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

June 7, 2019

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) – CT2053
26 Parker Road, East Haddam, CT 06423
N 41.46111111
W 72.3950000

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 185-foot level of the existing 300-foot Guyed Lattice tower at 26 Parker Road, East Haddam, CT. The tower is owned by CTI Towers Assets III, LLC and the property is owned by Bridget and Scott Erlandson. AT&T now intends to remove three (3) Powerwave and (3) KMW antennas and replace them with (3) CCI OPA65R-BU6A antennas and (3) Kathrein 800-10965 antennas. AT&T will also swap (3) Ericsson RRUS-11 Remote Radio Units for (3) Ericsson 4449-B5/B12s and add (3) 8843-B2/B66 Remote Radio Units (RRU). The Antennas and RRUs will be installed at the 185-foot level of the tower.

This facility was approved by the Siting Council in Docket # 76 on August 4, 1987 and the Certificate was transferred by the Council to the current tower owner on March 16, 2017. The approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. 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 Emmet J.

Lyman, First Selectman of the Town of East Haddam, and the East Haddam Land Use Office as well as the property owner 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.

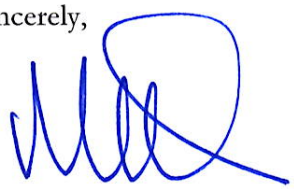
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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: Emmet J. Lyman - Elected Official
James F. Ventres – Land Use Administrator
Bridget & Scott Erlandson – Property Owners
CTI Towers - 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*							0.00%
AT&T GSM	1	283	185	0.0032	880	0.5867	0.05%
AT&T UMTS	2	565	185	0.0127	880	0.5867	0.22%
AT&T UMTS	4	525	185	0.0236	1900	1.0000	0.24%
AT&T LTE	1	1313	185	0.0147	734	0.4893	0.30%
AT&T LTE	2	875	185	0.0196	1900	1.0000	0.20%
Site Total							1.00%

*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*							0.00%
AT&T UMTS	1	565	185	0.0063	850	0.5667	0.11%
AT&T LTE	1	1476	185	0.0166	700	0.4667	0.35%
AT&T LTE	1	1000	185	0.0112	850	0.5667	0.20%
AT&T 5G	1	1000	185	0.0112	850	0.5667	0.20%
AT&T LTE	2	3664	185	0.0822	1900	1.0000	0.82%
AT&T LTE	1	3837	185	0.0431	2100	1.0000	0.43%
Site Total							2.12%

*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 GUYED TOWER: • NEW AT&T ANTENNAS: (800-10965) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: (OPA65R-BU6A) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B2/B66A 8843 (1900/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T LOW BAND COMBINERS (DBCT108F1V92-1) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8C (TOTAL OF 1) WITH (2) DC POWER & (1) FIBER CABLE. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • NEW AT&T LOW BAND COMBINERS (DBCT108F1V92-1) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • SWAP BASEBAND FOR 5216. • ADD RBS 6630 FOR 5G. • ADD (1) XMU. • INSTALL FIBER BOX FOR PROPOSED FIBER TRUNK. • INSTALL (12) TELCO FLEX FOR PROPOSED (2) DC TRUNK.
SITE ADDRESS:	126 PARKER ROAD EAST HADDAM, CT 06423
LATITUDE:	41.460908 N, 41° 27' 39.27" N
LONGITUDE:	72.395221 W, 72° 23' 42.80" W
TYPE OF SITE:	GUYED TOWER / EQUIPMENT SHELTER
STRUCTURE HEIGHT:	300'-0"±
RAD CENTER:	183'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT2053

SITE NAME: EAST HADDAM-126 PARKER ROAD

FA CODE: 10035000

PACE ID: MRCTB033601, MRCTB033560, MRCTB033582, MRCTB033624

PROJECT: LTE 2C_3C_4C_4TX4RX 2019 UPGRADE

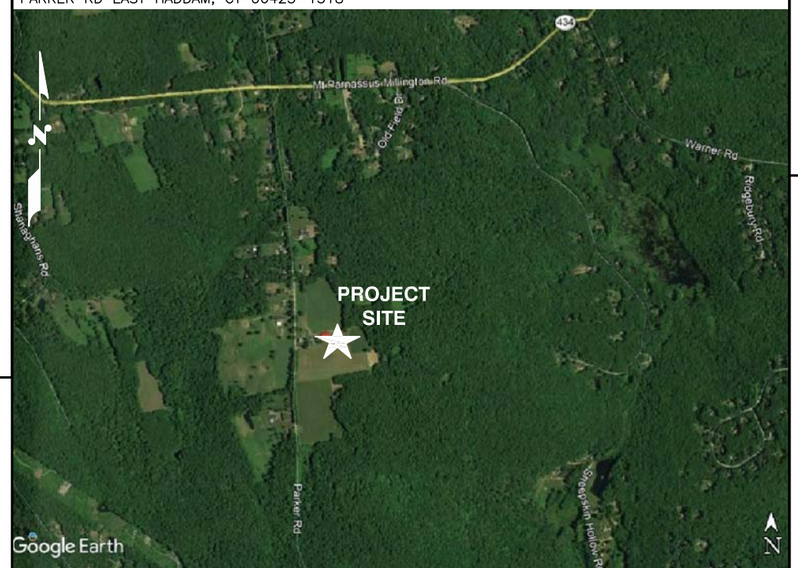
DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
SN-1	STRUCTURAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1
G-1	GROUNDING DETAILS	1
S-1	STRUCTURAL NOTES (BY OTHERS)	0
S-2	STRUCTURAL DETAILS (BY OTHERS)	0

VICINITY MAP

DIRECTION TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.3 MI. TURN LEFT ONTO WEST ST. 0.3 MI. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. 1.4 MI. MERGE ONTO CT-9 S VIA EXIT 22S ON THE LEFT TOWARD MIDDLETOWN/OLD SAYBROOK. 19.2 MI. MERGE ONTO CT-82 VIA EXIT 7 TOWARD EAST HADDAM/MOODUS. 2.8 MI. TURN LEFT ONTO SAYBROOK RD/CT-154/CT-82. 0.4 MI. TURN RIGHT ONTO BRIDGE RD/CT-82. CONTINUE TO FOLLOW CT-82. 0.8 MI. KEEP LEFT AT THE FORK TO GO ON CT-82/NORWICH RD. 1.4 MI. TURN RIGHT ONTO TOWN ST/CT-82. 0.1 MI. TURN LEFT ONTO MT PARNASSUS RD. 2.5 MI. TURN RIGHT ONTO PARKER RD (PORTIONS UNPAVED). 0.3 MI. END AT 126 PARKER RD EAST HADDAM, CT 06423-1518



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: CT2053
SITE NAME: EAST HADDAM-126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/05/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/13/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT — 16,258 — LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

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

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

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

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

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

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

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

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

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

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

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

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

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

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

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

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

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

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

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

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

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH 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 STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    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

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2053
SITE NAME: EAST HADDAM-126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: AM

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 23581
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	GN-1	1

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 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.

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.

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.

