLIGHT RIGHT AT I-295 N (SIGNS FOR I-295 N/S PORTLAND/DOWNTOWN PORTLAND). MERGE ONTO I-95 N. TAKE EXIT 182A TO MERGE ONTO I-395 E TOWARD BANGOR. TAKE EXIT 6A TO MERGE ONTO U.S. 1A E/WILSON ST TOWARD ELLSWORTH/BAR HARBOR/US-1/COASTAL ROUTE CONTINUE TO FOLLOW U.S. 1A E. CONTINUE ONTO HIGH ST. ARRIVE AT SITE ON THE RIGHT.

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

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASER · No. 25654 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	T-1	2

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 2015 WITH 2018 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

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASEY · 28,235 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	GN-1	2

NOTE:

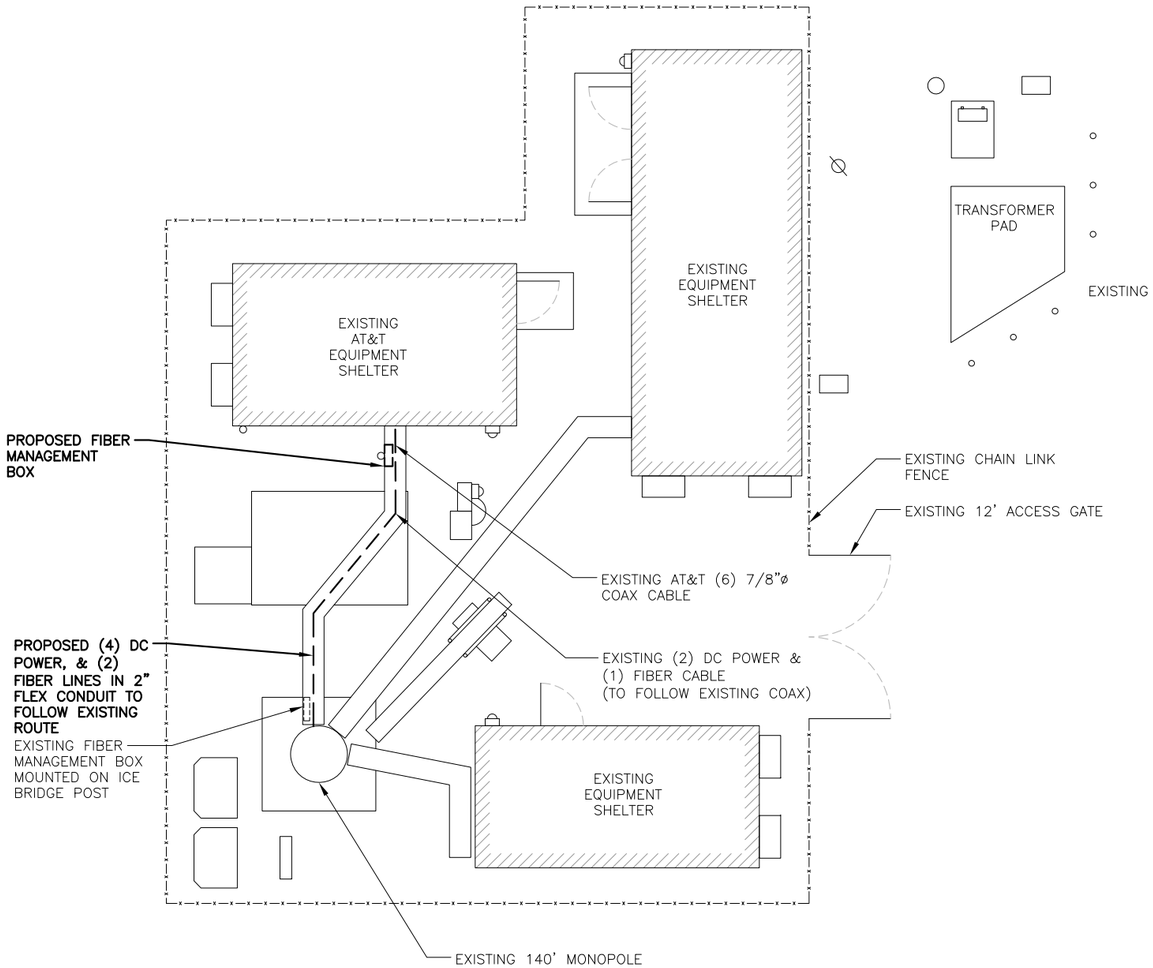
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 31, 2018

NOTE:

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

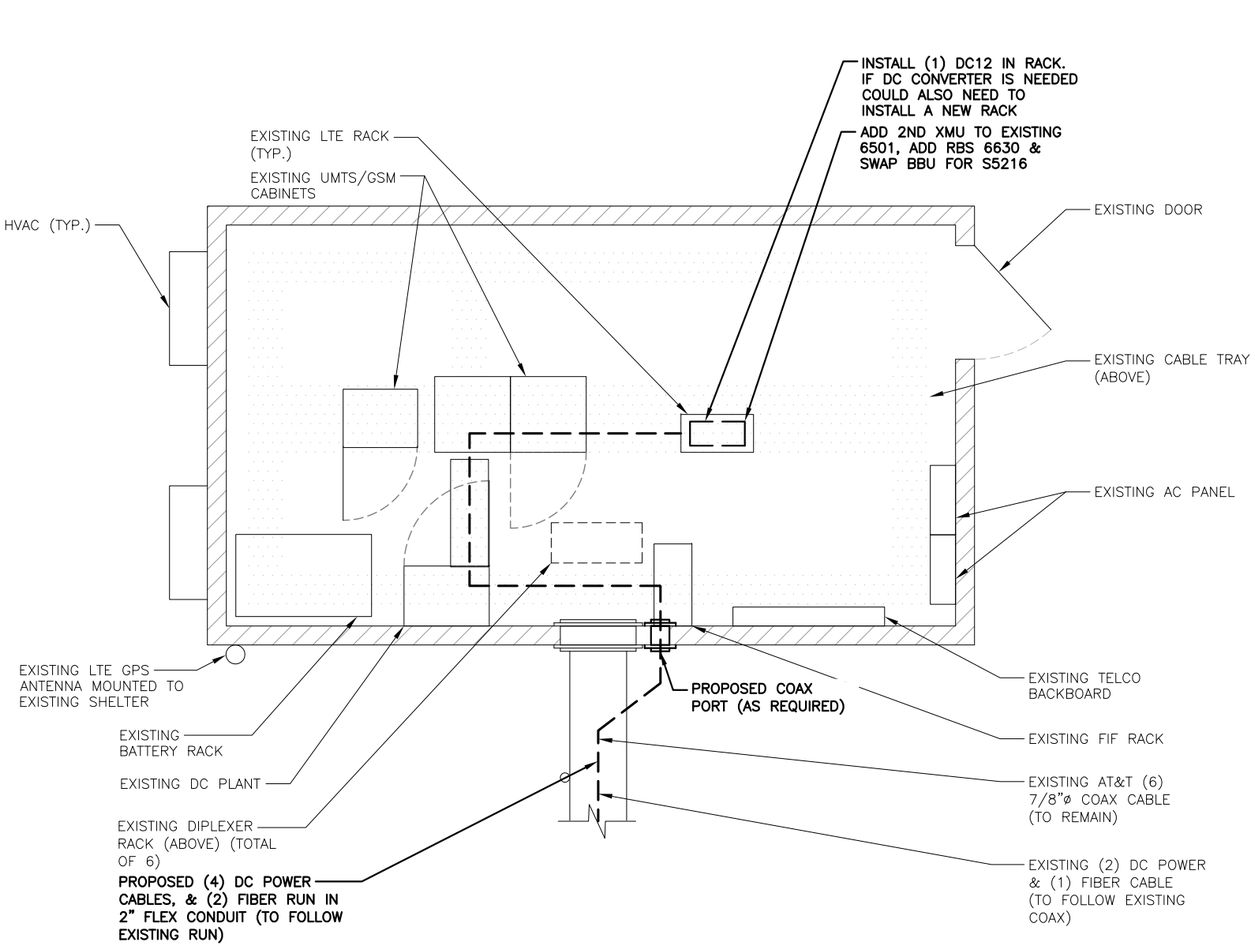
NOTE:

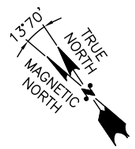
ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL RF DATA SHEET



COMPOUND PLAN (1 / A–1)
22x34 SCALE: 3/16"=1'–0"
11x17 SCALE: 3/32"=1'–0"

0 2'–8" 5'–4" 10'–8" 16'–0"





EQUIPMENT PLAN (2 / A–1)
22x34 SCALE: 1/2"=1'–0"
11x17 SCALE: 1/4"=1'–0"

0 1'–0" 2'–0" 4'–0" 6'–0"

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

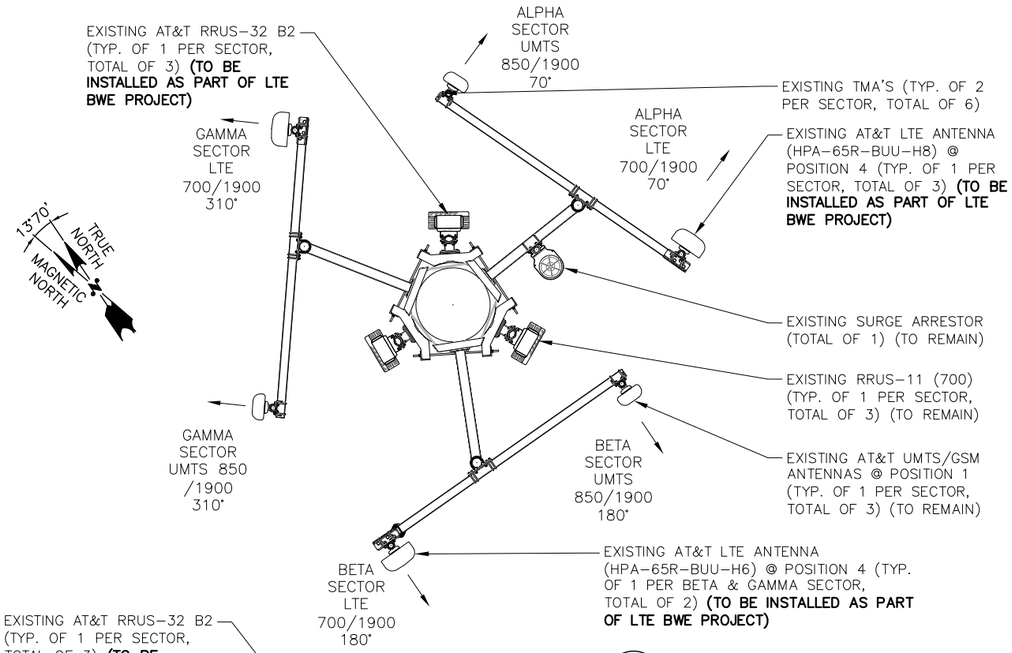
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASER · NO. 24,931 · LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLANS (LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	A–1	2



EXISTING ANTENNA LAYOUT

SCALE: N.T.S

(1 / A-2)

NOTE:

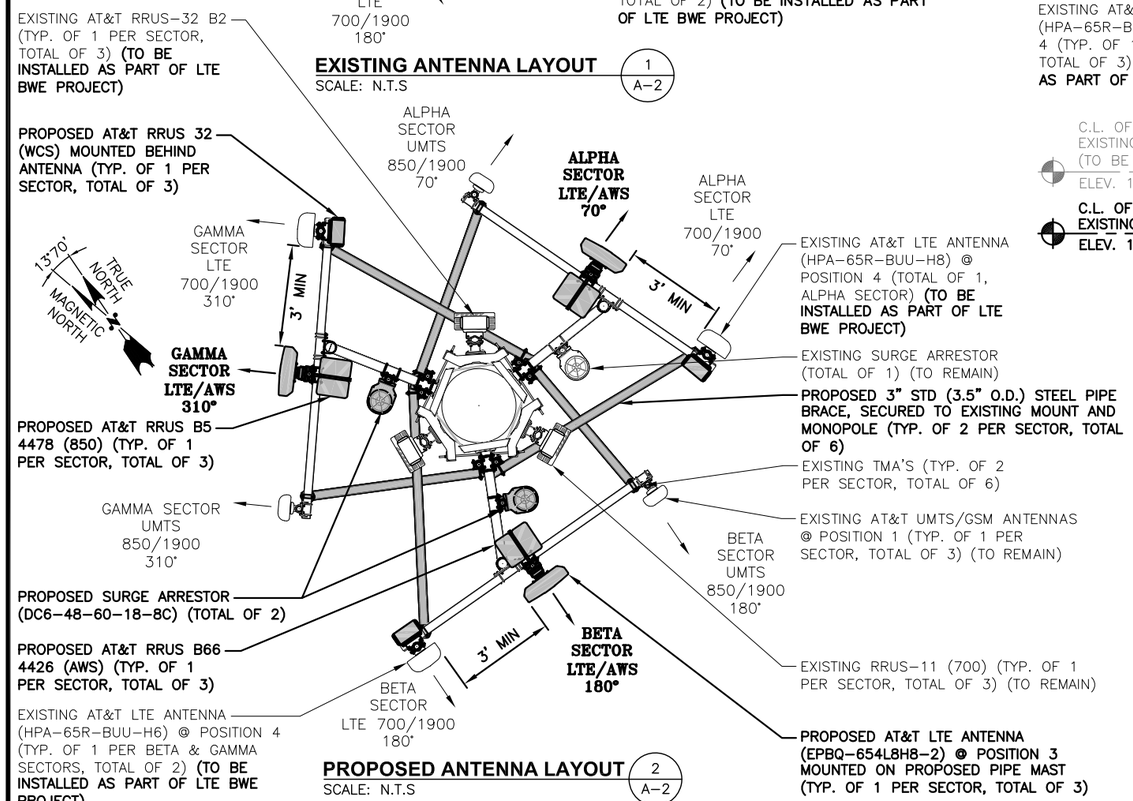
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL RF DATA SHEET

SPECIAL CONSTRUCTION/PLANNING NOTE:

EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF LTE BWE PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF LTE BWE PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.



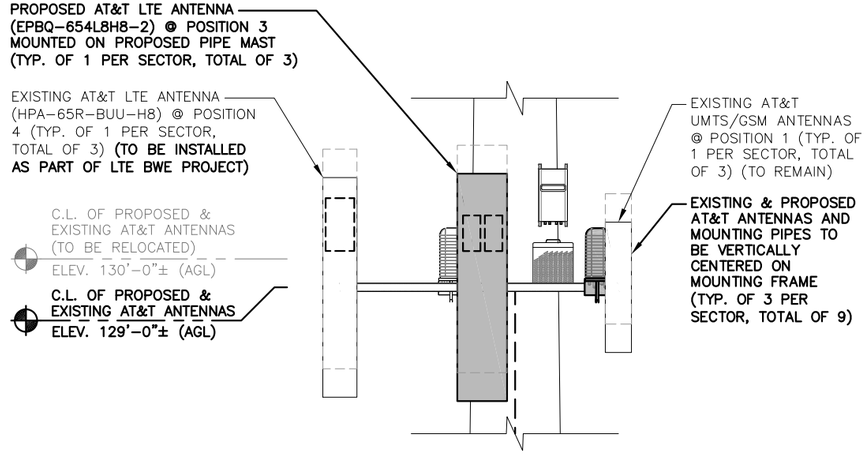
PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

(2 / A-2)

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: OCTOBER 31, 2018

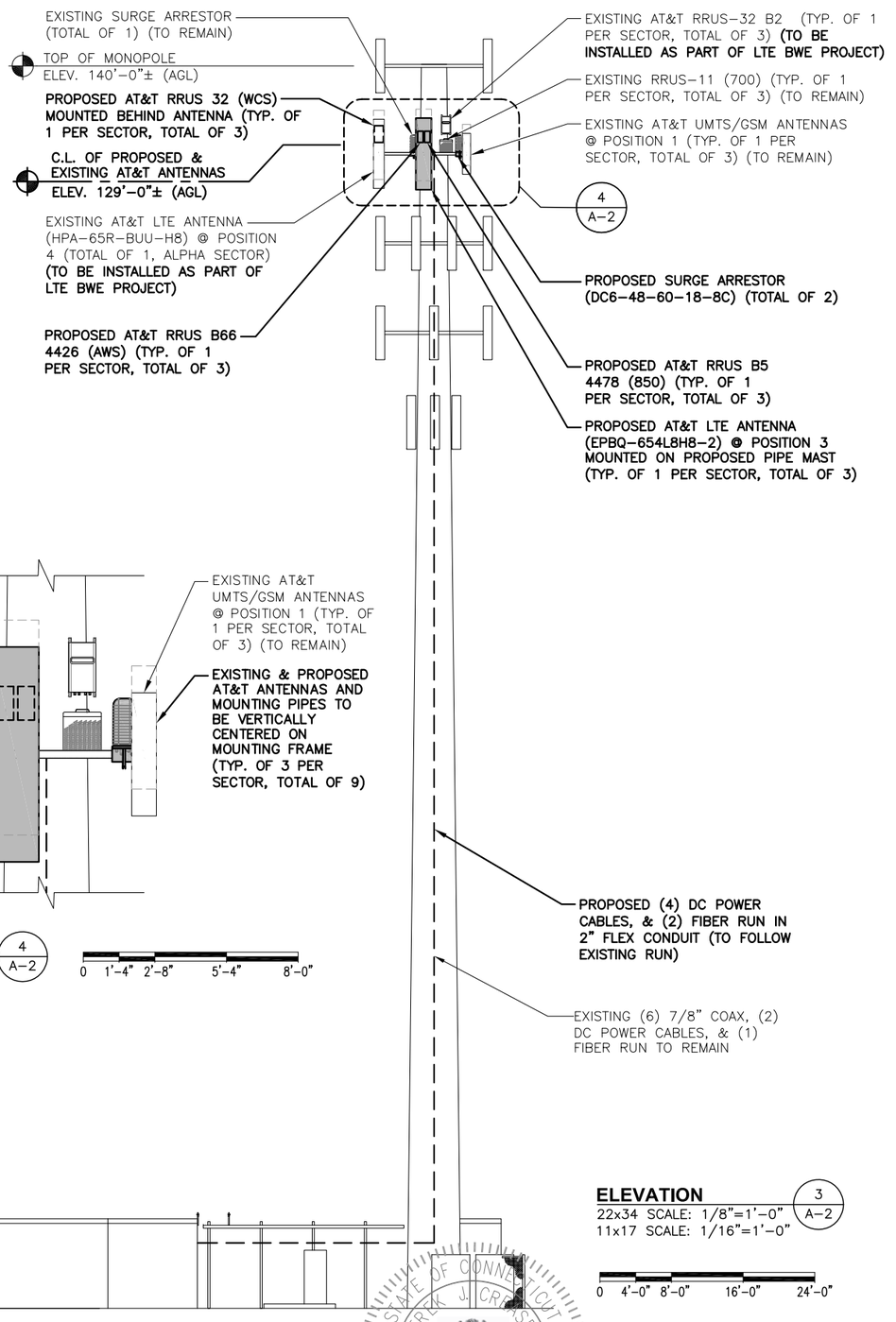


ENLARGED ELEVATION

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

(4 / A-2)

0 1'-4" 2'-8" 5'-4" 8'-0"



ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

(3 / A-2)

0 4'-0" 8'-0" 16'-0" 24'-0"

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

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

SITE NUMBER: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

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

AT&T

ANTENNA LAYOUTS & ELEVATION
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	A-2	2

SPECIAL CONSTRUCTION/PLANNING NOTE:

EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF LTE BWE PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF LTE BWE PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.

NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL RF DATA SHEET

NOTE:

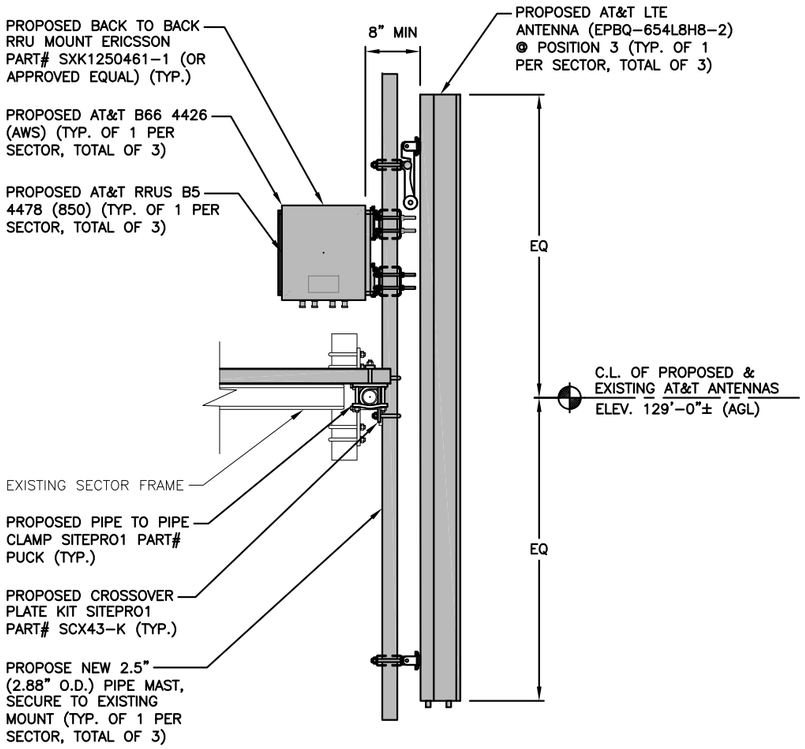
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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: OCTOBER 31, 2018

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS DB	7770	55X11X5	±129'	70°	(2) POWERWAVE LGP21401 (2)(G) LGP21901	–	–	(2) 7/8 COAX (180')	(E) (1) RAYCAP DC6-48-60-18-8C
A2	–	–	–	–	–	–	–	–	–	–	
A3	**PROPOSED**	**LTE 850, 5G 850 LTE 1900/AWS**	**EPBQ-654L8H8-2**	**96X21X6.3**	**±129'**	**70°**	–	**(P) B66 4426 (AWS)** **(P) B5 4478 (850)** (E) RRUS-32 B2 (PCS)	**15.0X13.2X7.4** **15.0X13.2X7.4** –	–	
A4	EXISTING	LTE 700/WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±129'	70°	–	(E) RRUS-11 (700) **(P) RRUS-32 (WCS)**	– **27.2X12.1X7.2**	–	
B1	EXISTING	UMTS DB	7770	55X11X5	±129'	180°	(2) POWERWAVE LGP21401 (2)(G) LGP21901	–	–	(2) 7/8 COAX (180')	(P) (1) RAYCAP DC6-48-60-18-8C
B2	–	–	–	–	–	–	–	–	–	–	
B3	**PROPOSED**	**LTE 850, 5G 850 LTE 1900/AWS**	**EPBQ-654L8H8-2**	**96X21X6.3**	**±129'**	**180°**	–	**(P) B66 4426 (AWS)** **(P) B5 4478 (850)** (E) RRUS-32 B2 (PCS)	**15.0X13.2X7.4** **15.0X13.2X7.4** –	–	
B4	EXISTING	LTE 700/WCS	HPA-65R-BUU-H6	72.0X14.8X9.0	±129'	180°	–	(E) RRUS-11 (700) **(P) RRUS-32 (WCS)**	– **27.2X12.1X7.2**	–	
C1	EXISTING	UMTS DB	7770	55X11X5	±129'	310°	(2) POWERWAVE LGP21401 (2)(G) LGP21901	–	–	(2) 7/8 COAX (180')	(P) (1) RAYCAP DC6-48-60-18-8C
C2	–	–	–	–	–	–	–	–	–	–	
C3	**PROPOSED**	**LTE 850, 5G 850 LTE 1900/AWS**	**EPBQ-654L8H8-2**	**96X21X6.3**	**±129'**	**310°**	–	**(P) B66 4426 (AWS)** **(P) B5 4478 (850)** (E) RRUS-32 B2 (PCS)	**15.0X13.2X7.4** **15.0X13.2X7.4** –	–	
C4	EXISTING	LTE 700/WCS	HPA-65R-BUU-H6	72.0X14.8X9.0	±129'	310°	–	(E) RRUS-11 (700) **(P) RRUS-32 (WCS)**	– **27.2X12.1X7.2**	–	



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

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

RRU CHART

QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(E)**3(P)**	RRUS-32	27.2"	12.1"	7.0"
3(P)	**4426**	**15.0"**	**13.2"**	**7.4"**
3(P)	**4478**	**15.0"**	**13.2"**	**7.4"**

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

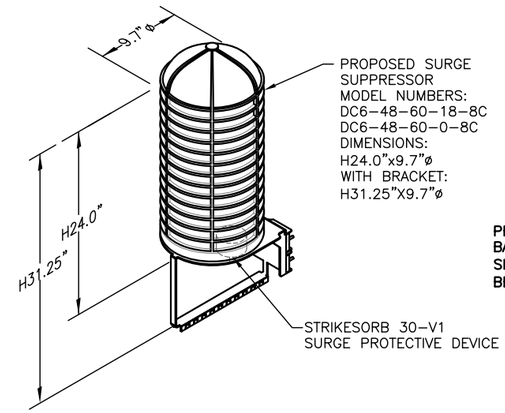
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

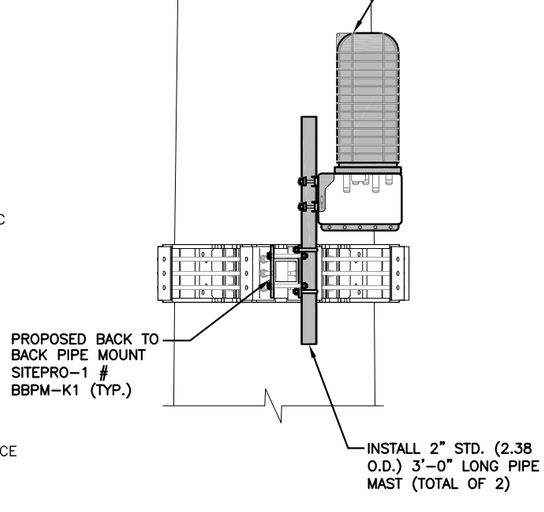
PROPOSED RRUS DETAIL (3 / A-3)
SCALE: N.T.S

FINAL ANTENNA CONFIGURATION TABLE (1 / A-3)



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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



PROPOSED SURGE ARRESTOR MOUNTING DETAIL (5 / A-3)
SCALE: N.T.S

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASER · 18,228 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	A-3	2

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASER · NO. 27358 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	SN-1	2

NOTE:

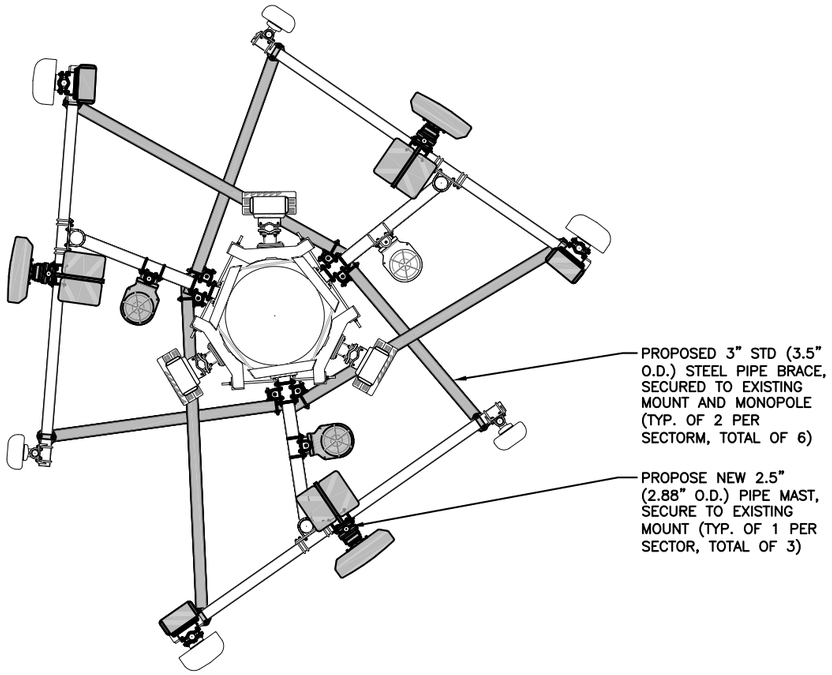
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: AUGUST 15, 2018

NOTE:

ALL ANTENNAS AND RRHS TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL RF DATA SHEET

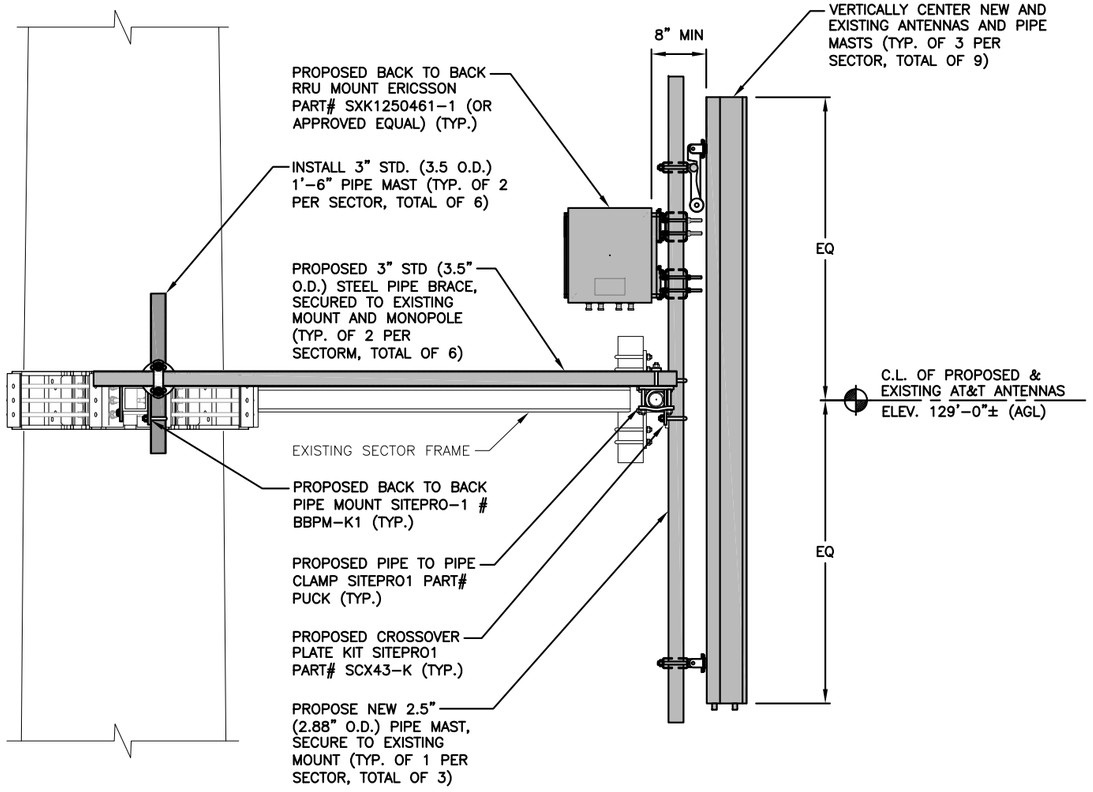
NOTE:

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



PROPOSED MODIFICATIONS PLAN (1 / S-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"



PROPOSED MODIFICATIONS DETAIL (2 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

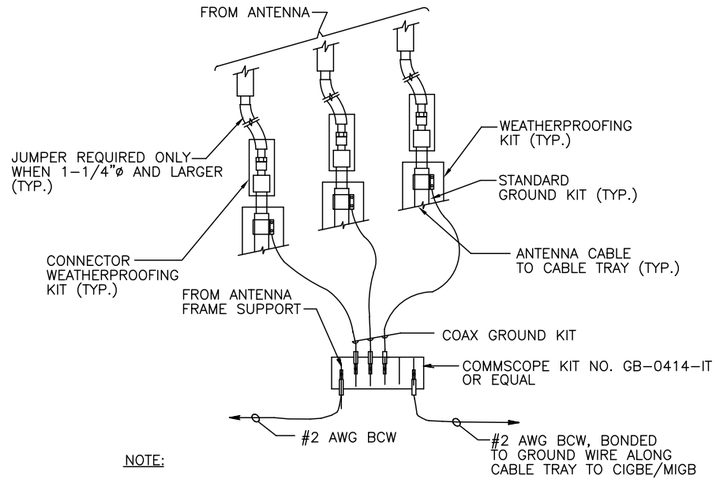
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

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

AT&T

STRUCTURAL DETAILS
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	S-1	2



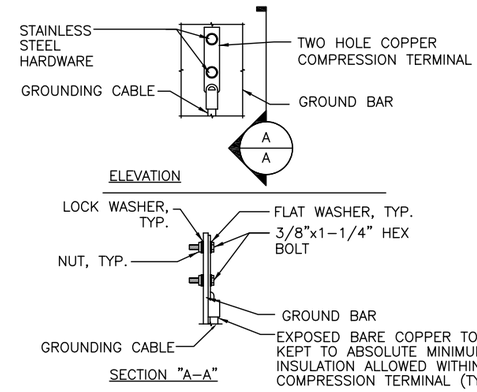
NOTE:

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



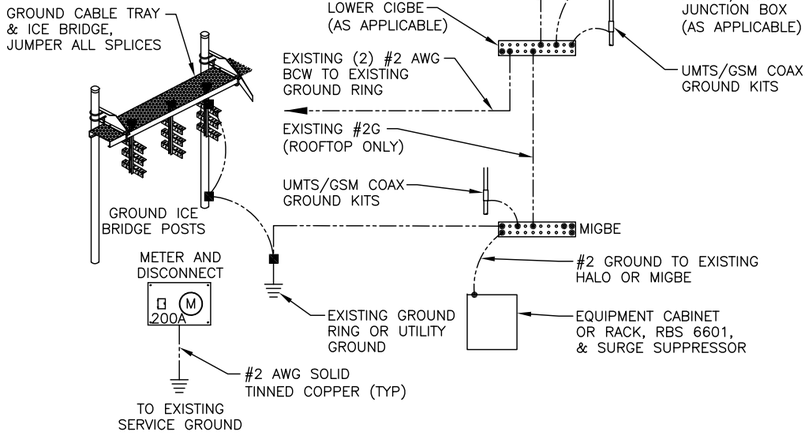
NOTE:

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



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1

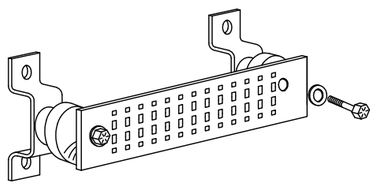
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

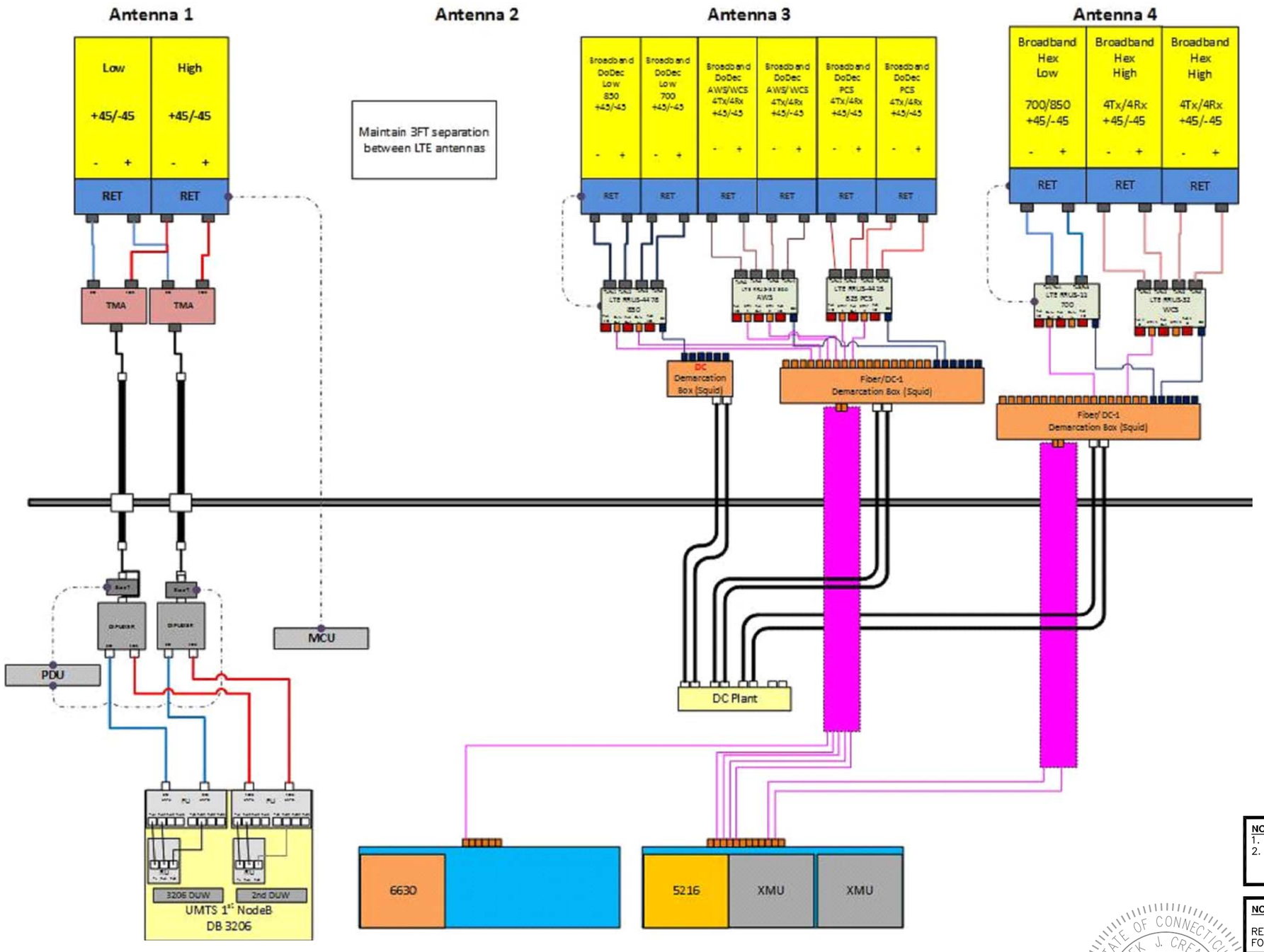
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASER · No. 21551 · LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	G-1	2



RF PLUMBING DIAGRAM 1
SCALE: N.T.S RF–1

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.

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: CT5255
SITE NAME: FARMINGTON - DEAD SWAMP WOOD
CCI SITE #: 876335
130 BIRDSEYE ROAD
FARMINGTON, CT 06032
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	10/31/18	ISSUED FOR CONSTRUCTION	SB	AT	DJC
1	09/10/18	ISSUED FOR CONSTRUCTION	MR	AT	DJC
A	06/27/18	ISSUED FOR REVIEW	TR	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TR

STATE OF CONNECTICUT · DEREK J. CREASER · 28235 · LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
(LTE 3C,4C,5C)

SITE NUMBER	DRAWING NUMBER	REV
CT5255	RF–1	2

Date: **October 22, 2018**

Jared Danneker
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5255
	Carrier Site Name:	Farmington - Dead Swamp Wood
Crown Castle Designation:	**Crown Castle BU Number:**	876335
	Crown Castle Site Name:	East Farmington
	Crown Castle JDE Job Number:	527803
	Crown Castle Work Order Number:	1648818
	Crown Castle Order Number:	450435 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	77969.016.01
Site Data:	**3 A Birdseye Road, Farmington, Hartford County, CT** **Latitude *41° 42' 56.94"*, Longitude *-72° 48' 37.42"*** **140 Foot - Monopole Tower**	

Dear Jared Danneker,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower.

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

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph (converted to an equivalent 97 mph nominal 3-second gust wind speed per Section 1609.3.1 for use with TIA-222 G) as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: James Lindsey

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2019

10/22/18

Scott S. Vance, P.E.

tnxTower Report - version 8.0.4.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 140 ft Monopole tower designed by Summit in November of 1997. The tower has been modified multiple times and those modifications were incorporated in this analysis.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	97 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
128.0	130.0	2	CCI Antennas	HPA-65R-BUU-H6	9 6 3	7/8 3/4 3/8
		1	CCI Antennas	HPA-65R-BUU-H8		
		3	Ericsson	RRUS 32 B30		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS 4478 B5		
		3	Kmw Comm.	EPBQ-654L8H8-L2		
		2	Raycap	DC6-48-60-18-8C		
		3	Powerwave Tech.	7770.00		
	128.0	6	Powerwave Tech.	LGP21401		
		1	Raycap	DC6-48-60-18-8F		
		6	--	10' horizontal x 2.5" Pipe Mount		
		1	--	T-Arm Mount [TA 602-3]		
		3	--	6' x 3" Mount Pipe		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
139.0	140.0	3	Alcatel Lucent	TD-RRH8X20-25	3	1-1/4
		3	Rfs Celwave	APXV9ERR18-C-A20		
		3	Rfs Celwave	APXVTM14-C-120		
	139.0	1	--	Miscellaneous [NA 510-1]		
		1	--	Platform Mount [LP 1201-1]		
137.0	140.0	3	Alcatel Lucent	800MHz 2X50W RRH W/FILTER	--	--
	137.0	3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz		
		1	--	Side Arm Mount [SO 102-3]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
129.0	130.0	3	Ericsson	RRUS 11-700	--	--
		3	Ericsson	RRUS 32		
	129.0	1	--	Side Arm Mount [SO 102-3]		
108.0	109.0	3	Alcatel Lucent	RRH2X60-700	14	1-5/8
		3	Alcatel Lucent	RRH2X60-PCS		
		9	Andrew	SBNHH-1D65B		
		3	Antel	BXA-70063-4CF-EDIN-X		
		2	Rfs Celwave	DB-T1-6Z-8AB-0Z		
	108.0	1	--	Platform Mount [LP 303-1]		
100.0	100.0	3	Ericsson	AIR 32 B2A/B66AA	1 1 11	1-5/8 1-3/8 7/8
		3	Ericsson	ERICSSON AIR 21 B2A B4P		
		3	Ericsson	KRY 112 144/1		
		3	Ericsson	RADIO 4449 B12/B71		
		3	Rfs Celwave	APXVAARR24_43-U-NA20		
		1	--	T-Arm Mount [TA 602-3]		
90.0	90.0	1	--	Pipe Mount [PM 601-3]	--	--
70.0	72.0	2	Lucent	KS24019-L112A	2	5/16
	70.0	2	--	Side Arm Mount [SO 701-1]		
49.0	51.0	1	Lucent	KS24019-L112A	1	1/2
	49.0	1	--	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Online Order Information	AT&T Mobility Co-Locate, Rev # 0	450435	CCI Sites
Tower Manufacturing Drawing	Summit, Date: 11/03/1997	1615361	CCI Sites
Tower Modification Drawing	B&T Engineering, Project No: 79880	2397525	CCI Sites
Post Modification Inspection	B&T Engineering, Project No: 79880	2397526	CCI Sites
Tower Modification Drawing	B&T Group, Project No: 77969.005	3262310	CCI Sites
Post Modification Inspection	TEP, Project No: 127152	3413367	CCI Sites
Tower Modification Drawing	B&T Group, Project No: 77969.007.01	3672042	CCI Sites
Post Modification Inspection	TEP, Project No: 131001.876335	4836319	CCI Sites
Tower Modification Drawing	B&T Group, Project No: 77969.011.01	4456376	CCI Sites
Post Modification Inspection	TEP, Project No: 25671.19664	5400317	CCI Sites
Mount Analysis	HDG, FA No: 10071036	Date: 08/15/2018	--
Foundation Drawing	Summit, Job No: 2933	1440555	CCI Sites
Geotech Report	FDH, Project No: 1421BO1600	1531892	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 08/28/2018	CCI Sites

3.1) Analysis Method

tnxTower (version 8.0.4.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

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) Mount areas and weights are assumed based on photographs provided.
5) The existing base plate grout was not considered in this analysis.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	140 - 135	Pole	TP17.025x16x0.25	1	-4.007	--	7.2	Pass
L2	135 - 130	Pole	TP18.05x17.025x0.25	2	-4.489	--	14.1	Pass
L3	130 - 125	Pole	TP19.075x18.05x0.25	3	-7.944	--	27.0	Pass
L4	125 - 120	Pole	TP20.099x19.075x0.25	4	-8.351	--	38.3	Pass
L5	120 - 115	Pole	TP21.124x20.099x0.25	5	-8.801	--	47.6	Pass
L6	115 - 110	Pole	TP22.149x21.124x0.25	6	-9.261	--	55.5	Pass
L7	110 - 105	Pole	TP23.174x22.149x0.25	7	-12.200	--	65.5	Pass
L8	105 - 102.33	Pole	TP23.721x23.174x0.25	8	-12.526	--	70.9	Pass
L9	102.33 - 102.08	Pole + Reinf.	TP23.772x23.721x0.3875	9	-12.581	--	64.5	Pass
L10	102.08 - 97.08	Pole + Reinf.	TP24.797x23.772x0.375	10	-15.825	--	74.4	Pass
L11	97.08 - 95	Pole + Reinf.	TP25.89x24.797x0.375	11	-16.182	--	78.5	Pass
L12	95 - 90.75	Pole + Reinf.	TP25.595x24.724x0.3563	12	-17.405	--	67.8	Pass
L13	90.75 - 85.75	Pole + Reinf.	TP26.62x25.595x0.3563	13	-18.705	--	73.3	Pass
L14	85.75 - 85.33	Pole + Reinf.	TP26.706x26.62x0.3563	14	-18.807	--	73.8	Pass
L15	85.33 - 85.08	Pole + Reinf.	TP26.757x26.706x0.5625	15	-18.872	--	67.0	Pass
L16	85.08 - 82.5	Pole + Reinf.	TP27.287x26.757x0.5625	16	-19.426	--	69.7	Pass
L17	82.5 - 82.25	Pole + Reinf.	TP27.338x27.287x0.3563	17	-19.491	--	76.8	Pass
L18	82.25 - 77.15	Pole + Reinf.	TP28.383x27.337x0.55	18	-20.767	--	74.9	Pass
L19	77.15 - 76.92	Pole + Reinf.	TP28.431x28.383x0.55	19	-20.838	--	75.1	Pass
L20	76.92 - 71.92	Pole + Reinf.	TP29.457x28.431x0.5375	20	-22.381	--	79.7	Pass
L21	71.92 - 66.92	Pole + Reinf.	TP30.482x29.457x0.525	21	-23.906	--	83.9	Pass
L22	66.92 - 66.67	Pole + Reinf.	TP30.534x30.482x0.525	22	-23.986	--	84.1	Pass
L23	66.67 - 66.42	Pole + Reinf.	TP30.585x30.534x0.5125	23	-24.049	--	82.7	Pass
L24	66.42 - 61.42	Pole + Reinf.	TP31.61x30.585x0.5125	24	-25.305	--	86.6	Pass
L25	61.42 - 60	Pole + Reinf.	TP31.901x31.61x0.5063	25	-25.664	--	87.7	Pass
L26	60 - 59.75	Pole + Reinf.	TP31.952x31.901x0.5125	26	-25.753	--	81.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L27	59.75 - 54.75	Pole + Reinf.	TP32.978x31.952x0.5125	27	-27.167	--	84.2	Pass
L28	54.75 - 51	Pole + Reinf.	TP34.67x32.978x0.5063	28	-28.255	--	86.5	Pass
L29	51 - 45.5	Pole + Reinf.	TP34.25x33.122x0.55	29	-30.949	--	88.8	Pass
L30	45.5 - 44.25	Pole + Reinf.	TP34.506x34.25x0.55	30	-31.321	--	89.4	Pass
L31	44.25 - 44	Pole + Reinf.	TP34.557x34.506x0.675	31	-31.423	--	76.2	Pass
L32	44 - 39	Pole + Reinf.	TP35.583x34.557x0.6625	32	-33.148	--	78.4	Pass
L33	39 - 34	Pole + Reinf.	TP36.608x35.583x0.65	33	-34.918	--	80.3	Pass
L34	34 - 29	Pole + Reinf.	TP37.633x36.608x0.6375	34	-36.720	--	82.1	Pass
L35	29 - 27.75	Pole + Reinf.	TP37.89x37.633x0.6375	35	-37.172	--	82.6	Pass
L36	27.75 - 27.5	Pole + Reinf.	TP37.941x37.89x0.6375	36	-37.278	--	82.6	Pass
L37	27.5 - 24.08	Pole + Reinf.	TP38.642x37.941x0.6375	37	-38.520	--	83.7	Pass
L38	24.08 - 23.83	Pole + Reinf.	TP38.693x38.642x0.525	38	-38.613	--	97.5	Pass
L39	23.83 - 18.83	Pole + Reinf.	TP39.718x38.693x0.525	39	-40.243	--	99.0	Pass
L40	18.83 - 18.08	Pole + Reinf.	TP39.872x39.718x0.525	40	-40.497	--	99.2	Pass
L41	18.08 - 17.83	Pole + Reinf.	TP39.923x39.872x0.6375	41	-40.602	--	89.7	Pass
L42	17.83 - 12.83	Pole + Reinf.	TP40.948x39.923x0.625	42	-42.520	--	91.1	Pass
L43	12.83 - 7.83	Pole + Reinf.	TP41.974x40.948x0.625	43	-44.709	--	92.3	Pass
L44	7.83 - 2.83	Pole + Reinf.	TP42.999x41.974x0.6125	44	-46.694	--	93.4	Pass
L45	2.83 - 0	Pole + Reinf.	TP43.58x42.999x0.6125	45	-47.827	--	94.0	Pass
							Summary	
						Pole (L40)	99.2	Pass
						Rating =	99.2	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation	% Capacity	Pass / Fail
1	Anchor Rod Bracket	Base	91.8	Pass
1	Anchor Rods	Base	82.9	Pass
1	Base Plate	Base	74.8	Pass
1	Base Foundation (Structural)	Base	40.6	Pass
1	Base Foundation (Soil Interaction)	Base	54.6	Pass

Structure Rating (max from all components) =	**99.2%**

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

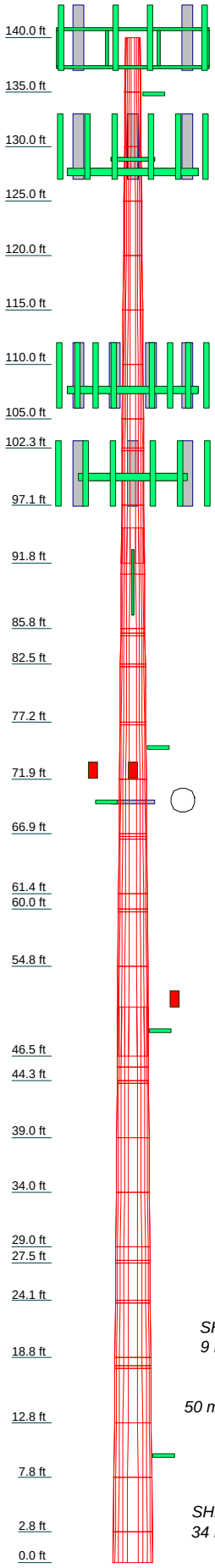
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	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	44	45
Length (ft)	5.000	5.000	5.000	5.000	5.000	5.000	5.000	2.667	2.500	5.000	4.333	4.750	5.000	5.000	5.000	5.000	5.000	5.100	5.233	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.250	5.500	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000	2.833
Number of Sides	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Thickness (in)	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.375	0.375	0.356	0.356	0.356	0.356	0.356	0.356	0.550	0.550	0.537	0.525	0.512	0.512	0.512	0.512	0.512	0.512	0.506	0.650	0.650	0.662	0.650	0.650	0.637	0.637	0.637	0.637	0.637	0.525	0.625	0.625	0.625	0.625	0.613	0.613
Socket Length (ft)											3.250																	4.500																		
Top Dia (in)	16.000	17.025	18.050	19.075	20.099	21.124	22.149	23.174	23.721	23.772	24.797	24.724	25.592	26.617	26.617	26.617	27.332	27.332	28.357	28.432	29.457	30.130	30.130	30.130	30.130	30.130	31.955	32.978	32.978	33.622	34.557	35.583	35.583	36.608	36.608	36.608	37.633	38.658	39.683	39.922	40.948	40.948	41.974	41.974	42.999
Bot Dia (in)	17.025	18.050	19.075	20.099	21.124	22.149	23.174	23.721	24.272	24.797	25.890	25.592	26.617	26.617	27.332	27.332	28.357	28.432	29.457	29.452	30.482	31.130	31.130	31.130	31.130	31.955	32.978	34.670	34.022	34.557	35.583	36.608	36.608	37.633	37.633	38.658	39.683	39.922	40.948	40.948	41.974	41.974	42.999	43.580	23.7
Grade	A607-60																											A607-65																		
Weight (K)	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.0	0.5	0.5	0.5	0.6	0.1	0.4	0.0	0.0	0.9	0.0	0.9	0.9	0.0	0.0	0.0	0.8	0.2	0.0	1.6	1.1	1.1	1.2	1.2	1.2	1.2	1.3	0.1	0.9	0.1	1.1	1.2	1.3	1.4	1.4	1.4	0.8



ALL REACTIONS ARE FACTORED

AXIAL 101 K

SHEAR 9 K *MOMENT 958 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 1.000 in ICE

AXIAL 48 K

SHEAR 34 K *MOMENT 3285 kip-ft*

TORQUE 1 kip-ft
REACTIONS - 97 mph WIND

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-60	60 ksi	75 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B 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 0.000 ft
8. TOWER RATING: 99.2%

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	77969.016.01 - East Farmington, CT (BU# 876335		
Project:			
Client:	Crown Castle	Drawn by: Vishwas	App'd:
Code:	TIA-222-G	Date: 10/18/18	Scale: NTS
Path:			Dwg No. E-1

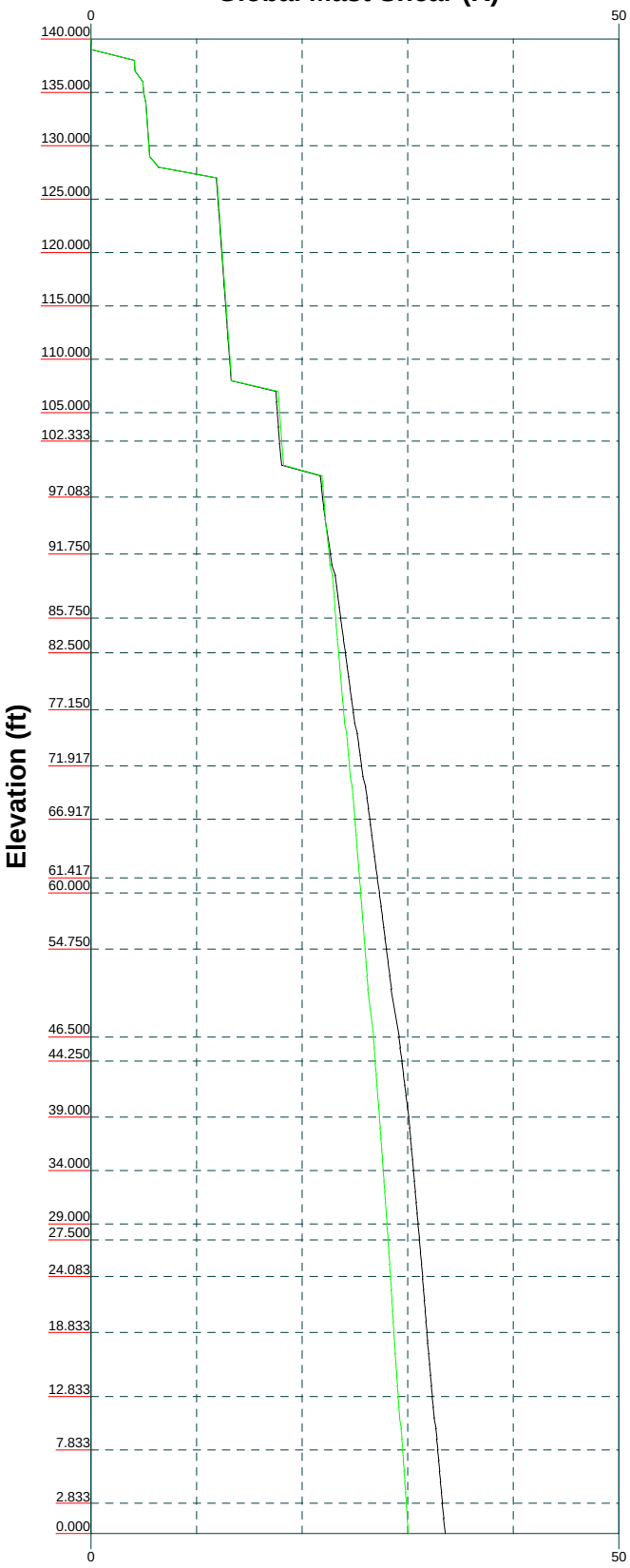
TIA-222-G - 97 mph/50 mph 1.000 in Ice Exposure B

Vx Vz

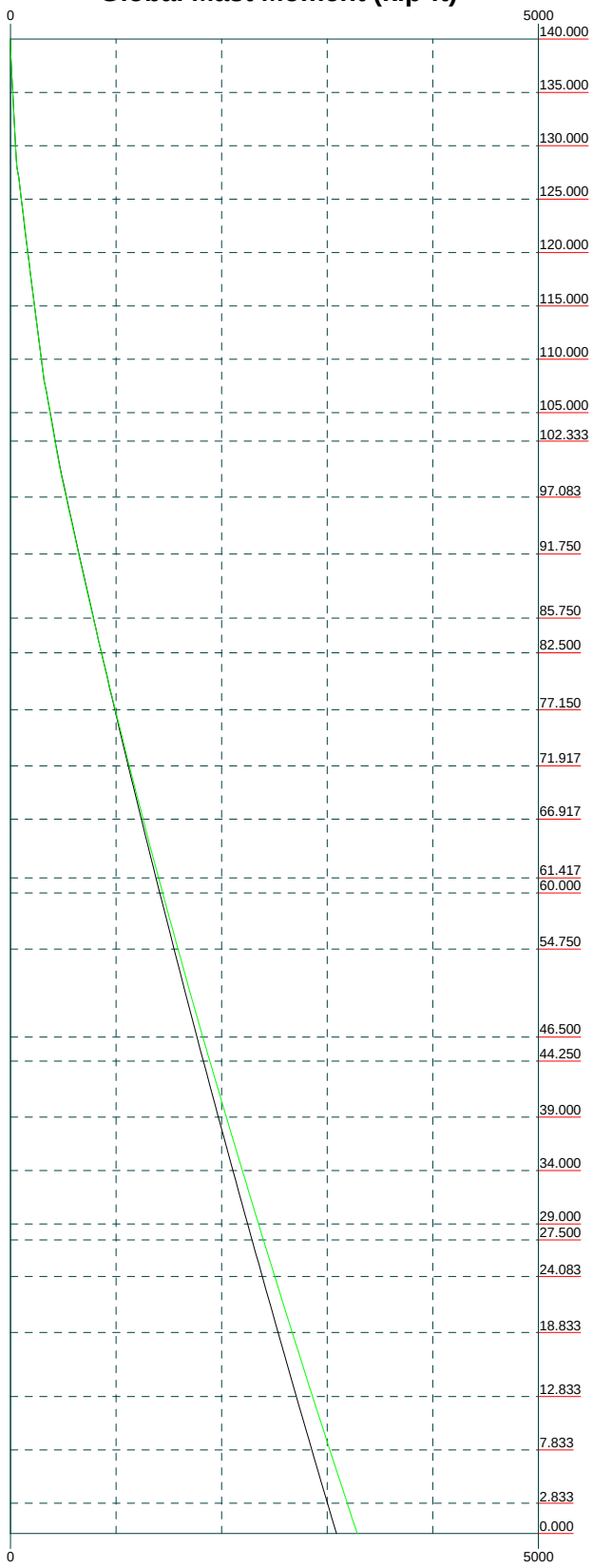
Maximum Values

Mx Mz

Global Mast Shear (K)



Global Mast Moment (kip-ft)

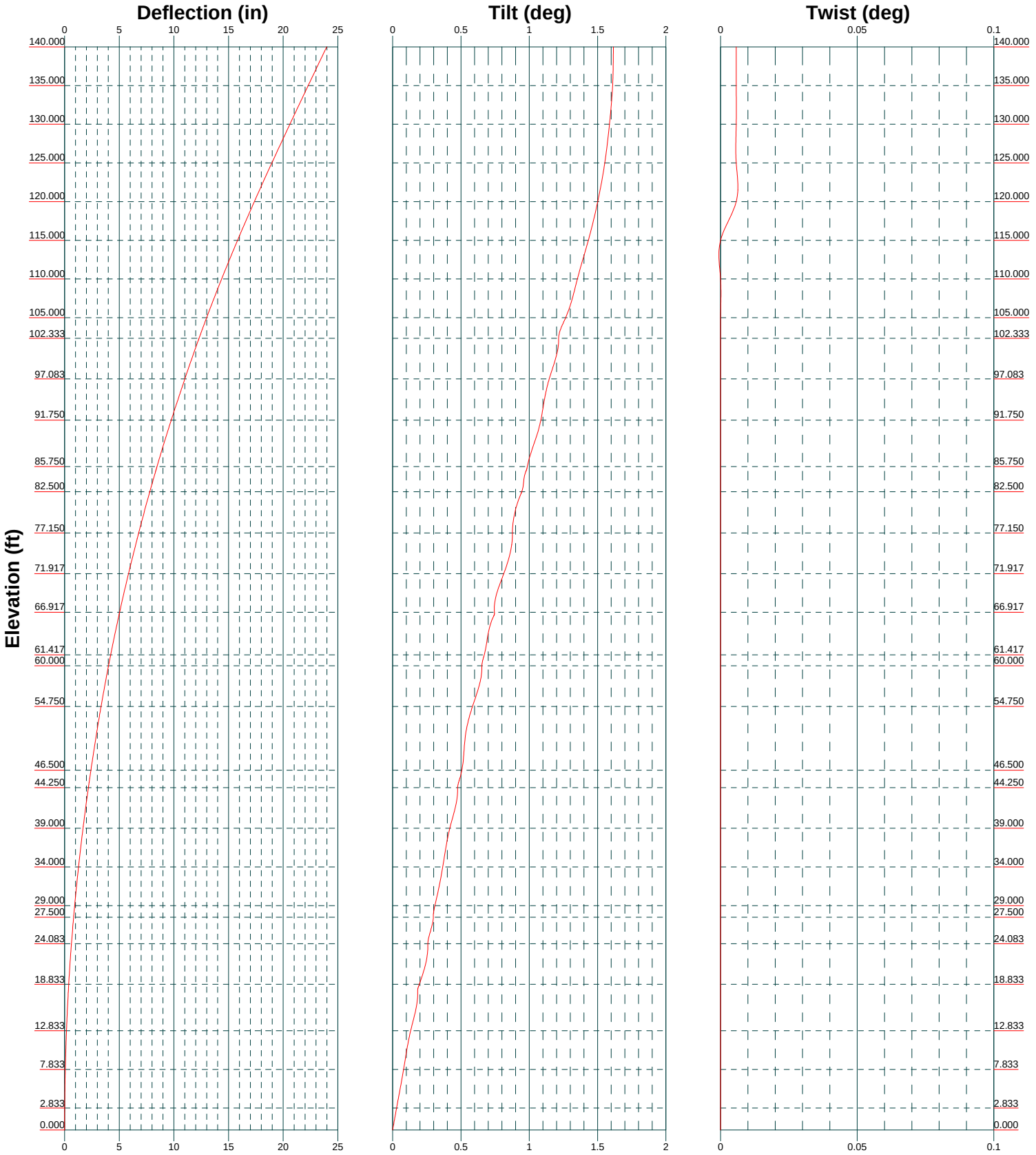


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 77969.016.01 - East Farmington, CT (BU# 876335		
Project:		
Client: Crown Castle	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 10/18/18	Scale: NTS
Path:		Dwg No. E-4

TIA-222-G - Service - 60 mph

Maximum Values

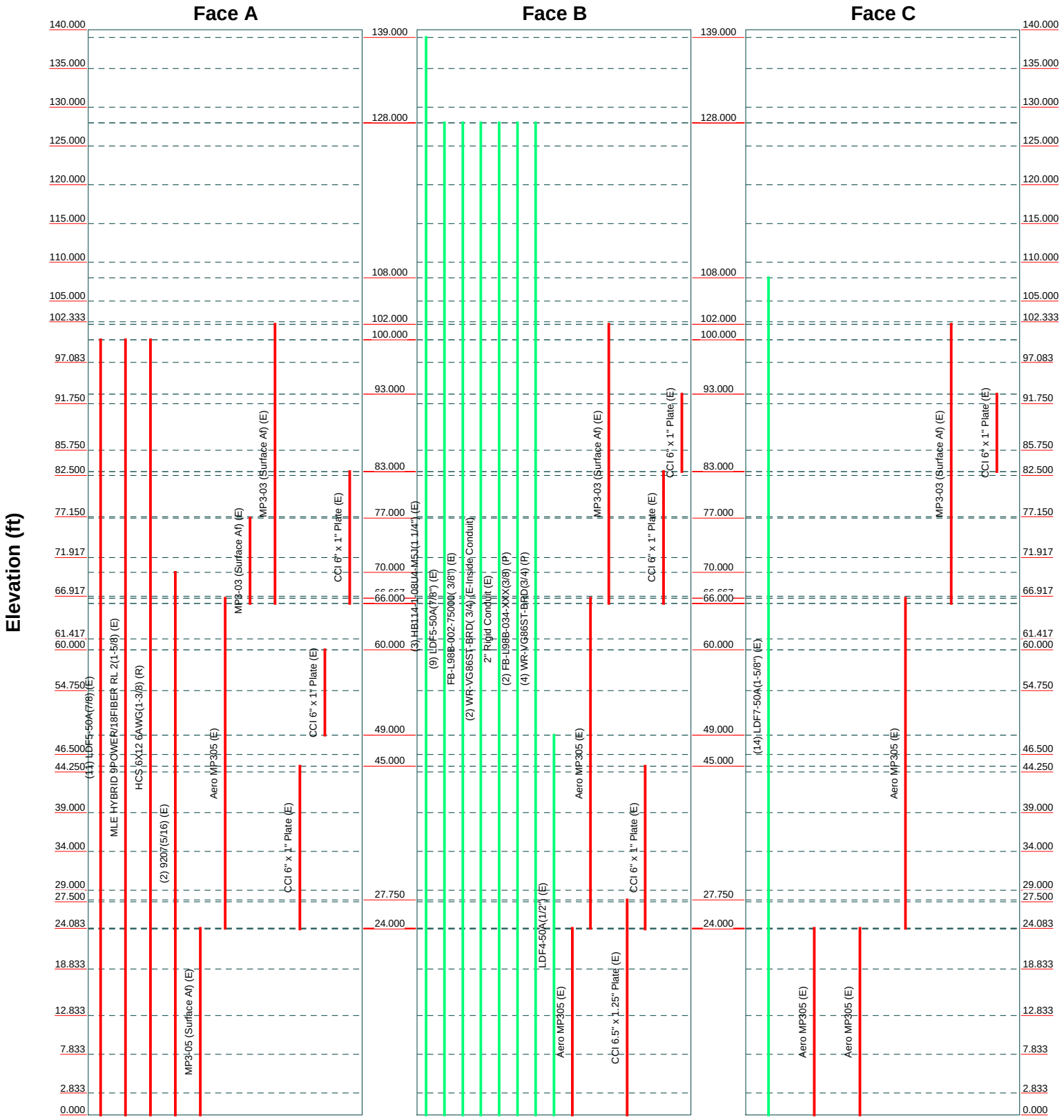


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	77969.016.01 - East Farmington, CT (BU# 876335		
Project:			
Client:	Crown Castle	Drawn by: Vishwas	App'd:
Code:	TIA-222-G	Date: 10/18/18	Scale: NTS
Path:			Dwg No. E-5

Feed Line Distribution Chart
0' - 140'

Round | Flat | App In Face | App Out Face | Truss Leg



B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 77969.016.01 - East Farmington, CT (BU# 876335		
Project:		
Client: Crown Castle	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 10/18/18	Scale: NTS
Path:		Dwg No. E-7

tnxTower	Job	Page
B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	77969.016.01 - East Farmington, CT (BU# 876335)	1 of 55
	Project	Date 15:55:15 10/18/18
	Client Crown Castle	Designed by Vishwas

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 97 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 1.000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
TOWER RATING: 99.2%.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	140.000-135.000	5.000	0.000	12	16.000	17.025	0.250	1.000	A607-60 (60 ksi)
L2	135.000-130.000	5.000	0.000	12	17.025	18.050	0.250	1.000	A607-60 (60 ksi)
L3	130.000-125.000	5.000	0.000	12	18.050	19.075	0.250	1.000	A607-60 (60 ksi)
L4	125.000-120.000	5.000	0.000	12	19.075	20.099	0.250	1.000	A607-60 (60 ksi)
L5	120.000-115.000	5.000	0.000	12	20.099	21.124	0.250	1.000	A607-60 (60 ksi)
L6	115.000-110.000	5.000	0.000	12	21.124	22.149	0.250	1.000	A607-60 (60 ksi)
L7	110.000-105.000	5.000	0.000	12	22.149	23.174	0.250	1.000	A607-60 (60 ksi)
L8	105.000-102.333	2.667	0.000	12	23.174	23.721	0.250	1.000	A607-60 (60 ksi)
L9	102.333-102.083	0.250	0.000	12	23.721	23.772	0.388	1.550	A607-60 (60 ksi)
L10	102.083-97.083	5.000	0.000	12	23.772	24.797	0.375	1.500	A607-60 (60 ksi)
L11	97.083-91.750	5.333	3.250	12	24.797	25.890	0.375	1.500	A607-60 (60 ksi)
L12	91.750-90.750	4.250	0.000	12	24.724	25.595	0.356	1.425	A607-65 (65 ksi)
L13	90.750-85.750	5.000	0.000	12	25.595	26.620	0.356	1.425	A607-65 (65 ksi)
L14	85.750-85.333	0.417	0.000	12	26.620	26.706	0.356	1.425	A607-65 (65 ksi)
L15	85.333-85.083	0.250	0.000	12	26.706	26.757	0.563	2.250	A607-65 (65 ksi)
L16	85.083-82.500	2.583	0.000	12	26.757	27.287	0.563	2.250	A607-65 (65 ksi)
L17	82.500-82.250	0.250	0.000	12	27.287	27.338	0.356	1.425	A607-65 (65 ksi)
L18	82.250-77.150	5.100	0.000	12	27.337	28.383	0.550	2.200	A607-65 (65 ksi)
L19	77.150-76.917	0.233	0.000	12	28.383	28.431	0.550	2.200	A607-65 (65 ksi)
L20	76.917-71.917	5.000	0.000	12	28.431	29.457	0.537	2.150	A607-65 (65 ksi)
L21	71.917-66.917	5.000	0.000	12	29.457	30.482	0.525	2.100	A607-65 (65 ksi)
L22	66.917-66.667	0.250	0.000	12	30.482	30.534	0.525	2.100	A607-65 (65 ksi)
L23	66.667-66.417	0.250	0.000	12	30.534	30.585	0.512	2.050	A607-65 (65 ksi)
L24	66.417-61.417	5.000	0.000	12	30.585	31.610	0.512	2.050	A607-65 (65 ksi)
L25	61.417-60.000	1.417	0.000	12	31.610	31.901	0.506	2.025	A607-65 (65 ksi)
L26	60.000-59.750	0.250	0.000	12	31.901	31.952	0.512	2.050	A607-65 (65 ksi)
L27	59.750-54.750	5.000	0.000	12	31.952	32.978	0.512	2.050	A607-65 (65 ksi)
L28	54.750-46.500	8.250	4.500	12	32.978	34.670	0.506	2.025	A607-65 (65 ksi)
L29	46.500-45.500	5.500	0.000	12	33.122	34.250	0.550	2.200	A607-65 (65 ksi)
L30	45.500-44.250	1.250	0.000	12	34.250	34.506	0.550	2.200	A607-65 (65 ksi)
L31	44.250-44.000	0.250	0.000	12	34.506	34.557	0.675	2.700	A607-65

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
									(65 ksi)
L32	44.000-39.000	5.000	0.000	12	34.557	35.583	0.662	2.650	A607-65 (65 ksi)
L33	39.000-34.000	5.000	0.000	12	35.583	36.608	0.650	2.600	A607-65 (65 ksi)
L34	34.000-29.000	5.000	0.000	12	36.608	37.633	0.637	2.550	A607-65 (65 ksi)
L35	29.000-27.750	1.250	0.000	12	37.633	37.890	0.637	2.550	A607-65 (65 ksi)
L36	27.750-27.500	0.250	0.000	12	37.890	37.941	0.637	2.550	A607-65 (65 ksi)
L37	27.500-24.083	3.417	0.000	12	37.941	38.642	0.637	2.550	A607-65 (65 ksi)
L38	24.083-23.833	0.250	0.000	12	38.642	38.693	0.525	2.100	A607-65 (65 ksi)
L39	23.833-18.833	5.000	0.000	12	38.693	39.718	0.525	2.100	A607-65 (65 ksi)
L40	18.833-18.083	0.750	0.000	12	39.718	39.872	0.525	2.100	A607-65 (65 ksi)
L41	18.083-17.833	0.250	0.000	12	39.872	39.923	0.637	2.550	A607-65 (65 ksi)
L42	17.833-12.833	5.000	0.000	12	39.923	40.948	0.625	2.500	A607-65 (65 ksi)
L43	12.833-7.833	5.000	0.000	12	40.948	41.974	0.625	2.500	A607-65 (65 ksi)
L44	7.833-2.833	5.000	0.000	12	41.974	42.999	0.613	2.450	A607-65 (65 ksi)
L45	2.833-0.000	2.833		12	42.999	43.580	0.613	2.450	A607-65 (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	16.476	12.679	401.443	5.638	8.288	48.437	813.432	6.240	3.618	14.472
	17.537	13.504	485.020	6.005	8.819	54.998	982.781	6.646	3.893	15.571
L2	17.537	13.504	485.020	6.005	8.819	54.998	982.781	6.646	3.893	15.571
	18.598	14.329	579.459	6.372	9.350	61.976	1174.141	7.052	4.167	16.669
L3	18.598	14.329	579.459	6.372	9.350	61.976	1174.141	7.052	4.167	16.669
	19.659	15.154	685.425	6.739	9.881	69.370	1388.857	7.458	4.442	17.768
L4	19.659	15.154	685.425	6.739	9.881	69.370	1388.857	7.458	4.442	17.768
	20.720	15.979	803.580	7.106	10.412	77.182	1628.272	7.864	4.717	18.867
L5	20.720	15.979	803.580	7.106	10.412	77.182	1628.272	7.864	4.717	18.867
	21.781	16.804	934.589	7.473	10.942	85.410	1893.731	8.270	4.991	19.965
L6	21.781	16.804	934.589	7.473	10.942	85.410	1893.731	8.270	4.991	19.965
	22.842	17.629	1079.116	7.840	11.473	94.055	2186.581	8.676	5.266	21.064
L7	22.842	17.629	1079.116	7.840	11.473	94.055	2186.581	8.676	5.266	21.064
	23.903	18.454	1237.822	8.207	12.004	103.116	2508.164	9.082	5.541	22.163
L8	23.903	18.454	1237.822	8.207	12.004	103.116	2508.164	9.082	5.541	22.163
	24.469	18.894	1328.505	8.403	12.287	108.120	2691.912	9.299	5.687	22.749
L9	24.421	29.114	2023.204	8.353	12.287	164.657	4099.560	14.329	5.319	13.726
	24.474	29.178	2036.564	8.372	12.314	165.387	4126.630	14.361	5.332	13.761
L10	24.478	28.252	1974.030	8.376	12.314	160.309	3999.920	13.905	5.366	14.309
	25.539	29.489	2244.967	8.743	12.845	174.777	4548.912	14.514	5.641	15.041
L11	25.539	29.489	2244.967	8.743	12.845	174.777	4548.912	14.514	5.641	15.041
	26.671	30.809	2560.117	9.134	13.411	190.897	5187.491	15.163	5.934	15.823

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
L12	26.160	27.953	2118.528	8.724	12.807	165.420	4292.711	13.757	5.671	15.919
	26.372	28.952	2354.012	9.036	13.258	177.550	4769.867	14.249	5.905	16.575
L13	26.372	28.952	2354.012	9.036	13.258	177.550	4769.867	14.249	5.905	16.575
	27.434	30.128	2652.649	9.403	13.789	192.370	5374.986	14.828	6.179	17.346
L14	27.434	30.128	2652.649	9.403	13.789	192.370	5374.986	14.828	6.179	17.346
	27.522	30.226	2678.638	9.433	13.834	193.633	5427.646	14.876	6.202	17.41
L15	27.449	47.352	4130.886	9.359	13.834	298.613	8370.295	23.305	5.650	10.044
	27.502	47.445	4155.230	9.378	13.860	299.797	8419.623	23.351	5.663	10.068
L16	27.502	47.445	4155.230	9.378	13.860	299.797	8419.623	23.351	5.663	10.068
	28.051	48.404	4412.373	9.567	14.134	312.172	8940.665	23.823	5.805	10.321
L17	28.123	30.892	2859.706	9.641	14.134	202.322	5794.539	15.204	6.358	17.847
	28.177	30.951	2876.065	9.659	14.161	203.098	5827.687	15.233	6.372	17.886
L18	28.108	47.440	4345.051	9.590	14.161	306.837	8804.251	23.349	5.852	10.641
	29.191	49.293	4874.213	9.964	14.703	331.520	9876.476	24.261	6.133	11.15
L19	29.191	49.293	4874.213	9.964	14.703	331.520	9876.476	24.261	6.133	11.15
	29.240	49.378	4899.395	9.981	14.727	332.672	9927.503	24.302	6.146	11.174
L20	29.245	48.277	4794.488	9.986	14.727	325.549	9714.933	23.761	6.179	11.496
	30.306	50.052	5342.992	10.353	15.259	350.162	10826.350	24.634	6.454	12.007
L21	30.311	48.909	5225.506	10.358	15.259	342.462	10588.293	24.072	6.487	12.357
	31.372	50.643	5801.120	10.725	15.790	367.395	11754.641	24.925	6.762	12.881
L22	31.372	50.643	5801.120	10.725	15.790	367.395	11754.641	24.925	6.762	12.881
	31.425	50.729	5830.923	10.743	15.816	368.663	11815.031	24.968	6.776	12.907
L23	31.430	49.542	5699.208	10.748	15.816	360.336	11548.140	24.383	6.809	13.287
	31.483	49.627	5728.461	10.766	15.843	361.578	11607.415	24.425	6.823	13.314
L24	31.483	49.627	5728.461	10.766	15.843	361.578	11607.415	24.425	6.823	13.314
	32.545	51.319	6334.739	11.133	16.374	386.874	12835.899	25.258	7.098	13.85
L25	32.547	50.704	6261.260	11.135	16.374	382.386	12687.010	24.955	7.115	14.054
	32.848	51.177	6438.422	11.239	16.525	389.623	13045.989	25.188	7.193	14.208
L26	32.846	51.799	6514.017	11.237	16.525	394.198	13199.164	25.494	7.176	14.002
	32.899	51.884	6545.993	11.255	16.551	395.497	13263.957	25.536	7.190	14.029
L27	32.899	51.884	6545.993	11.255	16.551	395.497	13263.957	25.536	7.190	14.029
	33.960	53.576	7207.691	11.623	17.083	421.933	14604.736	26.368	7.465	14.565
L28	33.963	52.933	7123.905	11.625	17.083	417.029	14434.963	26.052	7.481	14.778
	35.714	55.691	8296.663	12.231	17.959	461.976	16811.289	27.410	7.935	15.674
L29	35.052	57.685	7811.569	11.661	17.157	455.294	15828.356	28.391	7.403	13.459
	35.264	59.682	8651.428	12.065	17.741	487.640	17530.139	29.374	7.705	14.009
L30	35.264	59.682	8651.428	12.065	17.741	487.640	17530.139	29.374	7.705	14.009
	35.529	60.136	8850.343	12.156	17.874	495.147	17933.195	29.597	7.774	14.134
L31	35.485	73.532	10742.272	12.112	17.874	600.994	21766.756	36.190	7.439	11.02
	35.538	73.643	10791.180	12.130	17.901	602.834	21865.856	36.245	7.452	11.041
L32	35.543	72.306	10603.070	12.134	17.901	592.326	21484.694	35.587	7.486	11.299
	36.604	74.494	11594.671	12.501	18.432	629.056	23493.947	36.663	7.761	11.714
L33	36.609	73.114	11388.124	12.506	18.432	617.850	23075.427	35.985	7.794	11.991
	37.670	75.260	12420.585	12.873	18.963	654.992	25167.473	37.041	8.069	12.414
L34	37.675	73.838	12194.436	12.877	18.963	643.066	24709.234	36.341	8.102	12.71
	38.736	75.943	13267.201	13.244	19.494	680.577	26882.947	37.377	8.377	13.141
L35	38.736	75.943	13267.201	13.244	19.494	680.577	26882.947	37.377	8.377	13.141
	39.001	76.469	13544.879	13.336	19.627	690.121	27445.597	37.636	8.446	13.249
L36	39.001	76.469	13544.879	13.336	19.627	690.121	27445.597	37.636	8.446	13.249
	39.054	76.575	13600.876	13.355	19.653	692.037	27559.062	37.688	8.460	13.27
L37	39.054	76.575	13600.876	13.355	19.653	692.037	27559.062	37.688	8.460	13.27
	39.780	78.013	14381.775	13.605	20.016	718.502	29141.374	38.396	8.647	13.565
L38	39.820	64.436	11949.306	13.646	20.016	596.978	24212.535	31.713	8.949	17.046
	39.873	64.523	11997.585	13.664	20.043	598.596	24310.360	31.756	8.963	17.072
L39	39.873	64.523	11997.585	13.664	20.043	598.596	24310.360	31.756	8.963	17.072
	40.934	66.256	12990.655	14.031	20.574	631.411	26322.588	32.609	9.237	17.595
L40	40.934	66.256	12990.655	14.031	20.574	631.411	26322.588	32.609	9.237	17.595
	41.093	66.516	13144.182	14.086	20.654	636.409	26633.675	32.737	9.279	17.674
L41	41.054	80.538	15824.279	14.046	20.654	766.173	32064.279	39.639	8.977	14.082
	41.107	80.644	15886.388	14.064	20.680	768.193	32190.129	39.690	8.991	14.103
L42	41.111	79.088	15589.762	14.069	20.680	753.849	31589.084	38.925	9.024	14.439
	42.173	81.151	16842.089	14.436	21.211	794.014	34126.638	39.940	9.299	14.879

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
L43	42.173	81.151	16842.089	14.436	21.211	794.014	34126.638	39.940	9.299	14.879
	43.234	83.214	18159.748	14.803	21.742	835.222	36796.572	40.956	9.574	15.318
L44	43.238	81.575	17812.698	14.807	21.742	819.260	36093.355	40.149	9.607	15.686
	44.300	83.597	19170.468	15.174	22.274	860.684	38844.565	41.144	9.882	16.134
L45	44.300	83.597	19170.468	15.174	22.274	860.684	38844.565	41.144	9.882	16.134
	44.901	84.743	19969.545	15.382	22.574	884.609	40463.712	41.708	10.038	16.388

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 140.000-135.000				1	1	1			
L2 135.000-130.000				1	1	1			
L3 130.000-125.000				1	1	1			
L4 125.000-120.000				1	1	1			
L5 120.000-115.000				1	1	1			
L6 115.000-110.000				1	1	1			
L7 110.000-105.000				1	1	1			
L8 105.000-102.333				1	1	1			
L9 102.333-102.083				1	1	0.949611			
L10 102.083-97.083				1	1	0.967561			
L11 97.083-91.750				1	1	0.96239			
L12 91.750-90.750				1	1	1.29378			
L13 90.750-85.750				1	1	1.27752			
L14 85.750-85.333				1	1	1.27623			
L15 85.333-85.083				1	1	0.999046			
L16 85.083-82.500				1	1	0.990258			
L17 82.500-82.250				1	1	1.26688			
L18 82.250-77.150				1	1	1.05411			
L19 77.150-76.917				1	1	1.05328			
L20				1	1	1.0597			

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
76.917-71.917									
L21				1	1	1.06772			
71.917-66.917									
L22				1	1	1.06691			
66.917-66.667									
L23				1	1	0.95585			
66.667-66.417									
L24				1	1	0.944436			
66.417-61.417									
L25				1	1	0.952769			
61.417-60.000									
L26				1	1	1.05661			
60.000-59.750									
L27				1	1	1.04249			
59.750-54.750									
L28				1	1	1.04503			
54.750-46.500									
L29				1	1	0.969769			
46.500-45.500									
L30				1	1	0.967596			
45.500-44.250									
L31				1	1	0.954148			
44.250-44.000									
L32				1	1	0.959879			
44.000-39.000									
L33				1	1	0.966553			
39.000-34.000									
L34				1	1	0.974162			
34.000-29.000									
L35				1	1	0.971506			
29.000-27.750									
L36				1	1	0.97098			
27.750-27.500									
L37				1	1	0.963923			
27.500-24.083									
L38				1	1	0.980168			
24.083-23.833									
L39				1	1	0.973212			
23.833-18.833									
L40				1	1	0.9722			
18.833-18.083									
L41				1	1	0.973709			
18.083-17.833									
L42				1	1	0.982878			
17.833-12.833									
L43				1	1	0.973384			
12.833-7.833									
L44				1	1	0.98374			
7.833-2.833									
L45				1	1	0.978717			
2.833-0.000									

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
V										
LDF5-50A(7/8) (E)	A	No	Surface Ar (CaAa)	100.000 - 0.000	11	6	0.350 0.450	1.090		0.000
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8) (E)	A	No	Surface Ar (CaAa)	100.000 - 0.000	1	1	0.320 0.350	1.625		0.001
HCS 6X12 6AWG(1-3/8) (R)	A	No	Surface Ar (CaAa)	100.000 - 0.000	1	1	0.450 0.480	1.380		0.002
V										
9207(5/16) (E)	A	No	Surface Ar (CaAa)	70.000 - 0.000	2	2	0.450 0.480	0.330		0.001
*										
MP3-05 (Surface Af) (E)	A	No	Surface Af (CaAa)	24.083 - 0.000	1	1	-0.100 0.100	5.330	14.840	0.000
Aero MP305 (E)	B	No	Surface Af (CaAa)	24.083 - 0.000	1	1	-0.100 0.100	5.330	14.840	0.000
Aero MP305 (E)	C	No	Surface Af (CaAa)	24.083 - 0.000	1	1	-0.100 0.100	5.330	14.840	0.000
Aero MP305 (E)	C	No	Surface Af (CaAa)	24.083 - 0.000	1	1	0.400 0.500	5.330	14.840	0.000
Aero MP305 (E)	A	No	Surface Af (CaAa)	66.667 - 24.083	1	1	-0.500 -0.400	5.330	14.840	0.000
Aero MP305 (E)	B	No	Surface Af (CaAa)	66.667 - 24.083	1	1	-0.100 0.100	5.330	14.840	0.000
Aero MP305 (E)	C	No	Surface Af (CaAa)	66.667 - 24.083	1	1	-0.100 0.100	5.330	14.840	0.000
*										
MP3-03 (Surface Af) (E)	A	No	Surface Af (CaAa)	77.000 - 66.000	1	1	0.000 0.100	4.060	11.260	0.000
MP3-03 (Surface Af) (E)	A	No	Surface Af (CaAa)	102.000 - 66.000	1	1	0.000 0.100	4.060	11.260	0.000
MP3-03 (Surface Af) (E)	B	No	Surface Af (CaAa)	102.000 - 66.000	1	1	0.000 0.100	4.060	11.260	0.000
MP3-03 (Surface Af) (E)	C	No	Surface Af (CaAa)	102.000 - 66.000	1	1	0.000 0.100	4.060	11.260	0.000
****										
CCI 6.5" x 1.25" Plate (E)	B	No	Surface Af (CaAa)	27.750 - 0.000	1	1	0.000 0.100	6.500	15.500	0.000
CCI 6" x 1" Plate (E)	A	No	Surface Af (CaAa)	45.000 - 24.000	1	1	0.000 0.100	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	B	No	Surface Af (CaAa)	45.000 - 24.000	1	1	0.000 0.100	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	A	No	Surface Af (CaAa)	60.000 - 49.000	1	1	0.000 0.100	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	B	No	Surface Af (CaAa)	83.000 - 66.000	1	1	0.000 0.100	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	A	No	Surface Af (CaAa)	83.000 - 66.000	1	1	0.000 0.100	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	B	No	Surface Af (CaAa)	93.000 - 83.000	1	1	0.000 0.100	6.000	14.000	0.000
CCI 6" x 1" Plate (E)	C	No	Surface Af (CaAa)	93.000 - 83.000	1	1	0.000 0.100	6.000	14.000	0.000
****										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
HB114-1-08U4-M5J (1 1/4") (E)	B	No	No	Inside Pole	139.000 - 0.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
V									
LDF5-50A(7/8") (E)	B	No	No	Inside Pole	128.000 - 0.000	9	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
FB-L98B-002-75000 (3/8") (E)	B	No	No	Inside Pole	128.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4) (E-Inside Conduit)	B	No	No	Inside Pole	128.000 - 0.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
2" Rigid Conduit (E)	B	No	No	Inside Pole	128.000 - 0.000	1	No Ice	0.000	0.003
							1/2" Ice	0.000	0.003
							1" Ice	0.000	0.003
FB-L98B-034-XXX(3/8) (P)	B	No	No	Inside Pole	128.000 - 0.000	2	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
WR-VG86ST-BRD(3/4) (P)	B	No	No	Inside Pole	128.000 - 0.000	4	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
V									
LDF7-50A(1-5/8") (E)	C	No	No	Inside Pole	108.000 - 0.000	14	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
V									
LDF4-50A(1/2") (E)	B	No	No	Inside Pole	49.000 - 0.000	1	No Ice	0.000	0.000
							1/2" Ice	0.000	0.000
							1" Ice	0.000	0.000
V									
////									
////									
****									

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	140.000-135.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.013
		C	0.000	0.000	0.000	0.000	0.000
L2	135.000-130.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.016
		C	0.000	0.000	0.000	0.000	0.000
L3	130.000-125.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.045
		C	0.000	0.000	0.000	0.000	0.000
L4	125.000-120.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.063
		C	0.000	0.000	0.000	0.000	0.000
L5	120.000-115.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.063