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

SITE NUMBER: CT2053
SITE NAME: EAST HADDAM-126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/05/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/13/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 25857 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	SN-1	1

NOTE:

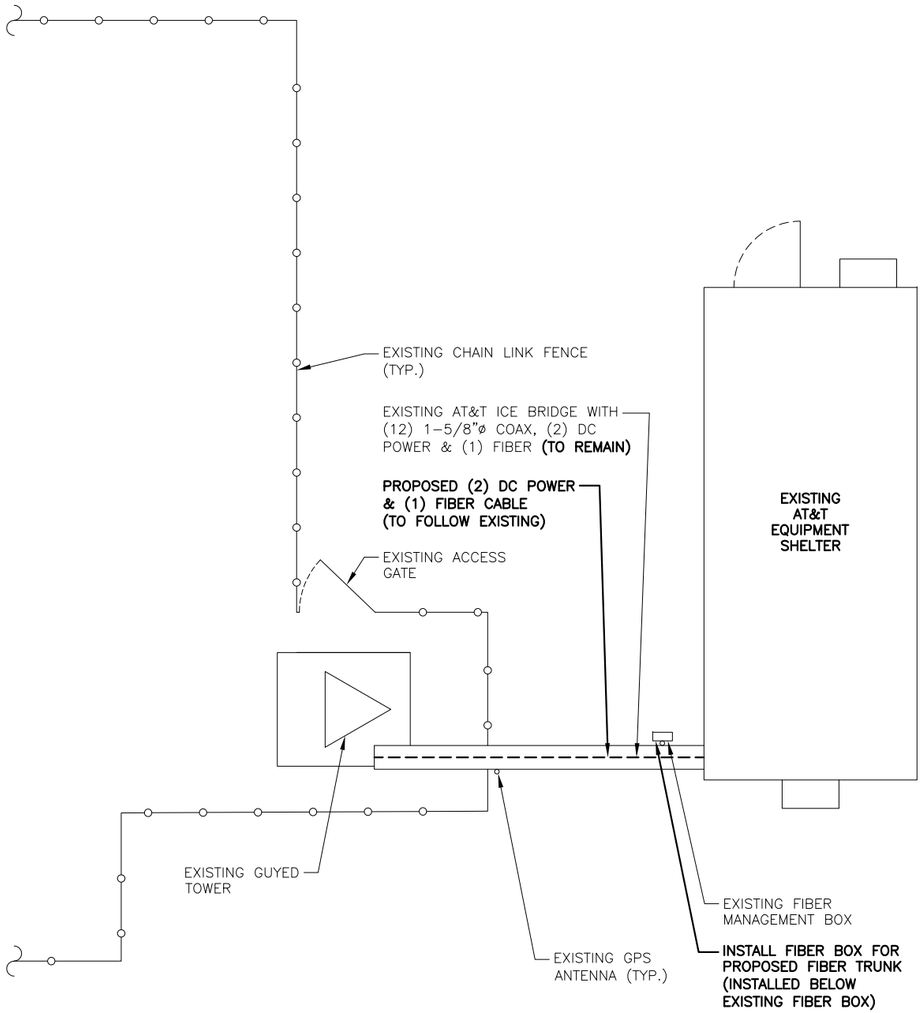
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: B&T GRP DATED: MAY 17, 2019 & MOUNT MODIFICATION DESIGN BY B&T GRP DATED: MAY 24, 2019.

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: B&T GRP DATED: MAY 24, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

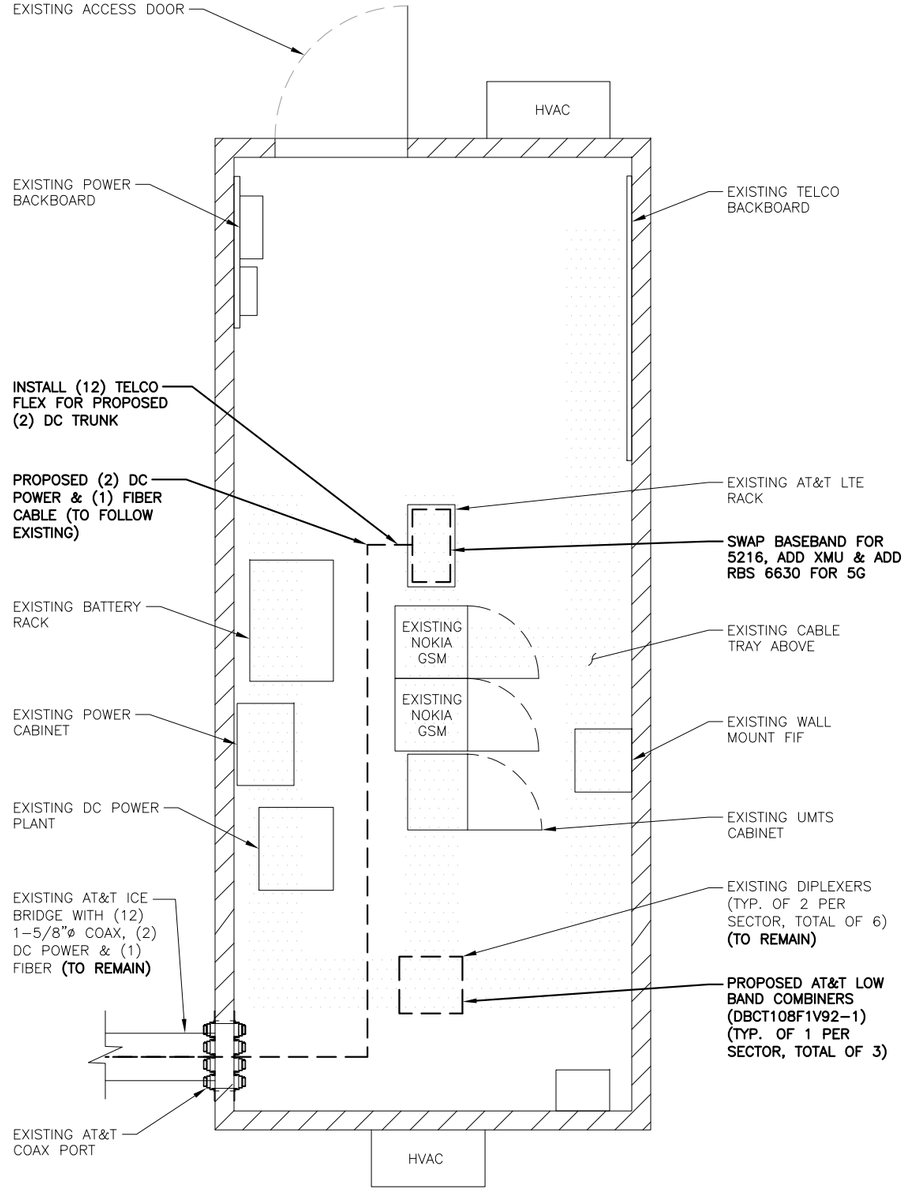
NOTE:

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



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

0 2'-0" 4'-0" 8'-0" 12'-0"



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"

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126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

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ROCKY HILL, CT 06067

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

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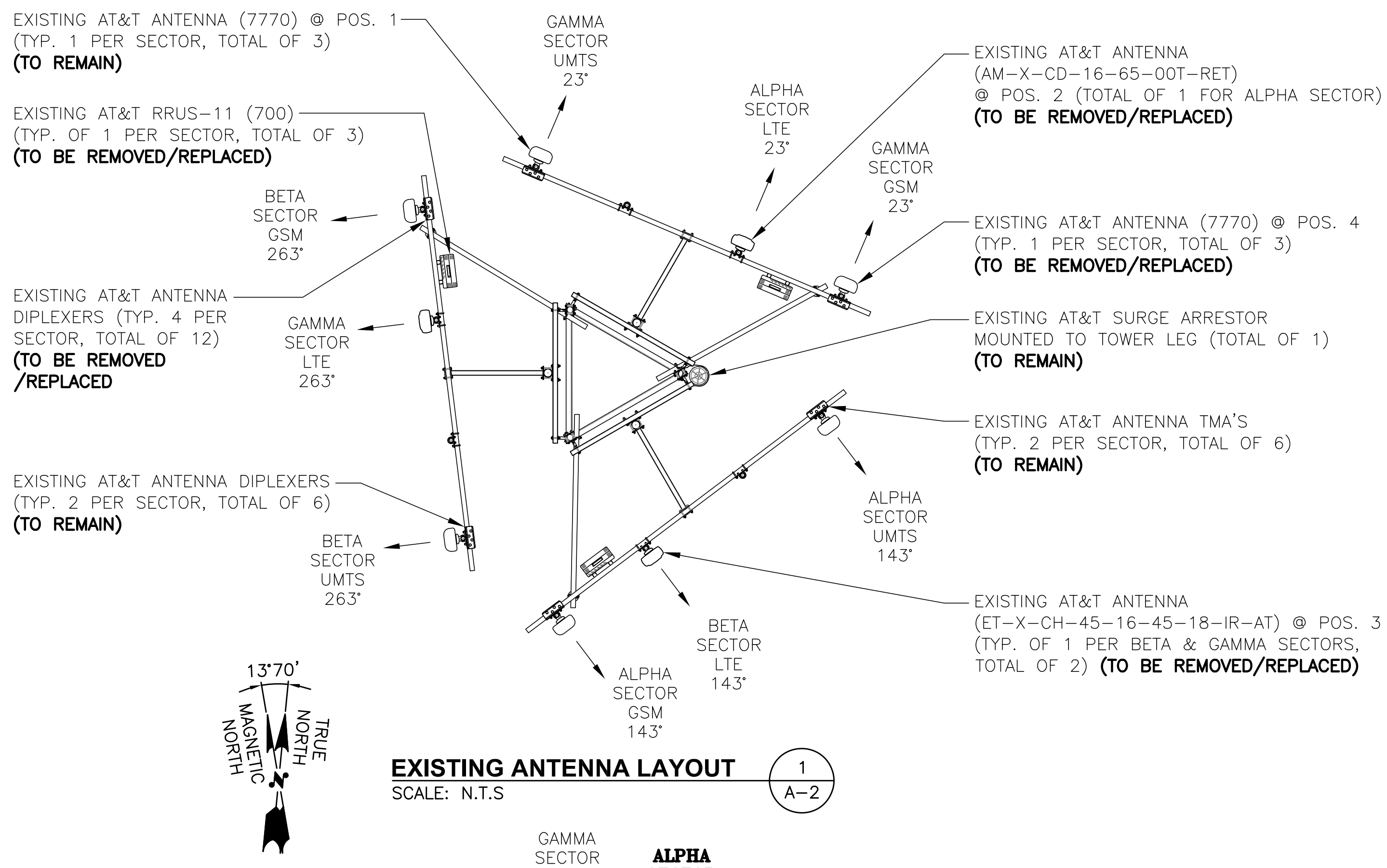
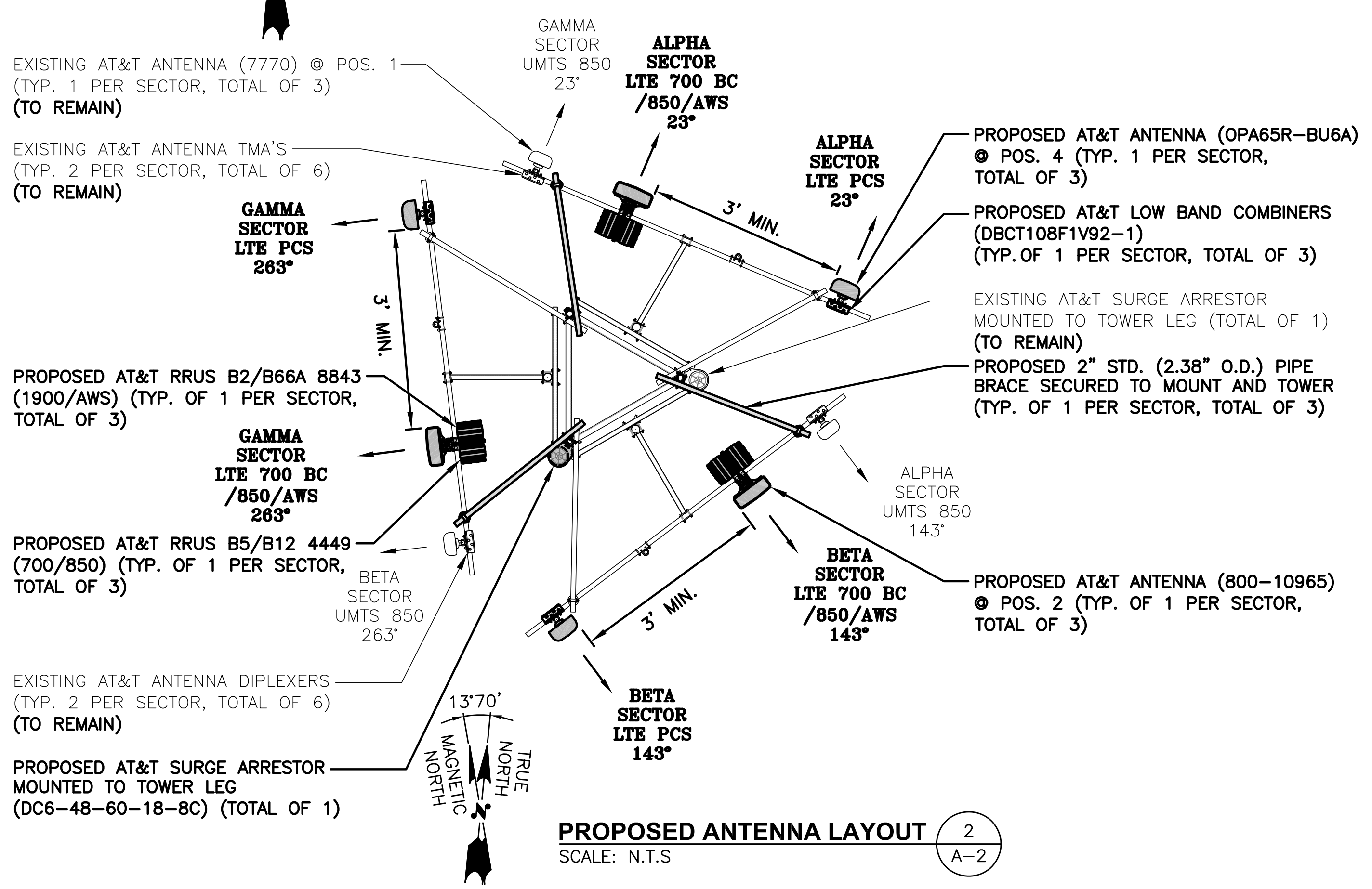
COMPOUND & EQUIPMENT PLANS
(LTE 2C_3C_4C_4TX4RX)