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	0.000
L6	115.000-110.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.063
		C	0.000	0.000	0.000	0.000	0.000
L7	110.000-105.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.063
		C	0.000	0.000	0.000	0.000	0.034
L8	105.000-102.333	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.034
		C	0.000	0.000	0.000	0.000	0.031
L9	102.333-102.083	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.003
		C	0.000	0.000	0.000	0.000	0.003
L10	102.083-97.083	A	0.000	0.000	6.111	0.000	0.019
		B	0.000	0.000	3.327	0.000	0.063
		C	0.000	0.000	3.327	0.000	0.057
L11	97.083-91.750	A	0.000	0.000	8.699	0.000	0.034
		B	0.000	0.000	4.749	0.000	0.068
		C	0.000	0.000	4.749	0.000	0.061
L12	91.750-90.750	A	0.000	0.000	1.631	0.000	0.006
		B	0.000	0.000	1.589	0.000	0.013
		C	0.000	0.000	1.589	0.000	0.011
L13	90.750-85.750	A	0.000	0.000	8.156	0.000	0.032
		B	0.000	0.000	7.944	0.000	0.063
		C	0.000	0.000	7.944	0.000	0.057
L14	85.750-85.333	A	0.000	0.000	0.680	0.000	0.003
		B	0.000	0.000	0.663	0.000	0.005
		C	0.000	0.000	0.663	0.000	0.005
L15	85.333-85.083	A	0.000	0.000	0.408	0.000	0.002
		B	0.000	0.000	0.397	0.000	0.003
		C	0.000	0.000	0.397	0.000	0.003
L16	85.083-82.500	A	0.000	0.000	4.713	0.000	0.017
		B	0.000	0.000	4.148	0.000	0.033
		C	0.000	0.000	3.648	0.000	0.030
L17	82.500-82.250	A	0.000	0.000	0.658	0.000	0.002
		B	0.000	0.000	0.419	0.000	0.003
		C	0.000	0.000	0.169	0.000	0.003
L18	82.250-77.150	A	0.000	0.000	13.419	0.000	0.033
		B	0.000	0.000	8.551	0.000	0.065
		C	0.000	0.000	3.451	0.000	0.059
L19	77.150-76.917	A	0.000	0.000	0.670	0.000	0.001
		B	0.000	0.000	0.391	0.000	0.003
		C	0.000	0.000	0.158	0.000	0.003
L20	76.917-71.917	A	0.000	0.000	16.539	0.000	0.032
		B	0.000	0.000	8.383	0.000	0.063
		C	0.000	0.000	3.383	0.000	0.057
L21	71.917-66.917	A	0.000	0.000	16.743	0.000	0.036
		B	0.000	0.000	8.383	0.000	0.063
		C	0.000	0.000	3.383	0.000	0.057
L22	66.917-66.667	A	0.000	0.000	0.842	0.000	0.002
		B	0.000	0.000	0.419	0.000	0.003
		C	0.000	0.000	0.169	0.000	0.003
L23	66.667-66.417	A	0.000	0.000	1.066	0.000	0.002
		B	0.000	0.000	0.641	0.000	0.003
		C	0.000	0.000	0.391	0.000	0.003
L24	66.417-61.417	A	0.000	0.000	10.526	0.000	0.038
		B	0.000	0.000	5.141	0.000	0.063
		C	0.000	0.000	4.724	0.000	0.057
L25	61.417-60.000	A	0.000	0.000	2.705	0.000	0.011
		B	0.000	0.000	1.259	0.000	0.018
		C	0.000	0.000	1.259	0.000	0.016

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
L26	60.000-59.750	A	0.000	0.000	0.713	0.000	0.002
		B	0.000	0.000	0.222	0.000	0.003
		C	0.000	0.000	0.222	0.000	0.003
L27	59.750-54.750	A	0.000	0.000	14.269	0.000	0.038
		B	0.000	0.000	4.442	0.000	0.063
		C	0.000	0.000	4.442	0.000	0.057
L28	54.750-46.500	A	0.000	0.000	21.182	0.000	0.063
		B	0.000	0.000	7.329	0.000	0.105
		C	0.000	0.000	7.329	0.000	0.095
L29	46.500-45.500	A	0.000	0.000	1.909	0.000	0.008
		B	0.000	0.000	0.888	0.000	0.013
		C	0.000	0.000	0.888	0.000	0.011
L30	45.500-44.250	A	0.000	0.000	3.136	0.000	0.009
		B	0.000	0.000	1.860	0.000	0.016
		C	0.000	0.000	1.110	0.000	0.014
L31	44.250-44.000	A	0.000	0.000	0.727	0.000	0.002
		B	0.000	0.000	0.472	0.000	0.003
		C	0.000	0.000	0.222	0.000	0.003
L32	44.000-39.000	A	0.000	0.000	14.544	0.000	0.038
		B	0.000	0.000	9.442	0.000	0.064
		C	0.000	0.000	4.442	0.000	0.057
L33	39.000-34.000	A	0.000	0.000	14.544	0.000	0.038
		B	0.000	0.000	9.442	0.000	0.064
		C	0.000	0.000	4.442	0.000	0.057
L34	34.000-29.000	A	0.000	0.000	14.544	0.000	0.038
		B	0.000	0.000	9.442	0.000	0.064
		C	0.000	0.000	4.442	0.000	0.057
L35	29.000-27.750	A	0.000	0.000	3.636	0.000	0.009
		B	0.000	0.000	2.360	0.000	0.016
		C	0.000	0.000	1.110	0.000	0.014
L36	27.750-27.500	A	0.000	0.000	0.727	0.000	0.002
		B	0.000	0.000	0.743	0.000	0.003
		C	0.000	0.000	0.222	0.000	0.003
L37	27.500-24.083	A	0.000	0.000	9.939	0.000	0.026
		B	0.000	0.000	10.154	0.000	0.044
		C	0.000	0.000	3.035	0.000	0.039
L38	24.083-23.833	A	0.000	0.000	0.560	0.000	0.002
		B	0.000	0.000	0.576	0.000	0.003
		C	0.000	0.000	0.444	0.000	0.003
L39	23.833-18.833	A	0.000	0.000	9.544	0.000	0.038
		B	0.000	0.000	9.858	0.000	0.064
		C	0.000	0.000	8.883	0.000	0.057
L40	18.833-18.083	A	0.000	0.000	1.432	0.000	0.006
		B	0.000	0.000	1.479	0.000	0.010
		C	0.000	0.000	1.333	0.000	0.009
L41	18.083-17.833	A	0.000	0.000	0.477	0.000	0.002
		B	0.000	0.000	0.493	0.000	0.003
		C	0.000	0.000	0.444	0.000	0.003
L42	17.833-12.833	A	0.000	0.000	9.544	0.000	0.038
		B	0.000	0.000	9.858	0.000	0.064
		C	0.000	0.000	8.883	0.000	0.057
L43	12.833-7.833	A	0.000	0.000	9.544	0.000	0.038
		B	0.000	0.000	9.858	0.000	0.064
		C	0.000	0.000	8.883	0.000	0.057
L44	7.833-2.833	A	0.000	0.000	9.544	0.000	0.038
		B	0.000	0.000	9.858	0.000	0.064
		C	0.000	0.000	8.883	0.000	0.057
L45	2.833-0.000	A	0.000	0.000	5.408	0.000	0.022
		B	0.000	0.000	5.586	0.000	0.036
		C	0.000	0.000	5.033	0.000	0.033

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	140.000-135.000	A	2.307	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.013
		C		0.000	0.000	0.000	0.000	0.000
L2	135.000-130.000	A	2.298	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.016
		C		0.000	0.000	0.000	0.000	0.000
L3	130.000-125.000	A	2.289	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.045
		C		0.000	0.000	0.000	0.000	0.000
L4	125.000-120.000	A	2.280	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.063
		C		0.000	0.000	0.000	0.000	0.000
L5	120.000-115.000	A	2.271	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.063
		C		0.000	0.000	0.000	0.000	0.000
L6	115.000-110.000	A	2.261	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.063
		C		0.000	0.000	0.000	0.000	0.000
L7	110.000-105.000	A	2.251	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.063
		C		0.000	0.000	0.000	0.000	0.034
L8	105.000-102.333	A	2.243	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.034
		C		0.000	0.000	0.000	0.000	0.031
L9	102.333-102.083	A	2.239	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.003
		C		0.000	0.000	0.000	0.000	0.003
L10	102.083-97.083	A	2.234	0.000	0.000	13.020	0.000	0.238
		B		0.000	0.000	5.524	0.000	0.148
		C		0.000	0.000	5.524	0.000	0.142
L11	97.083-91.750	A	2.222	0.000	0.000	19.642	0.000	0.370
		B		0.000	0.000	7.411	0.000	0.183
		C		0.000	0.000	7.411	0.000	0.176
L12	91.750-90.750	A	2.214	0.000	0.000	3.683	0.000	0.069
		B		0.000	0.000	2.267	0.000	0.049
		C		0.000	0.000	2.267	0.000	0.048
L13	90.750-85.750	A	2.207	0.000	0.000	18.352	0.000	0.344
		B		0.000	0.000	11.311	0.000	0.244
		C		0.000	0.000	11.311	0.000	0.237
L14	85.750-85.333	A	2.200	0.000	0.000	1.528	0.000	0.029
		B		0.000	0.000	0.943	0.000	0.020
		C		0.000	0.000	0.943	0.000	0.020
L15	85.333-85.083	A	2.199	0.000	0.000	0.916	0.000	0.017
		B		0.000	0.000	0.565	0.000	0.012
		C		0.000	0.000	0.565	0.000	0.012
L16	85.083-82.500	A	2.195	0.000	0.000	10.137	0.000	0.186
		B		0.000	0.000	5.945	0.000	0.125
		C		0.000	0.000	5.263	0.000	0.112
L17	82.500-82.250	A	2.192	0.000	0.000	1.255	0.000	0.022
		B		0.000	0.000	0.620	0.000	0.012
		C		0.000	0.000	0.279	0.000	0.007
L18	82.250-77.150	A	2.184	0.000	0.000	25.571	0.000	0.443
		B		0.000	0.000	12.628	0.000	0.246
		C		0.000	0.000	5.679	0.000	0.143
L19	77.150-76.917	A	2.177	0.000	0.000	1.248	0.000	0.022

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	0.577	0.000	0.011
		C		0.000	0.000	0.259	0.000	0.007
L20	76.917-71.917	A	2.169	0.000	0.000	29.818	0.000	0.513
		B		0.000	0.000	12.358	0.000	0.239
		C		0.000	0.000	5.553	0.000	0.140
L21	71.917-66.917	A	2.154	0.000	0.000	31.654	0.000	0.534
		B		0.000	0.000	12.336	0.000	0.238
		C		0.000	0.000	5.538	0.000	0.139
L22	66.917-66.667	A	2.146	0.000	0.000	1.638	0.000	0.027
		B		0.000	0.000	0.615	0.000	0.012
		C		0.000	0.000	0.276	0.000	0.007
L23	66.667-66.417	A	2.145	0.000	0.000	1.969	0.000	0.032
		B		0.000	0.000	0.945	0.000	0.017
		C		0.000	0.000	0.606	0.000	0.012
L24	66.417-61.417	A	2.137	0.000	0.000	23.623	0.000	0.408
		B		0.000	0.000	7.605	0.000	0.173
		C		0.000	0.000	7.039	0.000	0.159
L25	61.417-60.000	A	2.126	0.000	0.000	6.273	0.000	0.109
		B		0.000	0.000	1.861	0.000	0.045
		C		0.000	0.000	1.861	0.000	0.043
L26	60.000-59.750	A	2.123	0.000	0.000	1.398	0.000	0.024
		B		0.000	0.000	0.328	0.000	0.008
		C		0.000	0.000	0.328	0.000	0.008
L27	59.750-54.750	A	2.113	0.000	0.000	27.898	0.000	0.472
		B		0.000	0.000	6.555	0.000	0.157
		C		0.000	0.000	6.555	0.000	0.151
L28	54.750-46.500	A	2.087	0.000	0.000	42.865	0.000	0.722
		B		0.000	0.000	10.773	0.000	0.257
		C		0.000	0.000	10.773	0.000	0.247
L29	46.500-45.500	A	2.068	0.000	0.000	4.385	0.000	0.075
		B		0.000	0.000	1.306	0.000	0.031
		C		0.000	0.000	1.306	0.000	0.030
L30	45.500-44.250	A	2.062	0.000	0.000	6.506	0.000	0.106
		B		0.000	0.000	2.685	0.000	0.052
		C		0.000	0.000	1.626	0.000	0.037
L31	44.250-44.000	A	2.059	0.000	0.000	1.441	0.000	0.023
		B		0.000	0.000	0.678	0.000	0.012
		C		0.000	0.000	0.325	0.000	0.007
L32	44.000-39.000	A	2.046	0.000	0.000	28.745	0.000	0.454
		B		0.000	0.000	13.534	0.000	0.241
		C		0.000	0.000	6.488	0.000	0.147
L33	39.000-34.000	A	2.020	0.000	0.000	28.575	0.000	0.447
		B		0.000	0.000	13.482	0.000	0.238
		C		0.000	0.000	6.462	0.000	0.146
L34	34.000-29.000	A	1.991	0.000	0.000	28.383	0.000	0.439
		B		0.000	0.000	13.423	0.000	0.234
		C		0.000	0.000	6.432	0.000	0.144
L35	29.000-27.750	A	1.970	0.000	0.000	7.062	0.000	0.108
		B		0.000	0.000	3.345	0.000	0.058
		C		0.000	0.000	1.603	0.000	0.036
L36	27.750-27.500	A	1.965	0.000	0.000	1.411	0.000	0.022
		B		0.000	0.000	1.038	0.000	0.016
		C		0.000	0.000	0.320	0.000	0.007
L37	27.500-24.083	A	1.951	0.000	0.000	19.222	0.000	0.293
		B		0.000	0.000	14.155	0.000	0.216
		C		0.000	0.000	4.369	0.000	0.097
L38	24.083-23.833	A	1.937	0.000	0.000	1.170	0.000	0.019
		B		0.000	0.000	0.802	0.000	0.013
		C		0.000	0.000	0.638	0.000	0.011
L39	23.833-18.833	A	1.915	0.000	0.000	20.974	0.000	0.339
		B		0.000	0.000	13.687	0.000	0.231

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	12.712	0.000	0.222
L40	18.833-18.083	A	1.887	0.000	0.000	3.123	0.000	0.050
		B		0.000	0.000	2.045	0.000	0.034
		C		0.000	0.000	1.899	0.000	0.033
L41	18.083-17.833	A	1.882	0.000	0.000	1.040	0.000	0.017
		B		0.000	0.000	0.681	0.000	0.011
		C		0.000	0.000	0.632	0.000	0.011
L42	17.833-12.833	A	1.852	0.000	0.000	20.632	0.000	0.327
		B		0.000	0.000	13.563	0.000	0.224
		C		0.000	0.000	12.588	0.000	0.215
L43	12.833-7.833	A	1.781	0.000	0.000	20.237	0.000	0.313
		B		0.000	0.000	13.419	0.000	0.216
		C		0.000	0.000	12.444	0.000	0.207
L44	7.833-2.833	A	1.666	0.000	0.000	19.610	0.000	0.290
		B		0.000	0.000	13.191	0.000	0.203
		C		0.000	0.000	12.216	0.000	0.194
L45	2.833-0.000	A	1.459	0.000	0.000	10.466	0.000	0.143
		B		0.000	0.000	7.240	0.000	0.103
		C		0.000	0.000	6.687	0.000	0.098

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	140.000-135.000	0.000	0.000	0.000	0.000
L2	135.000-130.000	0.000	0.000	0.000	0.000
L3	130.000-125.000	0.000	0.000	0.000	0.000
L4	125.000-120.000	0.000	0.000	0.000	0.000
L5	120.000-115.000	0.000	0.000	0.000	0.000
L6	115.000-110.000	0.000	0.000	0.000	0.000
L7	110.000-105.000	0.000	0.000	0.000	0.000
L8	105.000-102.333	0.000	0.000	0.000	0.000
L9	102.333-102.083	0.000	0.000	0.000	0.000
L10	102.083-97.083	-0.343	-1.596	-0.515	-2.434
L11	97.083-91.750	-0.118	-2.000	-0.462	-3.196
L12	91.750-90.750	0.896	-0.730	0.331	-2.095
L13	90.750-85.750	0.910	-0.739	0.339	-2.124
L14	85.750-85.333	0.923	-0.746	0.346	-2.151
L15	85.333-85.083	0.925	-0.748	0.347	-2.155
L16	85.083-82.500	0.742	-1.356	0.216	-2.627
L17	82.500-82.250	-0.023	-3.811	-0.320	-4.477
L18	82.250-77.150	-0.023	-3.860	-0.324	-4.541
L19	77.150-76.917	-0.378	-4.097	-0.618	-4.744
L20	76.917-71.917	-0.976	-4.465	-1.119	-5.047
L21	71.917-66.917	-0.997	-4.617	-1.117	-5.309
L22	66.917-66.667	-1.008	-4.701	-1.113	-5.453
L23	66.667-66.417	-0.375	-1.353	-0.546	-2.411
L24	66.417-61.417	0.070	0.894	-0.290	-1.354
L25	61.417-60.000	0.143	1.265	-0.255	-1.209
L26	60.000-59.750	-1.462	-0.300	-1.330	-2.076
L27	59.750-54.750	-1.476	-0.301	-1.345	-2.095
L28	54.750-46.500	-1.044	0.149	-1.058	-1.877
L29	46.500-45.500	0.153	1.323	-0.261	-1.238
L30	45.500-44.250	0.403	-0.210	-0.009	-2.147
L31	44.250-44.000	0.532	-0.998	0.127	-2.649
L32	44.000-39.000	0.538	-1.007	0.130	-2.672

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L33	39.000-34.000	0.549	-1.023	0.137	-2.713
L34	34.000-29.000	0.559	-1.038	0.144	-2.751
L35	29.000-27.750	0.566	-1.047	0.148	-2.773
L36	27.750-27.500	2.524	-1.610	1.803	-3.086
L37	27.500-24.083	2.540	-1.620	1.818	-3.102
L38	24.083-23.833	-0.627	-3.712	-0.957	-5.011
L39	23.833-18.833	-0.828	-3.291	-1.146	-4.754
L40	18.833-18.083	-0.835	-3.320	-1.154	-4.789
L41	18.083-17.833	-0.836	-3.327	-1.156	-4.796
L42	17.833-12.833	-0.842	-3.353	-1.163	-4.825
L43	12.833-7.833	-0.854	-3.402	-1.174	-4.868
L44	7.833-2.833	-0.866	-3.450	-1.177	-4.882
L45	2.833-0.000	-0.875	-3.487	-1.162	-4.812

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	12	LDF5-50A(7/8)	97.08 - 100.00	1.0000	1.0000
L10	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	97.08 - 100.00	1.0000	1.0000
L10	15	HCS 6X12 6AWG(1-3/8)	97.08 - 100.00	1.0000	1.0000
L10	43	MP3-03 (Surface Af)	97.08 - 102.00	1.0000	1.0000
L10	44	MP3-03 (Surface Af)	97.08 - 102.00	1.0000	1.0000
L10	45	MP3-03 (Surface Af)	97.08 - 102.00	1.0000	1.0000
L11	12	LDF5-50A(7/8)	91.75 - 97.08	1.0000	1.0000
L11	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	91.75 - 97.08	1.0000	1.0000
L11	15	HCS 6X12 6AWG(1-3/8)	91.75 - 97.08	1.0000	1.0000
L11	43	MP3-03 (Surface Af)	91.75 - 97.08	1.0000	1.0000
L11	44	MP3-03 (Surface Af)	91.75 - 97.08	1.0000	1.0000
L11	45	MP3-03 (Surface Af)	91.75 - 97.08	1.0000	1.0000
L11	53	CCI 6" x 1" Plate	91.75 - 93.00	1.0000	1.0000
L11	54	CCI 6" x 1" Plate	91.75 - 93.00	1.0000	1.0000
L13	12	LDF5-50A(7/8)	85.75 - 90.75	1.0000	1.0000
L13	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	85.75 - 90.75	1.0000	1.0000
L13	15	HCS 6X12 6AWG(1-3/8)	85.75 - 90.75	1.0000	1.0000
L13	43	MP3-03 (Surface Af)	85.75 - 90.75	1.0000	1.0000
L13	44	MP3-03 (Surface Af)	85.75 - 90.75	1.0000	1.0000
L13	45	MP3-03 (Surface Af)	85.75 - 90.75	1.0000	1.0000
L13	53	CCI 6" x 1" Plate	85.75 - 90.75	1.0000	1.0000
L13	54	CCI 6" x 1" Plate	85.75 - 90.75	1.0000	1.0000
L14	12	LDF5-50A(7/8)	85.33 - 85.75	1.0000	1.0000
L14	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	85.33 - 85.75	1.0000	1.0000
L14	15	HCS 6X12 6AWG(1-3/8)	85.33 - 85.75	1.0000	1.0000
L14	43	MP3-03 (Surface Af)	85.33 - 85.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	44	MP3-03 (Surface Af)	85.33 - 85.75	1.0000	1.0000
L14	45	MP3-03 (Surface Af)	85.33 - 85.75	1.0000	1.0000
L14	53	CCI 6" x 1" Plate	85.33 - 85.75	1.0000	1.0000
L14	54	CCI 6" x 1" Plate	85.33 - 85.75	1.0000	1.0000
L15	12	LDF5-50A(7/8)	85.08 - 85.33	1.0000	1.0000
L15	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	85.08 - 85.33	1.0000	1.0000
L15	15	HCS 6X12 6AWG(1-3/8)	85.08 - 85.33	1.0000	1.0000
L15	43	MP3-03 (Surface Af)	85.08 - 85.33	1.0000	1.0000
L15	44	MP3-03 (Surface Af)	85.08 - 85.33	1.0000	1.0000
L15	45	MP3-03 (Surface Af)	85.08 - 85.33	1.0000	1.0000
L15	53	CCI 6" x 1" Plate	85.08 - 85.33	1.0000	1.0000
L15	54	CCI 6" x 1" Plate	85.08 - 85.33	1.0000	1.0000
L16	12	LDF5-50A(7/8)	82.50 - 85.08	1.0000	1.0000
L16	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	82.50 - 85.08	1.0000	1.0000
L16	15	HCS 6X12 6AWG(1-3/8)	82.50 - 85.08	1.0000	1.0000
L16	43	MP3-03 (Surface Af)	82.50 - 85.08	1.0000	1.0000
L16	44	MP3-03 (Surface Af)	82.50 - 85.08	1.0000	1.0000
L16	45	MP3-03 (Surface Af)	82.50 - 85.08	1.0000	1.0000
L16	51	CCI 6" x 1" Plate	82.50 - 83.00	1.0000	1.0000
L16	52	CCI 6" x 1" Plate	82.50 - 83.00	1.0000	1.0000
L16	53	CCI 6" x 1" Plate	83.00 - 85.08	1.0000	1.0000
L16	54	CCI 6" x 1" Plate	83.00 - 85.08	1.0000	1.0000
L17	12	LDF5-50A(7/8)	82.25 - 82.50	1.0000	1.0000
L17	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	82.25 - 82.50	1.0000	1.0000
L17	15	HCS 6X12 6AWG(1-3/8)	82.25 - 82.50	1.0000	1.0000
L17	43	MP3-03 (Surface Af)	82.25 - 82.50	1.0000	1.0000
L17	44	MP3-03 (Surface Af)	82.25 - 82.50	1.0000	1.0000
L17	45	MP3-03 (Surface Af)	82.25 - 82.50	1.0000	1.0000
L17	51	CCI 6" x 1" Plate	82.25 - 82.50	1.0000	1.0000
L17	52	CCI 6" x 1" Plate	82.25 - 82.50	1.0000	1.0000
L18	12	LDF5-50A(7/8)	77.15 - 82.25	1.0000	1.0000
L18	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	77.15 - 82.25	1.0000	1.0000
L18	15	HCS 6X12 6AWG(1-3/8)	77.15 - 82.25	1.0000	1.0000
L18	43	MP3-03 (Surface Af)	77.15 - 82.25	1.0000	1.0000
L18	44	MP3-03 (Surface Af)	77.15 - 82.25	1.0000	1.0000
L18	45	MP3-03 (Surface Af)	77.15 - 82.25	1.0000	1.0000
L18	51	CCI 6" x 1" Plate	77.15 - 82.25	1.0000	1.0000
L18	52	CCI 6" x 1" Plate	77.15 - 82.25	1.0000	1.0000
L19	12	LDF5-50A(7/8)	76.92 - 77.15	1.0000	1.0000
L19	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	76.92 - 77.15	1.0000	1.0000
L19	15	HCS 6X12 6AWG(1-3/8)	76.92 - 77.15	1.0000	1.0000
L19	42	MP3-03 (Surface Af)	76.92 - 77.00	1.0000	1.0000
L19	43	MP3-03 (Surface Af)	76.92 - 77.15	1.0000	1.0000
L19	44	MP3-03 (Surface Af)	76.92 - 77.15	1.0000	1.0000
L19	45	MP3-03 (Surface Af)	76.92 - 77.15	1.0000	1.0000
L19	51	CCI 6" x 1" Plate	76.92 - 77.15	1.0000	1.0000
L19	52	CCI 6" x 1" Plate	76.92 - 77.15	1.0000	1.0000
L20	12	LDF5-50A(7/8)	71.92 - 76.92	1.0000	1.0000
L20	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	71.92 - 76.92	1.0000	1.0000
L20	15	HCS 6X12 6AWG(1-3/8)	71.92 - 76.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	42	MP3-03 (Surface Af)	71.92 - 76.92	1.0000	1.0000
L20	43	MP3-03 (Surface Af)	71.92 - 76.92	1.0000	1.0000
L20	44	MP3-03 (Surface Af)	71.92 - 76.92	1.0000	1.0000
L20	45	MP3-03 (Surface Af)	71.92 - 76.92	1.0000	1.0000
L20	51	CCI 6" x 1" Plate	71.92 - 76.92	1.0000	1.0000
L20	52	CCI 6" x 1" Plate	71.92 - 76.92	1.0000	1.0000
L21	12	LDF5-50A(7/8)	66.92 - 71.92	1.0000	1.0000
L21	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	66.92 - 71.92	1.0000	1.0000
L21	15	HCS 6X12 6AWG(1-3/8)	66.92 - 71.92	1.0000	1.0000
L21	17	9207(5/16)	66.92 - 70.00	1.0000	1.0000
L21	42	MP3-03 (Surface Af)	66.92 - 71.92	1.0000	1.0000
L21	43	MP3-03 (Surface Af)	66.92 - 71.92	1.0000	1.0000
L21	44	MP3-03 (Surface Af)	66.92 - 71.92	1.0000	1.0000
L21	45	MP3-03 (Surface Af)	66.92 - 71.92	1.0000	1.0000
L21	51	CCI 6" x 1" Plate	66.92 - 71.92	1.0000	1.0000
L21	52	CCI 6" x 1" Plate	66.92 - 71.92	1.0000	1.0000
L22	12	LDF5-50A(7/8)	66.67 - 66.92	1.0000	1.0000
L22	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	66.67 - 66.92	1.0000	1.0000
L22	15	HCS 6X12 6AWG(1-3/8)	66.67 - 66.92	1.0000	1.0000
L22	17	9207(5/16)	66.67 - 66.92	1.0000	1.0000
L22	42	MP3-03 (Surface Af)	66.67 - 66.92	1.0000	1.0000
L22	43	MP3-03 (Surface Af)	66.67 - 66.92	1.0000	1.0000
L22	44	MP3-03 (Surface Af)	66.67 - 66.92	1.0000	1.0000
L22	45	MP3-03 (Surface Af)	66.67 - 66.92	1.0000	1.0000
L22	51	CCI 6" x 1" Plate	66.67 - 66.92	1.0000	1.0000
L22	52	CCI 6" x 1" Plate	66.67 - 66.92	1.0000	1.0000
L23	12	LDF5-50A(7/8)	66.42 - 66.67	1.0000	1.0000
L23	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	66.42 - 66.67	1.0000	1.0000
L23	15	HCS 6X12 6AWG(1-3/8)	66.42 - 66.67	1.0000	1.0000
L23	17	9207(5/16)	66.42 - 66.67	1.0000	1.0000
L23	38	Aero MP305	66.42 - 66.67	1.0000	1.0000
L23	39	Aero MP305	66.42 - 66.67	1.0000	1.0000
L23	40	Aero MP305	66.42 - 66.67	1.0000	1.0000
L23	42	MP3-03 (Surface Af)	66.42 - 66.67	1.0000	1.0000
L23	43	MP3-03 (Surface Af)	66.42 - 66.67	1.0000	1.0000
L23	44	MP3-03 (Surface Af)	66.42 - 66.67	1.0000	1.0000
L23	45	MP3-03 (Surface Af)	66.42 - 66.67	1.0000	1.0000
L23	51	CCI 6" x 1" Plate	66.42 - 66.67	1.0000	1.0000
L23	52	CCI 6" x 1" Plate	66.42 - 66.67	1.0000	1.0000
L24	12	LDF5-50A(7/8)	61.42 - 66.42	1.0000	1.0000
L24	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	61.42 - 66.42	1.0000	1.0000
L24	15	HCS 6X12 6AWG(1-3/8)	61.42 - 66.42	1.0000	1.0000
L24	17	9207(5/16)	61.42 - 66.42	1.0000	1.0000
L24	38	Aero MP305	61.42 - 66.42	1.0000	1.0000
L24	39	Aero MP305	61.42 - 66.42	1.0000	1.0000
L24	40	Aero MP305	61.42 - 66.42	1.0000	1.0000
L24	42	MP3-03 (Surface Af)	66.00 - 66.42	1.0000	1.0000
L24	43	MP3-03 (Surface Af)	66.00 - 66.42	1.0000	1.0000
L24	44	MP3-03 (Surface Af)	66.00 - 66.42	1.0000	1.0000
L24	45	MP3-03 (Surface Af)	66.00 - 66.42	1.0000	1.0000
L24	51	CCI 6" x 1" Plate	66.00 - 66.42	1.0000	1.0000
L24	52	CCI 6" x 1" Plate	66.00 - 66.42	1.0000	1.0000
L25	12	LDF5-50A(7/8)	60.00 - 61.42	1.0000	1.0000
L25	13	MLE HYBRID	60.00 - 61.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L25	15	HCS 6X12 6AWG(1-3/8)	60.00 - 61.42	1.0000	1.0000
L25	17	9207(5/16)	60.00 - 61.42	1.0000	1.0000
L25	38	Aero MP305	60.00 - 61.42	1.0000	1.0000
L25	39	Aero MP305	60.00 - 61.42	1.0000	1.0000
L25	40	Aero MP305	60.00 - 61.42	1.0000	1.0000
L26	12	LDF5-50A(7/8)	59.75 - 60.00	1.0000	1.0000
L26	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	59.75 - 60.00	1.0000	1.0000
L26	15	HCS 6X12 6AWG(1-3/8)	59.75 - 60.00	1.0000	1.0000
L26	17	9207(5/16)	59.75 - 60.00	1.0000	1.0000
L26	38	Aero MP305	59.75 - 60.00	1.0000	1.0000
L26	39	Aero MP305	59.75 - 60.00	1.0000	1.0000
L26	40	Aero MP305	59.75 - 60.00	1.0000	1.0000
L26	50	CCI 6" x 1" Plate	59.75 - 60.00	1.0000	1.0000
L27	12	LDF5-50A(7/8)	54.75 - 59.75	1.0000	1.0000
L27	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	54.75 - 59.75	1.0000	1.0000
L27	15	HCS 6X12 6AWG(1-3/8)	54.75 - 59.75	1.0000	1.0000
L27	17	9207(5/16)	54.75 - 59.75	1.0000	1.0000
L27	38	Aero MP305	54.75 - 59.75	1.0000	1.0000
L27	39	Aero MP305	54.75 - 59.75	1.0000	1.0000
L27	40	Aero MP305	54.75 - 59.75	1.0000	1.0000
L27	50	CCI 6" x 1" Plate	54.75 - 59.75	1.0000	1.0000
L28	12	LDF5-50A(7/8)	46.50 - 54.75	1.0000	1.0000
L28	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	46.50 - 54.75	1.0000	1.0000
L28	15	HCS 6X12 6AWG(1-3/8)	46.50 - 54.75	1.0000	1.0000
L28	17	9207(5/16)	46.50 - 54.75	1.0000	1.0000
L28	38	Aero MP305	46.50 - 54.75	1.0000	1.0000
L28	39	Aero MP305	46.50 - 54.75	1.0000	1.0000
L28	40	Aero MP305	46.50 - 54.75	1.0000	1.0000
L28	50	CCI 6" x 1" Plate	49.00 - 54.75	1.0000	1.0000
L30	12	LDF5-50A(7/8)	44.25 - 45.50	1.0000	1.0000
L30	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	44.25 - 45.50	1.0000	1.0000
L30	15	HCS 6X12 6AWG(1-3/8)	44.25 - 45.50	1.0000	1.0000
L30	17	9207(5/16)	44.25 - 45.50	1.0000	1.0000
L30	38	Aero MP305	44.25 - 45.50	1.0000	1.0000
L30	39	Aero MP305	44.25 - 45.50	1.0000	1.0000
L30	40	Aero MP305	44.25 - 45.50	1.0000	1.0000
L30	48	CCI 6" x 1" Plate	44.25 - 45.00	1.0000	1.0000
L30	49	CCI 6" x 1" Plate	44.25 - 45.00	1.0000	1.0000
L31	12	LDF5-50A(7/8)	44.00 - 44.25	1.0000	1.0000
L31	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	44.00 - 44.25	1.0000	1.0000
L31	15	HCS 6X12 6AWG(1-3/8)	44.00 - 44.25	1.0000	1.0000
L31	17	9207(5/16)	44.00 - 44.25	1.0000	1.0000
L31	38	Aero MP305	44.00 - 44.25	1.0000	1.0000
L31	39	Aero MP305	44.00 - 44.25	1.0000	1.0000
L31	40	Aero MP305	44.00 - 44.25	1.0000	1.0000
L31	48	CCI 6" x 1" Plate	44.00 - 44.25	1.0000	1.0000
L31	49	CCI 6" x 1" Plate	44.00 - 44.25	1.0000	1.0000
L32	12	LDF5-50A(7/8)	39.00 - 44.00	1.0000	1.0000
L32	13	MLE HYBRID 9POWER/18FIBER RL	39.00 - 44.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		2(1-5/8)			
L32	15	HCS 6X12 6AWG(1-3/8)	39.00 - 44.00	1.0000	1.0000
L32	17	9207(5/16)	39.00 - 44.00	1.0000	1.0000
L32	38	Aero MP305	39.00 - 44.00	1.0000	1.0000
L32	39	Aero MP305	39.00 - 44.00	1.0000	1.0000
L32	40	Aero MP305	39.00 - 44.00	1.0000	1.0000
L32	48	CCI 6" x 1" Plate	39.00 - 44.00	1.0000	1.0000
L32	49	CCI 6" x 1" Plate	39.00 - 44.00	1.0000	1.0000
L33	12	LDF5-50A(7/8)	34.00 - 39.00	1.0000	1.0000
L33	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	34.00 - 39.00	1.0000	1.0000
L33	15	HCS 6X12 6AWG(1-3/8)	34.00 - 39.00	1.0000	1.0000
L33	17	9207(5/16)	34.00 - 39.00	1.0000	1.0000
L33	38	Aero MP305	34.00 - 39.00	1.0000	1.0000
L33	39	Aero MP305	34.00 - 39.00	1.0000	1.0000
L33	40	Aero MP305	34.00 - 39.00	1.0000	1.0000
L33	48	CCI 6" x 1" Plate	34.00 - 39.00	1.0000	1.0000
L33	49	CCI 6" x 1" Plate	34.00 - 39.00	1.0000	1.0000
L34	12	LDF5-50A(7/8)	29.00 - 34.00	1.0000	1.0000
L34	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	29.00 - 34.00	1.0000	1.0000
L34	15	HCS 6X12 6AWG(1-3/8)	29.00 - 34.00	1.0000	1.0000
L34	17	9207(5/16)	29.00 - 34.00	1.0000	1.0000
L34	38	Aero MP305	29.00 - 34.00	1.0000	1.0000
L34	39	Aero MP305	29.00 - 34.00	1.0000	1.0000
L34	40	Aero MP305	29.00 - 34.00	1.0000	1.0000
L34	48	CCI 6" x 1" Plate	29.00 - 34.00	1.0000	1.0000
L34	49	CCI 6" x 1" Plate	29.00 - 34.00	1.0000	1.0000
L35	12	LDF5-50A(7/8)	27.75 - 29.00	1.0000	1.0000
L35	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	27.75 - 29.00	1.0000	1.0000
L35	15	HCS 6X12 6AWG(1-3/8)	27.75 - 29.00	1.0000	1.0000
L35	17	9207(5/16)	27.75 - 29.00	1.0000	1.0000
L35	38	Aero MP305	27.75 - 29.00	1.0000	1.0000
L35	39	Aero MP305	27.75 - 29.00	1.0000	1.0000
L35	40	Aero MP305	27.75 - 29.00	1.0000	1.0000
L35	48	CCI 6" x 1" Plate	27.75 - 29.00	1.0000	1.0000
L35	49	CCI 6" x 1" Plate	27.75 - 29.00	1.0000	1.0000
L36	12	LDF5-50A(7/8)	27.50 - 27.75	1.0000	1.0000
L36	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	27.50 - 27.75	1.0000	1.0000
L36	15	HCS 6X12 6AWG(1-3/8)	27.50 - 27.75	1.0000	1.0000
L36	17	9207(5/16)	27.50 - 27.75	1.0000	1.0000
L36	38	Aero MP305	27.50 - 27.75	1.0000	1.0000
L36	39	Aero MP305	27.50 - 27.75	1.0000	1.0000
L36	40	Aero MP305	27.50 - 27.75	1.0000	1.0000
L36	47	CCI 6.5" x 1.25" Plate	27.50 - 27.75	1.0000	1.0000
L36	48	CCI 6" x 1" Plate	27.50 - 27.75	1.0000	1.0000
L36	49	CCI 6" x 1" Plate	27.50 - 27.75	1.0000	1.0000
L37	12	LDF5-50A(7/8)	24.08 - 27.50	1.0000	1.0000
L37	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	24.08 - 27.50	1.0000	1.0000
L37	15	HCS 6X12 6AWG(1-3/8)	24.08 - 27.50	1.0000	1.0000
L37	17	9207(5/16)	24.08 - 27.50	1.0000	1.0000
L37	38	Aero MP305	24.08 - 27.50	1.0000	1.0000
L37	39	Aero MP305	24.08 - 27.50	1.0000	1.0000
L37	40	Aero MP305	24.08 - 27.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L37	47	CCI 6.5" x 1.25" Plate	24.08 - 27.50	1.0000	1.0000
L37	48	CCI 6" x 1" Plate	24.08 - 27.50	1.0000	1.0000
L37	49	CCI 6" x 1" Plate	24.08 - 27.50	1.0000	1.0000
L38	12	LDF5-50A(7/8)	23.83 - 24.08	1.0000	1.0000
L38	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	23.83 - 24.08	1.0000	1.0000
L38	15	HCS 6X12 6AWG(1-3/8)	23.83 - 24.08	1.0000	1.0000
L38	17	9207(5/16)	23.83 - 24.08	1.0000	1.0000
L38	34	MP3-05 (Surface Af)	23.83 - 24.08	1.0000	1.0000
L38	35	Aero MP305	23.83 - 24.08	1.0000	1.0000
L38	36	Aero MP305	23.83 - 24.08	1.0000	1.0000
L38	37	Aero MP305	23.83 - 24.08	1.0000	1.0000
L38	47	CCI 6.5" x 1.25" Plate	23.83 - 24.08	1.0000	1.0000
L38	48	CCI 6" x 1" Plate	24.00 - 24.08	1.0000	1.0000
L38	49	CCI 6" x 1" Plate	24.00 - 24.08	1.0000	1.0000
L39	12	LDF5-50A(7/8)	18.83 - 23.83	1.0000	1.0000
L39	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	18.83 - 23.83	1.0000	1.0000
L39	15	HCS 6X12 6AWG(1-3/8)	18.83 - 23.83	1.0000	1.0000
L39	17	9207(5/16)	18.83 - 23.83	1.0000	1.0000
L39	34	MP3-05 (Surface Af)	18.83 - 23.83	1.0000	1.0000
L39	35	Aero MP305	18.83 - 23.83	1.0000	1.0000
L39	36	Aero MP305	18.83 - 23.83	1.0000	1.0000
L39	37	Aero MP305	18.83 - 23.83	1.0000	1.0000
L39	47	CCI 6.5" x 1.25" Plate	18.83 - 23.83	1.0000	1.0000
L40	12	LDF5-50A(7/8)	18.08 - 18.83	1.0000	1.0000
L40	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	18.08 - 18.83	1.0000	1.0000
L40	15	HCS 6X12 6AWG(1-3/8)	18.08 - 18.83	1.0000	1.0000
L40	17	9207(5/16)	18.08 - 18.83	1.0000	1.0000
L40	34	MP3-05 (Surface Af)	18.08 - 18.83	1.0000	1.0000
L40	35	Aero MP305	18.08 - 18.83	1.0000	1.0000
L40	36	Aero MP305	18.08 - 18.83	1.0000	1.0000
L40	37	Aero MP305	18.08 - 18.83	1.0000	1.0000
L40	47	CCI 6.5" x 1.25" Plate	18.08 - 18.83	1.0000	1.0000
L41	12	LDF5-50A(7/8)	17.83 - 18.08	1.0000	1.0000
L41	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	17.83 - 18.08	1.0000	1.0000
L41	15	HCS 6X12 6AWG(1-3/8)	17.83 - 18.08	1.0000	1.0000
L41	17	9207(5/16)	17.83 - 18.08	1.0000	1.0000
L41	34	MP3-05 (Surface Af)	17.83 - 18.08	1.0000	1.0000
L41	35	Aero MP305	17.83 - 18.08	1.0000	1.0000
L41	36	Aero MP305	17.83 - 18.08	1.0000	1.0000
L41	37	Aero MP305	17.83 - 18.08	1.0000	1.0000
L41	47	CCI 6.5" x 1.25" Plate	17.83 - 18.08	1.0000	1.0000
L42	12	LDF5-50A(7/8)	12.83 - 17.83	1.0000	1.0000
L42	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	12.83 - 17.83	1.0000	1.0000
L42	15	HCS 6X12 6AWG(1-3/8)	12.83 - 17.83	1.0000	1.0000
L42	17	9207(5/16)	12.83 - 17.83	1.0000	1.0000
L42	34	MP3-05 (Surface Af)	12.83 - 17.83	1.0000	1.0000
L42	35	Aero MP305	12.83 - 17.83	1.0000	1.0000
L42	36	Aero MP305	12.83 - 17.83	1.0000	1.0000
L42	37	Aero MP305	12.83 - 17.83	1.0000	1.0000
L42	47	CCI 6.5" x 1.25" Plate	12.83 - 17.83	1.0000	1.0000
L43	12	LDF5-50A(7/8)	7.83 - 12.83	1.0000	1.0000
L43	13	MLE HYBRID	7.83 - 12.83	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		9POWER/18FIBER RL 2(1-5/8)			
L43	15	HCS 6X12 6AWG(1-3/8)	7.83 - 12.83	1.0000	1.0000
L43	17	9207(5/16)	7.83 - 12.83	1.0000	1.0000
L43	34	MP3-05 (Surface Af)	7.83 - 12.83	1.0000	1.0000
L43	35	Aero MP305	7.83 - 12.83	1.0000	1.0000
L43	36	Aero MP305	7.83 - 12.83	1.0000	1.0000
L43	37	Aero MP305	7.83 - 12.83	1.0000	1.0000
L43	47	CCI 6.5" x 1.25" Plate	7.83 - 12.83	1.0000	1.0000
L44	12	LDF5-50A(7/8)	2.83 - 7.83	1.0000	1.0000
L44	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	2.83 - 7.83	1.0000	1.0000
L44	15	HCS 6X12 6AWG(1-3/8)	2.83 - 7.83	1.0000	1.0000
L44	17	9207(5/16)	2.83 - 7.83	1.0000	1.0000
L44	34	MP3-05 (Surface Af)	2.83 - 7.83	1.0000	1.0000
L44	35	Aero MP305	2.83 - 7.83	1.0000	1.0000
L44	36	Aero MP305	2.83 - 7.83	1.0000	1.0000
L44	37	Aero MP305	2.83 - 7.83	1.0000	1.0000
L44	47	CCI 6.5" x 1.25" Plate	2.83 - 7.83	1.0000	1.0000
L45	12	LDF5-50A(7/8)	0.00 - 2.83	1.0000	1.0000
L45	13	MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	0.00 - 2.83	1.0000	1.0000
L45	15	HCS 6X12 6AWG(1-3/8)	0.00 - 2.83	1.0000	1.0000
L45	17	9207(5/16)	0.00 - 2.83	1.0000	1.0000
L45	34	MP3-05 (Surface Af)	0.00 - 2.83	1.0000	1.0000
L45	35	Aero MP305	0.00 - 2.83	1.0000	1.0000
L45	36	Aero MP305	0.00 - 2.83	1.0000	1.0000
L45	37	Aero MP305	0.00 - 2.83	1.0000	1.0000
L45	47	CCI 6.5" x 1.25" Plate	0.00 - 2.83	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	139.000	No Ice 1/2" Ice	8.262 8.822	7.471 8.656	0.088 0.158
(E)			1.000			1" Ice	9.346	9.556	0.237
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	139.000	No Ice 1/2" Ice	8.262 8.822	7.471 8.656	0.088 0.158
(E)			1.000			1" Ice	9.346	9.556	0.237
APXV9ERR18-C-A20 w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	139.000	No Ice 1/2" Ice	8.262 8.822	7.471 8.656	0.088 0.158
(E)			1.000			1" Ice	9.346	9.556	0.237
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.000 0.000	0.000	139.000	No Ice 1/2" Ice	6.580 7.031	4.959 5.754	0.077 0.131
(E)			1.000			1" Ice	7.473	6.472	0.193
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.000 0.000	0.000	139.000	No Ice 1/2" Ice	6.580 7.031	4.959 5.754	0.077 0.131