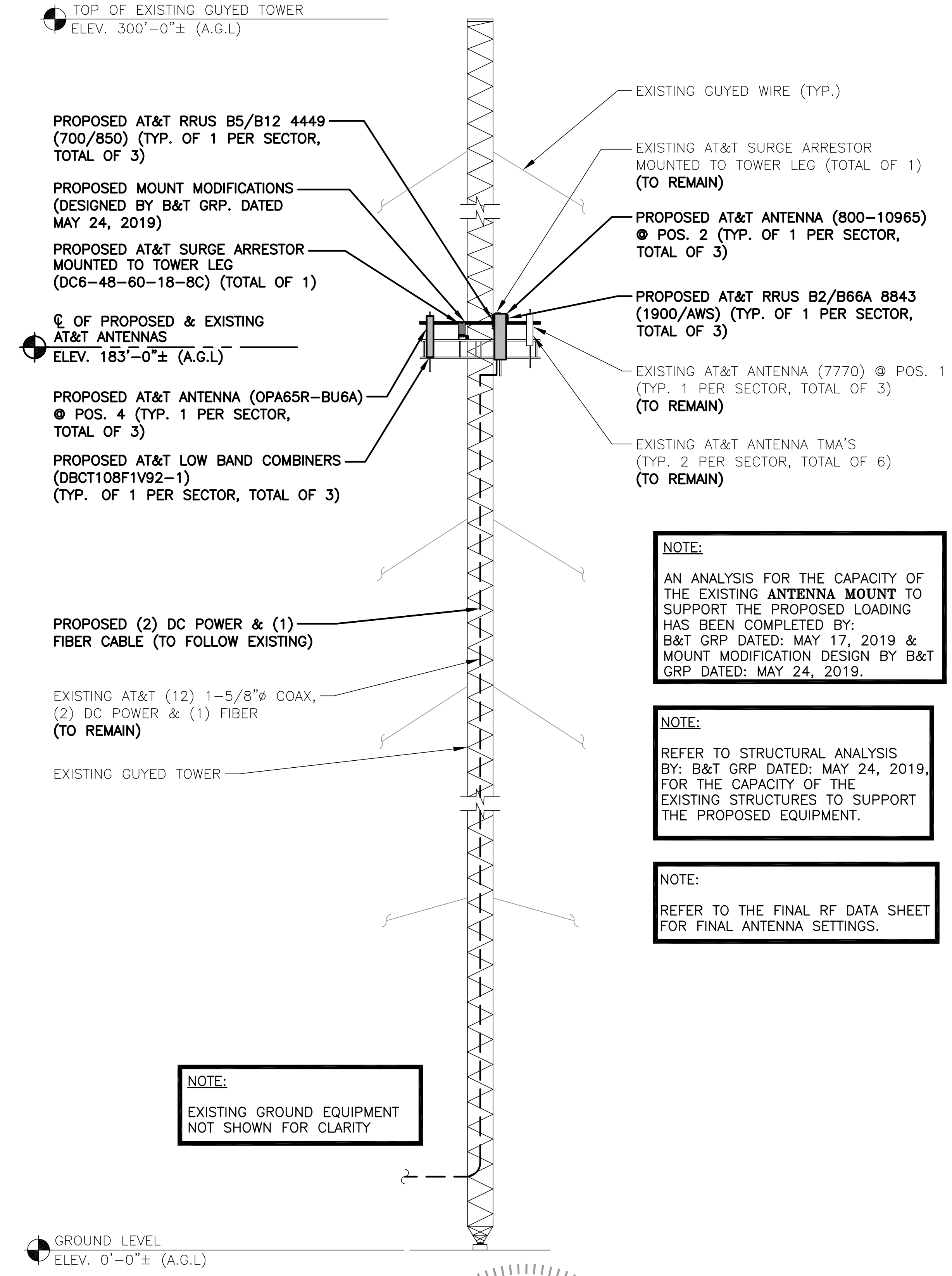
SITE NUMBER	DRAWING NUMBER	REV
CT2053	A-1	1



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



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



NOTE:
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NOTE:
REFER TO STRUCTURAL ANALYSIS BY: B&T GRP DATED: MAY 24, 2019, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
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NOTE:
EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION 3 / A-2
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"
0 5'-4" 10'-8" 21'-4" 32'-0"

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A	03/13/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT ... LICENSED PROFESSIONAL ENGINEER

AT&T
ANTENNA LAYOUTS & ELEVATION
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	A-2	1

NOTE:

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NOTE:

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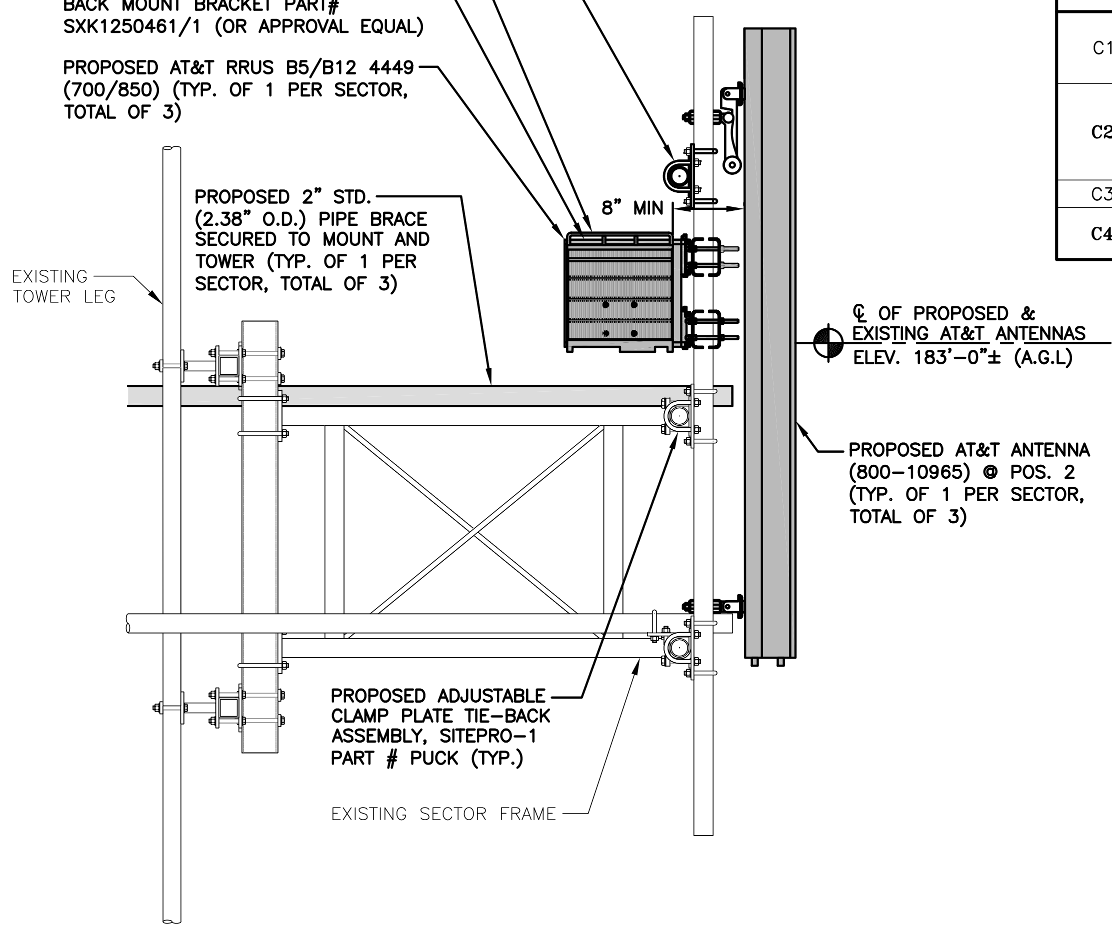


PROPOSED LTE ANTENNA & RRH MOUNTING DETAIL 1 A-3

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

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 850	7770	55X11X5	±183'	143°	(E)(2)(G) POWERWAVE LGP 21901 (E)(2) POWERWAVE LGP 21401	–	–	(2) 1-5/8" COAX (230'±)	(E) (1) RAYCAP DC6-48-60-18-8F
A2	PROPOSED	LTE 700 BC/850/AWS	800-10965	78.7x20x6.9	±183'	23°	–	(P)(1) B2/B66A 8843 (1900/AWS) (P)(1) B5/B12 4449 (850/700)	14.9X13.2X10.9 14.9X13.2X10.4	–	
A3	–	–	–	–	–	–	–	–	–	–	
A4	PROPOSED	LTE PCS	OPA65R-BU6A	71.1X11.7X8.4	±183'	23°	(P)(1)(G) (DBCT108F1V92-1) (P)(1) (DBCT108F1V92-1)	–	–	(2) 1-5/8" COAX (230'±)	
B1	EXISTING	UMTS 850	7770	55X11X5	±183'	263°	(E)(2)(G) POWERWAVE LGP 21901 (E)(2) POWERWAVE LGP 21401	–	–	(2) 1-5/8" COAX (230'±)	(P) (1) RAYCAP DC6-48-60-18-8C
B2	PROPOSED	LTE 700 BC/850/AWS	800-10965	78.7x20x6.9	±183'	143°	–	(P)(1) B2/B66A 8843 (1900/AWS) (P)(1) B5/B12 4449 (850/700)	14.9X13.2X10.9 14.9X13.2X10.4	–	
B3	–	–	–	–	–	–	–	–	–	–	
B4	PROPOSED	LTE PCS	OPA65R-BU6A	71.1X11.7X8.4	±183'	143°	(P)(1)(G) (DBCT108F1V92-1) (P)(1) (DBCT108F1V92-1)	–	–	(2) 1-5/8" COAX (230'±)	
C1	EXISTING	UMTS 850	7770	55X11X5	±183'	23°	(E)(2)(G) POWERWAVE LGP 21901 (E)(2) POWERWAVE LGP 21401	–	–	(2) 1-5/8" COAX (230'±)	SHARED
C2	PROPOSED	LTE 700 BC/850/AWS	800-10965	78.7x20x6.9	±183'	263°	–	(P)(1) B2/B66A 8843 (1900/AWS) (P)(1) B5/B12 4449 (850/700)	14.9X13.2X10.9 14.9X13.2X10.4	–	
C3	–	–	–	–	–	–	–	–	–	–	
C4	PROPOSED	LTE PCS	OPA65R-BU6A	71.1X11.7X8.4	±183'	263°	(P)(1)(G) (DBCT108F1V92-1) (P)(1) (DBCT108F1V92-1)	–	–	(2) 1-5/8" COAX (230'±)	

FINAL ANTENNA SCHEDULE 3 A-3

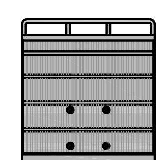
SCALE: N.T.S

RRU CHART				
QUANTITY	MODEL	L	W	D
3(P)	B2/B66A 8843 (1900/AWS)	14.9"	13.2"	10.9"
3(P)	B5/B12 4449 (700/850)	14.9"	13.2"	10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

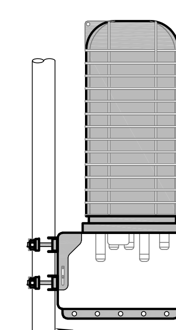


PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

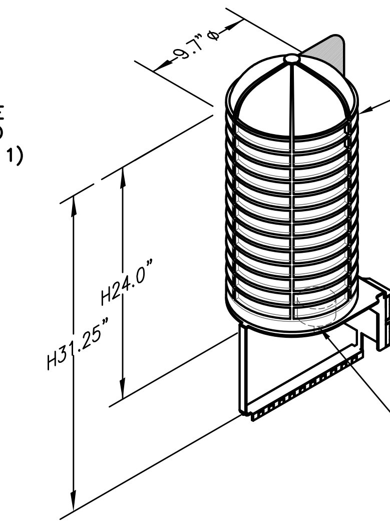
PROPOSED RRUS DETAIL 2 A-3

SCALE: N.T.S



PROPOSED SURGE ARRESTOR MOUNTING DETAIL 4 A-3

SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL 5 A-3

SCALE: N.T.S

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

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

STATE OF CONNECTICUT LICENSED PROFESSIONAL ENGINEER

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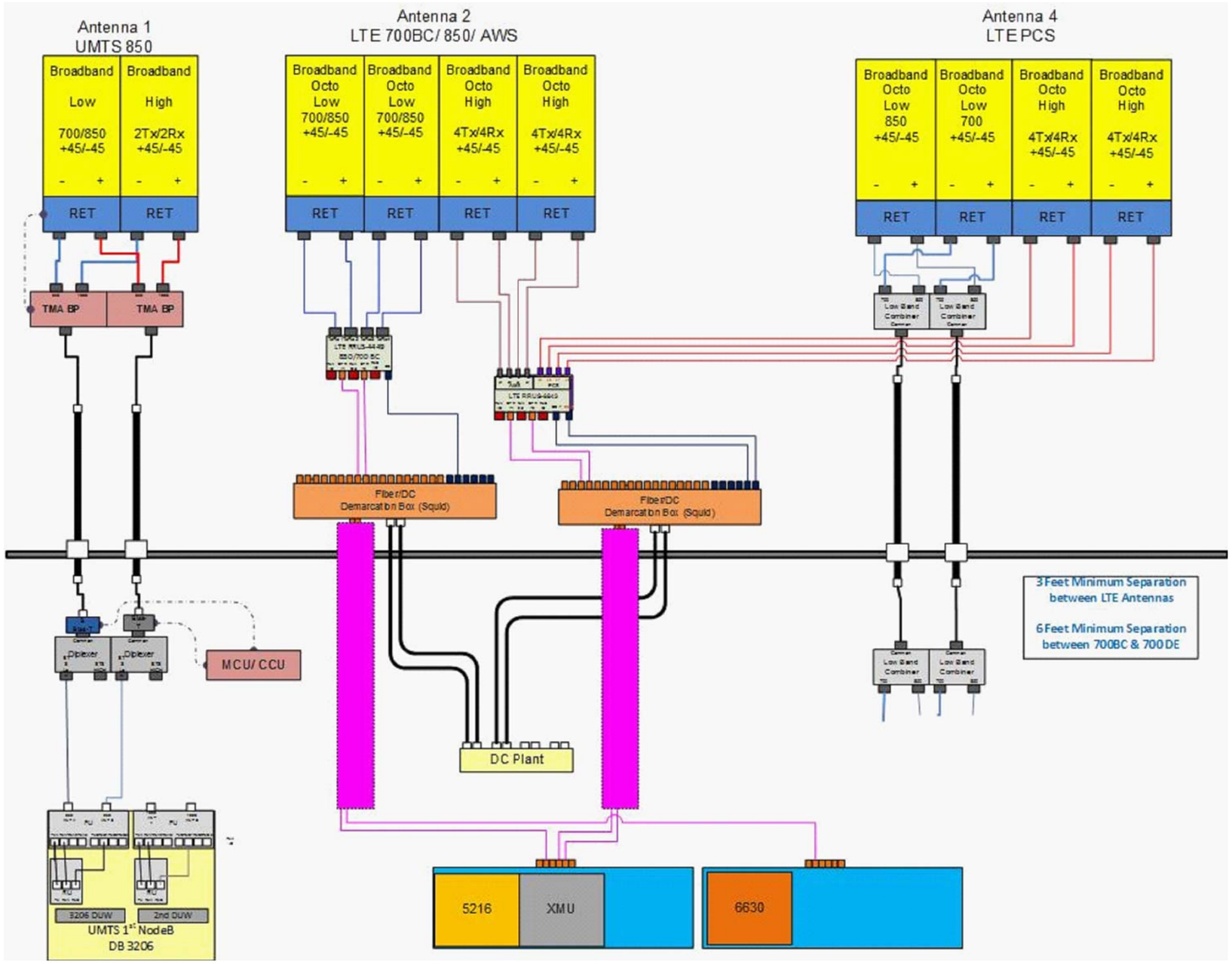
DETAILS
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	A-3	1