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
(E)			1.000			1" Ice	7.473	6.472	0.193
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.000 0.000	0.000	139.000	No Ice 1/2" Ice	6.580 7.031	4.959 5.754	0.077 0.131
(E)			1.000			1" Ice	7.473	6.472	0.193
TD-RRH8X20-25	A	From Leg	4.000	0.000	139.000	No Ice	4.045	1.535	0.070
(E)			0.000			1/2" Ice	4.298	1.714	0.097
			1.000			1" Ice	4.557	1.901	0.128
TD-RRH8X20-25	B	From Leg	4.000	0.000	139.000	No Ice	4.045	1.535	0.070
(E)			0.000			1/2" Ice	4.298	1.714	0.097
			1.000			1" Ice	4.557	1.901	0.128
TD-RRH8X20-25	C	From Leg	4.000	0.000	139.000	No Ice	4.045	1.535	0.070
(E)			0.000			1/2" Ice	4.298	1.714	0.097
			1.000			1" Ice	4.557	1.901	0.128
(2) 5' x 2' Pipe Mount	A	From Leg	4.000	0.000	139.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			1.000			1" Ice	1.807	1.807	0.040
(2) 5' x 2' Pipe Mount	B	From Leg	4.000	0.000	139.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			1.000			1" Ice	1.807	1.807	0.040
(2) 5' x 2' Pipe Mount	C	From Leg	4.000	0.000	139.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			1.000			1" Ice	1.807	1.807	0.040
Miscellaneous [NA 510-1]	C	None		0.000	139.000	No Ice	6.000	6.000	0.256
(E)						1/2" Ice	8.500	8.500	0.340
						1" Ice	11.000	11.000	0.423
Platform Mount [LP 1201-1]	C	None		0.000	139.000	No Ice	23.100	23.100	2.100
(E)						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
V									
PCS 1900MHz 4x45W-65MHz	A	From Leg	2.000 0.000	0.000	137.000	No Ice 1/2" Ice	2.322 2.527	2.238 2.441	0.060 0.083
(E)			0.000			1" Ice	2.739	2.651	0.110
PCS 1900MHz 4x45W-65MHz	B	From Leg	2.000 0.000	0.000	137.000	No Ice 1/2" Ice	2.322 2.527	2.238 2.441	0.060 0.083
(E)			0.000			1" Ice	2.739	2.651	0.110
PCS 1900MHz 4x45W-65MHz	C	From Leg	2.000 0.000	0.000	137.000	No Ice 1/2" Ice	2.322 2.527	2.238 2.441	0.060 0.083
(E)			0.000			1" Ice	2.739	2.651	0.110
800MHz 2X50W RRH W/FILTER	A	From Leg	2.000 0.000	0.000	137.000	No Ice 1/2" Ice	2.058 2.240	1.932 2.109	0.064 0.086
(E)			3.000			1" Ice	2.429	2.293	0.111
800MHz 2X50W RRH W/FILTER	B	From Leg	2.000 0.000	0.000	137.000	No Ice 1/2" Ice	2.058 2.240	1.932 2.109	0.064 0.086
(E)			3.000			1" Ice	2.429	2.293	0.111
800MHz 2X50W RRH W/FILTER	C	From Leg	2.000 0.000	0.000	137.000	No Ice 1/2" Ice	2.058 2.240	1.932 2.109	0.064 0.086
(E)			3.000			1" Ice	2.429	2.293	0.111
Side Arm Mount [SO 102-3]	C	None		0.000	137.000	No Ice	3.000	3.000	0.081
(E)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
V									
RRUS 32	A	From Leg	2.000	0.000	129.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
RRUS 32	B	From Leg	2.000	0.000	129.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103

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
RRUS 32	C	From Leg	2.000	0.000	129.000	No Ice	2.857	1.777	0.055
(R)			0.000			1/2" Ice	3.083	1.968	0.077
			1.000			1" Ice	3.316	2.166	0.103
RRUS 11-700	A	From Leg	2.000	0.000	129.000	No Ice	2.522	1.068	0.055
(E)			0.000			1/2" Ice	2.719	1.211	0.074
			1.000			1" Ice	2.923	1.361	0.097
RRUS 11-700	B	From Leg	2.000	0.000	129.000	No Ice	2.522	1.068	0.055
(E)			0.000			1/2" Ice	2.719	1.211	0.074
			1.000			1" Ice	2.923	1.361	0.097
RRUS 11-700	C	From Leg	2.000	0.000	129.000	No Ice	2.522	1.068	0.055
(E)			0.000			1/2" Ice	2.719	1.211	0.074
			1.000			1" Ice	2.923	1.361	0.097
5' x 2' Pipe Mount	A	From Leg	2.000	0.000	129.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
5' x 2' Pipe Mount	B	From Leg	2.000	0.000	129.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
5' x 2' Pipe Mount	C	From Leg	2.000	0.000	129.000	No Ice	1.188	1.188	0.018
(E)			0.000			1/2" Ice	1.496	1.496	0.027
			0.000			1" Ice	1.807	1.807	0.040
Side Arm Mount [SO 102-3]	C	None		0.000	129.000	No Ice	3.000	3.000	0.081
(E)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
V									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	128.000	No Ice	5.746	4.254	0.055
(E)			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	5.746	4.254	0.055
(E)			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	128.000	No Ice	5.746	4.254	0.055
(E)			0.000			1/2" Ice	6.179	5.014	0.103
			2.000			1" Ice	6.607	5.711	0.157
(2) LGP21401	A	From Leg	4.000	0.000	128.000	No Ice	1.104	0.207	0.014
(E)			0.000			1/2" Ice	1.239	0.274	0.021
			0.000			1" Ice	1.381	0.348	0.030
(2) LGP21401	B	From Leg	4.000	0.000	128.000	No Ice	1.104	0.207	0.014
(E)			0.000			1/2" Ice	1.239	0.274	0.021
			0.000			1" Ice	1.381	0.348	0.030
(2) LGP21401	C	From Leg	4.000	0.000	128.000	No Ice	1.104	0.207	0.014
(E)			0.000			1/2" Ice	1.239	0.274	0.021
			0.000			1" Ice	1.381	0.348	0.030
DC6-48-60-18-8F	A	From Leg	4.000	0.000	128.000	No Ice	0.917	0.917	0.019
(E)			0.000			1/2" Ice	1.458	1.458	0.037
			0.000			1" Ice	1.643	1.643	0.057
HPA-65R-BUU-H8 w/	A	From Leg	4.000	0.000	128.000	No Ice	13.213	9.582	0.100
Mount Pipe			0.000			1/2" Ice	13.899	11.052	0.196
(P)			2.000			1" Ice	14.587	12.496	0.303
HPA-65R-BUU-H6 w/	B	From Leg	4.000	0.000	128.000	No Ice	9.895	8.113	0.077
Mount Pipe			0.000			1/2" Ice	10.470	9.304	0.158
(P)			2.000			1" Ice	11.010	10.209	0.248
HPA-65R-BUU-H6 w/	C	From Leg	4.000	0.000	128.000	No Ice	9.895	8.113	0.077
Mount Pipe			0.000			1/2" Ice	10.470	9.304	0.158
(P)			2.000			1" Ice	11.010	10.209	0.248
EPBQ-654L8H8-L2 w/	A	From Leg	4.000	0.000	128.000	No Ice	18.326	9.171	0.119
Mount Pipe			0.000			1/2" Ice	19.062	10.685	0.236

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(P)			2.000			1" Ice	19.807	12.223	0.363
EPBQ-654L8H8-L2 w/ Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	18.326	9.171	0.119
			0.000			1/2" Ice	19.062	10.685	0.236
(P)			2.000			1" Ice	19.807	12.223	0.363
EPBQ-654L8H8-L2 w/ Mount Pipe	C	From Leg	4.000	0.000	128.000	No Ice	18.326	9.171	0.119
			0.000			1/2" Ice	19.062	10.685	0.236
(P)			2.000			1" Ice	19.807	12.223	0.363
RRUS 4426 B66	A	From Leg	4.000	0.000	128.000	No Ice	1.644	0.725	0.048
(P)			0.000			1/2" Ice	1.804	0.842	0.061
			2.000			1" Ice	1.972	0.969	0.076
RRUS 4426 B66	B	From Leg	4.000	0.000	128.000	No Ice	1.644	0.725	0.048
(P)			0.000			1/2" Ice	1.804	0.842	0.061
			2.000			1" Ice	1.972	0.969	0.076
RRUS 4426 B66	C	From Leg	4.000	0.000	128.000	No Ice	1.644	0.725	0.048
(P)			0.000			1/2" Ice	1.804	0.842	0.061
			2.000			1" Ice	1.972	0.969	0.076
RRUS 4478 B5	A	From Leg	4.000	0.000	128.000	No Ice	1.843	1.059	0.060
(P)			0.000			1/2" Ice	2.012	1.197	0.076
			2.000			1" Ice	2.190	1.342	0.094
RRUS 4478 B5	B	From Leg	4.000	0.000	128.000	No Ice	1.843	1.059	0.060
(P)			0.000			1/2" Ice	2.012	1.197	0.076
			2.000			1" Ice	2.190	1.342	0.094
RRUS 4478 B5	C	From Leg	4.000	0.000	128.000	No Ice	1.843	1.059	0.060
(P)			0.000			1/2" Ice	2.012	1.197	0.076
			2.000			1" Ice	2.190	1.342	0.094
RRUS 32 B30	A	From Leg	4.000	0.000	128.000	No Ice	2.692	1.573	0.060
(P)			0.000			1/2" Ice	2.912	1.756	0.080
			2.000			1" Ice	3.138	1.945	0.104
RRUS 32 B30	B	From Leg	4.000	0.000	128.000	No Ice	2.692	1.573	0.060
(P)			0.000			1/2" Ice	2.912	1.756	0.080
			2.000			1" Ice	3.138	1.945	0.104
RRUS 32 B30	C	From Leg	4.000	0.000	128.000	No Ice	2.692	1.573	0.060
(P)			0.000			1/2" Ice	2.912	1.756	0.080
			2.000			1" Ice	3.138	1.945	0.104
DC6-48-60-18-8C	A	From Leg	4.000	0.000	128.000	No Ice	2.737	2.737	0.026
(P)			0.000			1/2" Ice	2.963	2.963	0.052
			2.000			1" Ice	3.196	3.196	0.082
DC6-48-60-18-8C	B	From Leg	4.000	0.000	128.000	No Ice	2.737	2.737	0.026
(P)			0.000			1/2" Ice	2.963	2.963	0.052
			2.000			1" Ice	3.196	3.196	0.082
6' x 3" Mount Pipe	A	From Leg	4.000	0.000	128.000	No Ice	1.767	1.767	0.030
(P-Per Mount MOD)			0.000			1/2" Ice	2.129	2.129	0.044
			0.000			1" Ice	2.501	2.501	0.061
6' x 3" Mount Pipe	B	From Leg	4.000	0.000	128.000	No Ice	1.767	1.767	0.030
(P-Per Mount MOD)			0.000			1/2" Ice	2.129	2.129	0.044
			0.000			1" Ice	2.501	2.501	0.061
6' x 3" Mount Pipe	C	From Leg	4.000	0.000	128.000	No Ice	1.767	1.767	0.030
(P-Per Mount MOD)			0.000			1/2" Ice	2.129	2.129	0.044
			0.000			1" Ice	2.501	2.501	0.061
(2) 10' x 3" Pipe Mount	A	From Leg	4.000	0.000	128.000	No Ice	3.000	3.000	0.080
(P-Per Mount MOD)			0.000			1/2" Ice	4.033	4.033	0.102
			0.000			1" Ice	5.027	5.027	0.130
(2) 10' x 3" Pipe Mount	B	From Leg	4.000	0.000	128.000	No Ice	3.000	3.000	0.080
(P-Per Mount MOD)			0.000			1/2" Ice	4.033	4.033	0.102
			0.000			1" Ice	5.027	5.027	0.130
(2) 10' x 3" Pipe Mount	C	From Leg	4.000	0.000	128.000	No Ice	3.000	3.000	0.080
(P-Per Mount MOD)			0.000			1/2" Ice	4.033	4.033	0.102

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
			0.000			1" Ice	5.027	5.027	0.130
T-Arm Mount [TA 602-3]	C	None		0.000	128.000	No Ice	11.590	11.590	0.774
(E)						1/2" Ice	15.440	15.440	0.990
						1" Ice	19.290	19.290	1.206
V									
V									
(3) SBNHH-1D65B w/	A	From Leg	4.000	0.000	108.000	No Ice	8.397	7.071	0.066
Mount Pipe			0.000			1/2" Ice	8.960	8.260	0.135
(E)			1.000			1" Ice	9.490	9.170	0.212
(3) SBNHH-1D65B w/	B	From Leg	4.000	0.000	108.000	No Ice	8.397	7.071	0.066
Mount Pipe			0.000			1/2" Ice	8.960	8.260	0.135
(E)			1.000			1" Ice	9.490	9.170	0.212
(3) SBNHH-1D65B w/	C	From Leg	4.000	0.000	108.000	No Ice	8.397	7.071	0.066
Mount Pipe			0.000			1/2" Ice	8.960	8.260	0.135
(E)			1.000			1" Ice	9.490	9.170	0.212
BXA-70063-4CF-EDIN-X w/	A	From Leg	4.000	0.000	108.000	No Ice	4.945	3.693	0.028
Mount Pipe			0.000			1/2" Ice	5.324	4.295	0.070
(E)			1.000			1" Ice	5.712	4.913	0.118
BXA-70063-4CF-EDIN-X w/	B	From Leg	4.000	0.000	108.000	No Ice	4.945	3.693	0.028
Mount Pipe			0.000			1/2" Ice	5.324	4.295	0.070
(E)			1.000			1" Ice	5.712	4.913	0.118
BXA-70063-4CF-EDIN-X w/	C	From Leg	4.000	0.000	108.000	No Ice	4.945	3.693	0.028
Mount Pipe			0.000			1/2" Ice	5.324	4.295	0.070
(E)			1.000			1" Ice	5.712	4.913	0.118
RRH2X60-700	A	From Leg	4.000	0.000	108.000	No Ice	3.500	1.816	0.060
(E)			0.000			1/2" Ice	3.761	2.052	0.083
			1.000			1" Ice	4.029	2.289	0.109
RRH2X60-700	B	From Leg	4.000	0.000	108.000	No Ice	3.500	1.816	0.060
(E)			0.000			1/2" Ice	3.761	2.052	0.083
			1.000			1" Ice	4.029	2.289	0.109
RRH2X60-700	C	From Leg	4.000	0.000	108.000	No Ice	3.500	1.816	0.060
(E)			0.000			1/2" Ice	3.761	2.052	0.083
			1.000			1" Ice	4.029	2.289	0.109
RRH2X60-PCS	A	From Leg	4.000	0.000	108.000	No Ice	2.200	1.723	0.055
(E)			0.000			1/2" Ice	2.393	1.901	0.075
			1.000			1" Ice	2.593	2.087	0.099
RRH2X60-PCS	B	From Leg	4.000	0.000	108.000	No Ice	2.200	1.723	0.055
(E)			0.000			1/2" Ice	2.393	1.901	0.075
			1.000			1" Ice	2.593	2.087	0.099
RRH2X60-PCS	C	From Leg	4.000	0.000	108.000	No Ice	2.200	1.723	0.055
(E)			0.000			1/2" Ice	2.393	1.901	0.075
			1.000			1" Ice	2.593	2.087	0.099
(2) DB-T1-6Z-8AB-0Z	A	From Leg	4.000	0.000	108.000	No Ice	4.800	2.000	0.044
(E)			0.000			1/2" Ice	5.070	2.193	0.080
			1.000			1" Ice	5.348	2.393	0.120
Platform Mount [LP 303-1]	C	None		0.000	108.000	No Ice	14.660	14.660	1.250
(E)						1/2" Ice	18.870	18.870	1.481
						1" Ice	23.080	23.080	1.713
V									
ERICSSON AIR 21 B2A	A	From Leg	4.000	0.000	100.000	No Ice	6.329	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169
(E)			0.000			1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B2A	B	From Leg	4.000	0.000	100.000	No Ice	6.329	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169
(E)			0.000			1" Ice	7.214	7.131	0.233
ERICSSON AIR 21 B2A	C	From Leg	4.000	0.000	100.000	No Ice	6.329	5.642	0.112
B4P w/ Mount Pipe			0.000			1/2" Ice	6.775	6.426	0.169

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
(E)			0.000			1" Ice	7.214	7.131	0.233
KRY 112 144/1	A	From Leg	4.000	0.000	100.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	B	From Leg	4.000	0.000	100.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
KRY 112 144/1	C	From Leg	4.000	0.000	100.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			0.000			1" Ice	0.509	0.301	0.019
APXVAARR24_43-U-NA20	A	From Leg	4.000	0.000	100.000	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0.000			1/2" Ice	21.231	12.550	0.297
(R)			0.000			1" Ice	21.990	14.099	0.444
APXVAARR24_43-U-NA20	B	From Leg	4.000	0.000	100.000	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0.000			1/2" Ice	21.231	12.550	0.297
(R)			0.000			1" Ice	21.990	14.099	0.444
APXVAARR24_43-U-NA20	C	From Leg	4.000	0.000	100.000	No Ice	20.480	11.024	0.161
w/ Mount Pipe			0.000			1/2" Ice	21.231	12.550	0.297
(R)			0.000			1" Ice	21.990	14.099	0.444
AIR 32 B2A/B66AA w/	A	From Leg	4.000	0.000	100.000	No Ice	6.747	6.070	0.153
Mount Pipe			0.000			1/2" Ice	7.202	6.867	0.214
(R)			0.000			1" Ice	7.648	7.583	0.282
AIR 32 B2A/B66AA w/	B	From Leg	4.000	0.000	100.000	No Ice	6.747	6.070	0.153
Mount Pipe			0.000			1/2" Ice	7.202	6.867	0.214
(R)			0.000			1" Ice	7.648	7.583	0.282
AIR 32 B2A/B66AA w/	C	From Leg	4.000	0.000	100.000	No Ice	6.747	6.070	0.153
Mount Pipe			0.000			1/2" Ice	7.202	6.867	0.214
(R)			0.000			1" Ice	7.648	7.583	0.282
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	100.000	No Ice	1.650	1.300	0.075
(R)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	100.000	No Ice	1.650	1.300	0.075
(R)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	100.000	No Ice	1.650	1.300	0.075
(R)			0.000			1/2" Ice	1.810	1.445	0.092
			0.000			1" Ice	1.978	1.597	0.112
T-Arm Mount [TA 602-3]	C	None		0.000	100.000	No Ice	11.590	11.590	0.774
(E)						1/2" Ice	15.440	15.440	0.990
						1" Ice	19.290	19.290	1.206
V									
Pipe Mount [PM 601-3]	C	None		0.000	90.000	No Ice	4.390	4.390	0.195
(E)						1/2" Ice	5.480	5.480	0.237
						1" Ice	6.570	6.570	0.280
V									
KS24019-L112A	A	From Leg	3.000	0.000	70.000	No Ice	0.141	0.141	0.005
(E)			0.000			1/2" Ice	0.198	0.198	0.007
			2.000			1" Ice	0.262	0.262	0.009
KS24019-L112A	C	From Leg	3.000	0.000	70.000	No Ice	0.141	0.141	0.005
(E)			0.000			1/2" Ice	0.198	0.198	0.007
			2.000			1" Ice	0.262	0.262	0.009
Side Arm Mount [SO 701-1]	A	From Leg	1.500	0.000	70.000	No Ice	0.850	1.670	0.065
(E)			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
Side Arm Mount [SO 701-1]	C	From Leg	1.500	0.000	70.000	No Ice	0.850	1.670	0.065
(E)			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093

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
V									
KS24019-L112A	B	From Leg	3.000	0.000	49.000	No Ice	0.141	0.141	0.005
(E)			0.000			1/2" Ice	0.198	0.198	0.007
			2.000			1" Ice	0.262	0.262	0.009
Side Arm Mount [SO 701-1]	B	From Leg	1.500	0.000	49.000	No Ice	0.850	1.670	0.065
(E)			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
V									
Detuning Mount	B	From Leg	1.500	0.000	135.000	No Ice	2.830	2.830	0.195
(E)			0.000			1/2" Ice	3.920	3.920	0.237
			0.000			1" Ice	5.010	5.010	0.279
Detuning Mount	B	From Leg	1.500	0.000	75.000	No Ice	2.830	2.830	0.195
(E)			0.000			1/2" Ice	3.920	3.920	0.237
			0.000			1" Ice	5.010	5.010	0.279
Detuning Mount	B	From Leg	1.500	0.000	10.000	No Ice	2.830	2.830	0.195
(E)			0.000			1/2" Ice	3.920	3.920	0.237
			0.000			1" Ice	5.010	5.010	0.279
V									

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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	140 - 135	Pole	Max Tension	2	0.000	0.000	-0.000
			Max. Compression	26	-11.251	-0.012	0.028
			Max. Mx	8	-4.007	-20.997	0.005
			Max. My	2	-4.019	-0.007	20.961
			Max. Vy	8	4.982	-20.997	0.005
			Max. Vx	2	-4.972	-0.007	20.961
			Max. Torque	24			0.002
L2	135 - 130	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-12.268	-0.846	-0.402
			Max. Mx	8	-4.489	-47.995	-0.227
			Max. My	14	-4.503	-0.429	-47.714
			Max. Vy	8	5.490	-47.995	-0.227
			Max. Vx	2	-5.479	-0.428	47.202
			Max. Torque	4			-0.337
L3	130 - 125	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-26.127	-1.637	1.271
			Max. Mx	8	-7.944	-103.331	0.020
			Max. My	2	-7.964	-0.520	102.962
			Max. Vy	8	12.027	-103.331	0.020
			Max. Vx	2	-12.072	-0.520	102.962
			Max. Torque	24			-0.840
L4	125 - 120	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-26.833	-1.660	1.359
			Max. Mx	8	-8.343	-164.363	0.033
			Max. My	2	-8.364	-0.533	164.214
			Max. Vy	8	12.394	-164.363	0.033
			Max. Vx	2	-12.437	-0.533	164.214
			Max. Torque	24			-0.840
L5	120 - 115	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-27.569	-1.677	1.443
			Max. Mx	8	-8.775	-227.227	0.046

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-8.797	-0.543	227.293
			Max. Vy	8	12.763	-227.227	0.046
			Max. Vx	2	-12.805	-0.543	227.293
			Max. Torque	24			-0.840
L6	115 - 110	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-28.335	-1.689	1.524
			Max. Mx	8	-9.238	-291.938	0.059
			Max. My	2	-9.261	-0.552	292.215
			Max. Vy	8	13.135	-291.938	0.059
			Max. Vx	2	-13.176	-0.552	292.215
			Max. Torque	24			-0.839
L7	110 - 105	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.498	-1.695	4.111
			Max. Mx	8	-12.183	-374.258	0.521
			Max. My	2	-12.200	-0.561	375.973
			Max. Vy	8	17.663	-374.258	0.521
			Max. Vx	2	-17.879	-0.561	375.973
			Max. Torque	22			-1.370
L8	105 - 102.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.971	-1.697	4.161
			Max. Mx	8	-12.508	-421.598	0.527
			Max. My	2	-12.526	-0.566	423.888
			Max. Vy	8	17.860	-421.598	0.527
			Max. Vx	2	-18.075	-0.566	423.888
			Max. Torque	22			-1.369
L9	102.333 - 102.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-39.025	-1.697	4.166
			Max. Mx	8	-12.562	-426.063	0.528
			Max. My	2	-12.581	-0.567	428.406
			Max. Vy	8	17.869	-426.063	0.528
			Max. Vx	2	-18.086	-0.567	428.406
			Max. Torque	22			-1.369
L10	102.083 - 97.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.770	-1.541	4.350
			Max. Mx	8	-15.787	-527.009	0.553
			Max. My	2	-15.825	-0.553	530.236
			Max. Vy	8	21.932	-527.009	0.553
			Max. Vx	2	-22.057	-0.553	530.236
			Max. Torque	22			-1.369
L11	97.083 - 91.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-49.471	-1.435	4.449
			Max. Mx	8	-16.134	-572.935	0.566
			Max. My	2	-16.182	-0.540	576.341
			Max. Vy	8	22.200	-572.935	0.566
			Max. Vx	2	-22.221	-0.540	576.341
			Max. Torque	22			-1.368
L12	91.75 - 90.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-51.710	-1.230	4.641
			Max. Mx	8	-17.336	-668.574	0.593
			Max. My	2	-17.405	-0.514	671.663
			Max. Vy	8	22.828	-668.574	0.593
			Max. Vx	2	-22.630	-0.514	671.663
			Max. Torque	22			-1.367
L13	90.75 - 85.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.148	-1.032	4.827
			Max. Mx	8	-18.613	-785.025	0.625
			Max. My	2	-18.705	-0.480	786.518
			Max. Vy	8	23.663	-785.025	0.625
			Max. Vx	2	-23.197	-0.480	786.518

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	22			-1.367
L14	85.75 - 85.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.318	-1.016	4.843
			Max. Mx	8	-18.714	-794.894	0.627
			Max. My	2	-18.807	-0.478	796.194
			Max. Vy	8	23.708	-794.894	0.627
			Max. Vx	2	-23.220	-0.478	796.194
			Max. Torque	22			-1.365
L15	85.333 - 85.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.429	-1.005	4.853
			Max. Mx	8	-18.778	-800.822	0.629
			Max. My	2	-18.872	-0.477	802.002
			Max. Vy	8	23.740	-800.822	0.629
			Max. Vx	2	-23.240	-0.477	802.002
			Max. Torque	22			-1.365
L16	85.083 - 82.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.576	-0.892	4.963
			Max. Mx	8	-19.391	-862.578	0.645
			Max. My	2	-19.495	-0.458	862.319
			Max. Vy	8	24.109	-862.578	0.645
			Max. Vx	2	-23.471	-0.458	862.319
			Max. Torque	22			-1.365
L17	82.5 - 82.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.679	-0.877	4.982
			Max. Mx	8	-19.457	-868.604	0.646
			Max. My	2	-19.561	-0.456	868.187
			Max. Vy	8	24.131	-868.604	0.646
			Max. Vx	2	-23.484	-0.456	868.187
			Max. Torque	22			-1.365
L18	82.25 - 77.15	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.023	-0.579	5.348
			Max. Mx	8	-20.767	-993.357	0.674
			Max. My	2	-20.887	-0.419	989.065
			Max. Vy	8	24.826	-993.357	0.674
			Max. Vx	2	-23.928	-0.419	989.065
			Max. Torque	22			-1.365
L19	77.15 - 76.9167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-58.132	-0.564	5.368
			Max. Mx	8	-20.838	-999.148	0.676
			Max. My	2	-20.959	-0.418	994.648
			Max. Vy	8	24.849	-999.148	0.676
			Max. Vx	2	-23.943	-0.418	994.648
			Max. Torque	22			-1.364
L20	76.9167 - 71.9167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.957	-1.150	5.227
			Max. Mx	8	-22.381	-1125.909	0.397
			Max. My	2	-22.514	-0.908	1115.469
			Max. Vy	8	25.643	-1125.909	0.397
			Max. Vx	2	-24.492	-0.908	1115.469
			Max. Torque	22			-1.364
L21	71.9167 - 66.9167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.738	-0.313	5.908
			Max. Mx	8	-23.906	-1255.834	0.502
			Max. My	2	-24.049	-0.626	1239.393
			Max. Vy	8	26.421	-1255.834	0.502
			Max. Vx	2	-25.011	-0.626	1239.393
			Max. Torque	8			1.441

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L22	66.9167 - 66.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.863	-0.290	5.933
			Max. Mx	8	-23.986	-1262.430	0.500
			Max. My	2	-24.129	-0.621	1245.639
			Max. Vy	8	26.444	-1262.430	0.500
			Max. Vx	2	-25.025	-0.621	1245.639
			Max. Torque	8			1.445
L23	66.667 - 66.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-63.995	-0.265	5.951
			Max. Mx	8	-24.049	-1269.042	0.499
			Max. My	2	-24.192	-0.615	1251.898
			Max. Vy	8	26.479	-1269.042	0.499
			Max. Vx	2	-25.046	-0.615	1251.898
			Max. Torque	8			1.447
L24	66.417 - 61.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.185	0.177	6.140
			Max. Mx	8	-25.305	-1402.994	0.473
			Max. My	2	-25.454	-0.499	1378.117
			Max. Vy	8	27.144	-1402.994	0.473
			Max. Vx	2	-25.450	-0.499	1378.117
			Max. Torque	8			1.447
L25	61.417 - 60	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.799	0.302	6.189
			Max. Mx	8	-25.664	-1441.551	0.466
			Max. My	2	-25.815	-0.466	1414.249
			Max. Vy	8	27.333	-1441.551	0.466
			Max. Vx	2	-25.568	-0.466	1414.249
			Max. Torque	8			1.426
L26	60 - 59.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.918	0.329	6.203
			Max. Mx	8	-25.753	-1448.380	0.465
			Max. My	2	-25.902	-0.460	1420.640
			Max. Vy	8	27.349	-1448.380	0.465
			Max. Vx	2	-25.574	-0.460	1420.640
			Max. Torque	8			1.418
L27	59.75 - 54.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.311	0.879	6.446
			Max. Mx	8	-27.167	-1586.653	0.438
			Max. My	2	-27.318	-0.341	1549.492
			Max. Vy	8	28.003	-1586.653	0.438
			Max. Vx	2	-25.976	-0.341	1549.492
			Max. Torque	8			1.423
L28	54.75 - 46.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.101	1.277	6.612
			Max. Mx	8	-28.255	-1692.433	0.418
			Max. My	2	-28.404	-0.250	1647.401
			Max. Vy	8	28.472	-1692.433	0.418
			Max. Vx	2	-26.263	-0.250	1647.401
			Max. Torque	8			1.423
L29	46.5 - 45.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.370	1.423	6.597
			Max. Mx	8	-30.949	-1851.503	0.307
			Max. My	2	-31.099	-0.372	1793.373
			Max. Vy	8	29.311	-1851.503	0.307
			Max. Vx	2	-26.842	-0.372	1793.373
			Max. Torque	22			-1.360
L30	45.5 - 44.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.986	1.535	6.657

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-31.321	-1888.199	0.315
			Max. My	2	-31.469	-0.355	1826.970
			Max. Vy	8	29.464	-1888.199	0.315
			Max. Vx	2	-26.936	-0.355	1826.970
			Max. Torque	22			-1.360
L31	44.25 - 44	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.125	1.558	6.673
			Max. Mx	8	-31.423	-1895.561	0.317
			Max. My	2	-31.570	-0.353	1833.704
			Max. Vy	8	29.478	-1895.561	0.317
			Max. Vx	2	-26.942	-0.353	1833.704
			Max. Torque	22			-1.360
L32	44 - 39	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.913	2.007	6.964
			Max. Mx	8	-33.148	-2044.412	0.348
			Max. My	2	-33.289	-0.286	1969.375
			Max. Vy	8	30.106	-2044.412	0.348
			Max. Vx	2	-27.334	-0.286	1969.375
			Max. Torque	22			-1.360
L33	39 - 34	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.721	2.454	7.240
			Max. Mx	8	-34.918	-2195.947	0.381
			Max. My	2	-35.047	-0.217	2106.925
			Max. Vy	8	30.564	-2195.947	0.381
			Max. Vx	2	-27.701	-0.217	2106.925
			Max. Torque	22			-1.359
L34	34 - 29	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.546	2.896	7.496
			Max. Mx	8	-36.720	-2349.707	0.414
			Max. My	2	-36.833	-0.147	2246.261
			Max. Vy	8	30.999	-2349.707	0.414
			Max. Vx	2	-28.049	-0.147	2246.261
			Max. Torque	22			-1.359
L35	29 - 27.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-85.257	3.006	7.560
			Max. Mx	8	-37.172	-2388.486	0.422
			Max. My	2	-37.283	-0.129	2281.366
			Max. Vy	8	31.110	-2388.486	0.422
			Max. Vx	2	-28.138	-0.129	2281.366
			Max. Torque	22			-1.359
L36	27.75 - 27.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-85.403	3.022	7.577
			Max. Mx	8	-37.277	-2396.258	0.424
			Max. My	2	-37.385	-0.126	2288.400
			Max. Vy	8	31.116	-2396.258	0.424
			Max. Vx	2	-28.143	-0.126	2288.400
			Max. Torque	22			-1.359
L37	27.5 - 24.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.407	3.237	7.792
			Max. Mx	8	-38.520	-2503.021	0.447
			Max. My	2	-38.618	-0.076	2384.966
			Max. Vy	8	31.424	-2503.021	0.447
			Max. Vx	2	-28.388	-0.076	2384.966
			Max. Torque	22			-1.359
L38	24.083 - 23.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.540	3.256	7.803
			Max. Mx	8	-38.613	-2510.871	0.448
			Max. My	2	-38.709	-0.072	2392.063
			Max. Vy	8	31.430	-2510.871	0.448
			Max. Vx	2	-28.392	-0.072	2392.063

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	22			-1.358
L39	23.833 - 18.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-90.157	3.644	7.949
			Max. Mx	8	-40.243	-2668.909	0.482
			Max. My	2	-40.320	0.002	2534.796
			Max. Vy	8	31.839	-2668.909	0.482
			Max. Vx	2	-28.712	0.002	2534.796
			Max. Torque	22			-1.358
L40	18.833 - 18.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-90.550	3.702	7.972
			Max. Mx	8	-40.497	-2692.785	0.487
			Max. My	2	-40.570	0.014	2556.338
			Max. Vy	8	31.893	-2692.785	0.487
			Max. Vx	2	-28.754	0.014	2556.338
			Max. Torque	22			-1.358
L41	18.083 - 17.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-90.695	3.722	7.980
			Max. Mx	8	-40.602	-2700.754	0.489
			Max. My	2	-40.672	0.018	2563.527
			Max. Vy	8	31.904	-2700.754	0.489
			Max. Vx	2	-28.762	0.018	2563.527
			Max. Torque	22			-1.358
L42	17.833 - 12.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-93.591	4.108	8.126
			Max. Mx	8	-42.520	-2861.264	0.523
			Max. My	2	-42.574	0.094	2708.204
			Max. Vy	8	32.351	-2861.264	0.523
			Max. Vx	2	-29.116	0.094	2708.204
			Max. Torque	22			-1.358
L43	12.833 - 7.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-96.857	3.415	7.653
			Max. Mx	8	-44.709	-3024.775	0.181
			Max. My	2	-44.744	-0.480	2854.399
			Max. Vy	8	32.868	-3024.775	0.181
			Max. Vx	2	-29.542	-0.480	2854.399
			Max. Torque	24			-1.452
L44	7.833 - 2.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-99.696	3.779	7.794
			Max. Mx	8	-46.694	-3190.036	0.216
			Max. My	2	-46.708	-0.399	3002.918
			Max. Vy	8	33.304	-3190.036	0.216
			Max. Vx	2	-29.885	-0.399	3002.918
			Max. Torque	24			-1.451
L45	2.833 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-101.243	3.964	7.868
			Max. Mx	8	-47.827	-3284.635	0.237
			Max. My	2	-47.830	-0.352	3087.830
			Max. Vy	8	33.557	-3284.635	0.237
			Max. Vx	2	-30.087	-0.352	3087.830
			Max. Torque	24			-1.451

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	36	101.243	8.835	0.001
	Max. H_x	21	35.885	33.529	0.001
	Max. H_z	2	47.847	0.001	30.061
	Max. M_x	2	3087.830	0.001	30.061
	Max. M_z	8	3284.635	-33.529	-0.001
	Max. Torsion	12	1.434	-15.221	-26.574
	Min. Vert	11	35.885	-25.822	-15.031
	Min. H_x	9	35.885	-33.529	-0.001
	Min. H_z	14	47.847	-0.001	-30.061
	Min. M_x	14	-3086.638	-0.001	-30.061
	Min. M_z	20	-3283.228	33.529	0.001
	Min. Torsion	24	-1.451	15.221	26.574

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	39.872	0.000	0.000	-0.454	-0.548	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	47.847	-0.001	-30.061	-3087.830	-0.352	1.149
0.9 Dead+1.6 Wind 0 deg - No Ice	35.885	-0.001	-30.061	-3047.154	-0.170	1.128
1.2 Dead+1.6 Wind 30 deg - No Ice	47.847	14.959	-26.124	-2680.797	-1533.309	0.540
0.9 Dead+1.6 Wind 30 deg - No Ice	35.885	14.959	-26.124	-2645.492	-1513.028	0.529
1.2 Dead+1.6 Wind 60 deg - No Ice	47.847	27.846	-16.199	-1615.303	-2772.516	-0.412
0.9 Dead+1.6 Wind 60 deg - No Ice	35.885	27.846	-16.199	-1594.294	-2736.545	-0.410
1.2 Dead+1.6 Wind 90 deg - No Ice	47.847	33.529	0.001	-0.237	-3284.635	-1.213
0.9 Dead+1.6 Wind 90 deg - No Ice	35.885	33.529	0.001	-0.084	-3242.495	-1.199
1.2 Dead+1.6 Wind 120 deg - No Ice	47.847	25.822	15.031	1543.359	-2649.235	-1.341
0.9 Dead+1.6 Wind 120 deg - No Ice	35.885	25.822	15.031	1523.253	-2614.290	-1.318
1.2 Dead+1.6 Wind 150 deg - No Ice	47.847	15.221	26.574	2691.677	-1540.663	-1.434
0.9 Dead+1.6 Wind 150 deg - No Ice	35.885	15.221	26.574	2656.652	-1520.355	-1.409
1.2 Dead+1.6 Wind 180 deg - No Ice	47.847	0.001	30.061	3086.638	-1.040	-1.149
0.9 Dead+1.6 Wind 180 deg - No Ice	35.885	0.001	30.061	3046.285	-0.850	-1.128
1.2 Dead+1.6 Wind 210 deg - No Ice	47.847	-14.959	26.124	2679.604	1531.903	-0.557
0.9 Dead+1.6 Wind 210 deg - No Ice	35.885	-14.959	26.124	2644.623	1511.998	-0.545
1.2 Dead+1.6 Wind 240 deg - No Ice	47.847	-27.846	16.199	1614.126	2771.100	0.394
0.9 Dead+1.6 Wind 240 deg - No Ice	35.885	-27.846	16.199	1593.435	2735.509	0.393
1.2 Dead+1.6 Wind 270 deg - No Ice	47.847	-33.529	-0.001	-0.925	3283.228	1.213

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
0.9 Dead+1.6 Wind 270 deg - No Ice	35.885	-33.529	-0.001	-0.763	3241.465	1.199
1.2 Dead+1.6 Wind 300 deg - No Ice	47.847	-25.822	-15.031	-1544.527	2647.842	1.358
0.9 Dead+1.6 Wind 300 deg - No Ice	35.885	-25.822	-15.031	-1524.105	2613.270	1.335
1.2 Dead+1.6 Wind 330 deg - No Ice	47.847	-15.221	-26.574	-2692.857	1539.277	1.451
0.9 Dead+1.6 Wind 330 deg - No Ice	35.885	-15.221	-26.574	-2657.513	1519.341	1.426
1.2 Dead+1.0 Ice+1.0 Temp	101.243	0.000	-0.000	-7.868	3.964	0.001
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	101.243	-0.001	-7.885	-911.395	4.227	0.457
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	101.243	3.865	-6.728	-784.407	-441.663	0.249
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	101.243	7.575	-4.392	-485.361	-818.725	-0.159
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	101.243	8.835	0.001	-7.811	-949.907	-0.550
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	101.243	7.074	4.104	451.974	-788.242	-0.483
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	101.243	4.079	7.098	782.177	-449.842	-0.541
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	101.243	0.001	7.885	895.384	3.841	-0.456
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	101.243	-3.865	6.728	768.392	449.729	-0.248
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	101.243	-7.575	4.392	469.348	826.786	0.160
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	101.243	-8.835	-0.001	-8.196	957.966	0.551
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	101.243	-7.074	-4.104	-467.983	796.305	0.485
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	101.243	-4.079	-7.098	-798.183	457.907	0.544
Dead+Wind 0 deg - Service	39.872	-0.000	-6.432	-656.479	-0.508	0.246
Dead+Wind 30 deg - Service	39.872	3.201	-5.589	-569.991	-326.236	0.116
Dead+Wind 60 deg - Service	39.872	5.958	-3.466	-343.646	-589.639	-0.089
Dead+Wind 90 deg - Service	39.872	7.174	0.000	-0.419	-698.542	-0.262
Dead+Wind 120 deg - Service	39.872	5.525	3.216	327.561	-563.337	-0.290
Dead+Wind 150 deg - Service	39.872	3.257	5.686	571.584	-327.808	-0.309
Dead+Wind 180 deg - Service	39.872	0.000	6.432	655.494	-0.654	-0.246
Dead+Wind 210 deg - Service	39.872	-3.201	5.589	569.006	325.072	-0.117
Dead+Wind 240 deg - Service	39.872	-5.958	3.466	342.662	588.476	0.088
Dead+Wind 270 deg - Service	39.872	-7.174	-0.000	-0.565	697.379	0.262
Dead+Wind 300 deg - Service	39.872	-5.525	-3.216	-328.545	562.175	0.291
Dead+Wind 330 deg - Service	39.872	-3.257	-5.686	-572.568	326.646	0.310

Solution Summary

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
1	0.000	-39.872	0.000	0.000	39.872	0.000	0.000%
2	-0.001	-47.847	-30.061	0.001	47.847	30.061	0.000%
3	-0.001	-35.885	-30.061	0.001	35.885	30.061	0.000%
4	14.959	-47.847	-26.124	-14.959	47.847	26.124	0.000%
5	14.959	-35.885	-26.124	-14.959	35.885	26.124	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
6	27.846	-47.847	-16.199	-27.846	47.847	16.199	0.000%
7	27.846	-35.885	-16.199	-27.846	35.885	16.199	0.000%
8	33.529	-47.847	0.001	-33.529	47.847	-0.001	0.000%
9	33.529	-35.885	0.001	-33.529	35.885	-0.001	0.000%
10	25.822	-47.847	15.031	-25.822	47.847	-15.031	0.000%
11	25.822	-35.885	15.031	-25.822	35.885	-15.031	0.000%
12	15.221	-47.847	26.574	-15.221	47.847	-26.574	0.000%
13	15.221	-35.885	26.574	-15.221	35.885	-26.574	0.000%
14	0.001	-47.847	30.061	-0.001	47.847	-30.061	0.000%
15	0.001	-35.885	30.061	-0.001	35.885	-30.061	0.000%
16	-14.959	-47.847	26.124	14.959	47.847	-26.124	0.000%
17	-14.959	-35.885	26.124	14.959	35.885	-26.124	0.000%
18	-27.846	-47.847	16.199	27.846	47.847	-16.199	0.000%
19	-27.846	-35.885	16.199	27.846	35.885	-16.199	0.000%
20	-33.529	-47.847	-0.001	33.529	47.847	0.001	0.000%
21	-33.529	-35.885	-0.001	33.529	35.885	0.001	0.000%
22	-25.822	-47.847	-15.031	25.822	47.847	15.031	0.000%
23	-25.822	-35.885	-15.031	25.822	35.885	15.031	0.000%
24	-15.221	-47.847	-26.574	15.221	47.847	26.574	0.000%
25	-15.221	-35.885	-26.574	15.221	35.885	26.574	0.000%
26	0.000	-101.243	0.000	-0.000	101.243	0.000	0.000%
27	-0.001	-101.243	-7.885	0.001	101.243	7.885	0.000%
28	3.865	-101.243	-6.728	-3.865	101.243	6.728	0.000%
29	7.575	-101.243	-4.392	-7.575	101.243	4.392	0.000%
30	8.835	-101.243	0.001	-8.835	101.243	-0.001	0.000%
31	7.074	-101.243	4.104	-7.074	101.243	-4.104	0.000%
32	4.079	-101.243	7.098	-4.079	101.243	-7.098	0.000%
33	0.001	-101.243	7.885	-0.001	101.243	-7.885	0.000%
34	-3.865	-101.243	6.728	3.865	101.243	-6.728	0.000%
35	-7.575	-101.243	4.392	7.575	101.243	-4.392	0.000%
36	-8.835	-101.243	-0.001	8.835	101.243	0.001	0.000%
37	-7.074	-101.243	-4.104	7.074	101.243	4.104	0.000%
38	-4.079	-101.243	-7.098	4.079	101.243	7.098	0.000%
39	-0.000	-39.872	-6.432	0.000	39.872	6.432	0.000%
40	3.201	-39.872	-5.589	-3.201	39.872	5.589	0.000%
41	5.958	-39.872	-3.466	-5.958	39.872	3.466	0.000%
42	7.174	-39.872	0.000	-7.174	39.872	-0.000	0.000%
43	5.525	-39.872	3.216	-5.525	39.872	-3.216	0.000%
44	3.257	-39.872	5.686	-3.257	39.872	-5.686	0.000%
45	0.000	-39.872	6.432	-0.000	39.872	-6.432	0.000%
46	-3.201	-39.872	5.589	3.201	39.872	-5.589	0.000%
47	-5.958	-39.872	3.466	5.958	39.872	-3.466	0.000%
48	-7.174	-39.872	-0.000	7.174	39.872	0.000	0.000%
49	-5.525	-39.872	-3.216	5.525	39.872	3.216	0.000%
50	-3.257	-39.872	-5.686	3.257	39.872	5.686	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00089337
3	Yes	5	0.00000001	0.00039384
4	Yes	7	0.00000001	0.00012896
5	Yes	6	0.00000001	0.00066720
6	Yes	7	0.00000001	0.00013449

7	Yes	6	0.00000001	0.00069173
8	Yes	6	0.00000001	0.00008343
9	Yes	5	0.00000001	0.00059469
10	Yes	7	0.00000001	0.00012502
11	Yes	6	0.00000001	0.00064735
12	Yes	7	0.00000001	0.00013141
13	Yes	6	0.00000001	0.00067998
14	Yes	5	0.00000001	0.00091223
15	Yes	5	0.00000001	0.00040153
16	Yes	7	0.00000001	0.00012774
17	Yes	6	0.00000001	0.00066132
18	Yes	7	0.00000001	0.00013111
19	Yes	6	0.00000001	0.00067405
20	Yes	6	0.00000001	0.00008467
21	Yes	5	0.00000001	0.00060374
22	Yes	7	0.00000001	0.00013125
23	Yes	6	0.00000001	0.00068049
24	Yes	7	0.00000001	0.00012546
25	Yes	6	0.00000001	0.00064839
26	Yes	5	0.00000001	0.00033599
27	Yes	7	0.00000001	0.00072659
28	Yes	7	0.00000001	0.00099549
29	Yes	8	0.00000001	0.00019417
30	Yes	7	0.00000001	0.00073721
31	Yes	7	0.00000001	0.00097408
32	Yes	7	0.00000001	0.00098171
33	Yes	7	0.00000001	0.00070586
34	Yes	7	0.00000001	0.00096364
35	Yes	8	0.00000001	0.00018614
36	Yes	7	0.00000001	0.00073631
37	Yes	8	0.00000001	0.00018829
38	Yes	7	0.00000001	0.00099954
39	Yes	5	0.00000001	0.00007907
40	Yes	5	0.00000001	0.00045170
41	Yes	5	0.00000001	0.00049260
42	Yes	5	0.00000001	0.00009598
43	Yes	5	0.00000001	0.00041721
44	Yes	5	0.00000001	0.00047569
45	Yes	5	0.00000001	0.00007890
46	Yes	5	0.00000001	0.00043757
47	Yes	5	0.00000001	0.00045751
48	Yes	5	0.00000001	0.00009574
49	Yes	5	0.00000001	0.00047303
50	Yes	5	0.00000001	0.00042154

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	23.976	42	1.616	0.004
L2	135 - 130	22.286	42	1.610	0.004
L3	130 - 125	20.610	42	1.590	0.004
L4	125 - 120	18.962	42	1.555	0.003
L5	120 - 115	17.361	42	1.500	0.003
L6	115 - 110	15.825	42	1.432	0.003
L7	110 - 105	14.367	42	1.353	0.002
L8	105 - 102.333	12.994	42	1.267	0.002
L9	102.333 - 102.083	12.300	42	1.217	0.002
L10	102.083 - 97.083	12.236	42	1.214	0.002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L11	97.083 - 91.75	11.000	42	1.146	0.001
L12	95 - 90.75	10.507	42	1.116	0.001
L13	90.75 - 85.75	9.529	42	1.073	0.001
L14	85.75 - 85.333	8.451	42	0.985	0.001
L15	85.333 - 85.083	8.365	42	0.978	0.001
L16	85.083 - 82.5	8.314	42	0.975	0.001
L17	82.5 - 82.25	7.795	42	0.945	0.001
L18	82.25 - 77.15	7.746	42	0.940	0.001
L19	77.15 - 76.9167	6.774	42	0.878	0.001
L20	76.9167 - 71.9167	6.732	42	0.875	0.001
L21	71.9167 - 66.9167	5.848	42	0.812	0.001
L22	66.9167 - 66.667	5.032	42	0.747	0.001
L23	66.667 - 66.417	4.993	42	0.743	0.001
L24	66.417 - 61.417	4.954	42	0.740	0.001
L25	61.417 - 60	4.214	42	0.673	0.001
L26	60 - 59.75	4.017	42	0.654	0.001
L27	59.75 - 54.75	3.983	42	0.651	0.001
L28	54.75 - 46.5	3.336	42	0.584	0.000
L29	51 - 45.5	2.897	42	0.534	0.000
L30	45.5 - 44.25	2.303	42	0.491	0.000
L31	44.25 - 44	2.177	42	0.476	0.000
L32	44 - 39	2.152	42	0.473	0.000
L33	39 - 34	1.685	42	0.419	0.000
L34	34 - 29	1.274	42	0.365	0.000
L35	29 - 27.75	0.920	42	0.311	0.000
L36	27.75 - 27.5	0.840	42	0.298	0.000
L37	27.5 - 24.083	0.824	42	0.296	0.000
L38	24.083 - 23.833	0.626	42	0.259	0.000
L39	23.833 - 18.833	0.612	42	0.256	0.000
L40	18.833 - 18.083	0.377	42	0.194	0.000
L41	18.083 - 17.833	0.347	42	0.184	0.000
L42	17.833 - 12.833	0.337	42	0.182	0.000
L43	12.833 - 7.833	0.174	42	0.130	0.000
L44	7.833 - 2.833	0.065	42	0.079	0.000
L45	2.833 - 0	0.008	42	0.028	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.000	APXV9ERR18-C-A20 w/ Mount Pipe	42	23.637	1.615	0.004	21560
137.000	PCS 1900MHz 4x45W-65MHz	42	22.961	1.613	0.004	21560
135.000	Detuning Mount	42	22.286	1.610	0.004	21560
129.000	RRUS 32	42	20.277	1.584	0.004	9535
128.000	7770.00 w/ Mount Pipe	42	19.946	1.578	0.004	8487
108.000	(3) SBNHH-1D65B w/ Mount Pipe	42	13.807	1.321	0.002	3339
100.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	42	11.713	1.187	0.002	3954
90.000	Pipe Mount [PM 601-3]	42	9.362	1.063	0.001	3730
75.000	Detuning Mount	42	6.385	0.851	0.001	4548
70.000	KS24019-L112A	42	5.527	0.787	0.001	4411
49.000	KS24019-L112A	42	2.675	0.519	0.000	6230
10.000	Detuning Mount	42	0.106	0.101	0.000	5698

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	140 - 135	112.682	8	7.596	0.017
L2	135 - 130	104.759	8	7.568	0.017
L3	130 - 125	96.899	8	7.476	0.017
L4	125 - 120	89.167	8	7.314	0.016
L5	120 - 115	81.655	8	7.059	0.014
L6	115 - 110	74.443	8	6.739	0.012
L7	110 - 105	67.589	8	6.373	0.011
L8	105 - 102.333	61.137	8	5.967	0.009
L9	102.333 - 102.083	57.875	8	5.731	0.008
L10	102.083 - 97.083	57.575	8	5.716	0.008
L11	97.083 - 91.75	51.763	8	5.397	0.007
L12	95 - 90.75	49.443	8	5.255	0.006
L13	90.75 - 85.75	44.845	8	5.054	0.006
L14	85.75 - 85.333	39.773	8	4.641	0.005
L15	85.333 - 85.083	39.370	8	4.606	0.005
L16	85.083 - 82.5	39.129	8	4.593	0.005
L17	82.5 - 82.25	36.686	8	4.450	0.005
L18	82.25 - 77.15	36.453	8	4.429	0.004
L19	77.15 - 76.9167	31.883	8	4.136	0.004
L20	76.9167 - 71.9167	31.682	8	4.122	0.004
L21	71.9167 - 66.9167	27.524	8	3.824	0.003
L22	66.9167 - 66.667	23.683	8	3.516	0.003
L23	66.667 - 66.417	23.500	8	3.501	0.003
L24	66.417 - 61.417	23.317	8	3.485	0.003
L25	61.417 - 60	19.834	8	3.170	0.003
L26	60 - 59.75	18.907	8	3.081	0.002
L27	59.75 - 54.75	18.746	8	3.065	0.002
L28	54.75 - 46.5	15.702	8	2.751	0.002
L29	51 - 45.5	13.635	8	2.514	0.002
L30	45.5 - 44.25	10.840	8	2.314	0.002
L31	44.25 - 44	10.244	8	2.239	0.002
L32	44 - 39	10.127	8	2.226	0.002
L33	39 - 34	7.929	8	1.974	0.001
L34	34 - 29	5.995	8	1.720	0.001
L35	29 - 27.75	4.327	8	1.466	0.001
L36	27.75 - 27.5	3.952	8	1.404	0.001
L37	27.5 - 24.083	3.879	8	1.391	0.001
L38	24.083 - 23.833	2.944	8	1.221	0.001
L39	23.833 - 18.833	2.880	8	1.206	0.001
L40	18.833 - 18.083	1.772	8	0.911	0.001
L41	18.083 - 17.833	1.632	8	0.868	0.001
L42	17.833 - 12.833	1.587	8	0.856	0.001
L43	12.833 - 7.833	0.819	8	0.612	0.000
L44	7.833 - 2.833	0.304	8	0.372	0.000
L45	2.833 - 0	0.040	8	0.133	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
139.000	APXV9ERR18-C-A20 w/ Mount Pipe	8	111.095	7.593	0.017	4869
137.000	PCS 1900MHz 4x45W-65MHz	8	107.924	7.585	0.017	4869
135.000	Detuning Mount	8	104.759	7.568	0.017	4869
129.000	RRUS 32	8	95.340	7.450	0.017	2134
128.000	7770.00 w/ Mount Pipe	8	93.786	7.421	0.017	1894
108.000	(3) SBNHH-1D65B w/ Mount Pipe	8	64.957	6.222	0.010	725
100.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	8	55.113	5.591	0.008	855
90.000	Pipe Mount [PM 601-3]	8	44.058	5.007	0.006	803
75.000	Detuning Mount	8	30.051	4.009	0.004	975
70.000	KS24019-L112A	8	26.014	3.706	0.003	944
49.000	KS24019-L112A	8	12.588	2.443	0.002	1327
10.000	Detuning Mount	8	0.497	0.476	0.000	1211

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	140 - 139	TP17.025x16x0.25	5.000	0.000	0.0	12.844	-0.047	873.889	0.000
	139 - 138					13.009	-3.401	885.116	0.004
	138 - 137					13.174	-3.449	896.343	0.004
	137 - 136					13.339	-3.957	907.570	0.004
	136 - 135					13.504	-4.007	918.797	0.004
L2	135 - 134	TP18.05x17.025x0.25	5.000	0.000	0.0	13.669	-4.291	930.023	0.005
	134 - 133					13.834	-4.327	941.250	0.005
	133 - 132					13.999	-4.380	952.477	0.005
	132 - 131					14.164	-4.434	963.704	0.005
	131 - 130					14.329	-4.489	974.931	0.005
L3	130 - 129	TP19.075x18.05x0.25	5.000	0.000	0.0	14.494	-4.552	986.158	0.005
	129 - 128					14.659	-5.081	997.385	0.005
	128 - 127					14.824	-7.803	1008.610	0.008
	127 - 126					14.989	-7.873	1019.840	0.008
	126 - 125					15.154	-7.944	1031.070	0.008
L4	125 - 124	TP20.099x19.075x0.25	5.000	0.000	0.0	15.319	-8.021	1042.290	0.008
	124 - 123					15.484	-8.099	1053.520	0.008
	123 - 122					15.649	-8.179	1064.750	0.008
	122 - 121					15.814	-8.268	1075.970	0.008
	121 - 120					15.979	-8.351	1087.200	0.008
L5	120 - 119	TP21.124x20.099x0.25	5.000	0.000	0.0	16.144	-8.435	1098.430	0.008
	119 - 118					16.309	-8.520	1109.650	0.008
	118 - 117					16.474	-8.623	1120.880	0.008
	117 - 116					16.639	-8.711	1132.110	0.008
	116 - 115					16.804	-8.801	1143.330	0.008
L6	115 - 114	TP22.149x21.124x0.25	5.000	0.000	0.0	16.969	-8.891	1154.560	0.008
	114 - 113					17.134	-8.979	1165.790	0.008
	113 - 112					17.299	-9.072	1177.010	0.008
	112 - 111					17.464	-9.166	1188.240	0.008
	111 - 110					17.629	-9.261	1199.470	0.008
L7	110 - 109	TP23.174x22.149x0.25	5.000	0.000	0.0	17.794	-9.366	1210.700	0.008
	109 - 108					17.959	-9.472	1221.920	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	108 - 107					18.124	-11.969	1233.150	0.010
	107 - 106					18.289	-12.084	1241.670	0.010
	106 - 105					18.454	-12.200	1249.340	0.010
L8	105 - 103.667	TP23.721x23.174x0.25	2.667	0.000	0.0	18.674	-12.359	1259.470	0.010
	103.667 - 102.333					18.894	-12.526	1269.490	0.010
L9	102.333 - 102.083 (9)	TP23.772x23.721x0.388	0.250	0.000	0.0	29.178	-12.581	1985.270	0.006
L10	102.083 - 101.083	TP24.797x23.772x0.375	5.000	0.000	0.0	28.499	-12.730	1939.100	0.007
	101.083 - 100.083					28.747	-12.888	1955.940	0.007
	100.083 - 99.083					28.994	-15.494	1972.780	0.008
	99.083 - 98.083					29.242	-15.658	1989.620	0.008
	98.083 - 97.083					29.489	-15.825	2006.460	0.008
L11	97.083 - 96.0415	TP25.89x24.797x0.375	5.333	0.000	0.0	29.747	-16.002	2024.000	0.008
	96.0415 - 95					30.005	-16.182	2041.540	0.008
	95 - 91.75					30.809	-8.886	2096.270	0.004
L12	95 - 91.75	TP25.595x24.724x0.356	4.250	0.000	0.0	28.717	-8.298	2116.730	0.004
	91.75 - 90.75					28.952	-17.405	2134.070	0.008
L13	90.75 - 89.75	TP26.62x25.595x0.356	5.000	0.000	0.0	29.187	-17.837	2151.400	0.008
	89.75 - 88.75					29.423	-18.051	2168.740	0.008
	88.75 - 87.75					29.658	-18.267	2186.070	0.008
	87.75 - 86.75					29.893	-18.485	2203.410	0.008
	86.75 - 85.75					30.128	-18.705	2220.740	0.008
L14	85.75 - 85.333 (14)	TP26.706x26.62x0.356	0.417	0.000	0.0	30.226	-18.807	2227.970	0.008
L15	85.333 - 85.083 (15)	TP26.757x26.706x0.563	0.250	0.000	0.0	47.445	-18.872	3497.160	0.005
L16	85.083 - 83.7915	TP27.287x26.757x0.563	2.583	0.000	0.0	47.924	-19.176	3532.510	0.005
	83.7915 - 82.5					48.404	-19.426	3567.860	0.005
L17	82.5 - 82.25 (17)	TP27.338x27.287x0.356	0.250	0.000	0.0	30.951	-19.491	2281.420	0.009
L18	82.25 - 81.23	TP28.383x27.337x0.55	5.100	0.000	0.0	47.811	-19.709	3524.150	0.006
	81.23 - 80.21					48.181	-19.970	3551.460	0.006
	80.21 - 79.19					48.552	-20.234	3578.770	0.006
	79.19 - 78.17					48.923	-20.499	3606.080	0.006
	78.17 - 77.15					49.293	-20.767	3633.390	0.006
L19	77.15 - 76.9167 (19)	TP28.431x28.383x0.55	0.233	0.000	0.0	49.378	-20.838	3639.630	0.006
L20	76.9167 - 75.9167	TP29.457x28.431x0.538	5.000	0.000	0.0	48.632	-21.090	3584.680	0.006
	75.9167 - 74.9167					48.987	-21.579	3610.840	0.006
	74.9167 - 73.9167					49.342	-21.845	3637.010	0.006
	73.9167 - 72.9167					49.697	-22.112	3663.170	0.006
	72.9167 - 71.9167					50.052	-22.381	3689.340	0.006
L21	71.9167 - 70.9167	TP30.482x29.457x0.525	5.000	0.000	0.0	49.256	-22.650	3630.660	0.006
	70.9167 - 69.9167					49.603	-23.082	3656.220	0.006
	69.9167 -					49.949	-23.355	3681.770	0.006

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	68.9167								
	68.9167 - 67.9167					50.296	-23.630	3707.330	0.006
	67.9167 - 66.9167					50.643	-23.906	3732.890	0.006
L22	66.9167 - 66.667 (22)	TP30.534x30.482x0.525	0.250	0.000	0.0	50.729	-23.986	3739.270	0.006
L23	66.667 - 66.417 (23)	TP30.585x30.534x0.513	0.250	0.000	0.0	49.627	-24.049	3658.000	0.007
L24	66.417 - 65.417	TP31.61x30.585x0.513	5.000	0.000	0.0	49.965	-24.288	3682.950	0.007
	65.417 - 64.417					50.304	-24.540	3707.900	0.007
	64.417 - 63.417					50.642	-24.794	3732.850	0.007
	63.417 - 62.417					50.981	-25.049	3757.800	0.007
	62.417 - 61.417					51.319	-25.305	3782.750	0.007
L25	61.417 - 60 (25)	TP31.901x31.61x0.506	1.417	0.000	0.0	51.177	-25.664	3772.290	0.007
L26	60 - 59.75 (26)	TP31.952x31.901x0.513	0.250	0.000	0.0	51.884	-25.753	3824.340	0.007
L27	59.75 - 58.75	TP32.978x31.952x0.513	5.000	0.000	0.0	52.222	-26.023	3849.290	0.007
	58.75 - 57.75					52.561	-26.307	3874.240	0.007
	57.75 - 56.75					52.899	-26.592	3899.180	0.007
	56.75 - 55.75					53.237	-26.879	3924.130	0.007
	55.75 - 54.75					53.576	-27.167	3949.080	0.007
L28	54.75 - 53.5	TP34.67x32.978x0.506	8.250	0.000	0.0	53.351	-27.525	3932.480	0.007
	53.5 - 52.25					53.769	-27.888	3963.290	0.007
	52.25 - 51					54.187	-28.255	3994.090	0.007
	51 - 46.5					55.691	-14.911	4105.000	0.004
L29	51 - 46.5	TP34.25x33.122x0.55	5.500	0.000	0.0	59.319	-15.719	4372.420	0.004
	46.5 - 45.5					59.682	-30.949	4399.190	0.007
L30	45.5 - 44.25 (30)	TP34.506x34.25x0.55	1.250	0.000	0.0	60.136	-31.321	4432.650	0.007
L31	44.25 - 44 (31)	TP34.557x34.506x0.675	0.250	0.000	0.0	73.643	-31.423	5428.260	0.006
L32	44 - 43	TP35.583x34.557x0.663	5.000	0.000	0.0	72.744	-31.756	5361.940	0.006
	43 - 42					73.181	-32.101	5394.190	0.006
	42 - 41					73.619	-32.448	5426.430	0.006
	41 - 40					74.056	-32.797	5458.680	0.006
	40 - 39					74.493	-33.148	5490.920	0.006
L33	39 - 38	TP36.608x35.583x0.65	5.000	0.000	0.0	73.543	-33.498	5420.880	0.006
	38 - 37					73.973	-33.850	5452.520	0.006
	37 - 36					74.402	-34.205	5484.150	0.006
	36 - 35					74.831	-34.560	5515.790	0.006
	35 - 34					75.260	-34.918	5547.420	0.006
L34	34 - 33	TP37.633x36.608x0.638	5.000	0.000	0.0	74.259	-35.275	5473.660	0.006
	33 - 32					74.680	-35.633	5504.690	0.006
	32 - 31					75.101	-35.994	5535.710	0.007
	31 - 30					75.522	-36.356	5566.740	0.007
	30 - 29					75.943	-36.720	5597.770	0.007
L35	29 - 27.75 (35)	TP37.89x37.633x0.638	1.250	0.000	0.0	76.469	-37.172	5636.550	0.007
L36	27.75 - 27.5 (36)	TP37.941x37.89x0.638	0.250	0.000	0.0	76.575	-37.278	5644.310	0.007
L37	27.5 - 26.361	TP38.642x37.941x0.638	3.417	0.000	0.0	77.054	-37.681	5679.650	0.007
	26.361 - 25.222					77.533	-38.099	5714.990	0.007
	25.222 - 24.083					78.013	-38.520	5750.330	0.007
L38	24.083 -	TP38.693x38.642x0.525	0.250	0.000	0.0	64.523	-38.613	4755.970	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	23.833 (38)								
L39	23.833 - 22.833	TP39.718x38.693x0.525	5.000	0.000	0.0	64.869	-38.926	4781.520	0.008
	22.833 - 21.833					65.216	-39.253	4807.070	0.008
	21.833 - 20.833					65.563	-39.582	4832.630	0.008
	20.833 - 19.833					65.909	-39.912	4858.180	0.008
	19.833 - 18.833					66.256	-40.243	4883.730	0.008
L40	18.833 - 18.083 (40)	TP39.872x39.718x0.525	0.750	0.000	0.0	66.516	-40.497	4902.890	0.008
L41	18.083 - 17.833 (41)	TP39.923x39.872x0.638	0.250	0.000	0.0	80.644	-40.602	5944.250	0.007
L42	17.833 - 16.833	TP40.948x39.923x0.625	5.000	0.000	0.0	79.500	-40.973	5859.970	0.007
	16.833 - 15.833					79.913	-41.357	5890.390	0.007
	15.833 - 14.833					80.326	-41.743	5920.800	0.007
	14.833 - 13.833					80.738	-42.131	5951.220	0.007
	13.833 - 12.833					81.151	-42.520	5981.640	0.007
L43	12.833 - 11.833	TP41.974x40.948x0.625	5.000	0.000	0.0	81.564	-42.907	6012.060	0.007
	11.833 - 10.833					81.976	-43.297	6042.480	0.007
	10.833 - 9.833					82.389	-43.921	6072.900	0.007
	9.833 - 8.833					82.802	-44.314	6103.320	0.007
	8.833 - 7.833					83.214	-44.709	6133.730	0.007
L44	7.833 - 6.833	TP42.999x41.974x0.613	5.000	0.000	0.0	81.979	-45.102	6042.690	0.007
	6.833 - 5.833					82.384	-45.498	6072.500	0.007
	5.833 - 4.833					82.788	-45.895	6102.310	0.008
	4.833 - 3.833					83.192	-46.294	6132.120	0.008
	3.833 - 2.833					83.597	-46.694	6161.930	0.008
L45	2.833 - 1.4165	TP43.58x42.999x0.613	2.833	0.000	0.0	84.170	-47.256	6204.150	0.008
	1.4165 - 0					84.743	-47.827	6246.380	0.008

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	140 - 139	TP17.025x16x0.25	0.033	281.887	0.000	0.000	281.887	0.000
	139 - 138		6.327	289.233	0.022	0.000	289.233	0.000
	138 - 137		10.464	296.673	0.035	0.000	296.673	0.000
	137 - 136		16.050	304.208	0.053	0.000	304.208	0.000
	136 - 135		20.997	311.837	0.067	0.000	311.837	0.000
L2	135 - 134	TP18.05x17.025x0.25	26.623	319.562	0.083	0.000	319.562	0.000
	134 - 133		31.853	327.380	0.097	0.000	327.380	0.000
	133 - 132		37.162	335.293	0.111	0.000	335.293	0.000
	132 - 131		42.543	343.301	0.124	0.000	343.301	0.000
	131 - 130		47.996	351.402	0.137	0.000	351.402	0.000
L3	130 - 129	TP19.075x18.05x0.25	53.521	359.599	0.149	0.000	359.599	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 $\frac{M_{uy}}{\phi M_{ny}}$
	129 - 128		60.283	367.890	0.164	0.000	367.890	0.000
	128 - 127		79.428	376.276	0.211	0.000	376.276	0.000
	127 - 126		91.343	384.756	0.237	0.000	384.756	0.000
	126 - 125		103.332	393.330	0.263	0.000	393.330	0.000
L4	125 - 124	TP20.099x19.075x0.25	115.392	401.999	0.287	0.000	401.999	0.000
	124 - 123		127.525	410.763	0.310	0.000	410.763	0.000
	123 - 122		139.732	419.621	0.333	0.000	419.621	0.000
	122 - 121		152.017	428.573	0.355	0.000	428.573	0.000
	121 - 120		164.378	437.621	0.376	0.000	437.621	0.000
L5	120 - 119	TP21.124x20.099x0.25	176.813	446.762	0.396	0.000	446.762	0.000
	119 - 118		189.320	455.998	0.415	0.000	455.998	0.000
	118 - 117		201.902	465.329	0.434	0.000	465.329	0.000
	117 - 116		214.574	474.754	0.452	0.000	474.754	0.000
	116 - 115		227.320	484.273	0.469	0.000	484.273	0.000
L6	115 - 114	TP22.149x21.124x0.25	240.140	493.887	0.486	0.000	493.887	0.000
	114 - 113		253.041	503.597	0.502	0.000	503.597	0.000
	113 - 112		266.024	513.399	0.518	0.000	513.399	0.000
	112 - 111		279.082	523.297	0.533	0.000	523.297	0.000
	111 - 110		292.215	533.289	0.548	0.000	533.289	0.000
L7	110 - 109	TP23.174x22.149x0.25	305.423	543.376	0.562	0.000	543.376	0.000
	109 - 108		318.706	553.557	0.576	0.000	553.557	0.000
	108 - 107		340.377	563.832	0.604	0.000	563.832	0.000
	107 - 106		358.139	572.952	0.625	0.000	572.952	0.000
	106 - 105		375.973	581.751	0.646	0.000	581.751	0.000
L8	105 - 103.667	TP23.721x23.174x0.25	399.867	593.538	0.674	0.000	593.538	0.000
	103.667 - 102.333		423.888	605.384	0.700	0.000	605.384	0.000
L9	102.333 - 102.083 (9)	TP23.772x23.721x0.388	428.407	937.750	0.457	0.000	937.750	0.000
L10	102.083 - 101.083	TP24.797x23.772x0.375	446.533	925.075	0.483	0.000	925.075	0.000
	101.083 - 100.083		464.739	941.342	0.494	0.000	941.342	0.000
	100.083 - 99.083		486.295	957.750	0.508	0.000	957.750	0.000
	99.083 - 98.083		508.226	974.292	0.522	0.000	974.292	0.000
	98.083 - 97.083		530.237	990.983	0.535	0.000	990.983	0.000
L11	97.083 - 96.0415	TP25.89x24.797x0.375	553.246	1008.517	0.549	0.000	1008.517	0.000
	96.0415 - 95		576.341	1026.200	0.562	0.000	1026.200	0.000
	95 - 91.75		342.270	1082.383	0.316	0.000	1082.383	0.000
L12	95 - 91.75	TP25.595x24.724x0.356	306.809	1072.833	0.286	0.000	1072.833	0.000
	91.75 - 90.75		671.663	1090.600	0.616	0.000	1090.600	0.000
L13	90.75 - 89.75	TP26.62x25.595x0.356	694.371	1108.517	0.626	0.000	1108.517	0.000
	89.75 - 88.75		717.295	1126.575	0.637	0.000	1126.575	0.000
	88.75 - 87.75		740.294	1144.783	0.647	0.000	1144.783	0.000
	87.75 - 86.75		763.369	1163.133	0.656	0.000	1163.133	0.000
	86.75 - 85.75		786.518	1181.633	0.666	0.000	1181.633	0.000
L14	85.75 - 85.333 (14)	TP26.706x26.62x0.356	796.194	1189.392	0.669	0.000	1189.392	0.000
L15	85.333 - 85.083 (15)	TP26.757x26.706x0.563	802.002	1841.508	0.436	0.000	1841.508	0.000
L16	85.083 - 83.7915	TP27.287x26.757x0.563	832.088	1879.317	0.443	0.000	1879.317	0.000
	83.7915 - 82.5		862.792	1917.517	0.450	0.000	1917.517	0.000
L17	82.5 - 82.25 (17)	TP27.338x27.287x0.356	868.767	1247.525	0.696	0.000	1247.525	0.000
L18	82.25 - 81.23	TP28.383x27.337x0.55	893.275	1914.600	0.467	0.000	1914.600	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 $\frac{M_{uy}}{\phi M_{ny}}$
	81.23 - 80.21		918.083	1944.692	0.472	0.000	1944.692	0.000
	80.21 - 79.19		943.033	1975.017	0.477	0.000	1975.017	0.000
	79.19 - 78.17		968.125	2005.567	0.483	0.000	2005.567	0.000
	78.17 - 77.15		993.358	2036.358	0.488	0.000	2036.358	0.000
L19	77.15 - 76.9167 (19)	TP28.431x28.383x0.55	999.150	2043.442	0.489	0.000	2043.442	0.000
L20	76.9167 - 75.9167	TP29.457x28.431x0.538	1024.050	2029.483	0.505	0.000	2029.483	0.000
	75.9167 - 74.9167		1049.642	2059.500	0.510	0.000	2059.500	0.000
	74.9167 - 73.9167		1074.933	2089.733	0.514	0.000	2089.733	0.000
	73.9167 - 72.9167		1100.350	2120.192	0.519	0.000	2120.192	0.000
	72.9167 - 71.9167		1125.908	2150.867	0.523	0.000	2150.867	0.000
L21	71.9167 - 70.9167	TP30.482x29.457x0.525	1151.592	2133.775	0.540	0.000	2133.775	0.000
	70.9167 - 69.9167		1177.233	2164.192	0.544	0.000	2164.192	0.000
	69.9167 - 68.9167		1203.300	2194.817	0.548	0.000	2194.817	0.000
	68.9167 - 67.9167		1229.500	2225.667	0.552	0.000	2225.667	0.000
	67.9167 - 66.9167		1255.833	2256.725	0.556	0.000	2256.725	0.000
L22	66.9167 - 66.667 (22)	TP30.534x30.482x0.525	1262.433	2264.517	0.557	0.000	2264.517	0.000
L23	66.667 - 66.417 (23)	TP30.585x30.534x0.513	1269.042	2220.992	0.571	0.000	2220.992	0.000
L24	66.417 - 65.417	TP31.61x30.585x0.513	1295.575	2251.650	0.575	0.000	2251.650	0.000
	65.417 - 64.417		1322.233	2282.517	0.579	0.000	2282.517	0.000
	64.417 - 63.417		1349.017	2313.592	0.583	0.000	2313.592	0.000
	63.417 - 62.417		1375.942	2344.875	0.587	0.000	2344.875	0.000
	62.417 - 61.417		1402.992	2376.375	0.590	0.000	2376.375	0.000
L25	61.417 - 60 (25)	TP31.901x31.61x0.506	1441.550	2393.258	0.602	0.000	2393.258	0.000
L26	60 - 59.75 (26)	TP31.952x31.901x0.513	1448.383	2429.342	0.596	0.000	2429.342	0.000
L27	59.75 - 58.75	TP32.978x31.952x0.513	1475.775	2461.400	0.600	0.000	2461.400	0.000
	58.75 - 57.75		1503.300	2493.667	0.603	0.000	2493.667	0.000
	57.75 - 56.75		1530.958	2526.142	0.606	0.000	2526.142	0.000
	56.75 - 55.75		1558.742	2558.833	0.609	0.000	2558.833	0.000
	55.75 - 54.75		1586.650	2591.725	0.612	0.000	2591.725	0.000
L28	54.75 - 53.5	TP34.67x32.978x0.506	1621.717	2602.525	0.623	0.000	2602.525	0.000
	53.5 - 52.25		1656.983	2643.775	0.627	0.000	2643.775	0.000
	52.25 - 51		1692.433	2685.342	0.630	0.000	2685.342	0.000
	51 - 46.5		900.867	2837.692	0.317	0.000	2837.692	0.000
L29	51 - 46.5	TP34.25x33.122x0.55	921.417	2958.700	0.311	0.000	2958.700	0.000
	46.5 - 45.5		1851.500	2995.333	0.618	0.000	2995.333	0.000
L30	45.5 - 44.25 (30)	TP34.506x34.25x0.55	1888.200	3041.442	0.621	0.000	3041.442	0.000
L31	44.25 - 44 (31)	TP34.557x34.506x0.675	1895.558	3702.908	0.512	0.000	3702.908	0.000
L32	44 - 43	TP35.583x34.557x0.663	1925.083	3682.942	0.523	0.000	3682.942	0.000
	43 - 42		1954.733	3727.792	0.524	0.000	3727.792	0.000
	42 - 41		1984.500	3772.917	0.526	0.000	3772.917	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 $\frac{M_{uy}}{\phi M_{ny}}$
	41 - 40		2014.392	3818.308	0.528	0.000	3818.308	0.000
	40 - 39		2044.408	3863.975	0.529	0.000	3863.975	0.000
L33	39 - 38	TP36.608x35.583x0.65	2074.533	3840.242	0.540	0.000	3840.242	0.000
	38 - 37		2104.750	3885.608	0.542	0.000	3885.608	0.000
	37 - 36		2135.058	3931.233	0.543	0.000	3931.233	0.000
	36 - 35		2165.458	3977.125	0.544	0.000	3977.125	0.000
	35 - 34		2195.950	4023.292	0.546	0.000	4023.292	0.000
L34	34 - 33	TP37.633x36.608x0.638	2226.525	3995.592	0.557	0.000	3995.592	0.000
	33 - 32		2257.192	4041.417	0.559	0.000	4041.417	0.000
	32 - 31		2287.942	4087.500	0.560	0.000	4087.500	0.000
	31 - 30		2318.783	4133.842	0.561	0.000	4133.842	0.000
	30 - 29		2349.708	4180.442	0.562	0.000	4180.442	0.000
L35	29 - 27.75 (35)	TP37.89x37.633x0.638	2388.483	4239.067	0.563	0.000	4239.067	0.000
L36	27.75 - 27.5 (36)	TP37.941x37.89x0.638	2396.258	4250.842	0.564	0.000	4250.842	0.000
L37	27.5 - 26.361	TP38.642x37.941x0.638	2431.733	4304.683	0.565	0.000	4304.683	0.000
	26.361 - 25.222		2467.325	4358.875	0.566	0.000	4358.875	0.000
	25.222 - 24.083		2503.025	4413.400	0.567	0.000	4413.400	0.000
L38	24.083 - 23.833 (38)	TP38.693x38.642x0.525	2510.875	3676.875	0.683	0.000	3676.875	0.000
L39	23.833 - 22.833	TP39.718x38.693x0.525	2542.325	3716.758	0.684	0.000	3716.758	0.000
	22.833 - 21.833		2573.850	3756.858	0.685	0.000	3756.858	0.000
	21.833 - 20.833		2605.458	3797.167	0.686	0.000	3797.167	0.000
	20.833 - 19.833		2637.142	3837.700	0.687	0.000	3837.700	0.000
	19.833 - 18.833		2668.908	3878.442	0.688	0.000	3878.442	0.000
L40	18.833 - 18.083 (40)	TP39.872x39.718x0.525	2692.783	3909.142	0.689	0.000	3909.142	0.000
L41	18.083 - 17.833 (41)	TP39.923x39.872x0.638	2700.750	4718.625	0.572	0.000	4718.625	0.000
L42	17.833 - 16.833	TP40.948x39.923x0.625	2732.683	4679.350	0.584	0.000	4679.350	0.000
	16.833 - 15.833		2764.700	4728.433	0.585	0.000	4728.433	0.000
	15.833 - 14.833		2796.800	4777.775	0.585	0.000	4777.775	0.000
	14.833 - 13.833		2828.992	4827.375	0.586	0.000	4827.375	0.000
	13.833 - 12.833		2861.267	4877.233	0.587	0.000	4877.233	0.000
L43	12.833 - 11.833	TP41.974x40.948x0.625	2893.625	4927.342	0.587	0.000	4927.342	0.000
	11.833 - 10.833		2926.075	4977.708	0.588	0.000	4977.708	0.000
	10.833 - 9.833		2959.275	5028.333	0.589	0.000	5028.333	0.000
	9.833 - 8.833		2991.983	5079.217	0.589	0.000	5079.217	0.000
	8.833 - 7.833		3024.775	5130.350	0.590	0.000	5130.350	0.000
L44	7.833 - 6.833	TP42.999x41.974x0.613	3057.650	5082.692	0.602	0.000	5082.692	0.000
	6.833 - 5.833		3090.617	5133.333	0.602	0.000	5133.333	0.000
	5.833 - 4.833		3123.667	5184.225	0.603	0.000	5184.225	0.000
	4.833 - 3.833		3156.808	5235.358	0.603	0.000	5235.358	0.000
	3.833 - 2.833		3190.033	5286.750	0.603	0.000	5286.750	0.000
L45	2.833 - 1.4165	TP43.58x42.999x0.613	3237.250	5359.983	0.604	0.000	5359.983	0.000
	1.4165 - 0		3284.633	5433.708	0.604	0.000	5433.708	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 $\frac{M_{uy}}{\phi M_{ny}}$