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

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

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

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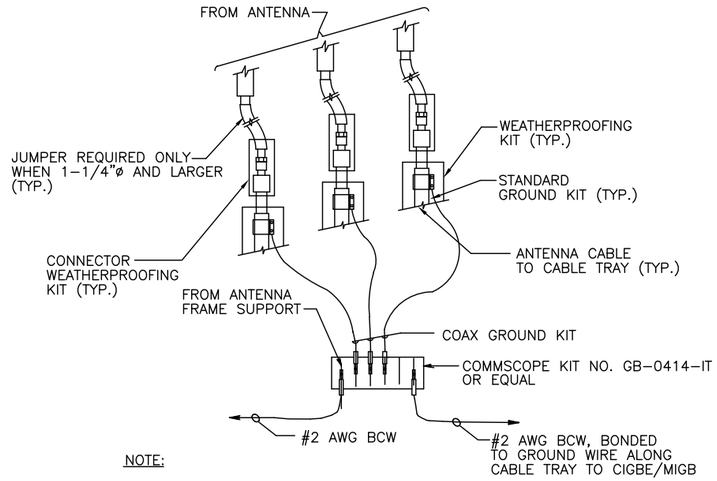
RF PLUMBING DIAGRAM
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	RF–1	1



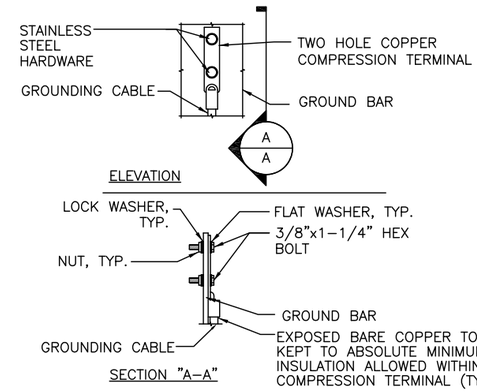
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1 / G–1



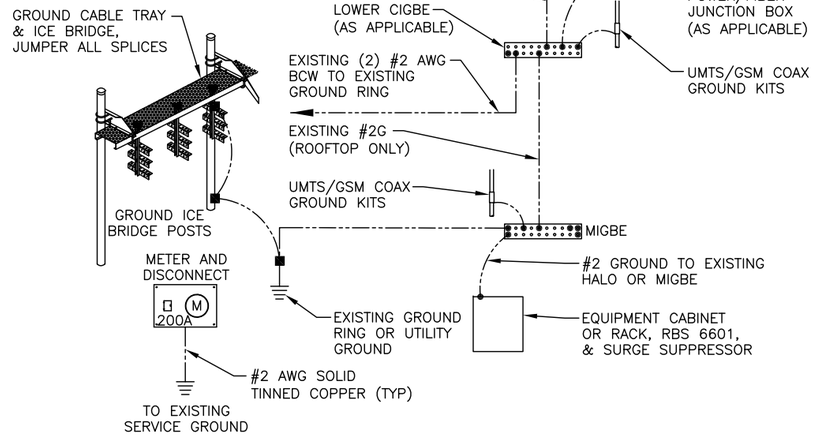
NOTE:

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

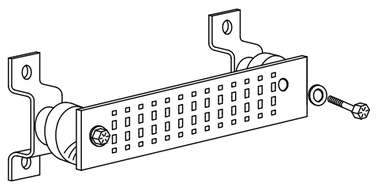
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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: CT2053
SITE NAME: EAST HADDAM-126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/05/19	ISSUED FOR CONSTRUCTION	SG	AT	DJC
A	03/13/19	ISSUED FOR REVIEW	AM	AT	DJC

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

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 21956
LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
(LTE 2C_3C_4C_4TX4RX)

SITE NUMBER	DRAWING NUMBER	REV
CT2053	G–1	1

MI CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
		PRE-CONSTRUCTION
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
N/A	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ASSEMBLY DRAWINGS	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE, PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	A VISUAL OBSERVATION BY CWI OF A PORTION OF WELDING ON THE PROPOSED STRUCTURAL MEMBERS IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
		CONSTRUCTION (PERFORMED BY CONTRACTOR)
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED AS SPECIFIED IN THE MODIFICATION DRAWINGS.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
		POST-CONSTRUCTION
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTE: X DENOTES A DOCUMENT NEEDED FOR THE MI REPORT AND N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT B+T GROUP.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ONSITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

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

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

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CARRIER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CARRIER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSPECTOR FAILS THE MI ("FAILED MI"), THE GC SHALL WORK WITH CARRIER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CARRIER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION
- THE ADDITIONAL COST INCURRED IN THE SECOND SUPERVISION PROCESS WOULD BE BORNE BY THE GENERAL CONTRACTOR.

MI VERIFICATION INSPECTIONS

CARRIER RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

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

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

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

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SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
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AT&T

CTI TOWERS

EAST HADDAM-
126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX

EXISTING T-ARM
AT 180'-6"

PROJECT NO:	135097.004.01
CHECKED BY:	RP

ISSUED FOR:

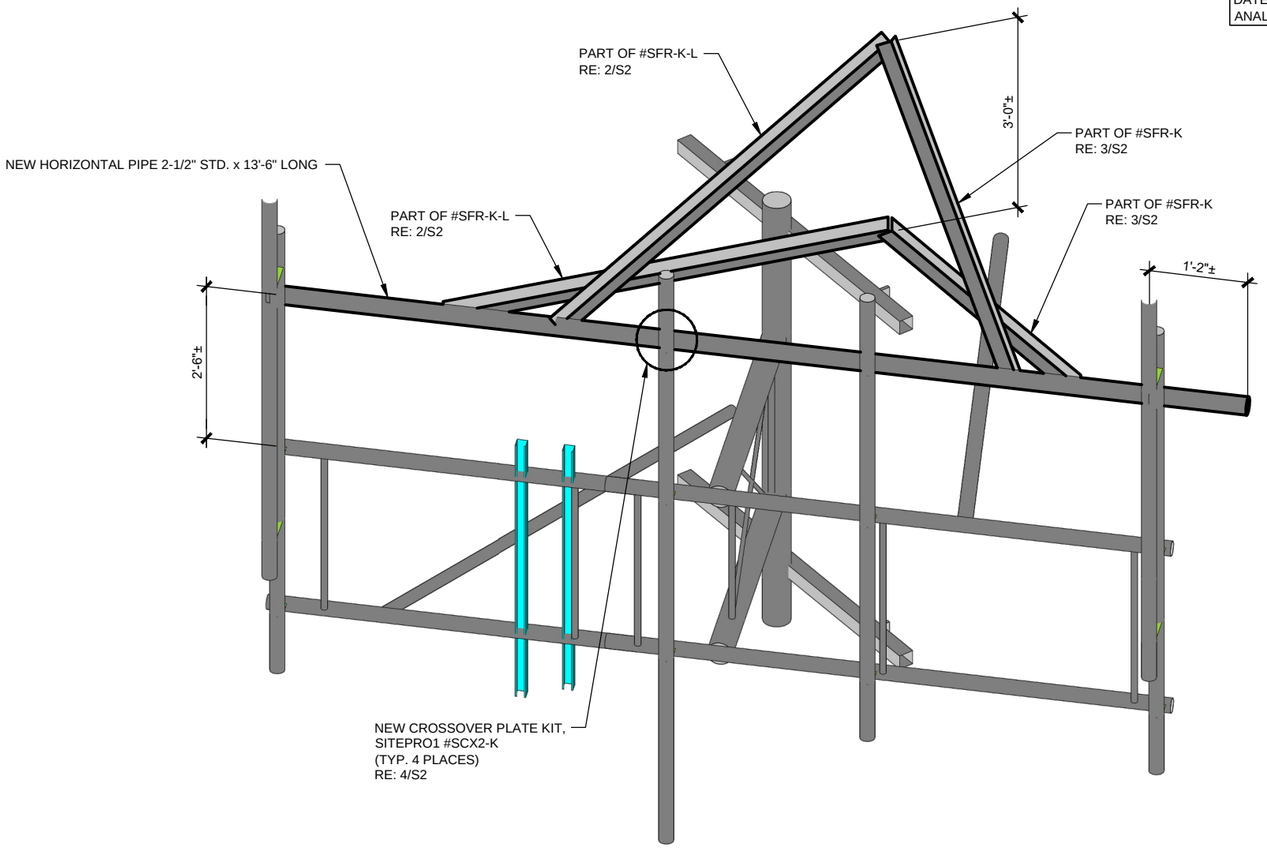
REV	DATE	DRWN	DESCRIPTION
0	05/24/19	PMS	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

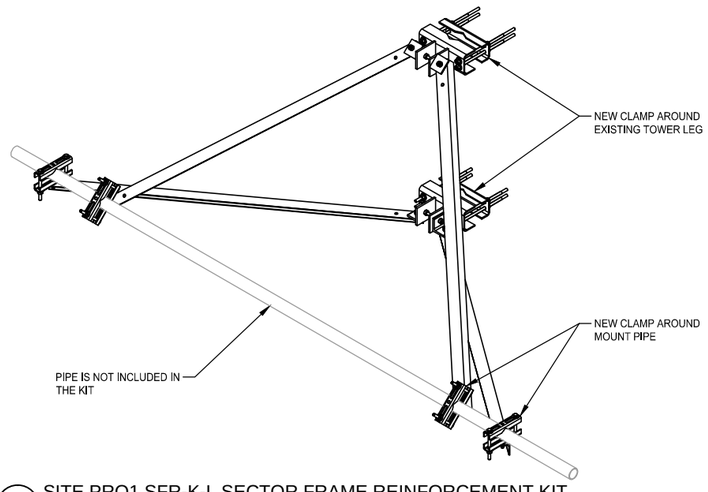
STATE OF CONNECTICUT
SCOTT M. SWANCE
31627
LICENSED
PROFESSIONAL ENGINEER
5/24/19

SHEET NUMBER:	REVISION:
S1	0

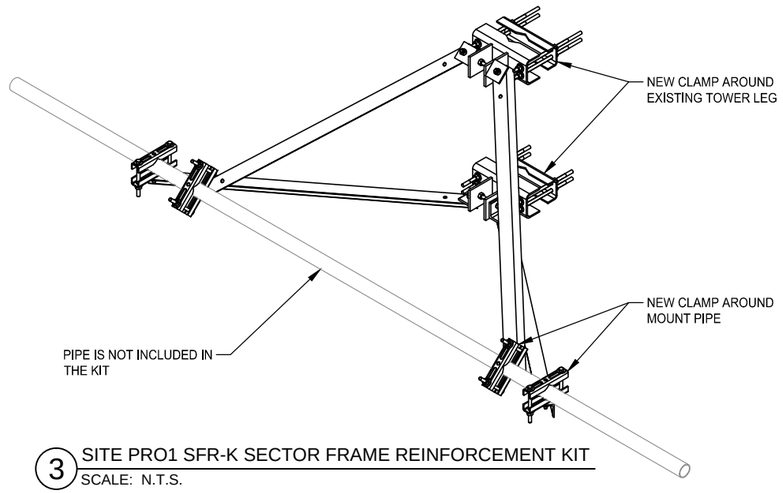
MODIFICATIONS BASED ON THE FAILING STRUCTURAL ANALYSIS FROM B+T GROUP DATED 05/17/19 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 05/24/19



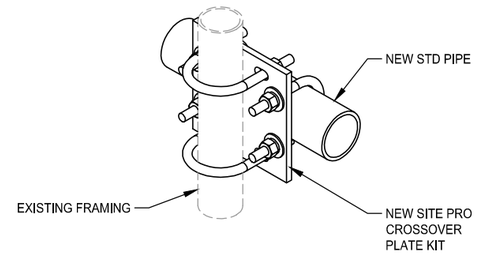
1 MODIFIED T-ARM MOUNT (TYP. ALL SECTORS)
SCALE: N.T.S.



2 SITE PRO1 SFR-K-L SECTOR FRAME REINFORCEMENT KIT
SCALE: N.T.S.



3 SITE PRO1 SFR-K SECTOR FRAME REINFORCEMENT KIT
SCALE: N.T.S.



4 SITE PRO1 SCX2-K CROSSOVER PLATE KIT
SCALE: N.T.S.

GENERAL NOTES

1.1 CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE MOBILIZING ON THE SITE FOR INSTALLATION OF THE MOUNT MODIFICATION AND SHALL NOTIFY THE ENGINEER OF RECORD IF THE FIELD CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD PRIOR TO MOBILIZING AT THE SITE IF THE MOUNT REINFORCEMENT SHOWN WILL NEED TO BE REVISED TO SATISFY FIELD CONDITIONS

1.2 CONTRACTOR SHALL RELOCATE NON-ANTENNA EQUIPMENT ALONG THE EXISTING PIPE MOUNT THAT IT IS MOUNTED TO, TO ALLOW FOR INSTALLATION OF MOUNT REINFORCEMENT. ENGINEER OF RECORD WILL BE NOTIFIED IF NON-ANTENNA EQUIPMENT NEEDS TO BE RELOCATED TO ANY OTHER EXISTING MEMBERS TO ALLOW FOR INSTALLATION OF MOUNT MODIFICATION.

1.3 MODIFICATION SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.

1.4 ALL WORK SHALL COMPLY WITH THE TIA-222-H STANDARD, TIA-1019-A STANDARD, AS WELL AS ANY OTHER GOVERNING BUILDING CODES.

1.5 FIELD WORK WILL BE DONE AROUND EXISTING COAXIAL CABLE AND EQUIPMENT. ALL WORK SHALL BE DONE IN A MANNER SUCH THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.