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	140 - 139	TP17.025x16x0.25	0.067	436.945	0.000	0.000	574.599	0.000
	139 - 138		4.103	442.558	0.009	0.000	589.534	0.000
	138 - 137		4.172	448.171	0.009	0.000	604.661	0.000
	137 - 136		4.912	453.785	0.011	0.000	619.979	0.000
	136 - 135		4.982	459.398	0.011	0.000	635.489	0.000
L2	135 - 134	TP18.05x17.025x0.25	5.191	465.012	0.011	0.001	651.191	0.000
	134 - 133		5.275	470.625	0.011	0.168	667.084	0.000
	133 - 132		5.346	476.239	0.011	0.168	683.169	0.000
	132 - 131		5.417	481.852	0.011	0.168	699.446	0.000
	131 - 130		5.490	487.466	0.011	0.168	715.914	0.000
L3	130 - 129	TP19.075x18.05x0.25	5.563	493.079	0.011	0.168	732.573	0.000
	129 - 128		6.377	498.692	0.013	0.168	749.425	0.000
	128 - 127		11.882	504.306	0.024	0.481	766.468	0.001
	127 - 126		11.954	509.919	0.023	0.481	783.702	0.001
	126 - 125		12.027	515.533	0.023	0.481	801.129	0.001
L4	125 - 124	TP20.099x19.075x0.25	12.100	521.146	0.023	0.481	818.747	0.001
	124 - 123		12.173	526.760	0.023	0.481	836.558	0.001
	123 - 122		12.246	532.373	0.023	0.480	854.558	0.001
	122 - 121		12.329	537.986	0.023	0.072	872.750	0.000
	121 - 120		12.402	543.600	0.023	0.072	891.133	0.000
L5	120 - 119	TP21.124x20.099x0.25	12.476	549.213	0.023	0.072	909.708	0.000
	119 - 118		12.549	554.827	0.023	0.072	928.475	0.000
	118 - 117		12.640	560.440	0.023	0.356	947.442	0.000
	117 - 116		12.714	566.054	0.022	0.356	966.592	0.000
	116 - 115		12.788	571.667	0.022	0.356	985.933	0.000
L6	115 - 114	TP22.149x21.124x0.25	12.862	577.281	0.022	0.356	1005.467	0.000
	114 - 113		12.953	582.894	0.022	0.690	1025.192	0.001
	113 - 112		13.027	588.507	0.022	0.689	1045.108	0.001
	112 - 111		13.102	594.121	0.022	0.689	1065.217	0.001
	111 - 110		13.176	599.734	0.022	0.689	1085.517	0.001
L7	110 - 109	TP23.174x22.149x0.25	13.252	605.348	0.022	0.689	1106.008	0.001
	109 - 108		13.327	610.961	0.022	0.689	1126.692	0.001
	108 - 107		17.735	616.575	0.029	0.689	1147.567	0.001
	107 - 106		17.807	620.833	0.029	0.689	1166.092	0.001
	106 - 105		17.879	624.669	0.029	0.688	1183.958	0.001
L8	105 - 103.667	TP23.721x23.174x0.25	17.979	629.736	0.029	0.688	1207.900	0.001
	103.667 - 102.333		18.075	634.746	0.028	0.688	1231.950	0.001
L9	102.333 - 102.083 (9)	TP23.772x23.721x0.388	18.086	992.636	0.018	0.688	1912.075	0.000
L10	102.083 - 101.083	TP24.797x23.772x0.375	18.171	969.549	0.019	0.688	1885.817	0.000
	101.083 - 100.083		18.253	977.969	0.019	0.688	1918.883	0.000
	100.083 - 99.083		21.898	986.390	0.022	0.688	1952.242	0.000
	99.083 - 98.083		21.977	994.810	0.022	0.688	1985.883	0.000
	98.083 - 97.083		22.057	1003.230	0.022	0.688	2019.817	0.000
L11	97.083 - 96.0415	TP25.89x24.797x0.375	22.139	1012.000	0.022	0.687	2055.458	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 $\frac{T_u}{\phi T_n}$
	96.0415 - 95		22.221	1020.770	0.022	0.687	2091.417	0.000
	95 - 91.75		11.958	1048.130	0.011	0.362	2205.625	0.000
L12	95 - 91.75	TP25.595x24.724x0.356	10.602	1030.200	0.010	0.325	2185.825	0.000
	91.75 - 90.75		22.630	1067.030	0.021	0.687	2221.942	0.000
L13	90.75 - 89.75	TP26.62x25.595x0.356	22.895	1075.700	0.021	0.687	2258.350	0.000
	89.75 - 88.75		22.970	1084.370	0.021	0.687	2295.058	0.000
	88.75 - 87.75		23.046	1093.040	0.021	0.687	2332.067	0.000
	87.75 - 86.75		23.121	1101.700	0.021	0.686	2369.367	0.000
	86.75 - 85.75		23.197	1110.370	0.021	0.686	2406.958	0.000
L14	85.75 - 85.333 (14)	TP26.706x26.62x0.356	23.221	1113.990	0.021	0.686	2422.725	0.000
L15	85.333 - 85.083 (15)	TP26.757x26.706x0.563	23.240	1748.580	0.013	0.686	3760.942	0.000
L16	85.083 - 83.7915	TP27.287x26.757x0.563	23.359	1766.250	0.013	0.686	3837.892	0.000
	83.7915 - 82.5		23.917	1783.930	0.013	0.718	3915.625	0.000
L17	82.5 - 82.25 (17)	TP27.338x27.287x0.356	23.939	1140.710	0.021	0.720	2540.875	0.000
L18	82.25 - 81.23	TP28.383x27.337x0.55	24.273	1762.070	0.014	1.273	3908.808	0.000
	81.23 - 80.21		24.411	1775.730	0.014	1.287	3970.033	0.000
	80.21 - 79.19		24.548	1789.380	0.014	1.302	4031.725	0.000
	79.19 - 78.17		24.687	1803.040	0.014	1.317	4093.900	0.000
	78.17 - 77.15		24.826	1816.690	0.014	1.331	4156.550	0.000
L19	77.15 - 76.9167 (19)	TP28.431x28.383x0.55	24.849	1819.820	0.014	1.335	4170.950	0.000
L20	76.9167 - 75.9167	TP29.457x28.431x0.538	24.989	1792.340	0.014	1.350	4141.642	0.000
	75.9167 - 74.9167		25.242	1805.420	0.014	1.350	4202.708	0.000
	74.9167 - 73.9167		25.375	1818.500	0.014	1.230	4264.217	0.000
	73.9167 - 72.9167		25.509	1831.590	0.014	1.246	4326.175	0.000
	72.9167 - 71.9167		25.643	1844.670	0.014	1.261	4388.575	0.000
L21	71.9167 - 70.9167	TP30.482x29.457x0.525	25.774	1815.330	0.014	1.278	4352.883	0.000
	70.9167 - 69.9167		26.024	1828.110	0.014	1.391	4414.742	0.000
	69.9167 - 68.9167		26.156	1840.890	0.014	1.408	4477.042	0.000
	68.9167 - 67.9167		26.288	1853.670	0.014	1.424	4539.775	0.000
	67.9167 - 66.9167		26.421	1866.440	0.014	1.441	4602.950	0.000
L22	66.9167 - 66.667 (22)	TP30.534x30.482x0.525	26.444	1869.640	0.014	1.445	4618.792	0.000
L23	66.667 - 66.417 (23)	TP30.585x30.534x0.513	26.479	1829.000	0.014	1.447	4529.342	0.000
L24	66.417 - 65.417	TP31.61x30.585x0.513	26.619	1841.470	0.014	1.447	4591.683	0.000
	65.417 - 64.417		26.749	1853.950	0.014	1.442	4654.450	0.000
	64.417 - 63.417		26.880	1866.420	0.014	1.438	4717.642	0.000
	63.417 - 62.417		27.012	1878.900	0.014	1.434	4781.258	0.000
	62.417 - 61.417		27.144	1891.370	0.014	1.430	4845.308	0.000
L25	61.417 - 60	TP31.901x31.61x0.506	27.333	1886.140	0.014	1.426	4879.167	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	(25)							
L26	60 - 59.75 (26)	TP31.952x31.901x0.513	27.349	1912.170	0.014	1.418	4953.017	0.000
L27	59.75 - 58.75	TP32.978x31.952x0.513	27.487	1924.640	0.014	1.419	5018.200	0.000
	58.75 - 57.75		27.616	1937.120	0.014	1.420	5083.808	0.000
	57.75 - 56.75		27.744	1949.590	0.014	1.421	5149.842	0.000
	56.75 - 55.75		27.874	1962.070	0.014	1.422	5216.300	0.000
	55.75 - 54.75		28.003	1974.540	0.014	1.423	5283.192	0.000
L28	54.75 - 53.5	TP34.67x32.978x0.506	28.161	1966.240	0.014	1.423	5304.633	0.000
	53.5 - 52.25		28.316	1981.640	0.014	1.422	5388.500	0.000
	52.25 - 51		28.472	1997.050	0.014	1.421	5473.017	0.000
	51 - 46.5		14.586	2052.500	0.007	0.727	5782.725	0.000
L29	51 - 46.5	TP34.25x33.122x0.55	14.627	2186.210	0.007	0.693	6032.525	0.000
	46.5 - 45.5		29.311	2199.600	0.013	1.330	6107.008	0.000
L30	45.5 - 44.25 (30)	TP34.506x34.25x0.55	29.464	2216.330	0.013	1.325	6200.767	0.000
L31	44.25 - 44 (31)	TP34.557x34.506x0.675	29.478	2714.130	0.011	1.326	7558.650	0.000
L32	44 - 43	TP35.583x34.557x0.663	29.612	2680.970	0.011	1.330	7516.667	0.000
	43 - 42		29.735	2697.090	0.011	1.333	7607.917	0.000
	42 - 41		29.858	2713.220	0.011	1.337	7699.717	0.000
	41 - 40		29.982	2729.340	0.011	1.340	7792.067	0.000
	40 - 39		30.106	2745.460	0.011	1.344	7884.967	0.000
L33	39 - 38	TP36.608x35.583x0.65	30.198	2710.440	0.011	1.344	7835.300	0.000
	38 - 37		30.289	2726.260	0.011	1.344	7927.575	0.000
	37 - 36		30.380	2742.080	0.011	1.344	8020.391	0.000
	36 - 35		30.472	2757.890	0.011	1.344	8113.741	0.000
	35 - 34		30.564	2773.710	0.011	1.344	8207.633	0.000
L34	34 - 33	TP37.633x36.608x0.638	30.651	2736.830	0.011	1.344	8149.908	0.000
	33 - 32		30.737	2752.340	0.011	1.343	8243.100	0.000
	32 - 31		30.824	2767.860	0.011	1.343	8336.833	0.000
	31 - 30		30.911	2783.370	0.011	1.343	8431.083	0.000
	30 - 29		30.999	2798.880	0.011	1.343	8525.833	0.000
L35	29 - 27.75 (35)	TP37.89x37.633x0.638	31.110	2818.280	0.011	1.343	8645.083	0.000
L36	27.75 - 27.5 (36)	TP37.941x37.89x0.638	31.116	2822.150	0.011	1.343	8669.000	0.000
L37	27.5 - 26.361	TP38.642x37.941x0.638	31.228	2839.820	0.011	1.343	8778.500	0.000
	26.361 - 25.222		31.326	2857.490	0.011	1.343	8888.667	0.000
	25.222 - 24.083		31.424	2875.160	0.011	1.343	8999.583	0.000
L38	24.083 - 23.833 (38)	TP38.693x38.642x0.525	31.430	2377.990	0.013	1.343	7490.183	0.000
L39	23.833 - 22.833	TP39.718x38.693x0.525	31.523	2390.760	0.013	1.343	7571.241	0.000
	22.833 - 21.833		31.602	2403.540	0.013	1.343	7652.741	0.000
	21.833 - 20.833		31.681	2416.310	0.013	1.343	7734.675	0.000
	20.833 - 19.833		31.760	2429.090	0.013	1.343	7817.050	0.000
	19.833 - 18.833		31.839	2441.860	0.013	1.343	7899.858	0.000
L40	18.833 - 18.083 (40)	TP39.872x39.718x0.525	31.894	2451.450	0.013	1.343	7962.250	0.000
L41	18.083 - 17.833 (41)	TP39.923x39.872x0.638	31.904	2972.120	0.011	1.343	9620.250	0.000
L42	17.833 - 16.833	TP40.948x39.923x0.625	32.004	2929.980	0.011	1.343	9538.917	0.000
	16.833 - 15.833		32.090	2945.190	0.011	1.342	9638.667	0.000
	15.833 -		32.177	2960.400	0.011	1.342	9739.000	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 $\frac{T_u}{\phi T_n}$
	14.833							
	14.833 - 13.833		32.264	2975.610	0.011	1.342	9839.833	0.000
	13.833 - 12.833		32.351	2990.820	0.011	1.342	9941.250	0.000
L43	12.833 - 11.833	TP41.974x40.948x0.625	32.438	3006.030	0.011	1.342	10043.083	0.000
	11.833 - 10.833		32.525	3021.240	0.011	1.342	10145.500	0.000
	10.833 - 9.833		32.694	3036.450	0.011	1.342	10248.417	0.000
	9.833 - 8.833		32.781	3051.660	0.011	1.213	10351.833	0.000
	8.833 - 7.833		32.868	3066.870	0.011	1.213	10455.833	0.000
L44	7.833 - 6.833	TP42.999x41.974x0.613	32.956	3021.340	0.011	1.213	10357.333	0.000
	6.833 - 5.833		33.042	3036.250	0.011	1.213	10460.333	0.000
	5.833 - 4.833		33.129	3051.150	0.011	1.213	10563.750	0.000
	4.833 - 3.833		33.216	3066.060	0.011	1.213	10667.667	0.000
	3.833 - 2.833		33.304	3080.960	0.011	1.213	10772.167	0.000
L45	2.833 - 1.4165	TP43.58x42.999x0.613	33.434	3102.080	0.011	1.213	10921.000	0.000
	1.4165 - 0		33.557	3123.190	0.011	1.213	11070.917	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	140 - 139	0.000	0.000	0.000	0.000	0.000	0.000 ✔	1.000	4.8.2 ✔
	139 - 138	0.004	0.022	0.000	0.009	0.000	0.026 ✔	1.000	4.8.2 ✔
	138 - 137	0.004	0.035	0.000	0.009	0.000	0.039 ✔	1.000	4.8.2 ✔
	137 - 136	0.004	0.053	0.000	0.011	0.000	0.057 ✔	1.000	4.8.2 ✔
	136 - 135	0.004	0.067	0.000	0.011	0.000	0.072 ✔	1.000	4.8.2 ✔
L2	135 - 134	0.005	0.083	0.000	0.011	0.000	0.088 ✔	1.000	4.8.2 ✔
	134 - 133	0.005	0.097	0.000	0.011	0.000	0.102 ✔	1.000	4.8.2 ✔
	133 - 132	0.005	0.111	0.000	0.011	0.000	0.116 ✔	1.000	4.8.2 ✔
	132 - 131	0.005	0.124	0.000	0.011	0.000	0.129 ✔	1.000	4.8.2 ✔
	131 - 130	0.005	0.137	0.000	0.011	0.000	0.141 ✔	1.000	4.8.2 ✔
L3	130 - 129	0.005	0.149	0.000	0.011	0.000	0.154 ✔	1.000	4.8.2 ✔
	129 - 128	0.005	0.164	0.000	0.013	0.000	0.169 ✔	1.000	4.8.2 ✔
	128 - 127	0.008	0.211	0.000	0.024	0.001	0.219 ✔	1.000	4.8.2 ✔
	127 - 126	0.008	0.237	0.000	0.023	0.001	0.246 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	126 - 125	0.008	0.263	0.000	0.023	0.001	0.271 ✔	1.000	4.8.2 ✔
L4	125 - 124	0.008	0.287	0.000	0.023	0.001	0.295 ✔	1.000	4.8.2 ✔
	124 - 123	0.008	0.310	0.000	0.023	0.001	0.319 ✔	1.000	4.8.2 ✔
	123 - 122	0.008	0.333	0.000	0.023	0.001	0.341 ✔	1.000	4.8.2 ✔
	122 - 121	0.008	0.355	0.000	0.023	0.000	0.363 ✔	1.000	4.8.2 ✔
	121 - 120	0.008	0.376	0.000	0.023	0.000	0.384 ✔	1.000	4.8.2 ✔
L5	120 - 119	0.008	0.396	0.000	0.023	0.000	0.404 ✔	1.000	4.8.2 ✔
	119 - 118	0.008	0.415	0.000	0.023	0.000	0.423 ✔	1.000	4.8.2 ✔
	118 - 117	0.008	0.434	0.000	0.023	0.000	0.442 ✔	1.000	4.8.2 ✔
	117 - 116	0.008	0.452	0.000	0.022	0.000	0.460 ✔	1.000	4.8.2 ✔
	116 - 115	0.008	0.469	0.000	0.022	0.000	0.478 ✔	1.000	4.8.2 ✔
L6	115 - 114	0.008	0.486	0.000	0.022	0.000	0.494 ✔	1.000	4.8.2 ✔
	114 - 113	0.008	0.502	0.000	0.022	0.001	0.511 ✔	1.000	4.8.2 ✔
	113 - 112	0.008	0.518	0.000	0.022	0.001	0.526 ✔	1.000	4.8.2 ✔
	112 - 111	0.008	0.533	0.000	0.022	0.001	0.542 ✔	1.000	4.8.2 ✔
	111 - 110	0.008	0.548	0.000	0.022	0.001	0.556 ✔	1.000	4.8.2 ✔
L7	110 - 109	0.008	0.562	0.000	0.022	0.001	0.570 ✔	1.000	4.8.2 ✔
	109 - 108	0.008	0.576	0.000	0.022	0.001	0.584 ✔	1.000	4.8.2 ✔
	108 - 107	0.010	0.604	0.000	0.029	0.001	0.614 ✔	1.000	4.8.2 ✔
	107 - 106	0.010	0.625	0.000	0.029	0.001	0.636 ✔	1.000	4.8.2 ✔
	106 - 105	0.010	0.646	0.000	0.029	0.001	0.657 ✔	1.000	4.8.2 ✔
L8	105 - 103.667	0.010	0.674	0.000	0.029	0.001	0.684 ✔	1.000	4.8.2 ✔
	103.667 - 102.333	0.010	0.700	0.000	0.028	0.001	0.711 ✔	1.000	4.8.2 ✔
L9	102.333 - 102.083 (9)	0.006	0.457	0.000	0.018	0.000	0.464 ✔	1.000	4.8.2 ✔
L10	102.083 - 101.083	0.007	0.483	0.000	0.019	0.000	0.490 ✔	1.000	4.8.2 ✔
	101.083 - 100.083	0.007	0.494	0.000	0.019	0.000	0.501 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	100.083 - 99.083	0.008	0.508	0.000	0.022	0.000	0.516 ✔	1.000	4.8.2 ✔
	99.083 - 98.083	0.008	0.522	0.000	0.022	0.000	0.530 ✔	1.000	4.8.2 ✔
	98.083 - 97.083	0.008	0.535	0.000	0.022	0.000	0.543 ✔	1.000	4.8.2 ✔
L11	97.083 - 96.0415	0.008	0.549	0.000	0.022	0.000	0.557 ✔	1.000	4.8.2 ✔
	96.0415 - 95	0.008	0.562	0.000	0.022	0.000	0.570 ✔	1.000	4.8.2 ✔
	95 - 91.75	0.004	0.316	0.000	0.011	0.000	0.321 ✔	1.000	4.8.2 ✔
L12	95 - 91.75	0.004	0.286	0.000	0.010	0.000	0.290 ✔	1.000	4.8.2 ✔
	91.75 - 90.75	0.008	0.616	0.000	0.021	0.000	0.624 ✔	1.000	4.8.2 ✔
L13	90.75 - 89.75	0.008	0.626	0.000	0.021	0.000	0.635 ✔	1.000	4.8.2 ✔
	89.75 - 88.75	0.008	0.637	0.000	0.021	0.000	0.645 ✔	1.000	4.8.2 ✔
	88.75 - 87.75	0.008	0.647	0.000	0.021	0.000	0.655 ✔	1.000	4.8.2 ✔
	87.75 - 86.75	0.008	0.656	0.000	0.021	0.000	0.665 ✔	1.000	4.8.2 ✔
	86.75 - 85.75	0.008	0.666	0.000	0.021	0.000	0.674 ✔	1.000	4.8.2 ✔
L14	85.75 - 85.333 (14)	0.008	0.669	0.000	0.021	0.000	0.678 ✔	1.000	4.8.2 ✔
L15	85.333 - 85.083 (15)	0.005	0.436	0.000	0.013	0.000	0.441 ✔	1.000	4.8.2 ✔
L16	85.083 - 83.7915	0.005	0.443	0.000	0.013	0.000	0.448 ✔	1.000	4.8.2 ✔
	83.7915 - 82.5	0.005	0.450	0.000	0.013	0.000	0.456 ✔	1.000	4.8.2 ✔
L17	82.5 - 82.25 (17)	0.009	0.696	0.000	0.021	0.000	0.705 ✔	1.000	4.8.2 ✔
L18	82.25 - 81.23	0.006	0.467	0.000	0.014	0.000	0.472 ✔	1.000	4.8.2 ✔
	81.23 - 80.21	0.006	0.472	0.000	0.014	0.000	0.478 ✔	1.000	4.8.2 ✔
	80.21 - 79.19	0.006	0.477	0.000	0.014	0.000	0.483 ✔	1.000	4.8.2 ✔
	79.19 - 78.17	0.006	0.483	0.000	0.014	0.000	0.489 ✔	1.000	4.8.2 ✔
	78.17 - 77.15	0.006	0.488	0.000	0.014	0.000	0.494 ✔	1.000	4.8.2 ✔
L19	77.15 - 76.9167 (19)	0.006	0.489	0.000	0.014	0.000	0.495 ✔	1.000	4.8.2 ✔
L20	76.9167 - 75.9167	0.006	0.505	0.000	0.014	0.000	0.511 ✔	1.000	4.8.2 ✔
	75.9167 - 74.9167	0.006	0.510	0.000	0.014	0.000	0.516 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	74.9167 - 73.9167	0.006	0.514	0.000	0.014	0.000	0.521 ✔	1.000	4.8.2 ✔
	73.9167 - 72.9167	0.006	0.519	0.000	0.014	0.000	0.525 ✔	1.000	4.8.2 ✔
	72.9167 - 71.9167	0.006	0.523	0.000	0.014	0.000	0.530 ✔	1.000	4.8.2 ✔
L21	71.9167 - 70.9167	0.006	0.540	0.000	0.014	0.000	0.546 ✔	1.000	4.8.2 ✔
	70.9167 - 69.9167	0.006	0.544	0.000	0.014	0.000	0.550 ✔	1.000	4.8.2 ✔
	69.9167 - 68.9167	0.006	0.548	0.000	0.014	0.000	0.555 ✔	1.000	4.8.2 ✔
	68.9167 - 67.9167	0.006	0.552	0.000	0.014	0.000	0.559 ✔	1.000	4.8.2 ✔
	67.9167 - 66.9167	0.006	0.556	0.000	0.014	0.000	0.563 ✔	1.000	4.8.2 ✔
L22	66.9167 - 66.667 (22)	0.006	0.557	0.000	0.014	0.000	0.564 ✔	1.000	4.8.2 ✔
L23	66.667 - 66.417 (23)	0.007	0.571	0.000	0.014	0.000	0.578 ✔	1.000	4.8.2 ✔
L24	66.417 - 65.417	0.007	0.575	0.000	0.014	0.000	0.582 ✔	1.000	4.8.2 ✔
	65.417 - 64.417	0.007	0.579	0.000	0.014	0.000	0.586 ✔	1.000	4.8.2 ✔
	64.417 - 63.417	0.007	0.583	0.000	0.014	0.000	0.590 ✔	1.000	4.8.2 ✔
	63.417 - 62.417	0.007	0.587	0.000	0.014	0.000	0.594 ✔	1.000	4.8.2 ✔
	62.417 - 61.417	0.007	0.590	0.000	0.014	0.000	0.597 ✔	1.000	4.8.2 ✔
L25	61.417 - 60 (25)	0.007	0.602	0.000	0.014	0.000	0.609 ✔	1.000	4.8.2 ✔
L26	60 - 59.75 (26)	0.007	0.596	0.000	0.014	0.000	0.603 ✔	1.000	4.8.2 ✔
L27	59.75 - 58.75	0.007	0.600	0.000	0.014	0.000	0.607 ✔	1.000	4.8.2 ✔
	58.75 - 57.75	0.007	0.603	0.000	0.014	0.000	0.610 ✔	1.000	4.8.2 ✔
	57.75 - 56.75	0.007	0.606	0.000	0.014	0.000	0.613 ✔	1.000	4.8.2 ✔
	56.75 - 55.75	0.007	0.609	0.000	0.014	0.000	0.616 ✔	1.000	4.8.2 ✔
	55.75 - 54.75	0.007	0.612	0.000	0.014	0.000	0.619 ✔	1.000	4.8.2 ✔
L28	54.75 - 53.5	0.007	0.623	0.000	0.014	0.000	0.630 ✔	1.000	4.8.2 ✔
	53.5 - 52.25	0.007	0.627	0.000	0.014	0.000	0.634 ✔	1.000	4.8.2 ✔
	52.25 - 51	0.007	0.630	0.000	0.014	0.000	0.638 ✔	1.000	4.8.2 ✔
	51 - 46.5	0.004	0.317	0.000	0.007	0.000	0.321 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L29	51 - 46.5	0.004	0.311	0.000	0.007	0.000	0.315 ✔	1.000	4.8.2 ✔
	46.5 - 45.5	0.007	0.618	0.000	0.013	0.000	0.625 ✔	1.000	4.8.2 ✔
L30	45.5 - 44.25 (30)	0.007	0.621	0.000	0.013	0.000	0.628 ✔	1.000	4.8.2 ✔
L31	44.25 - 44 (31)	0.006	0.512	0.000	0.011	0.000	0.518 ✔	1.000	4.8.2 ✔
L32	44 - 43	0.006	0.523	0.000	0.011	0.000	0.529 ✔	1.000	4.8.2 ✔
	43 - 42	0.006	0.524	0.000	0.011	0.000	0.530 ✔	1.000	4.8.2 ✔
	42 - 41	0.006	0.526	0.000	0.011	0.000	0.532 ✔	1.000	4.8.2 ✔
	41 - 40	0.006	0.528	0.000	0.011	0.000	0.534 ✔	1.000	4.8.2 ✔
	40 - 39	0.006	0.529	0.000	0.011	0.000	0.535 ✔	1.000	4.8.2 ✔
L33	39 - 38	0.006	0.540	0.000	0.011	0.000	0.547 ✔	1.000	4.8.2 ✔
	38 - 37	0.006	0.542	0.000	0.011	0.000	0.548 ✔	1.000	4.8.2 ✔
	37 - 36	0.006	0.543	0.000	0.011	0.000	0.549 ✔	1.000	4.8.2 ✔
	36 - 35	0.006	0.544	0.000	0.011	0.000	0.551 ✔	1.000	4.8.2 ✔
	35 - 34	0.006	0.546	0.000	0.011	0.000	0.552 ✔	1.000	4.8.2 ✔
L34	34 - 33	0.006	0.557	0.000	0.011	0.000	0.564 ✔	1.000	4.8.2 ✔
	33 - 32	0.006	0.559	0.000	0.011	0.000	0.565 ✔	1.000	4.8.2 ✔
	32 - 31	0.007	0.560	0.000	0.011	0.000	0.566 ✔	1.000	4.8.2 ✔
	31 - 30	0.007	0.561	0.000	0.011	0.000	0.568 ✔	1.000	4.8.2 ✔
	30 - 29	0.007	0.562	0.000	0.011	0.000	0.569 ✔	1.000	4.8.2 ✔
L35	29 - 27.75 (35)	0.007	0.563	0.000	0.011	0.000	0.570 ✔	1.000	4.8.2 ✔
L36	27.75 - 27.5 (36)	0.007	0.564	0.000	0.011	0.000	0.570 ✔	1.000	4.8.2 ✔
L37	27.5 - 26.361	0.007	0.565	0.000	0.011	0.000	0.572 ✔	1.000	4.8.2 ✔
	26.361 - 25.222	0.007	0.566	0.000	0.011	0.000	0.573 ✔	1.000	4.8.2 ✔
	25.222 - 24.083	0.007	0.567	0.000	0.011	0.000	0.574 ✔	1.000	4.8.2 ✔
L38	24.083 - 23.833 (38)	0.008	0.683	0.000	0.013	0.000	0.691 ✔	1.000	4.8.2 ✔
L39	23.833 - 22.833	0.008	0.684	0.000	0.013	0.000	0.692 ✔	1.000	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	22.833 - 21.833	0.008	0.685	0.000	0.013	0.000	0.693 ✔	1.000	4.8.2 ✔
	21.833 - 20.833	0.008	0.686	0.000	0.013	0.000	0.695 ✔	1.000	4.8.2 ✔
	20.833 - 19.833	0.008	0.687	0.000	0.013	0.000	0.696 ✔	1.000	4.8.2 ✔
	19.833 - 18.833	0.008	0.688	0.000	0.013	0.000	0.697 ✔	1.000	4.8.2 ✔
L40	18.833 - 18.083 (40)	0.008	0.689	0.000	0.013	0.000	0.697 ✔	1.000	4.8.2 ✔
L41	18.083 - 17.833 (41)	0.007	0.572	0.000	0.011	0.000	0.579 ✔	1.000	4.8.2 ✔
L42	17.833 - 16.833	0.007	0.584	0.000	0.011	0.000	0.591 ✔	1.000	4.8.2 ✔
	16.833 - 15.833	0.007	0.585	0.000	0.011	0.000	0.592 ✔	1.000	4.8.2 ✔
	15.833 - 14.833	0.007	0.585	0.000	0.011	0.000	0.593 ✔	1.000	4.8.2 ✔
	14.833 - 13.833	0.007	0.586	0.000	0.011	0.000	0.593 ✔	1.000	4.8.2 ✔
	13.833 - 12.833	0.007	0.587	0.000	0.011	0.000	0.594 ✔	1.000	4.8.2 ✔
L43	12.833 - 11.833	0.007	0.587	0.000	0.011	0.000	0.595 ✔	1.000	4.8.2 ✔
	11.833 - 10.833	0.007	0.588	0.000	0.011	0.000	0.595 ✔	1.000	4.8.2 ✔
	10.833 - 9.833	0.007	0.589	0.000	0.011	0.000	0.596 ✔	1.000	4.8.2 ✔
	9.833 - 8.833	0.007	0.589	0.000	0.011	0.000	0.596 ✔	1.000	4.8.2 ✔
	8.833 - 7.833	0.007	0.590	0.000	0.011	0.000	0.597 ✔	1.000	4.8.2 ✔
L44	7.833 - 6.833	0.007	0.602	0.000	0.011	0.000	0.609 ✔	1.000	4.8.2 ✔
	6.833 - 5.833	0.007	0.602	0.000	0.011	0.000	0.610 ✔	1.000	4.8.2 ✔
	5.833 - 4.833	0.008	0.603	0.000	0.011	0.000	0.610 ✔	1.000	4.8.2 ✔
	4.833 - 3.833	0.008	0.603	0.000	0.011	0.000	0.611 ✔	1.000	4.8.2 ✔
	3.833 - 2.833	0.008	0.603	0.000	0.011	0.000	0.611 ✔	1.000	4.8.2 ✔
L45	2.833 - 1.4165	0.008	0.604	0.000	0.011	0.000	0.612 ✔	1.000	4.8.2 ✔
	1.4165 - 0	0.008	0.604	0.000	0.011	0.000	0.612 ✔	1.000	4.8.2 ✔

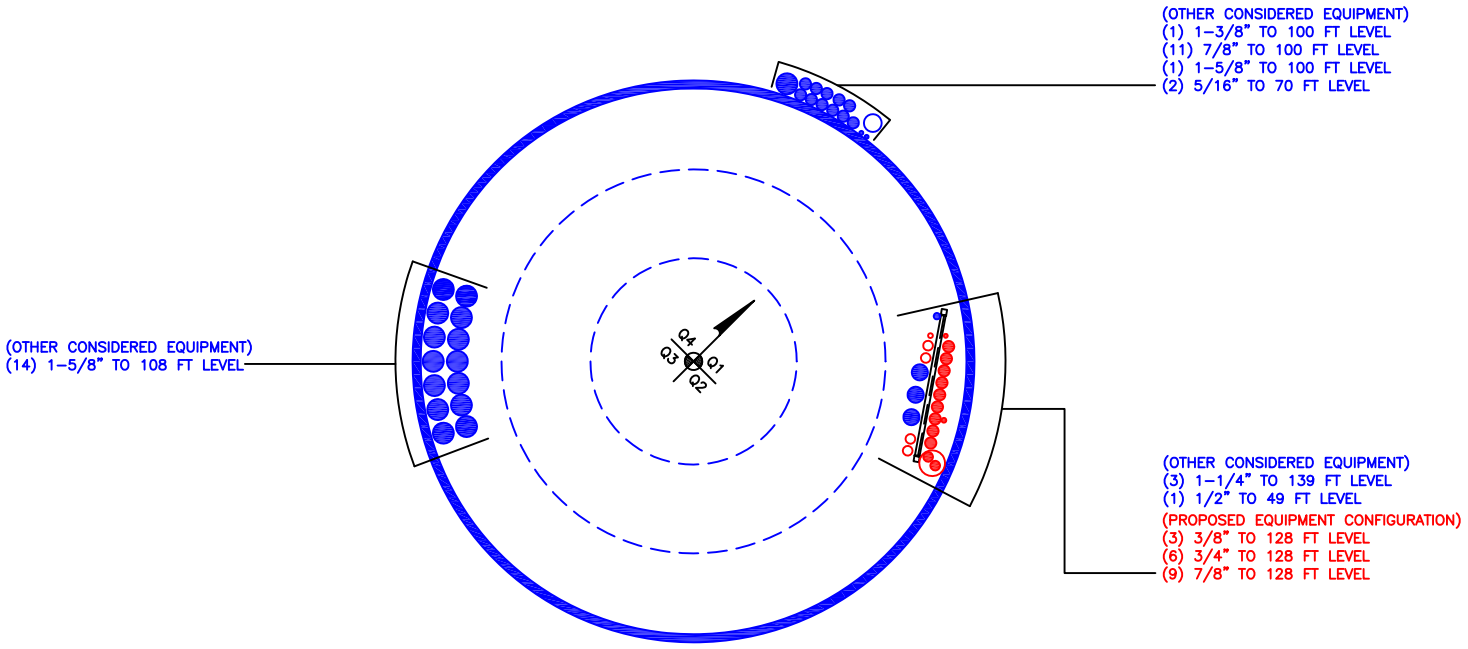
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	140 - 135	Pole	TP17.025x16x0.25	1	-4.007	918.797	**	**
L2	135 - 130	Pole	TP18.05x17.025x0.25	2	-4.489	974.931	**	**
L3	130 - 125	Pole	TP19.075x18.05x0.25	3	-7.944	1031.070	**	**
L4	125 - 120	Pole	TP20.099x19.075x0.25	4	-8.351	1087.200	**	**
L5	120 - 115	Pole	TP21.124x20.099x0.25	5	-8.801	1143.330	**	**
L6	115 - 110	Pole	TP22.149x21.124x0.25	6	-9.261	1199.470	**	**
L7	110 - 105	Pole	TP23.174x22.149x0.25	7	-12.200	1249.340	**	**
L8	105 - 102.333	Pole	TP23.721x23.174x0.25	8	-12.526	1269.490	**	**
L9	102.333 - 102.083	Pole	TP23.772x23.721x0.388	9	-12.581	1985.270	**	**
L10	102.083 - 97.083	Pole	TP24.797x23.772x0.375	10	-15.825	2006.460	**	**
L11	97.083 - 91.75	Pole	TP25.89x24.797x0.375	11	-16.182	2041.540	**	**
L12	91.75 - 90.75	Pole	TP25.595x24.724x0.356	12	-17.405	2134.070	**	**
L13	90.75 - 85.75	Pole	TP26.62x25.595x0.356	13	-18.705	2220.740	**	**
L14	85.75 - 85.333	Pole	TP26.706x26.62x0.356	14	-18.807	2227.970	**	**
L15	85.333 - 85.083	Pole	TP26.757x26.706x0.563	15	-18.872	3497.160	**	**
L16	85.083 - 82.5	Pole	TP27.287x26.757x0.563	16	-19.426	3567.860	**	**
L17	82.5 - 82.25	Pole	TP27.338x27.287x0.356	17	-19.491	2281.420	**	**
L18	82.25 - 77.15	Pole	TP28.383x27.337x0.55	18	-20.767	3633.390	**	**
L19	77.15 - 76.9167	Pole	TP28.431x28.383x0.55	19	-20.838	3639.630	**	**
L20	76.9167 - 71.9167	Pole	TP29.457x28.431x0.538	20	-22.381	3689.340	**	**
L21	71.9167 - 66.9167	Pole	TP30.482x29.457x0.525	21	-23.906	3732.890	**	**
L22	66.9167 - 66.667	Pole	TP30.534x30.482x0.525	22	-23.986	3739.270	**	**
L23	66.667 - 66.417	Pole	TP30.585x30.534x0.513	23	-24.049	3658.000	**	**
L24	66.417 - 61.417	Pole	TP31.61x30.585x0.513	24	-25.305	3782.750	**	**
L25	61.417 - 60	Pole	TP31.901x31.61x0.506	25	-25.664	3772.290	**	**
L26	60 - 59.75	Pole	TP31.952x31.901x0.513	26	-25.753	3824.340	**	**
L27	59.75 - 54.75	Pole	TP32.978x31.952x0.513	27	-27.167	3949.080	**	**
L28	54.75 - 46.5	Pole	TP34.67x32.978x0.506	28	-28.255	3994.090	**	**
L29	46.5 - 45.5	Pole	TP34.25x33.122x0.55	29	-30.949	4399.190	**	**
L30	45.5 - 44.25	Pole	TP34.506x34.25x0.55	30	-31.321	4432.650	**	**
L31	44.25 - 44	Pole	TP34.557x34.506x0.675	31	-31.423	5428.260	**	**
L32	44 - 39	Pole	TP35.583x34.557x0.663	32	-33.148	5490.920	**	**
L33	39 - 34	Pole	TP36.608x35.583x0.65	33	-34.918	5547.420	**	**
L34	34 - 29	Pole	TP37.633x36.608x0.638	34	-36.720	5597.770	**	**
L35	29 - 27.75	Pole	TP37.89x37.633x0.638	35	-37.172	5636.550	**	**
L36	27.75 - 27.5	Pole	TP37.941x37.89x0.638	36	-37.278	5644.310	**	**
L37	27.5 - 24.083	Pole	TP38.642x37.941x0.638	37	-38.520	5750.330	**	**
L38	24.083 - 23.833	Pole	TP38.693x38.642x0.525	38	-38.613	4755.970	**	**
L39	23.833 - 18.833	Pole	TP39.718x38.693x0.525	39	-40.243	4883.730	**	**
L40	18.833 - 18.083	Pole	TP39.872x39.718x0.525	40	-40.497	4902.890	**	**
L41	18.083 - 17.833	Pole	TP39.923x39.872x0.638	41	-40.602	5944.250	**	**
L42	17.833 - 12.833	Pole	TP40.948x39.923x0.625	42	-42.520	5981.640	**	**
L43	12.833 - 7.833	Pole	TP41.974x40.948x0.625	43	-44.709	6133.730	**	**
L44	7.833 - 2.833	Pole	TP42.999x41.974x0.613	44	-46.694	6161.930	**	**
L45	2.833 - 0	Pole	TP43.58x42.999x0.613	45	-47.827	6246.380	**	**
						Summary		
						Pole (L8)	**	**
						RATING =	**	**

** Check Additional Calculations

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876335

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- G

Site BU: 876335

Work Order: 1648818

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	140	48.25	3.25	12	16	25.89	0.25	Auto	A607-60
2	95	17.8333	0	12	24.72	28.38	0.3125	Auto	A607-65
3	77.1667	30.6667	4.5	12	28.38	34.67	0.3125	Auto	A607-65
4	51	51	0	12	33.12	43.58	0.375	Auto	A607-65

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
1	0	18.083	channel	MP3-05 (1.1875in)	4	E				E			E		E		
2	18.083	24.083	channel	MP3-05 (1.1875in)	3	E				E				E			
3	24.083	44.25	channel	MP3-05 (1.1875in)	3	E				E				E			
4	44.25	66.667	channel	MP3-05 (1.1875in)	3		E				E				E		
5	66.667	77.1667	channel	MP3-03 (1.1875in)	4		E	E			E				E		
6	77.1667	85.333	channel	MP3-03 (1.1875in)	3			E				E				E	
7	94.667	102.333	channel	MP3-03 (1.1875in)	3				E				E				E
8	0	27.75	plate	CCI-SFP-065125	1						E						
9	24.083	44.25	plate	CCI-SFP-060100	2			E				E					
10	49	60	plate	CCI-SFP-060100	1				E								
11	66.667	82.5	plate	CCI-SFP-060100	2				E				E				
12	82.5	93	plate	CCI-SFP-060100	2					E				E			
13																	

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	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
2	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
3	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
4	5.33	2.09	5.65	0.79	29.000	29.000	18.000	5.025	1.1875	A572-65
5	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
6	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
7	4.06	1.57	2.92	0.59	14.000	14.000	18.000	2.545	1.1875	A572-65
8	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
10	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
11	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
12	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	140 - 135	5		12	16.000	17.025	0.25	A607-60	1.000
2	135 - 130	5		12	17.025	18.050	0.25	A607-60	1.000
3	130 - 125	5		12	18.050	19.075	0.25	A607-60	1.000
4	125 - 120	5		12	19.075	20.099	0.25	A607-60	1.000
5	120 - 115	5		12	20.099	21.124	0.25	A607-60	1.000
6	115 - 110	5		12	21.124	22.149	0.25	A607-60	1.000
7	110 - 105	5		12	22.149	23.174	0.25	A607-60	1.000
8	105 - 102.333	2.667		12	23.174	23.721	0.25	A607-60	1.000
9	102.333 - 102.083	0.25		12	23.721	23.772	0.3875	A607-60	0.950
10	102.083 - 97.083	5		12	23.772	24.797	0.375	A607-60	0.968
11	97.083 - 95	5.333	3.25	12	24.797	25.890	0.375	A607-60	0.962
12	95 - 90.75	4.25		12	24.724	25.595	0.35625	A607-65	1.294
13	90.75 - 85.75	5		12	25.595	26.620	0.35625	A607-65	1.278
14	85.75 - 85.333	0.417		12	26.620	26.706	0.35625	A607-65	1.276
15	85.333 - 85.083	0.25		12	26.706	26.757	0.5625	A607-65	0.999
16	85.083 - 82.5	2.583		12	26.757	27.287	0.5625	A607-65	0.990
17	82.5 - 82.25	0.25	0	12	27.287	27.338	0.35625	A607-65	1.267
18	82.25 - 77.15	5.1		12	27.337	28.383	0.55	A607-65	1.054
19	77.15 - 76.9167	0.2333		12	28.383	28.431	0.55	A607-65	1.053
20	76.9167 - 71.9167	5		12	28.431	29.457	0.5375	A607-65	1.060
21	71.9167 - 66.9167	5		12	29.457	30.482	0.525	A607-65	1.068
22	66.9167 - 66.667	0.2497		12	30.482	30.534	0.525	A607-65	1.067
23	66.667 - 66.417	0.25		12	30.534	30.585	0.5125	A607-65	0.956
24	66.417 - 61.417	5		12	30.585	31.610	0.5125	A607-65	0.944
25	61.417 - 60	1.417		12	31.610	31.901	0.50625	A607-65	0.953
26	60 - 59.75	0.25		12	31.901	31.952	0.5125	A607-65	1.057
27	59.75 - 54.75	5		12	31.952	32.978	0.5125	A607-65	1.042
28	54.75 - 51	8.25	4.5	12	32.978	34.670	0.50625	A607-65	1.045
29	51 - 45.5	5.5		12	33.122	34.250	0.55	A607-65	0.970
30	45.5 - 44.25	1.25		12	34.250	34.506	0.55	A607-65	0.968
31	44.25 - 44	0.25		12	34.506	34.557	0.675	A607-65	0.954
32	44 - 39	5		12	34.557	35.583	0.6625	A607-65	0.960
33	39 - 34	5		12	35.583	36.608	0.65	A607-65	0.967
34	34 - 29	5		12	36.608	37.633	0.6375	A607-65	0.974
35	29 - 27.75	1.25		12	37.633	37.890	0.6375	A607-65	0.972
36	27.75 - 27.5	0.25		12	37.890	37.941	0.6375	A607-65	0.971
37	27.5 - 24.083	3.417		12	37.941	38.642	0.6375	A607-65	0.964
38	24.083 - 23.833	0.25		12	38.642	38.693	0.525	A607-65	0.980
39	23.833 - 18.833	5		12	38.693	39.718	0.525	A607-65	0.973
40	18.833 - 18.083	0.75		12	39.718	39.872	0.525	A607-65	0.972
41	18.083 - 17.833	0.25		12	39.872	39.923	0.6375	A607-65	0.974
42	17.833 - 12.833	5		12	39.923	40.948	0.625	A607-65	0.983
43	12.833 - 7.833	5		12	40.948	41.974	0.625	A607-65	0.973
44	7.833 - 2.833	5		12	41.974	42.999	0.6125	A607-65	0.984
45	2.833 - 0	2.833		12	42.999	43.580	0.6125	A607-65	0.979

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	140 - 135	4.01	21.00	4.98
2	135 - 130	4.49	48.00	5.49
3	130 - 125	7.94	103.33	12.03
4	125 - 120	8.35	164.38	12.40
5	120 - 115	8.80	227.32	12.79
6	115 - 110	9.26	292.22	13.18
7	110 - 105	12.20	375.97	17.88
8	105 - 102.333	12.53	423.89	18.08
9	102.333 - 102.083	12.58	428.41	18.09
10	102.083 - 97.083	15.82	530.24	22.06
11	97.083 - 95	16.18	576.34	22.22
12	95 - 90.75	17.41	671.66	22.63
13	90.75 - 85.75	18.70	786.52	23.20
14	85.75 - 85.333	18.81	796.19	23.22
15	85.333 - 85.083	18.87	802.00	23.24
16	85.083 - 82.5	19.43	862.79	23.92
17	82.5 - 82.25	19.49	868.77	23.94
18	82.25 - 77.15	20.77	993.36	24.83
19	77.15 - 76.9167	20.84	999.15	24.85
20	76.9167 - 71.9167	22.38	1125.91	25.64
21	71.9167 - 66.9167	23.91	1255.83	26.42
22	66.9167 - 66.667	23.99	1262.43	26.44
23	66.667 - 66.417	24.05	1269.04	26.48
24	66.417 - 61.417	25.31	1402.99	27.14
25	61.417 - 60	25.66	1441.55	27.33
26	60 - 59.75	25.75	1448.38	27.35
27	59.75 - 54.75	27.17	1586.65	28.00
28	54.75 - 51	28.25	1692.43	28.47
29	51 - 45.5	30.95	1851.50	29.31
30	45.5 - 44.25	31.32	1888.20	29.46
31	44.25 - 44	31.42	1895.56	29.48
32	44 - 39	33.15	2044.41	30.11
33	39 - 34	34.92	2195.95	30.56
34	34 - 29	36.72	2349.71	31.00
35	29 - 27.75	37.17	2388.49	31.11
36	27.75 - 27.5	37.28	2396.26	31.12
37	27.5 - 24.083	38.52	2503.02	31.42
38	24.083 - 23.833	38.61	2510.87	31.43
39	23.833 - 18.833	40.24	2668.91	31.84
40	18.833 - 18.083	40.50	2692.79	31.89
41	18.083 - 17.833	40.60	2700.75	31.90
42	17.833 - 12.833	42.52	2861.26	32.35
43	12.833 - 7.833	44.71	3024.78	32.87
44	7.833 - 2.833	46.69	3190.04	33.30
45	2.833 - 0	47.83	3284.63	33.56

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
140 - 135	Pole	TP17.025x16x0.25	Pole	7.2%	Pass
135 - 130	Pole	TP18.05x17.025x0.25	Pole	14.1%	Pass
130 - 125	Pole	TP19.075x18.05x0.25	Pole	27.0%	Pass
125 - 120	Pole	TP20.099x19.075x0.25	Pole	38.3%	Pass
120 - 115	Pole	TP21.124x20.099x0.25	Pole	47.6%	Pass
115 - 110	Pole	TP22.149x21.124x0.25	Pole	55.5%	Pass
110 - 105	Pole	TP23.174x22.149x0.25	Pole	65.5%	Pass
105 - 102.33	Pole	TP23.721x23.174x0.25	Pole	70.9%	Pass
102.33 - 102.08	Pole + Reinf.	TP23.772x23.721x0.3875	Reinf. 7 Tension Rupture	64.5%	Pass
102.08 - 97.08	Pole + Reinf.	TP24.797x23.772x0.375	Reinf. 7 Tension Rupture	74.4%	Pass
97.08 - 95	Pole + Reinf.	TP25.89x24.797x0.375	Reinf. 7 Tension Rupture	78.5%	Pass
95 - 90.75	Pole + Reinf.	TP25.595x24.724x0.3563	Pole	67.8%	Pass
90.75 - 85.75	Pole + Reinf.	TP26.62x25.595x0.3563	Pole	73.3%	Pass
85.75 - 85.33	Pole + Reinf.	TP26.706x26.62x0.3563	Pole	73.8%	Pass
85.33 - 85.08	Pole + Reinf.	TP26.757x26.706x0.5625	Reinf. 6 Tension Rupture	67.0%	Pass
85.08 - 82.5	Pole + Reinf.	TP27.287x26.757x0.5625	Reinf. 6 Tension Rupture	69.7%	Pass
82.5 - 82.25	Pole + Reinf.	TP27.338x27.287x0.3563	Pole	76.8%	Pass
82.25 - 77.15	Pole + Reinf.	TP28.383x27.337x0.55	Reinf. 5 Tension Rupture	74.9%	Pass
77.15 - 76.92	Pole + Reinf.	TP28.431x28.383x0.55	Reinf. 5 Tension Rupture	75.1%	Pass
76.92 - 71.92	Pole + Reinf.	TP29.457x28.431x0.5375	Reinf. 5 Tension Rupture	79.7%	Pass
71.92 - 66.92	Pole + Reinf.	TP30.482x29.457x0.525	Reinf. 5 Tension Rupture	83.9%	Pass
66.92 - 66.67	Pole + Reinf.	TP30.534x30.482x0.525	Reinf. 5 Tension Rupture	84.1%	Pass
66.67 - 66.42	Pole + Reinf.	TP30.585x30.534x0.5125	Reinf. 4 Tension Rupture	82.7%	Pass
66.42 - 61.42	Pole + Reinf.	TP31.61x30.585x0.5125	Reinf. 4 Tension Rupture	86.6%	Pass
61.42 - 60	Pole + Reinf.	TP31.901x31.61x0.5063	Reinf. 4 Tension Rupture	87.7%	Pass
60 - 59.75	Pole + Reinf.	TP31.952x31.901x0.5125	Reinf. 4 Tension Rupture	81.0%	Pass
59.75 - 54.75	Pole + Reinf.	TP32.978x31.952x0.5125	Reinf. 4 Tension Rupture	84.2%	Pass
54.75 - 51	Pole + Reinf.	TP34.67x32.978x0.5063	Reinf. 4 Tension Rupture	86.5%	Pass
51 - 45.5	Pole + Reinf.	TP34.25x33.122x0.55	Reinf. 4 Tension Rupture	88.8%	Pass
45.5 - 44.25	Pole + Reinf.	TP34.506x34.25x0.55	Reinf. 4 Tension Rupture	89.4%	Pass
44.25 - 44	Pole + Reinf.	TP34.557x34.506x0.675	Reinf. 3 Tension Rupture	76.2%	Pass
44 - 39	Pole + Reinf.	TP35.583x34.557x0.6625	Reinf. 3 Tension Rupture	78.4%	Pass
39 - 34	Pole + Reinf.	TP36.608x35.583x0.65	Reinf. 3 Tension Rupture	80.3%	Pass
34 - 29	Pole + Reinf.	TP37.633x36.608x0.6375	Reinf. 3 Tension Rupture	82.1%	Pass
29 - 27.75	Pole + Reinf.	TP37.89x37.633x0.6375	Reinf. 3 Tension Rupture	82.6%	Pass
27.75 - 27.5	Pole + Reinf.	TP37.941x37.89x0.6375	Reinf. 3 Tension Rupture	82.6%	Pass
27.5 - 24.08	Pole + Reinf.	TP38.642x37.941x0.6375	Reinf. 3 Tension Rupture	83.7%	Pass
24.08 - 23.83	Pole + Reinf.	TP38.693x38.642x0.525	Reinf. 2 Tension Rupture	97.5%	Pass
23.83 - 18.83	Pole + Reinf.	TP39.718x38.693x0.525	Reinf. 2 Tension Rupture	99.0%	Pass
18.83 - 18.08	Pole + Reinf.	TP39.872x39.718x0.525	Reinf. 2 Tension Rupture	99.2%	Pass
18.08 - 17.83	Pole + Reinf.	TP39.923x39.872x0.6375	Reinf. 1 Tension Rupture	89.7%	Pass
17.83 - 12.83	Pole + Reinf.	TP40.948x39.923x0.625	Reinf. 1 Tension Rupture	91.1%	Pass
12.83 - 7.83	Pole + Reinf.	TP41.974x40.948x0.625	Reinf. 1 Tension Rupture	92.3%	Pass
7.83 - 2.83	Pole + Reinf.	TP42.999x41.974x0.6125	Reinf. 1 Tension Rupture	93.4%	Pass
2.83 - 0	Pole + Reinf.	TP43.58x42.999x0.6125	Reinf. 1 Tension Rupture	94.0%	Pass
				Summary	
			Pole	76.8%	Pass
			Reinforcement	99.2%	Pass
			Overall	99.2%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity												
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
140 - 135	486	n/a	486	13.48	n/a	13.48	7.2%												
135 - 130	580	n/a	580	14.31	n/a	14.31	14.1%												
130 - 125	686	n/a	686	15.13	n/a	15.13	27.0%												
125 - 120	805	n/a	805	15.96	n/a	15.96	38.3%												
120 - 115	936	n/a	936	16.78	n/a	16.78	47.6%												
115 - 110	1081	n/a	1081	17.60	n/a	17.60	55.5%												
110 - 105	1240	n/a	1240	18.43	n/a	18.43	65.5%												
105 - 102.33	1330	n/a	1330	18.87	n/a	18.87	70.9%												
102.33 - 102.08	1339	684	2024	18.91	8.76	27.67	45.7%							64.5%					
102.08 - 97.08	1522	742	2263	19.73	8.76	28.49	53.6%							74.4%					
97.08 - 95	1603	766	2369	20.08	8.76	28.84	56.9%							78.5%					
95 - 90.75	2193	282	2475	25.40	12.00	37.40	67.7%												63.3%
90.75 - 85.75	2464	309	2772	26.43	12.00	38.43	73.3%												69.6%
85.75 - 85.33	2487	311	2798	26.52	12.00	38.52	73.8%												70.0%
85.33 - 85.08	2427	1798	4225	26.57	20.76	47.33	47.4%						67.0%						57.8%
85.08 - 82.5	2574	1868	4442	27.10	20.76	47.86	49.4%						69.7%						60.3%
82.5 - 82.25	2666	328	2994	27.16	12.00	39.16	76.8%											73.5%	
82.25 - 77.15	2943	1986	4929	28.21	23.68	51.89	54.8%					74.9%						63.5%	
77.15 - 76.92	2958	1993	4951	28.25	23.68	51.93	55.0%					75.1%						63.7%	
76.92 - 71.92	3289	2136	5425	29.28	23.68	52.96	59.1%					79.7%						68.1%	
71.92 - 66.92	3644	2284	5928	30.31	23.68	53.99	63.1%					83.9%						72.1%	
66.92 - 66.67	3662	2292	5954	30.37	23.68	54.05	63.2%					84.1%						72.3%	
66.67 - 66.42	3568	2203	5771	30.42	16.95	47.37	57.5%				82.7%								
66.42 - 61.42	3943	2345	6288	31.45	16.95	48.40	61.1%				86.6%								
61.42 - 60	4054	2386	6440	31.74	16.95	48.69	62.0%				87.7%								
60 - 59.75	4081	2500	6581	31.79	22.95	54.74	64.9%				81.0%						68.6%		
59.75 - 54.75	4496	2725	7221	32.82	22.95	55.77	68.0%				84.2%						71.7%		
54.75 - 51	4820	2847	7667	33.60	22.95	56.55	70.6%				86.5%						73.9%		
51 - 45.5	5999	2731	8730	40.85	16.95	57.80	60.6%				88.8%								
45.5 - 44.25	6136	2770	8906	41.15	16.95	58.10	61.2%				89.4%								
44.25 - 44	6212	4564	10776	41.22	28.95	70.17	55.8%			76.2%						73.2%			
44 - 39	6786	4828	11614	42.45	28.95	71.40	58.0%			78.4%						75.5%			
39 - 34	7394	5100	12494	43.69	28.95	72.64	60.1%			80.3%						77.6%			
34 - 29	8038	5380	13417	44.92	28.95	73.87	62.2%			82.1%						79.5%			
29 - 27.75	8204	5451	13655	45.23	28.95	74.18	62.6%			82.6%						80.0%			
27.75 - 27.5	8238	5465	13703	45.30	28.95	74.25	62.7%			82.6%						80.1%			
27.5 - 24.08	8706	5662	14368	46.14	28.95	75.09	64.1%			83.7%						81.3%			
24.08 - 23.83	8683	3447	12130	46.20	16.95	63.15	69.9%		97.5%										
23.83 - 18.83	9399	3624	13023	47.44	16.95	64.39	71.7%		99.0%										
18.83 - 18.08	9509	3651	13161	47.62	16.95	64.57	72.0%		99.2%										
18.08 - 17.83	9807	6225	16031	47.69	30.73	78.41	68.1%	89.7%							71.4%				
17.83 - 12.83	10580	6544	17124	48.92	30.73	79.65	69.9%	91.1%							72.8%				
12.83 - 7.83	11393	6871	18265	50.16	30.73	80.88	71.7%	92.3%							74.1%				
7.83 - 2.83	12247	7207	19454	51.39	30.73	82.12	73.4%	93.4%							75.4%				
2.83 - 0	12749	7401	20150	52.10	30.73	82.82	74.3%	94.0%							76.1%				

Note: Section capacity checked in 5 degree increments.

Proj. Number	77969.016.01
Proj. Name	EAST FARMINGTON, CT
Code	Rev. G

Previously Added Anchor Rods

Diameter	1.75	in
Grade	A193 Gr B7	
Quantity	6	
Bolt Circle	54.1	in

Existing Mfg Anchor Rods

Diameter	2.25	in
Quantity	12	
Bolt Circle	51	in

Summary Output

- Anchor Rod Bracket Checks

Tube Stress:	**49.9%**
Max. Weld Stress:	**91.8%**

Analysis Criteria

Load for Calcs?	**Current Load**	
Current Load	127.3	kips
Capacity	190	kips

Foundation Properties

Type	Pier	
Pier Diameter	8	ft
f'_c	3000	psi
Clear Cover	3	inch
Pad Width	20	ft
Vert.Rebar Size	11	
Vert. Quantity	24	
Tie Size	5	
$f_{y\ rebar}$	60	ksi

Tower Properties

Fy_{pole} =	65	ksi
Fu_{pole} =	80	ksi
Fy_{base} =	60	ksi
Fu_{base} =	75	ksi

Anchor Rod Bracket Properties

Gusset Properties

Thickness	1.25	inch
Pole to Tube CL	5.25	inch
Height	36	inch
Width at Tube	1.75	inch
Fy_{plate} =	65	ksi
Fu_{plate} =	80	ksi
Gap =	0	inch
Notch =	0.75	inch

Pipe /Tube Properties

Size	4 XXS Pipe	
L_{pipe} =	10.5	inch
Length Above Gusset	0	inch
F_{ypipe} =	35	ksi
D_{pipe} =	4.5	inch
t_{pipe} =	0.674	inch
A_{pipe} =	8.101300374	$inch^2$
I_{pipe} =	15.28366215	$inch^4$
r_{pipe} =	1.373524299	inch

Weld Properties

F_{EXX} =	70	ksi	Weld Material Grade
Load Angle	60	degrees	

- Bracket to Tube Weld

Weld Type	Double Bevel+Fillet		
Fillet Size	6		Vertical fillet weld size in sixteenths
Bevel Depth	0.375	inch	Bevel Depth in inches
$l_{vweldpipe}$ =	10.5	inch	Length of Vertical Weld to Pipe

- Bracket to Pole Weld

Weld Type	Double Fillet		
D_{vpole} =	6		Vertical fillet weld size *in sixteenths*
H =	36	inch	Height of vertical weld from base plate

- Gusset to Base Plate Weld

Weld Type	Double Bevel+Fillet		
Bevel Depth	8	inch	Bevel depth in inches
Fillet Size	0.5		Fillet weld size in sixteenths

Additional Variables

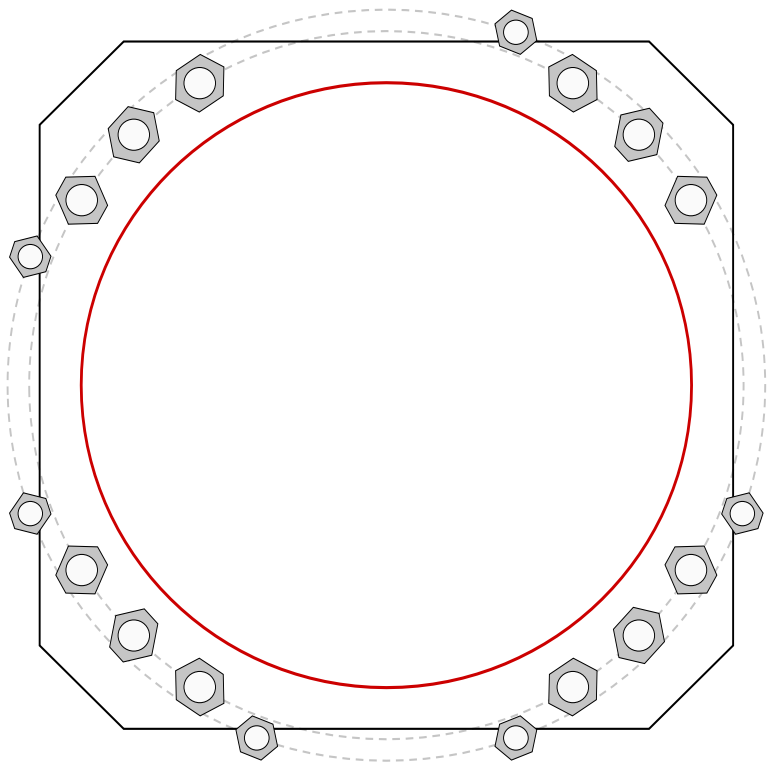
C_1 =	1.00	Electrode Strength Coefficient
k_{rt} =	0	Transverse Reinforcement Index :
ψ_t =	1	Rebar Location Factor :

Monopole Base Plate Connection

Site Info	
BU #	876335
Site Name	EAST FARMINGTON, CT
Order #	450435 Rev # 0

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	No
l_{ar} (in)	0
Eta Factor, η	0.5

Applied Loads	
Moment (kip-ft)	3284.63
Axial Force (kips)	47.83
Shear Force (kips)	33.56



Connection Properties

Anchor Rod Data

GROUP 1: (12) 2-1/4" ø bolts (A615-75 X; Fy=75 ksi, Fu=100 ksi) on 51" BC

GROUP 2: (6) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 54.1" BC

Base Plate Data

49.5" OD x 3" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

43.58" x 0.6125" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

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

GROUP 1:

Pu_c = 209.82	ϕPn_t = 260	**Stress Rating**
Vu = 2.8	ϕVn = n/a	**82.9%**
Mu = n/a	ϕMn = n/a	**Pass**

GROUP 2:

Pu_c = 127.3	ϕPn_t = 190	**Stress Rating**
Vu = 0	ϕVn = n/a	**67.0%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	33.64	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**74.8%**	**Pass**

Pier and Pad Foundation

BU # :	876335
Site Name:	EAST FARMINGTC
App. Number:	450435 Rev # 0

TIA-222 Revision:	G
Tower Type:	Monopole

Block Foundation?:	☐

Superstructure Analysis Reactions

Compression, P_{comp}:	48	kips
Base Shear, Vu_comp:	34	kips
Moment, M_u:	2623.5	ft-kips
Tower Height, **H**:	140	ft
BP Dist. Above Fdn, bp_{dist}:	4.5	in

Foundation Analysis Checks

	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	350.70	34.00	**9.7%**	**Pass**
Bearing Pressure (ksf)	23.28	3.08	**13.2%**	**Pass**
*Overturning (kip*ft)*	5423.49	2959.25	**54.6%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	6918.18	2810.50	**40.6%**	**Pass**
Pier Compression (kip)	30551.04	111.36	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	5101.11	881.76	**17.3%**	**Pass**
Pad Shear - 1-way (kips)	853.95	132.32	**15.5%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.000	**0.0%**	**Pass**

Soil Rating:	**54.6%**
Structural Rating:	**40.6%**

Pier Properties

Pier Shape:	Square	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	24	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	12	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties

Depth, **D**:	9	ft
Pad Width, **W**:	20	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size, **Sp**:	9	
Pad Rebar Quantity, **mp**:	27	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties

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

Soil Properties

Total Soil Unit Weight, γ:	123	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	38	degrees
SPT Blow Count, N_{blows}:	100	
Base Friction, μ:	0.35	
Neglected Depth, **N**:	4.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	8	ft

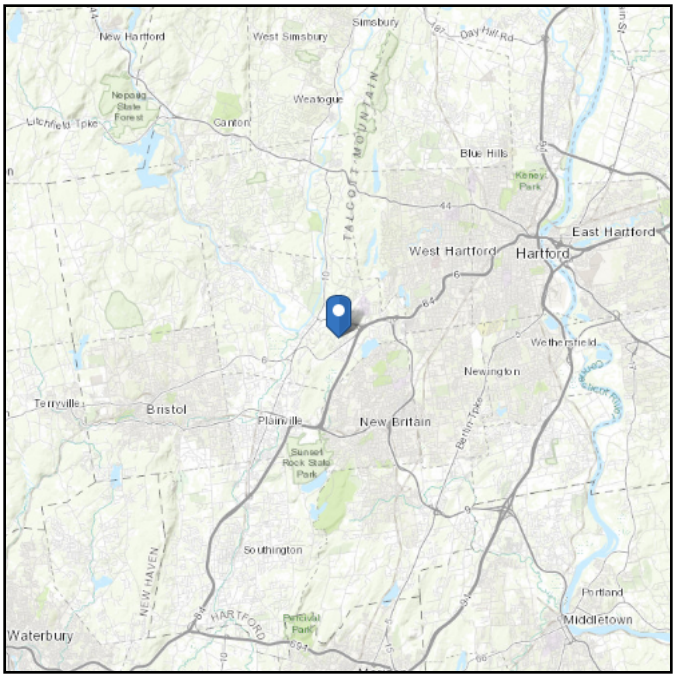
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 413.61 ft (NAVD 88)
Latitude: 41.715817
Longitude: -72.810394



Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Fri Aug 31 2018

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

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

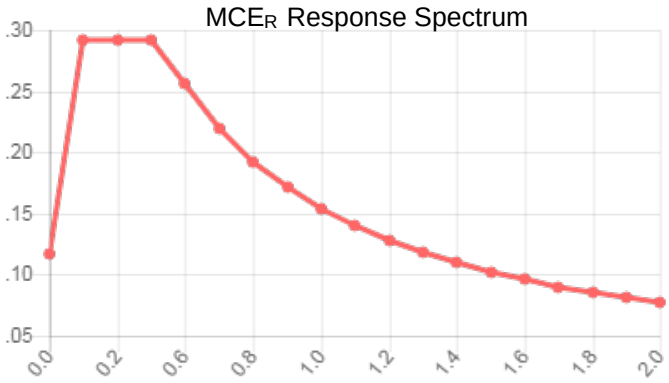
Seismic

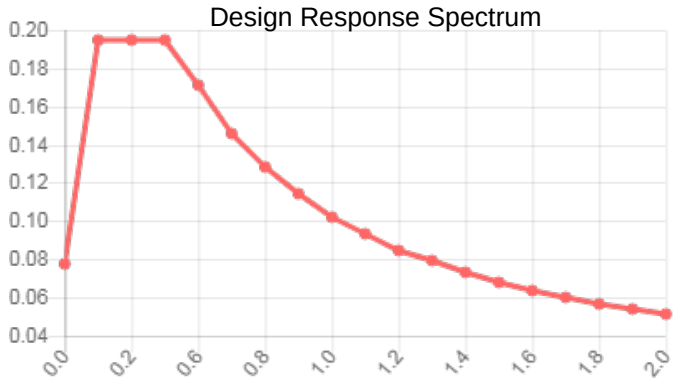
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.195
S_1 :	0.064	S_{D1} :	0.102
F_a :	1.600	T_L :	6.000
F_v :	2.400	PGA :	0.092
S_{MS} :	0.292	PGA_M :	0.148
S_{M1} :	0.154	F_{PGA} :	1.600
		I_e :	1

Seismic Design Category B





Data Accessed: Fri Aug 31 2018

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri Aug 31 2018

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

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

August 15, 2018
October 31, 2018 (Rev.1)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT5255 (LTE 3C/4C/5C)
	FA Number:	10071036
	PACE Number:	MRCTB031098
	PT Number:	2051A0GJ8A
	Site Name:	East Farmington (CT5255)
	Site Address:	130 Birdseye Road Farmington, CT 06032

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0"– Wt. = 35 lbs. /each)
- (2) HPA-65R-BUU-H6 Antennas (72.0"x14.8"x7.4" – Wt. = 51 lbs. /each)
- (1) HPA-65R-BUU-H8 Antenna (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each) (Tower Mount)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each) (Tower Mount)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) EPBQ-654L8H8-L2 Antennas (96.0"x21.0"x6.3" – Wt. = 86 lbs. /each)**
- **(3) 4426 B66 RRH's (15.0"x13.2"x5.8" – Wt. = 49 lbs. /each)**
- **(3) 4478 B5 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)**
- **(2) Squid Surge Arrestors (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG reviewed a mount mapping report prepared by CSB, LLC, dated August 7, 2018 to complete this analysis. HDG conducted a ground audit of the existing mounts on April 11, 2018.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2012 with 2005 Connecticut Supplement with 2016 Amendments, and AT&T Mount Technical Directive – R7.

- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G Annex B, the max basic wind speed for this site is equal to 105 mph with a max basic wind speed with ice of 50 mph. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 125 mph converted to a nominal wind speed of 97 mph was used for this analysis.

- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.

- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.

- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.

- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new 3" std. (3.5" O.D.) steel pipe brace, secure to existing mount and tower (typ. of 2 per sector, total of 6).**

- **Remove existing pipe mast and replace with new 2.5" std. (2.88" O.D.) steel pipe mast secured to the existing mount (typ. of 1 per sector, total of 3).**

- **Vertically center new and existing antennas and pipe masts (typ. of 3 per sector, total of 9).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing 3C/4C/5C Mount Rating	5	LC32	134%	**FAIL**
Modified 3C/4C/5C Mount Rating	5	LC32	97%	**PASS**

Reference Documents:

- Mount mapping report prepared by CSB, LLC dated August 7, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities. Contractor to perform pre-inspection prior to construction.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 413.588.8139 f: 413.517.0590 a: 116 Pleasant Street, Ste 302, Easthampton, MA 01027

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

K_z=	1.065	
z=	130	(ft)
z_g=	1200	(ft)
α=	7.0	

$Kzmin \le Kz \le 2.01$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_e K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}=	#DIV/0!	
K_h=	#DIV/0!	
K_e=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	130	
H=		(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	
K_{iz} =	1.15	(from Sec. 2.6.8)

(If Category 1 then K_{zt} =1.0)

Category= 1

2.6.8 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in

$t_{iz} = 2.0*t_i*I*K_{iz}*(Kzt)^{0.35}$ t_{iz} = 2.29 in

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	140	Gh=	0.85

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures
(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh=	1.35	**Gh=**	**1.00**

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed: V_{ult} = 125 mph

Nomial Design Wind Speed, $V_{asd} = V_{ult}\sqrt{(0.6)}$ V_{asd} = 97 mph

V_{asd} per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.

Per TIA-222-G, V_{min} = 90 mph V_{max} = 105 mph

$F = q_z * Gh * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$

		K_z=	1.065
		K_{zt}=	1.0
q_z=	24.29	K_d=	0.95
$q_{z\,(ice)}$=	6.48	V_{asd}=	97 mph
$q_{z\,(30)}$=	2.33	$V_{max\,(ice)}$=	50 mph
		V_{30}=	30 mph
		I=	1.0

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

Determine Ca:

Table 2-8

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 2.29 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	315	116	30
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.57	1.29	439	150	42
7770 Antennas	55.0	11.0	5.0	4.20	5.00	1.31	134	55	13
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	67	29	6
4426 B66 RRH	15.0	13.2	5.8	1.38	1.14	1.20	40	19	4
4478 B5 RRH	18.1	13.4	8.3	1.68	1.35	1.20	49	22	5
LGP21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	26	14	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	27	13	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	6	6	1
2.5" Pipe	2.9	12.0		0.24	0.24	1.20	7	7	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	8	7	1
4" Pipe	4.5	12.0		0.38	0.38	1.20	11	8	1
4x4 HSS	4.0	12.0		0.33	0.33	2.00	16	13	2

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	2.29	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	315	183	282
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	439	171	372
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	134	71	118
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	67	41	60
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	40	18	34
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	49	30	44
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	26	9	22

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	97.0	19.4	12.0	13.06	8.07	5.00	8.09	1.31	1.44	111	75	102
EPBQ-654L8H8-L2 Antenna	100.6	25.6	10.9	17.87	7.61	3.93	9.24	1.26	1.47	146	73	128
7770 Antennas	59.6	15.6	9.6	6.45	3.97	3.82	6.21	1.26	1.37	53	35	48
RRUS-32 RRH	31.8	16.7	11.6	3.68	2.56	1.90	2.74	1.20	1.21	29	20	26
4426 B66 RRH	19.6	17.8	10.4	2.42	1.41	1.10	1.89	1.20	1.20	19	11	17
4478 B5 RRH	22.7	18.0	12.9	2.83	2.03	1.26	1.76	1.20	1.20	22	16	20
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	14	7	12

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	30	18	27
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	42	16	36
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	13	7	11
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	4	2	3
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	2.29	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	315	183	216
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	439	171	238
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	134	71	87
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	67	41	47
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	40	18	23
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	49	30	35
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	26	9	13

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	97.0	19.4	12.0	13.06	8.07	5.00	8.09	1.31	1.44	111	75	84
EPBQ-654L8H8-L2 Antenna	100.6	25.6	10.9	17.87	7.61	3.93	9.24	1.26	1.47	146	73	91
7770 Antennas	59.6	15.6	9.6	6.45	3.97	3.82	6.21	1.26	1.37	53	35	39
RRUS-32 RRH	31.8	16.7	11.6	3.68	2.56	1.90	2.74	1.20	1.21	29	20	22
4426 B66 RRH	19.6	17.8	10.4	2.42	1.41	1.10	1.89	1.20	1.20	19	11	13
4478 B5 RRH	22.7	18.0	12.9	2.83	2.03	1.26	1.76	1.20	1.20	22	16	17
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	14	7	9

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	30	18	21
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	42	16	23
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	13	7	8
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	4	2	2
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	2.29	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	315	183	183
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	439	171	171
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	134	71	71
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	67	41	41
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	40	18	18
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	49	30	30
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	26	9	9

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	97.0	19.4	12.0	13.06	8.07	5.00	8.09	1.31	1.44	111	75	75
EPBQ-654L8H8-L2 Antenna	100.6	25.6	10.9	17.87	7.61	3.93	9.24	1.26	1.47	146	73	73
7770 Antennas	59.6	15.6	9.6	6.45	3.97	3.82	6.21	1.26	1.37	53	35	35
RRUS-32 RRH	31.8	16.7	11.6	3.68	2.56	1.90	2.74	1.20	1.21	29	20	20
4426 B66 RRH	19.6	17.8	10.4	2.42	1.41	1.10	1.89	1.20	1.20	19	11	11
4478 B5 RRH	22.7	18.0	12.9	2.83	2.03	1.26	1.76	1.20	1.20	22	16	16
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	14	7	7

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	30	18	18
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	42	16	16
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	13	7	7
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	4	2	2
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	2.29	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	315	183	216
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	439	171	238
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	134	71	87
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	67	41	47
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	40	18	23
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	49	30	35
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	26	9	13

WIND LOADS WITH ICE:

HPA-65R-BUU-H8 Antenna	97.0	19.4	12.0	13.06	8.07	5.00	8.09	1.31	1.44	111	75	84
EPBQ-654L8H8-L2 Antenna	100.6	25.6	10.9	17.87	7.61	3.93	9.24	1.26	1.47	146	73	91
7770 Antennas	59.6	15.6	9.6	6.45	3.97	3.82	6.21	1.26	1.37	53	35	39
RRUS-32 RRH	31.8	16.7	11.6	3.68	2.56	1.90	2.74	1.20	1.21	29	20	22
4426 B66 RRH	19.6	17.8	10.4	2.42	1.41	1.10	1.89	1.20	1.20	19	11	13
4478 B5 RRH	22.7	18.0	12.9	2.83	2.03	1.26	1.76	1.20	1.20	22	16	17
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	14	7	9

WIND LOADS AT 30 MPH:

HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	30	18	21
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	42	16	23
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	13	7	8
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	5
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	4	2	2
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg) | Ice Thickness = 2.29 in. | Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	315	183	282
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	439	171	372
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	134	71	118
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	67	41	60
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	40	18	34
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	49	30	44
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	26	9	22
WIND LOADS WITH ICE:												
HPA-65R-BUU-H8 Antenna	97.0	19.4	12.0	13.06	8.07	5.00	8.09	1.31	1.44	111	75	102
EPBQ-654L8H8-L2 Antenna	100.6	25.6	10.9	17.87	7.61	3.93	9.24	1.26	1.47	146	73	128
7770 Antennas	59.6	15.6	9.6	6.45	3.97	3.82	6.21	1.26	1.37	53	35	48
RRUS-32 RRH	31.8	16.7	11.6	3.68	2.56	1.90	2.74	1.20	1.21	29	20	26
4426 B66 RRH	19.6	17.8	10.4	2.42	1.41	1.10	1.89	1.20	1.20	19	11	17
4478 B5 RRH	22.7	18.0	12.9	2.83	2.03	1.26	1.76	1.20	1.20	22	16	20
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	14	7	12
WIND LOADS AT 30 MPH:												
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	30	18	27
EPBQ-654L8H8-L2 Antenna	96.0	21.0	6.3	14.00	4.20	4.57	15.24	1.29	1.67	42	16	36
7770 Antennas	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	13	7	11
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
4426 B66 RRH	15.0	13.2	5.8	1.38	0.60	1.14	2.59	1.20	1.20	4	2	3
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 10/31/2018
Project Name: East Farmington
Project Number: CT5255
Designed By: JP **Checked By**: MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice:	2.29	in.
Density of ice:	56	pcf

HPA-65R-BUU-H8 Antenna

Weight of ice based on total radial SF area:

Height (in):	92.4	
Width (in):	14.8	
Depth (in):	7.4	
Total weight of ice on object:		406 lbs
Weight of object:	68 lbs	
Combined weight of ice and object:		474 lbs

EPBQ-654L8H8-L2 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	21.0	
Depth (in):	6.3	
Total weight of ice on object:		542 lbs
Weight of object:	86 lbs	
Combined weight of ice and object:		628 lbs

7770 Antennas

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		184 lbs
Weight of object:	35 lbs	
Combined weight of ice and object:		219 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		103 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		163 lbs

4426 B66 RRH

Weight of ice based on total radial SF area:

Height (in):	15.0	
Width (in):	13.2	
Depth (in):	5.8	
Total weight of ice on object:		58 lbs
Weight of object:	49 lbs	
Combined weight of ice and object:		107 lbs

4478 B5 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		76 lbs
Weight of object:	60 lbs	
Combined weight of ice and object:		136 lbs

LGP21401 TMA

Weight of ice based on total radial SF area:

Height (in):	14.4	
Width (in):	9.0	
Depth (in):	2.7	
Total weight of ice on object:		39 lbs
Weight of object:	19 lbs	
Combined weight of ice and object:		58 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		67 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		100 lbs

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		13 plf

2.5" Pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		14 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		16 plf

HSS 4x4

Weight of ice based on total radial SF area:

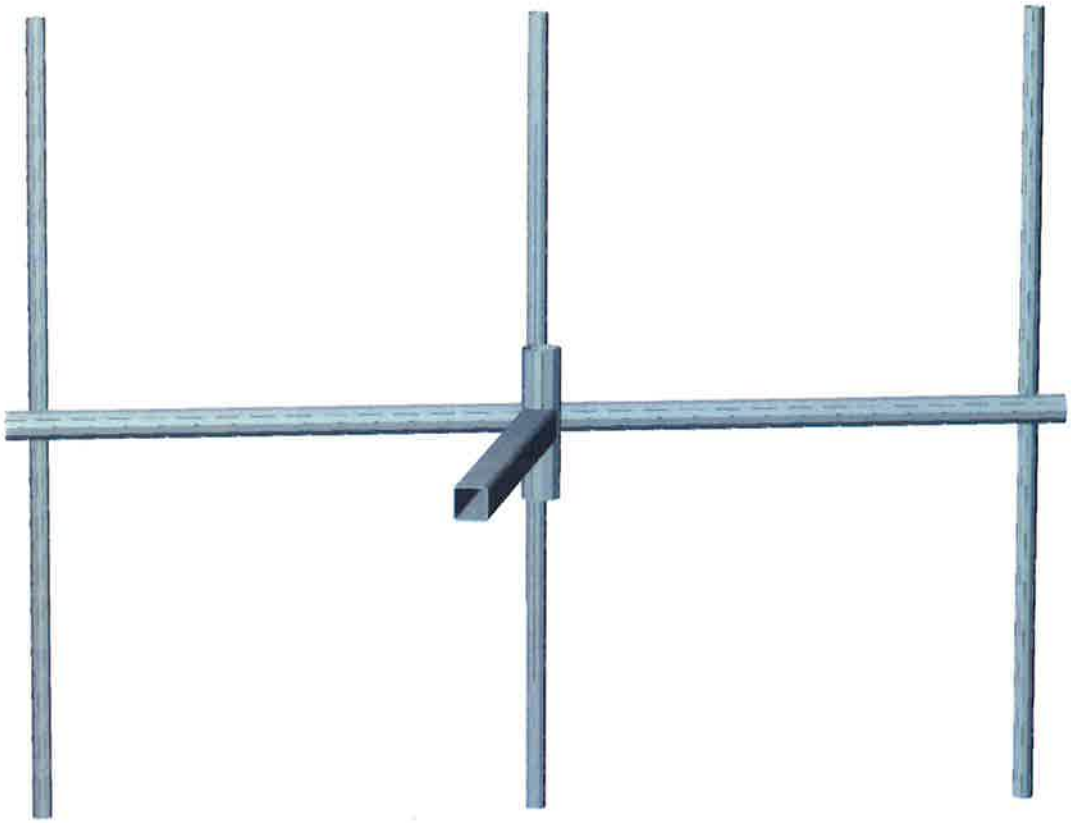
Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		22 plf

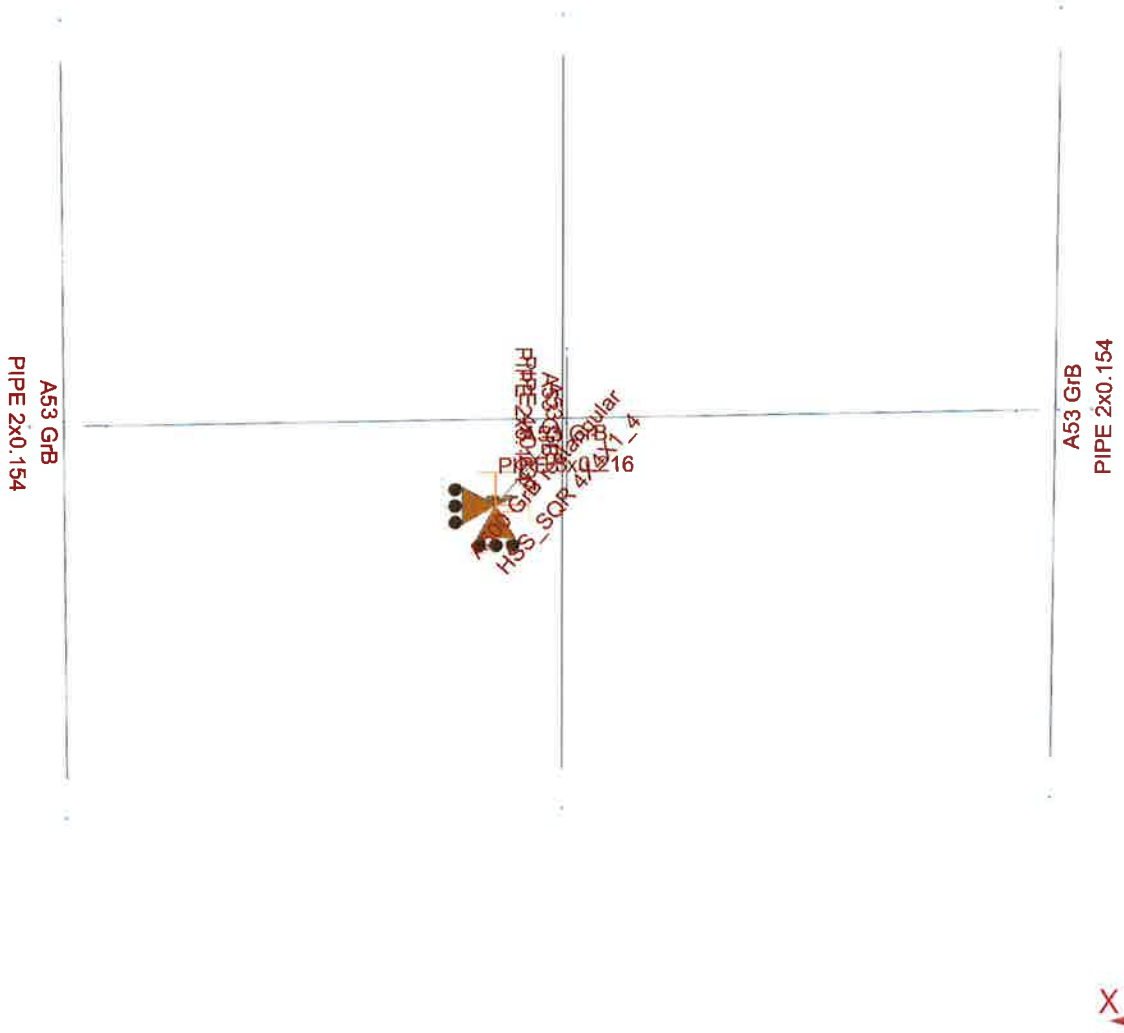
HUDSON
Design Group LLC

3C/4C/5C Mount Calculations
(Existing Conditions)

Bentley

Current Date: 10/31/2018 8:57 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (Rev.1).etz\



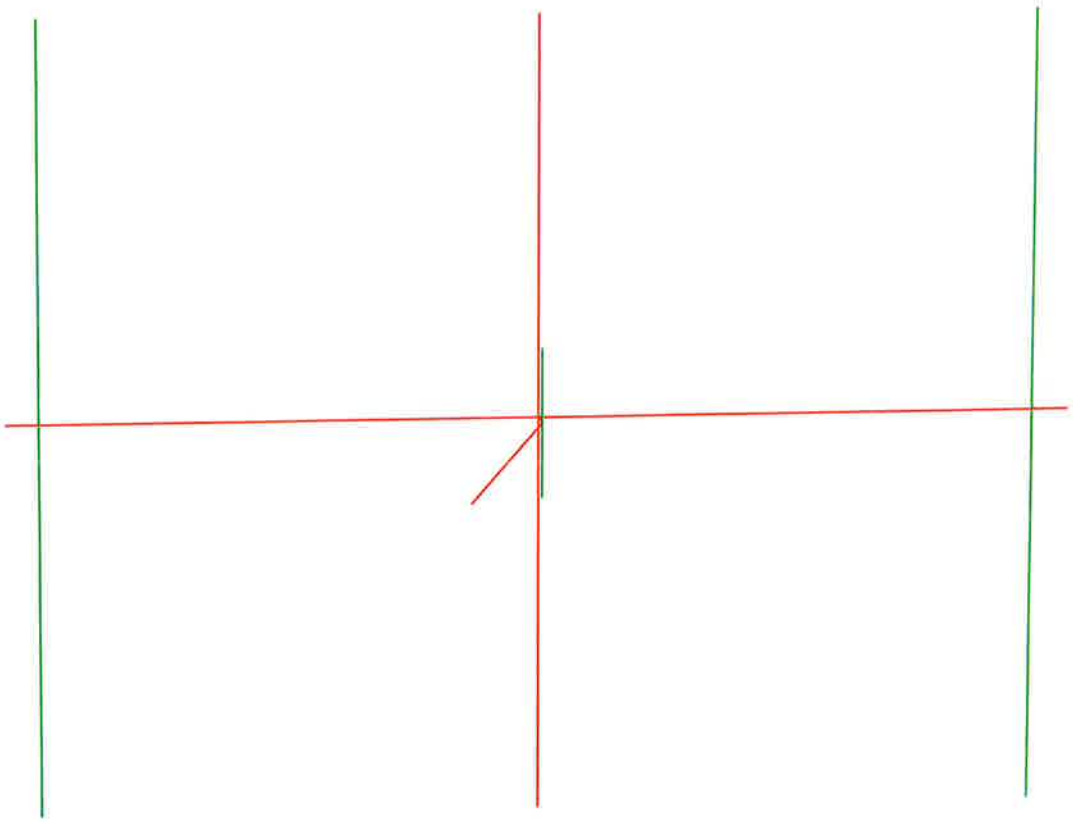

A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
Y
Z
X

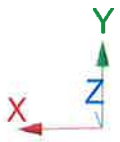
Bentley

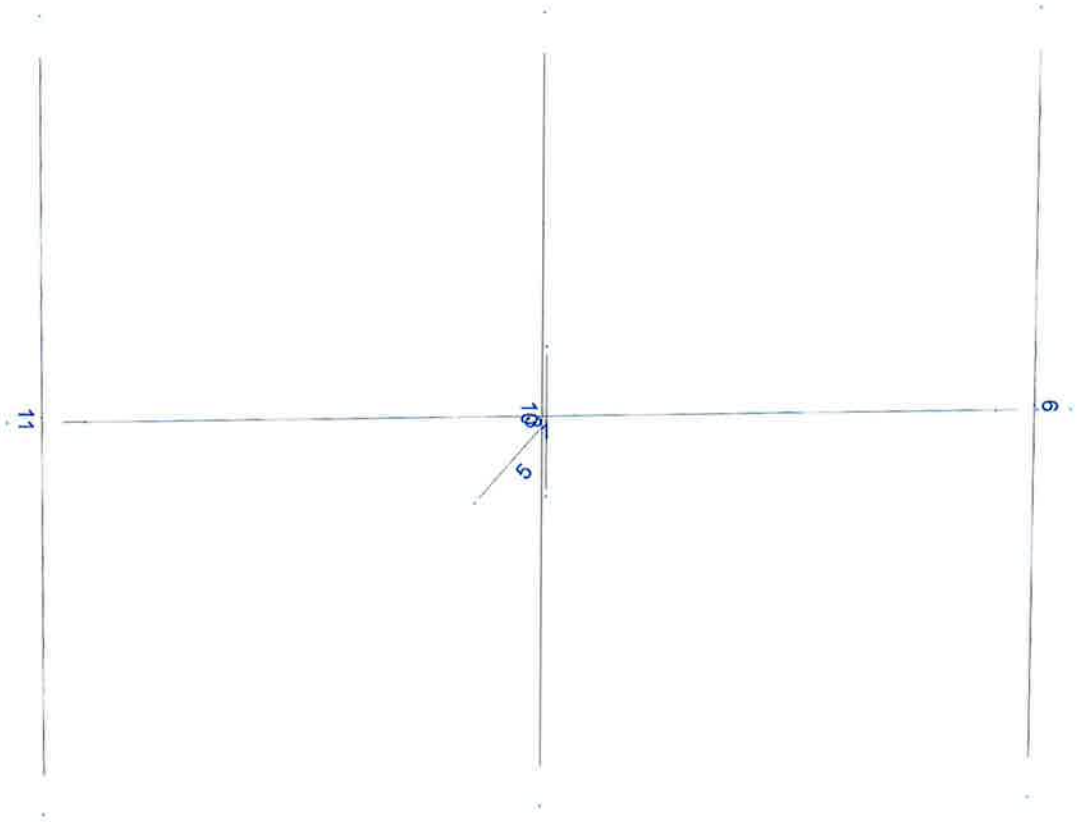
Current Date: 10/31/2018 8:57 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (Rev.1).etz\

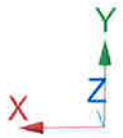
Design status

- Not designed
- Error on design
- Design O.K.
- With warnings






11
10
9
5


Y
Z
X

Bentley

Current Date: 10/31/2018 8:58 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (Rev.1).etz\

Load data

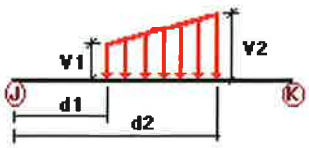
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

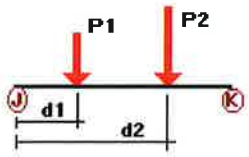
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load on Left End	No	LL
LL2	250 lb Live Load on Center	No	LL
LL3	250 lb Live Load on Right End	No	LL
LLa1	500 lb Live Load on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL
LLa4	500 lb Live Load on Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
	11	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
W30	1	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	2	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	2	-0.006	-0.006	0.00	Yes	100.00	Yes
	11	2	-0.006	-0.006	0.00	Yes	100.00	Yes
W60	1	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	2	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	2	-0.006	-0.006	0.00	Yes	100.00	Yes
	11	2	-0.006	-0.006	0.00	Yes	100.00	Yes
W90	3	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	5	X	-0.016	-0.016	0.00	Yes	100.00	Yes
	9	x	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	x	-0.006	-0.006	0.00	Yes	100.00	Yes
	11	x	-0.006	-0.006	0.00	Yes	100.00	Yes
W120	1	Z	0.008	0.008	0.00	Yes	100.00	Yes
	9	3	0.006	0.006	0.00	Yes	100.00	Yes
	10	3	0.006	0.006	0.00	Yes	100.00	Yes
	11	3	0.006	0.006	0.00	Yes	100.00	Yes
W150	1	Z	0.008	0.008	0.00	Yes	100.00	Yes
	9	3	0.006	0.006	0.00	Yes	100.00	Yes
	10	3	0.006	0.006	0.00	Yes	100.00	Yes
	11	3	0.006	0.006	0.00	Yes	100.00	Yes
Di	1	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	3	Y	-0.019	-0.019	0.00	Yes	100.00	Yes
	5	Y	-0.022	-0.022	0.00	Yes	100.00	Yes
	9	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	10	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	11	Y	-0.013	-0.013	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	9	y	-0.034	1.00	No
		y	-0.034	7.00	No
		y	-0.06	3.00	No
	10	y	-0.043	1.00	No
		y	-0.043	7.00	No
		y	-0.049	3.00	No
		y	-0.06	5.00	No
	11	y	-0.018	1.00	No
		y	-0.018	5.00	No
		y	-0.038	3.00	No
Wo	9	z	-0.158	1.00	No
		z	-0.158	7.00	No
	10	z	-0.22	1.00	No
		z	-0.22	7.00	No

	11	z	-0.067	2.00	No
		z	-0.067	6.00	No
W30	9	2	-0.141	1.00	No
		2	-0.141	7.00	No
		2	-0.06	3.00	No
	10	2	-0.187	1.00	No
		2	-0.187	7.00	No
		2	-0.034	3.00	No
		2	-0.044	5.00	No
	11	2	-0.06	2.00	No
		2	-0.06	6.00	No
		2	-0.022	4.00	No
W60	9	2	-0.108	1.00	No
		2	-0.108	7.00	No
		2	-0.047	3.00	No
	10	2	-0.119	1.00	No
		2	-0.119	7.00	No
		2	-0.023	3.00	No
		2	-0.035	5.00	No
	11	2	-0.044	2.00	No
		2	-0.044	6.00	No
		2	-0.013	4.00	No
W90	9	x	-0.092	1.00	No
		x	-0.092	7.00	No
		x	-0.041	3.00	No
	10	x	-0.086	1.00	No
		x	-0.086	7.00	No
		x	-0.018	3.00	No
		x	-0.03	5.00	No
	11	x	-0.036	2.00	No
		x	-0.036	6.00	No
		x	-0.009	4.00	No
W120	9	3	0.108	1.00	No
		3	0.108	7.00	No
		3	0.047	3.00	No
	10	3	0.119	1.00	No
		3	0.119	7.00	No
		3	0.023	3.00	No
		3	0.035	5.00	No
	11	3	0.044	2.00	No
		3	0.044	6.00	No
		3	0.013	4.00	No
W150	9	3	0.141	1.00	No
		3	0.141	7.00	No
		3	0.06	3.00	No
	10	3	0.187	1.00	No
		3	0.187	7.00	No
		3	0.034	3.00	No
		3	0.044	5.00	No
	11	3	0.06	2.00	No
		3	0.06	6.00	No
		3	0.022	4.00	No
Di	9	y	-0.203	1.00	No
		y	-0.203	7.00	No
		y	-0.103	3.00	No
	10	y	-0.271	1.00	No
		y	-0.271	7.00	No
		y	-0.058	3.00	No
		y	-0.076	5.00	No
	11	y	-0.092	1.00	No

		y	-0.092	5.00	No
		y	-0.078	3.00	No
WI0	9	z	-0.058	1.00	No
		z	-0.058	7.00	No
	10	z	-0.075	1.00	No
		z	-0.075	7.00	No
	11	z	-0.028	2.00	No
		z	-0.028	6.00	No
WI30	9	2	-0.051	1.00	No
		2	-0.051	7.00	No
		2	-0.026	3.00	No
	10	2	-0.064	1.00	No
		2	-0.064	7.00	No
		2	-0.017	3.00	No
		2	-0.02	5.00	No
	11	2	-0.025	2.00	No
		2	-0.025	6.00	No
		2	-0.012	4.00	No
WI60	9	2	-0.043	1.00	No
		2	-0.043	7.00	No
		2	-0.022	3.00	No
	10	2	-0.046	1.00	No
		2	-0.046	7.00	No
		2	-0.013	3.00	No
		2	-0.017	5.00	No
	11	2	-0.02	2.00	No
		2	-0.02	6.00	No
		2	-0.009	4.00	No
WI90	9	x	-0.038	1.00	No
		x	-0.038	7.00	No
		x	-0.02	3.00	No
	10	x	-0.037	1.00	No
		x	-0.037	7.00	No
		x	-0.011	3.00	No
		x	-0.016	5.00	No
	11	x	-0.018	2.00	No
		x	-0.018	6.00	No
		x	-0.007	4.00	No
WI120	9	3	0.043	1.00	No
		3	0.043	7.00	No
		3	0.022	3.00	No
	10	3	0.046	1.00	No
		3	0.046	7.00	No
		3	0.013	3.00	No
		3	0.017	5.00	No
	11	3	0.02	2.00	No
		3	0.02	6.00	No
		3	0.009	4.00	No
WI150	9	3	0.051	1.00	No
		3	0.051	7.00	No
		3	0.026	3.00	No
	10	3	0.064	1.00	No
		3	0.064	7.00	No
		3	0.017	3.00	No
		3	0.02	5.00	No
	11	3	0.025	2.00	No
		3	0.025	6.00	No
		3	0.012	4.00	No
WL0	9	z	-0.016	1.00	No
		z	-0.016	7.00	No

	10	z	-0.022	1.00	No
		z	-0.022	7.00	No
	11	z	-0.007	2.00	No
		z	-0.007	6.00	No
WL30	9	2	-0.014	1.00	No
		2	-0.014	7.00	No
		2	-0.006	3.00	No
	10	2	-0.018	1.00	No
		2	-0.018	7.00	No
		2	-0.004	3.00	No
		2	-0.005	5.00	No
	11	2	-0.006	2.00	No
		2	-0.006	6.00	No
		2	-0.003	4.00	No
WL60	9	2	-0.011	1.00	No
		2	-0.011	7.00	No
		2	-0.005	3.00	No
	10	2	-0.012	1.00	No
		2	-0.012	7.00	No
		2	-0.003	3.00	No
		2	-0.004	5.00	No
	11	2	-0.005	2.00	No
		2	-0.005	6.00	No
		2	-0.002	4.00	No
WL90	9	x	-0.009	1.00	No
		x	-0.009	7.00	No
		x	-0.004	3.00	No
	10	x	-0.009	1.00	No
		x	-0.009	7.00	No
		x	-0.002	3.00	No
		x	-0.003	5.00	No
	11	x	-0.004	2.00	No
		x	-0.004	6.00	No
		x	-0.001	4.00	No
WL120	9	3	0.011	1.00	No
		3	0.011	7.00	No
		3	0.005	3.00	No
	10	3	0.012	1.00	No
		3	0.012	7.00	No
		3	0.003	3.00	No
		3	0.004	5.00	No
	11	3	0.005	2.00	No
		3	0.005	6.00	No
		3	0.002	4.00	No
WL150	9	3	0.014	1.00	No
		3	0.014	7.00	No
		3	0.006	3.00	No
	10	3	0.018	1.00	No
		3	0.018	7.00	No
		3	0.004	3.00	No
		3	0.005	5.00	No
	11	3	0.006	2.00	No
		3	0.006	6.00	No
		3	0.003	4.00	No
LL1	1	y	-0.25	10.50	No
LL2	1	y	-0.25	5.25	No
LL3	1	y	-0.25	0.00	No
LLa1	11	y	-0.50	4.00	No
LLa3	10	y	-0.50	4.00	No
LLa4	9	y	-0.50	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load on Left End	No	0.00	0.00	0.00
LL2	250 lb Live Load on Center	No	0.00	0.00	0.00
LL3	250 lb Live Load on Right End	No	0.00	0.00	0.00
LLa1	500 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load on Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00

WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Bentley

Current Date: 10/31/2018 8:58 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (Rev.1).etz\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

W180=-Wo
W210=-W30
W240=-W60
W270=-W90
W300=-W120
W330=-W150
WI180=-WI0
WI210=-WI30
WI240=-WI60
WI270=-WI90
WI300=-WI120
WI330=-WI150
WL180=-WL0
WL210=-WL30
WL240=-WL60
WL270=-WL90
WL300=-WL120
WL330=-WL150
LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120

LC36=1.2D+Di-Wl150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+WL0+LLa1
LC42=1.2D+WL30+LLa1
LC43=1.2D+WL60+LLa1
LC44=1.2D+WL90+LLa1
LC45=1.2D+WL120+LLa1
LC46=1.2D+WL150+LLa1
LC47=1.2D-WL0+LLa1
LC48=1.2D-WL30+LLa1
LC49=1.2D-WL60+LLa1
LC50=1.2D-WL90+LLa1
LC51=1.2D-WL120+LLa1
LC52=1.2D-WL150+LLa1
LC53=1.2D+WL0+LLa2
LC54=1.2D+WL30+LLa2
LC55=1.2D+WL60+LLa2
LC56=1.2D+WL90+LLa2
LC57=1.2D+WL120+LLa2
LC58=1.2D+WL150+LLa2
LC59=1.2D-WL0+LLa2
LC60=1.2D-WL30+LLa2
LC61=1.2D-WL60+LLa2
LC62=1.2D-WL90+LLa2
LC63=1.2D-WL120+LLa2
LC64=1.2D-WL150+LLa2
LC65=1.2D+WL0+LLa3
LC66=1.2D+WL30+LLa3
LC67=1.2D+WL60+LLa3
LC68=1.2D+WL90+LLa3
LC69=1.2D+WL120+LLa3
LC70=1.2D+WL150+LLa3
LC71=1.2D-WL0+LLa3
LC72=1.2D-WL30+LLa3
LC73=1.2D-WL60+LLa3
LC74=1.2D-WL90+LLa3
LC75=1.2D-WL120+LLa3
LC76=1.2D-WL150+LLa3
LC77=1.2D+WL0+LLa4
LC78=1.2D+WL30+LLa4
LC79=1.2D+WL60+LLa4
LC80=1.2D+WL90+LLa4
LC81=1.2D+WL120+LLa4
LC82=1.2D+WL150+LLa4
LC83=1.2D-WL0+LLa4
LC84=1.2D-WL30+LLa4
LC85=1.2D-WL60+LLa4
LC86=1.2D-WL90+LLa4
LC87=1.2D-WL120+LLa4
LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**5**	LC32 at 100.00%	**1.34**	**N.G.**	Eq. H1-1b
	PIPE 2x0.154	**9**	LC1 at 50.00%	0.95	OK	Eq. H1-1b
		10	LC1 at 50.00%	**1.29**	**N.G.**	Eq. H1-1b
		11	LC1 at 50.00%	0.33	OK	Eq. H1-1b
	PIPE 3x0.216	**1**	LC31 at 48.96%	**1.24**	**N.G.**	Eq. H1-1b
	PIPE 4x0.237	**3**	LC10 at 50.00%	**0.00**	**OK**	Eq. H1-1b

Bentley

Current Date: 10/31/2018 8:58 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (Rev.1).etz\

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	5.25	0.00	0.00	0
3	-5.25	0.00	0.00	0
6	0.00	0.75	-0.30	0
7	0.00	-0.75	-0.30	0
8	1.00	0.00	-4.30	0
14	-4.917	4.00	0.20	0
15	0.00	4.00	0.20	0
16	-4.917	-4.00	0.20	0
17	0.00	-4.00	0.20	0
18	4.917	4.00	0.20	0
19	4.917	-4.00	0.20	0
20	-4.50	0.00	0.00	0
21	4.50	0.00	0.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
8	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	3	2		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
3	6	7		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
5	4	8		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
9	14	16		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	15	17		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	18	19		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

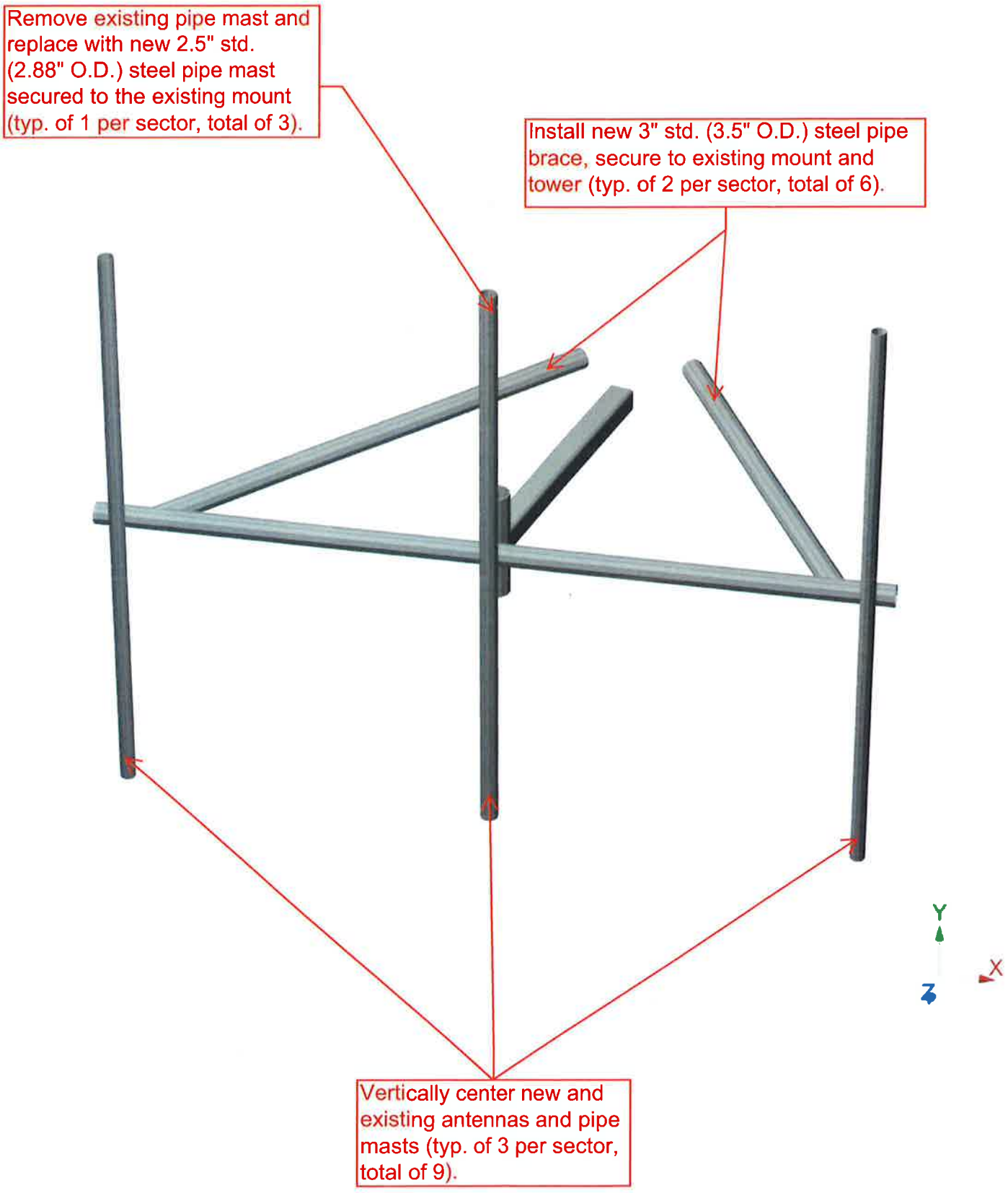
Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	45.00	0	0.00	0.00	0.00
10	45.00	0	0.00	0.00	0.00
11	45.00	0	0.00	0.00	0.00

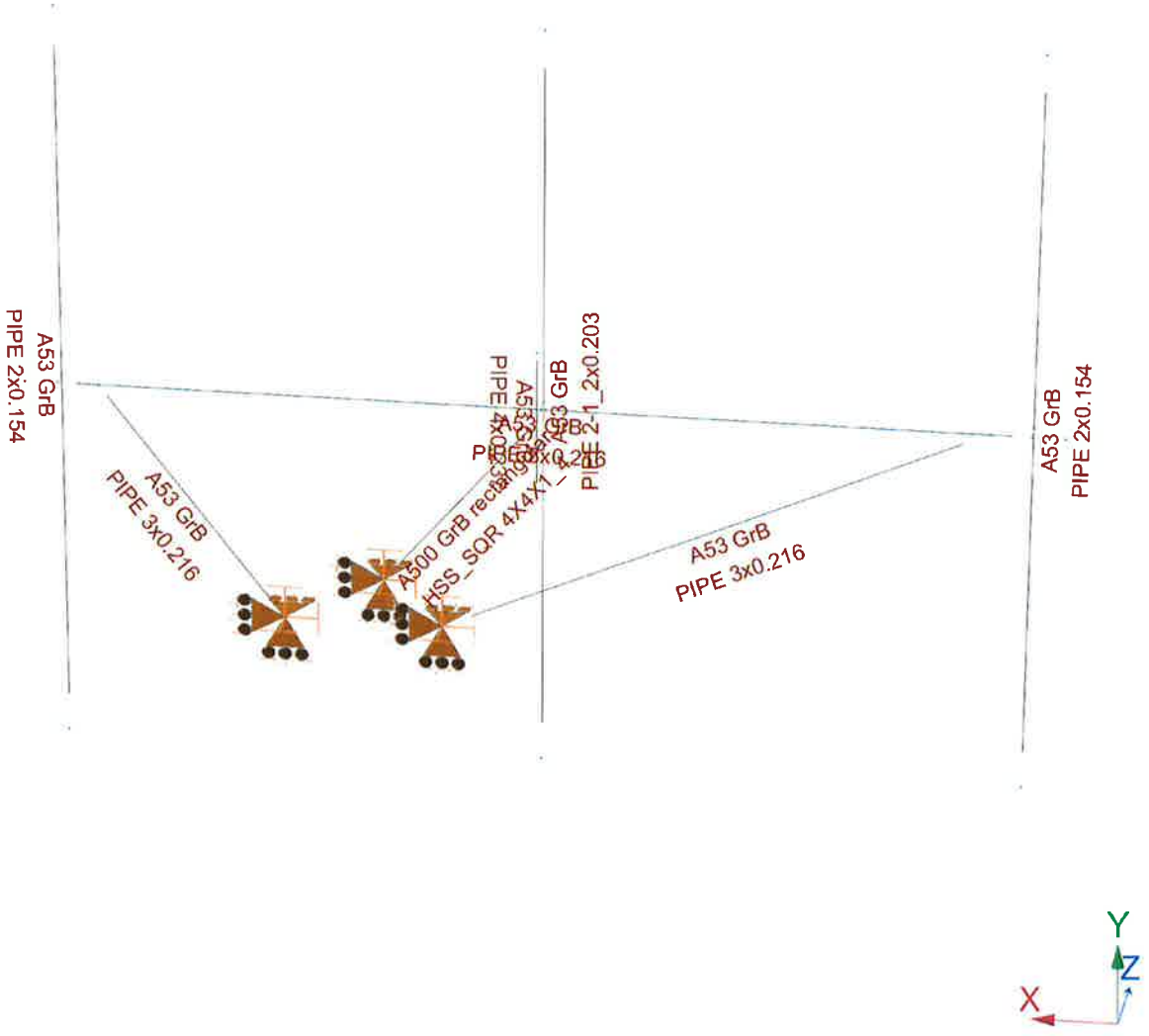
HUDSON
Design Group LLC

3C/4C/5C Mount Calculations
(Modified Conditions)

Bentley

Current Date: 8/15/2018 9:55 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\CT5255 (MOD).etz\



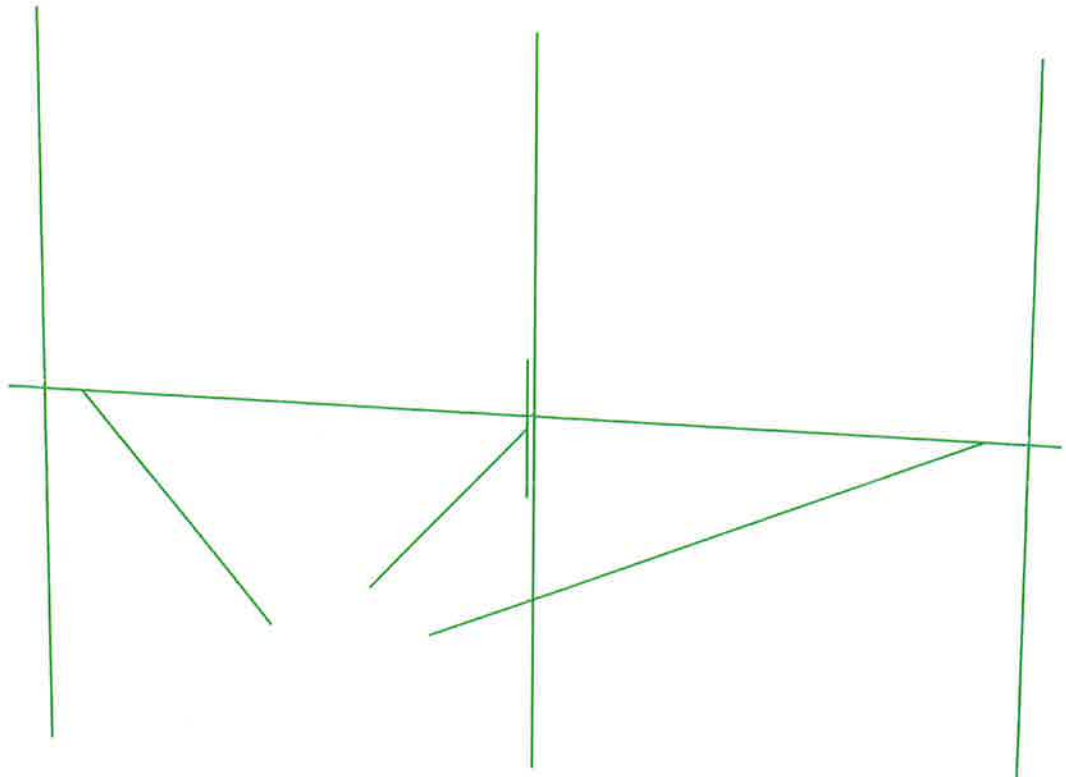

A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 3x0.216
A500 GrB rectangular
HSS_SQR 4X4X1_4
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 3x0.216
A53 GrB
PIPE 2x0.154
Y
Z
X

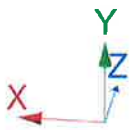
Bentley

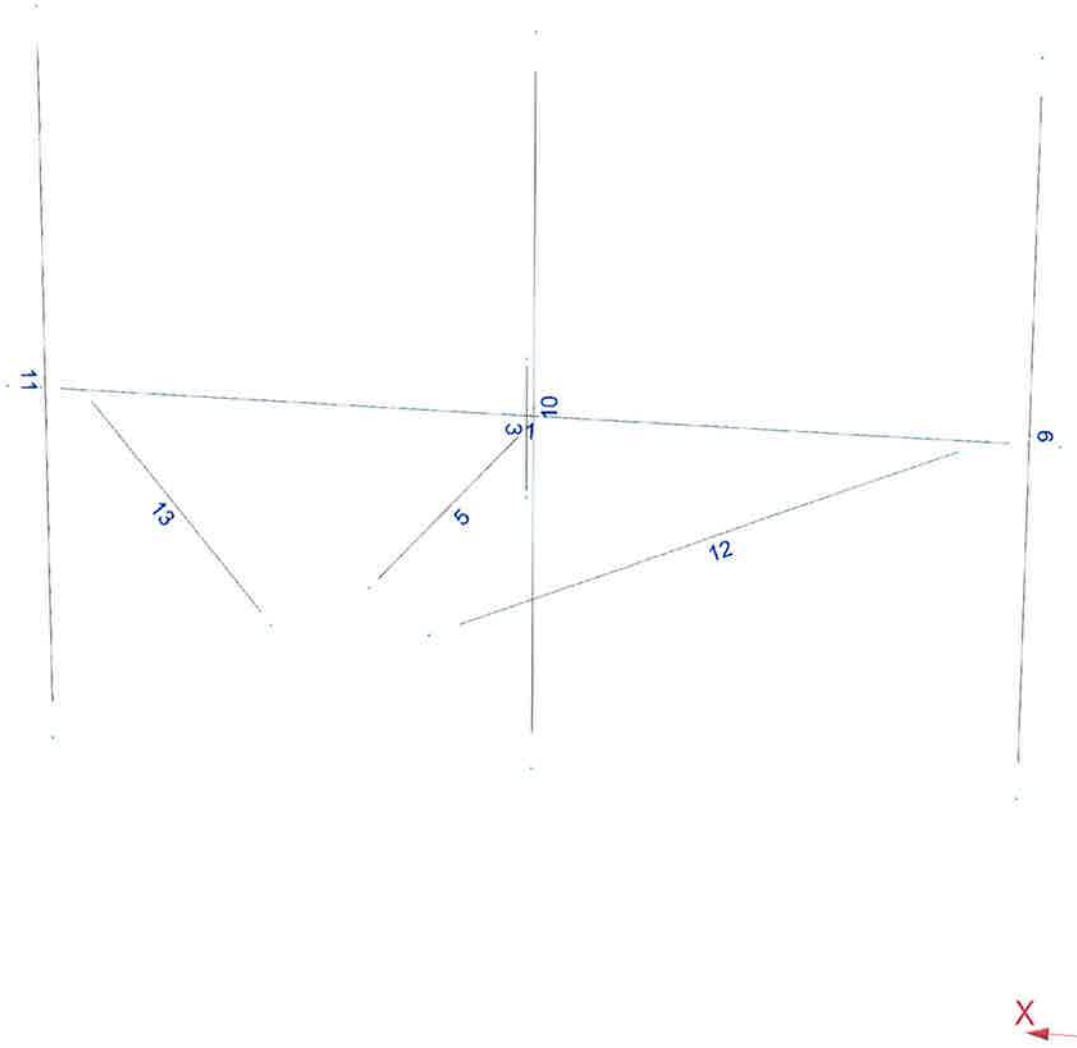
Current Date: 10/31/2018 8:56 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (MOD) (Rev.1).etz\

Design status

- Not designed
- Error on design
- Design O.K.
- With warnings






11
10
31
6
13
5
12
Y
Z
X

Bentley

Current Date: 10/31/2018 8:57 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (MOD) (Rev.1).e

Load data

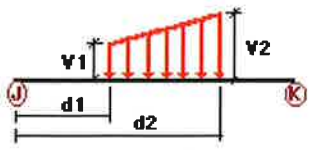
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

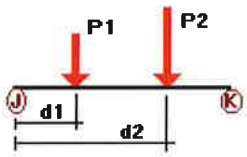
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load on Left End	No	LL
LL2	250 lb Live Load on Center	No	LL
LL3	250 lb Live Load on Right End	No	LL
LLa1	500 lb Live Load on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL
LLa4	500 lb Live Load on Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	Z	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	Z	-0.006	-0.006	0.00	Yes	100.00	Yes
W30	1	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	2	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	2	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	2	-0.006	-0.006	0.00	Yes	100.00	Yes
W60	1	Z	-0.008	-0.008	0.00	Yes	100.00	Yes
	9	2	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	2	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	2	-0.006	-0.006	0.00	Yes	100.00	Yes
W90	3	X	-0.011	-0.011	0.00	Yes	100.00	Yes
	5	X	-0.016	-0.016	0.00	Yes	100.00	Yes
	9	x	-0.006	-0.006	0.00	Yes	100.00	Yes
	10	x	-0.007	-0.007	0.00	Yes	100.00	Yes
	11	x	-0.006	-0.006	0.00	Yes	100.00	Yes
	12	X	-0.008	-0.008	0.00	Yes	100.00	Yes
	13	X	-0.008	-0.008	0.00	Yes	100.00	Yes
W120	1	Z	0.008	0.008	0.00	Yes	100.00	Yes
	9	3	0.006	0.006	0.00	Yes	100.00	Yes
	10	3	0.007	0.007	0.00	Yes	100.00	Yes
	11	3	0.006	0.006	0.00	Yes	100.00	Yes
W150	1	Z	0.008	0.008	0.00	Yes	100.00	Yes
	9	3	0.006	0.006	0.00	Yes	100.00	Yes
	10	3	0.007	0.007	0.00	Yes	100.00	Yes
	11	3	0.006	0.006	0.00	Yes	100.00	Yes
Di	1	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	3	Y	-0.019	-0.019	0.00	Yes	100.00	Yes
	5	Y	-0.022	-0.022	0.00	Yes	100.00	Yes
	9	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	10	Y	-0.014	-0.014	0.00	Yes	100.00	Yes
	11	Y	-0.013	-0.013	0.00	Yes	100.00	Yes
	12	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	13	Y	-0.016	-0.016	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	9	y	-0.034	1.00	No
		y	-0.034	7.00	No
		y	-0.06	3.00	No
	10	y	-0.043	1.00	No
		y	-0.043	7.00	No
		y	-0.049	3.00	No
		y	-0.06	5.00	No
	11	y	-0.018	1.00	No
		y	-0.018	5.00	No
		y	-0.038	3.00	No

Wo	9	z	-0.158	1.00	No
		z	-0.158	7.00	No
	10	z	-0.22	1.00	No
		z	-0.22	7.00	No
	11	z	-0.067	2.00	No
		z	-0.067	6.00	No
W30	9	2	-0.141	1.00	No
		2	-0.141	7.00	No
		2	-0.06	3.00	No
	10	2	-0.187	1.00	No
		2	-0.187	7.00	No
		2	-0.034	3.00	No
		2	-0.044	5.00	No
	11	2	-0.06	2.00	No
		2	-0.06	6.00	No
		2	-0.022	4.00	No
W60	9	2	-0.108	1.00	No
		2	-0.108	7.00	No
		2	-0.047	3.00	No
	10	2	-0.119	1.00	No
		2	-0.119	7.00	No
		2	-0.023	3.00	No
		2	-0.035	5.00	No
	11	2	-0.044	2.00	No
		2	-0.044	6.00	No
		2	-0.013	4.00	No
W90	9	x	-0.092	1.00	No
		x	-0.092	7.00	No
		x	-0.041	3.00	No
	10	x	-0.086	1.00	No
		x	-0.086	7.00	No
		x	-0.018	3.00	No
		x	-0.03	5.00	No
	11	x	-0.036	2.00	No
		x	-0.036	6.00	No
		x	-0.009	4.00	No
W120	9	3	0.108	1.00	No
		3	0.108	7.00	No
		3	0.047	3.00	No
	10	3	0.119	1.00	No
		3	0.119	7.00	No
		3	0.023	3.00	No
		3	0.035	5.00	No
	11	3	0.044	2.00	No
		3	0.044	6.00	No
		3	0.013	4.00	No
W150	9	3	0.141	1.00	No
		3	0.141	7.00	No
		3	0.06	3.00	No
	10	3	0.187	1.00	No
		3	0.187	7.00	No
		3	0.034	3.00	No
		3	0.044	5.00	No
	11	3	0.06	2.00	No
		3	0.06	6.00	No
		3	0.022	4.00	No
Di	9	y	-0.203	1.00	No
		y	-0.203	7.00	No
		y	-0.103	3.00	No
	10	y	-0.271	1.00	No

		y	-0.271	7.00	No
		y	-0.058	3.00	No
		y	-0.076	5.00	No
	11	y	-0.092	1.00	No
		y	-0.092	5.00	No
		y	-0.078	3.00	No
WI0	9	z	-0.058	1.00	No
		z	-0.058	7.00	No
	10	z	-0.075	1.00	No
		z	-0.075	7.00	No
	11	z	-0.028	2.00	No
		z	-0.028	6.00	No
WI30	9	2	-0.051	1.00	No
		2	-0.051	7.00	No
		2	-0.026	3.00	No
	10	2	-0.064	1.00	No
		2	-0.064	7.00	No
		2	-0.017	3.00	No
		2	-0.02	5.00	No
	11	2	-0.025	2.00	No
		2	-0.025	6.00	No
		2	-0.012	4.00	No
WI60	9	2	-0.043	1.00	No
		2	-0.043	7.00	No
		2	-0.022	3.00	No
	10	2	-0.046	1.00	No
		2	-0.046	7.00	No
		2	-0.013	3.00	No
		2	-0.017	5.00	No
	11	2	-0.02	2.00	No
		2	-0.02	6.00	No
		2	-0.009	4.00	No
WI90	9	x	-0.038	1.00	No
		x	-0.038	7.00	No
		x	-0.02	3.00	No
	10	x	-0.037	1.00	No
		x	-0.037	7.00	No
		x	-0.011	3.00	No
		x	-0.016	5.00	No
	11	x	-0.018	2.00	No
		x	-0.018	6.00	No
		x	-0.007	4.00	No
WI120	9	3	0.043	1.00	No
		3	0.043	7.00	No
		3	0.022	3.00	No
	10	3	0.046	1.00	No
		3	0.046	7.00	No
		3	0.013	3.00	No
		3	0.017	5.00	No
	11	3	0.02	2.00	No
		3	0.02	6.00	No
		3	0.009	4.00	No
WI150	9	3	0.051	1.00	No
		3	0.051	7.00	No
		3	0.026	3.00	No
	10	3	0.064	1.00	No
		3	0.064	7.00	No
		3	0.017	3.00	No
		3	0.02	5.00	No
	11	3	0.025	2.00	No

		3	0.025	6.00	No
		3	0.012	4.00	No
WL0	9	z	-0.016	1.00	No
		z	-0.016	7.00	No
	10	z	-0.022	1.00	No
		z	-0.022	7.00	No
	11	z	-0.007	2.00	No
		z	-0.007	6.00	No
WL30	9	2	-0.014	1.00	No
		2	-0.014	7.00	No
		2	-0.006	3.00	No
	10	2	-0.018	1.00	No
		2	-0.018	7.00	No
		2	-0.004	3.00	No
		2	-0.005	5.00	No
	11	2	-0.006	2.00	No
		2	-0.006	6.00	No
		2	-0.003	4.00	No
WL60	9	2	-0.011	1.00	No
		2	-0.011	7.00	No
		2	-0.005	3.00	No
	10	2	-0.012	1.00	No
		2	-0.012	7.00	No
		2	-0.003	3.00	No
		2	-0.004	5.00	No
	11	2	-0.005	2.00	No
		2	-0.005	6.00	No
		2	-0.002	4.00	No
WL90	9	x	-0.009	1.00	No
		x	-0.009	7.00	No
		x	-0.004	3.00	No
	10	x	-0.009	1.00	No
		x	-0.009	7.00	No
		x	-0.002	3.00	No
		x	-0.003	5.00	No
	11	x	-0.004	2.00	No
		x	-0.004	6.00	No
		x	-0.001	4.00	No
WL120	9	3	0.011	1.00	No
		3	0.011	7.00	No
		3	0.005	3.00	No
	10	3	0.012	1.00	No
		3	0.012	7.00	No
		3	0.003	3.00	No
		3	0.004	5.00	No
	11	3	0.005	2.00	No
		3	0.005	6.00	No
		3	0.002	4.00	No
WL150	9	3	0.014	1.00	No
		3	0.014	7.00	No
		3	0.006	3.00	No
	10	3	0.018	1.00	No
		3	0.018	7.00	No
		3	0.004	3.00	No
		3	0.005	5.00	No
	11	3	0.006	2.00	No
		3	0.006	6.00	No
		3	0.003	4.00	No
LL1	1	y	-0.25	10.50	No
LL2	1	y	-0.25	5.25	No

LL3	1	y	-0.25	0.00	No
LLa1	11	y	-0.50	4.00	No
LLa3	10	y	-0.50	4.00	No
LLa4	9	y	-0.50	4.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load on Left End	No	0.00	0.00	0.00
LL2	250 lb Live Load on Center	No	0.00	0.00	0.00
LL3	250 lb Live Load on Right End	No	0.00	0.00	0.00
LLa1	500 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load on Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00

WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Bentley

Current Date: 10/31/2018 8:56 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (MOD) (Rev.1).e

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

W180=-Wo
W210=-W30
W240=-W60
W270=-W90
W300=-W120
W330=-W150
WI180=-WI0
WI210=-WI30
WI240=-WI60
WI270=-WI90
WI300=-WI120
WI330=-WI150
WL180=-WL0
WL210=-WL30
WL240=-WL60
WL270=-WL90
WL300=-WL120
WL330=-WL150
LC1=1.2D+1.6Wo
LC2=1.2D+1.6W30
LC3=1.2D+1.6W60
LC4=1.2D+1.6W90
LC5=1.2D+1.6W120
LC6=1.2D+1.6W150
LC7=1.2D-1.6Wo
LC8=1.2D-1.6W30
LC9=1.2D-1.6W60
LC10=1.2D-1.6W90
LC11=1.2D-1.6W120
LC12=1.2D-1.6W150
LC13=0.9D+1.6Wo
LC14=0.9D+1.6W30
LC15=0.9D+1.6W60
LC16=0.9D+1.6W90
LC17=0.9D+1.6W120
LC18=0.9D+1.6W150
LC19=0.9D-1.6Wo
LC20=0.9D-1.6W30
LC21=0.9D-1.6W60
LC22=0.9D-1.6W90
LC23=0.9D-1.6W120
LC24=0.9D-1.6W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120

LC36=1.2D+Di-WI150
LC37=0.9D
LC38=1.2D+1.6LL1
LC39=1.2D+1.6LL2
LC40=1.2D+1.6LL3
LC41=1.2D+WL0+LLa1
LC42=1.2D+WL30+LLa1
LC43=1.2D+WL60+LLa1
LC44=1.2D+WL90+LLa1
LC45=1.2D+WL120+LLa1
LC46=1.2D+WL150+LLa1
LC47=1.2D-WL0+LLa1
LC48=1.2D-WL30+LLa1
LC49=1.2D-WL60+LLa1
LC50=1.2D-WL90+LLa1
LC51=1.2D-WL120+LLa1
LC52=1.2D-WL150+LLa1
LC53=1.2D+WL0+LLa2
LC54=1.2D+WL30+LLa2
LC55=1.2D+WL60+LLa2
LC56=1.2D+WL90+LLa2
LC57=1.2D+WL120+LLa2
LC58=1.2D+WL150+LLa2
LC59=1.2D-WL0+LLa2
LC60=1.2D-WL30+LLa2
LC61=1.2D-WL60+LLa2
LC62=1.2D-WL90+LLa2
LC63=1.2D-WL120+LLa2
LC64=1.2D-WL150+LLa2
LC65=1.2D+WL0+LLa3
LC66=1.2D+WL30+LLa3
LC67=1.2D+WL60+LLa3
LC68=1.2D+WL90+LLa3
LC69=1.2D+WL120+LLa3
LC70=1.2D+WL150+LLa3
LC71=1.2D-WL0+LLa3
LC72=1.2D-WL30+LLa3
LC73=1.2D-WL60+LLa3
LC74=1.2D-WL90+LLa3
LC75=1.2D-WL120+LLa3
LC76=1.2D-WL150+LLa3
LC77=1.2D+WL0+LLa4
LC78=1.2D+WL30+LLa4
LC79=1.2D+WL60+LLa4
LC80=1.2D+WL90+LLa4
LC81=1.2D+WL120+LLa4
LC82=1.2D+WL150+LLa4
LC83=1.2D-WL0+LLa4
LC84=1.2D-WL30+LLa4
LC85=1.2D-WL60+LLa4
LC86=1.2D-WL90+LLa4
LC87=1.2D-WL120+LLa4
LC88=1.2D-WL150+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**5**	LC32 at 100.00%	**0.97**	**OK**	Eq. H1-1b
	PIPE 2-1_2x0.203	**10**	LC7 at 50.00%	**0.68**	**OK**	Eq. H1-1b
	PIPE 2x0.154	**9**	LC7 at 50.00%	**0.95**	**OK**	Eq. H1-1b
		11	LC1 at 50.00%	0.33	OK	Eq. H1-1b
	PIPE 3x0.216	**1**	LC26 at 48.96%	0.64	OK	Eq. H1-1b
		12	LC26 at 0.00%	**0.92**	**OK**	Eq. H1-1b

	13	LC48 at 0.00%	0.60	OK	Eq. H1-1b
PIPE 4x0.237	**3**	LC10 at 50.00%	**0.00**	**OK**	

Bentley

Current Date: 10/31/2018 8:56 AM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5255\Rev.1\CT5255 (MOD) (Rev.1).e

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	5.25	0.00	0.00	0
3	-5.25	0.00	0.00	0
6	0.00	0.75	-0.30	0
7	0.00	-0.75	-0.30	0
14	-4.917	4.00	0.20	0
15	0.00	4.00	0.20	0
16	-4.917	-4.00	0.20	0
17	0.00	-4.00	0.20	0
18	4.917	4.00	0.20	0
19	4.917	-4.00	0.20	0
20	-4.50	0.00	0.00	0
21	4.50	0.00	0.00	0
22	0.25	0.00	-5.05	0
23	1.75	0.00	-5.05	0
34	0.9545	0.00	-4.1182	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
22	1	1	1	1	1	1
23	1	1	1	1	1	1
34	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	3	2		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
3	6	7		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
5	4	34		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
9	14	16		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	15	17		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	18	19		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	22	20		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
13	23	21		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	45.00	0	0.00	0.00	0.00
10	45.00	0	0.00	0.00	0.00
11	45.00	0	0.00	0.00	0.00

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2012.

Information on the Property Records for the Municipality of Farmington was last updated on 3/2/2017.

Parcel Information

Location:	8040 BIRDSEYE RD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	01358040	Map Block Lot:	0119 3A	Acres:	13.53
490 Acres:	0.00	Zone:	R80	Volume / Page:	0928/0470
Developers Map / Lot:		Census:	4602-02		

Value Information

	Appraised Value	70% Assessed Value
Land	369,900	258,930

	Appraised Value	70% Assessed Value
Buildings	0	0
Detached Outbuildings	0	0
Total	369,900	258,930

Owner's Information

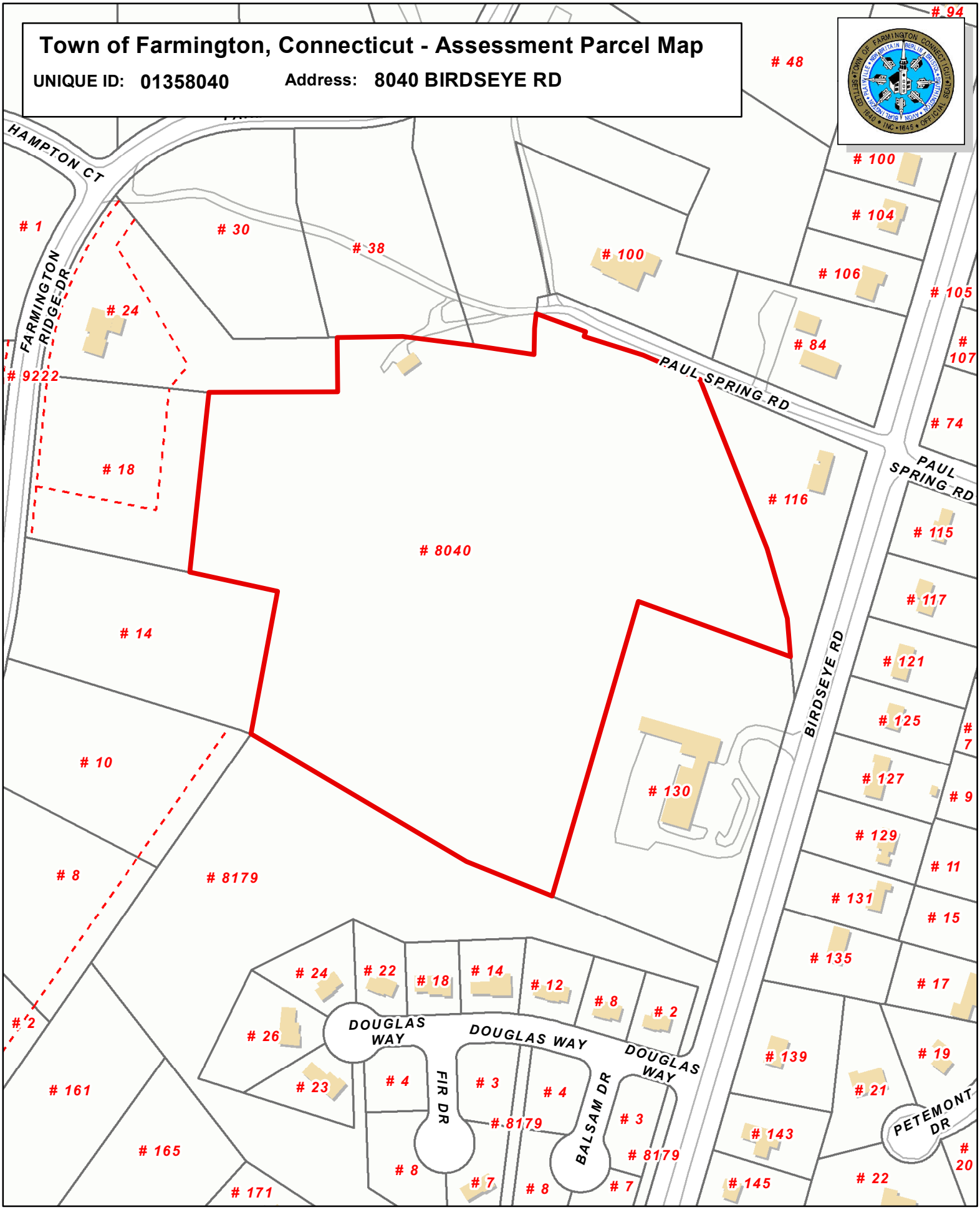
Owner's Data
GOIS HOLDINGS OF CONNECTICUT LLC%P GOIS,GOIS BROADCASTING 135 BURNSIDE AVE EAST HARTFORD, CT 06108

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
GOIS HOLDINGS OF CONNECTICUT	0928	0470	04/09/2008		No	$518,000
CELL TOWER LEASE	0862	0083	12/07/2005		No	$0
UNISON SITE MANAGEMENT LLC	0862	0062	12/07/2005		No	$385,000
FREEDON COMMUNICATIONS OF	0809	0324	06/15/2004		No	$280,000
MEGA BROADCASTING	0530	0225	12/17/1996		No	$75,000
MEGA COMMUNICATIONS OC NB LL	0585	0272			No	$0
AMERICAN RADIO SYSTEMS INC	0484	0674			No	$0

Town of Farmington, Connecticut - Assessment Parcel Map

UNIQUE ID: 01358040 **Address:** 8040 BIRDSEYE RD



Map Produced Sept 2016

Approximate Scale: 1 inch = 200 feet

Mark Roberts

From: Sandra Michaud <michauds@farmington-ct.org>
Sent: Monday, February 27, 2017 4:16 PM
To: Mark Roberts
Subject: 130 Birdseye Road

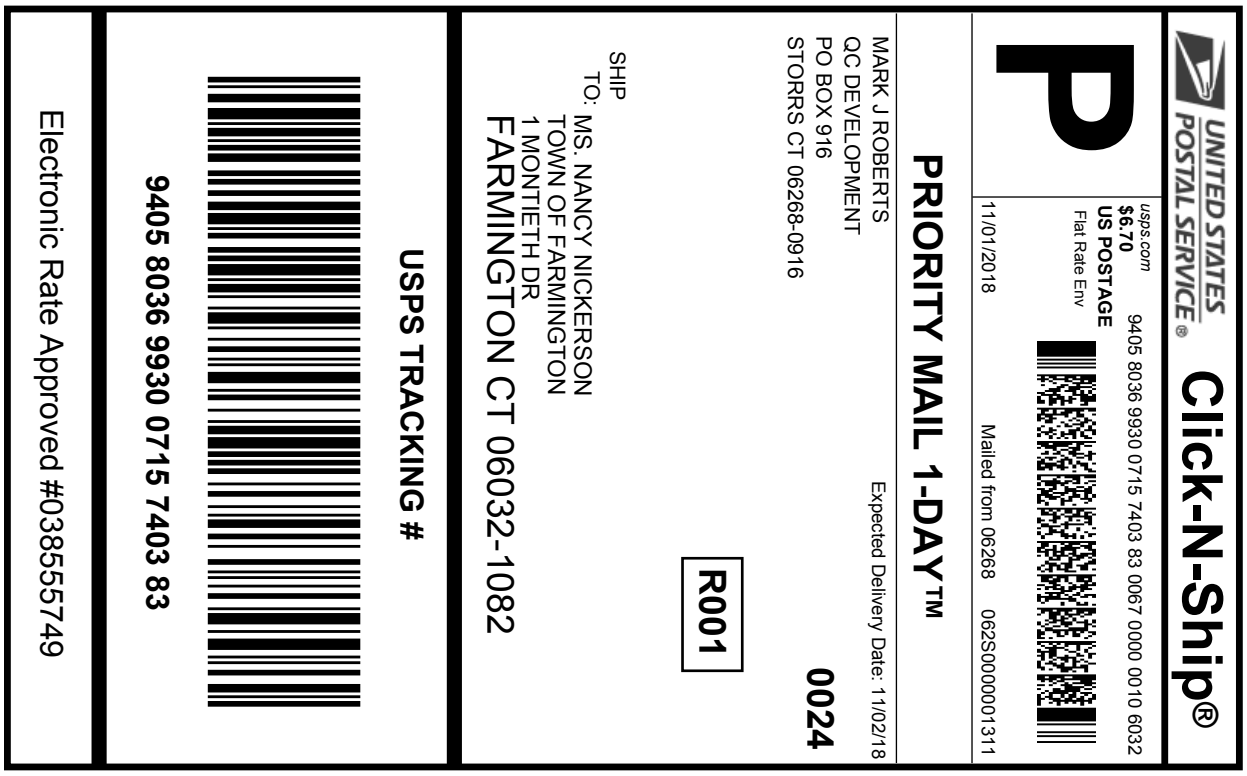
Hi Mark

I was able to go through documents for this address and it appears on November 4, 1997 a federal judge ordered the Town (within 20 days) to issue a zoning permit so that Sprint Spectrum could install a 140 foot high communications tower. I do not have an approval letter from the Plan & Zoning Commission as it appears they did not formally make a decision in support of the Court's Order but a zoning permit was issued on November 26, 1997.

The Town did appeal this Order but did later withdraw in March 1998.

Sandy

Sandra Michaud
Land Use Coordinator
Town of Farmington
Planning Division
Department of Public Works
1 Monteith Drive
Farmington, CT 06032
860.675.2325 Office
860.675.2319 Fax



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
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 0715 7403 83

Trans. #:	447714260
Print Date:	10/31/2018
Ship Date:	11/01/2018
Expected Delivery Date:	11/02/2018
Insured Value:	$50.00

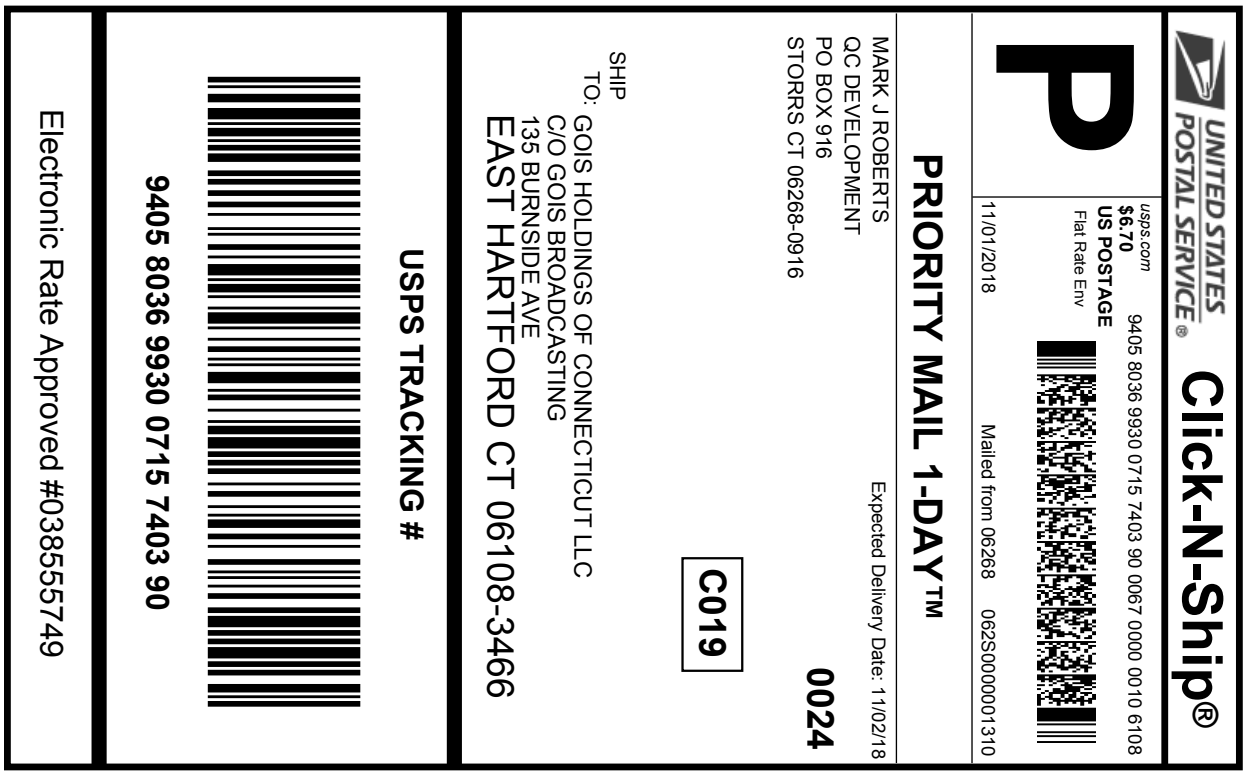
Priority Mail® Postage:	**$6.70**
Insurance Fee	**$0.00**
Total	**$6.70**

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

To: MS. NANCY NICKERSON
TOWN OF FARMINGTON
1 MONTIETH DR
FARMINGTON CT 06032-1082

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
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 0715 7403 90

Trans. #:	447714260
Print Date:	10/31/2018
Ship Date:	11/01/2018
Expected Delivery Date:	11/02/2018
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: GOIS HOLDINGS OF CONNECTICUT LLC
C/O GOIS BROADCASTING
135 BURNSIDE AVE
EAST HARTFORD CT 06108-3466

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com