1.6 A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OR FIELD DRILLED HOLES.

1.7 THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.

1.8 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325N BOLTS, U.N.O.

1.9 IN LIEU OF TEMPORARY BRACING, CONTRACTOR MAY HAVE A STABILITY ANALYSIS PERFORMED BY AN ENGINEER LICENSED IN THE STATE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.

1.10 ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CCUSA POLICY "CUTTING AND WELDING PLAN" (DOC #ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.

1.11 DIMENSIONS WITH "±" MUST BE WITHIN 3" OF THE INDICATED DIMENSION.

FABRICATION

2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

	YIELD	ASTM SPECS
STEEL PIPE, U.N.O.	35ksi	A53 GR.B

2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND A153.

2.4 WELDING SHALL MEET ANSI/AWS D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.

2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 5 DAYS PRIOR TO FABRICATION.

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AT&T

CTI TOWERS

EAST HADDAM-
126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX

EXISTING T-ARM
AT 180'-6"

PROJECT NO:	135097.004.01
CHECKED BY:	RP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	05/24/19	PMS	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
SCOTT M. SHELLENBERGER
31627
LICENSED
PROFESSIONAL ENGINEER
5/24/19

SHEET NUMBER: S2

REVISION: 0

Date: **May 24, 2019**

Brandon Barnes
CTI Towers
5000 CentreGreen Way
Suite 325
Cary, NC 27519

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

Subject:	**Feasibility Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	10108
	Site Name:	CT2053
CTI Towers Designation:	**Site Number:**	10108
	Site Name:	East Haddam - 126 Parker Road
Engineering Firm	**B+T Group Project Number:**	135097.003.01
Designation: Site Data:	**126 Parker Road, East Haddam, Middlesex County, CT** **Latitude *41° 27' 39.27"*, Longitude *-72° 23' 42.8"*** **300 Foot - Guyed Tower**	

Dear Brandon Barnes,

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

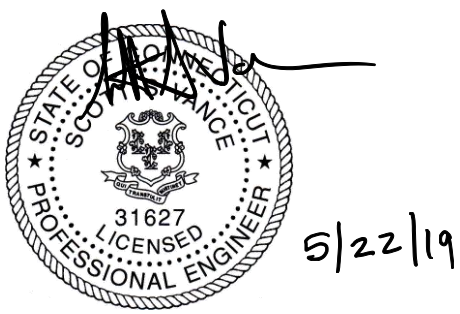
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

Proposed Equipment Configuration **Sufficient Capacity – 62.7%**

The analysis has been performed in accordance with the TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 130 mph (converted to an equivalent 101 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. Exposure Category B and Risk Category II were used in this analysis.

Structural analysis prepared by: Carlon Bethell II

Respectfully submitted by: B+T Engineering, Inc.
COA: PEC.0001564; Expires: 02/10/2020



5/22/19

Scott S. Vance, P.E.

tnxTower Report - version 8.0.5.0

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tnxTower Output

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1) INTRODUCTION

This tower is a 300 ft Guyed tower manufacturer is unknown. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-G
Risk Category:	II
Wind Speed:	101 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	0.75 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)
180.5	185.0	3	Cci Antennas	OPA65R-BU6A	12 4 2 1	1-5/8 3/4 1/2 3" Conduit
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Kaelus	DBCT108F1V92-1		
		3	Kathrein	800-10965		
		3	Powerwave	7770.00		
		6	Powerwave	LGP 21401		
		1	Raycap	DC6-48-60-0-8C		
		1	Raycap	DC6-48-60-18-8F		
	182.5	3	Site Pro1	SFR-K-L		
	180.5	3	--	Sector Frame		

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)
198.0	198.0	1	--	Omni 3"x6'	--	--
195.0	195.0	1	Pirod	4' Side Mount Standoff	--	--
165.0	165.0	1	--	4' Yagi Antenna	--	--
160.0	160.0	1	--	4' Yagi Antenna	--	--
143.0	143.0	1	--	4' Yagi Antenna	--	--
130.0	130.0	1	--	4' Yagi Antenna	--	--
25.0	25.0	1	--	4' Yagi Antenna	--	--

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Tower Data	Structural Analysis by HDG, LLC., Job No: CT2053	Date: 09/27/2012	On File
Mount Analysis	Mount Analysis by B+T Group, Project No: 135097.002.01	Date: 05/17/2019	On File
Foundation Data	*Information Not Available*		
Soil Properties			
Existing Loading	Structural Analysis by HDG, LLC., Job No: CT2053	Date: 09/27/2012	On File
Proposed Loading	Site License Application - ver. 1/19	Date: 04/10/2019	CTI

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) The tower and structures were built and have been maintained in accordance with the manufacturer's specification.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) Mount areas and weights are assumed based on photographs provided.

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
T1	300 - 280	Leg	2	3	-2.476	89.229	2.8	Pass
T2	280 - 260	Leg	2	49	-15.790	89.229	17.7	Pass
T3	260 - 240	Leg	2	97	-18.006	89.229	20.2	Pass
T4	240 - 220	Leg	2	145	-18.183	89.229	20.4	Pass
T5	220 - 200	Leg	2 1/4	193	-30.846	124.382	24.8	Pass
T6	200 - 180	Leg	2 1/4	241	-51.231	124.382	41.2	Pass
T7	180 - 160	Leg	2 1/4	289	-48.731	124.382	39.2	Pass
T8	160 - 140	Leg	2 1/4	337	-33.759	124.382	27.1	Pass
T9	140 - 120	Leg	2	387	-39.531	89.229	44.3	Pass
T10	120 - 100	Leg	2	435	-42.376	89.229	47.5	Pass
T11	100 - 80	Leg	2	483	-42.699	89.229	47.9	Pass
T12	80 - 60	Leg	2	530	-46.239	89.229	51.8	Pass
T13	60 - 40	Leg	2	577	-49.961	89.229	56.0	Pass
T14	40 - 20	Leg	2	625	-51.161	89.229	57.3	Pass
T15	20 - 6.66667	Leg	2	673	-51.057	89.574	57.0	Pass
T16	6.66667 - 0	Leg	2	709	-53.176	84.813	62.7	Pass
T1	300 - 280	Diagonal	1	12	-0.655	7.476	8.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T2	280 - 260	Diagonal	1	94	-1.618	7.476	21.6	Pass
T3	260 - 240	Diagonal	1	142	-1.102	7.476	14.7	Pass
T4	240 - 220	Diagonal	1	154	-1.148	7.476	15.4	Pass
T5	220 - 200	Diagonal	1 1/8	217	-3.903	12.127	32.2	Pass
T6	200 - 180	Diagonal	1 1/8	286	-3.773	12.127	31.1	Pass
T7	180 - 160	Diagonal	1 1/8	300	-3.978	12.127	32.8	Pass
T8	160 - 140	Diagonal	1 1/8	348	-5.309	12.127	43.8	Pass
T9	140 - 120	Diagonal	1	422	-2.370	7.476	31.7	Pass
T10	120 - 100	Diagonal	1	478	-1.330	7.476	17.8	Pass
T11	100 - 80	Diagonal	1	492	-1.699	7.476	22.7	Pass
T12	80 - 60	Diagonal	1	561	-2.378	7.476	31.8	Pass
T13	60 - 40	Diagonal	1	621	-1.941	7.476	26.0	Pass
T14	40 - 20	Diagonal	1	635	-1.020	7.476	13.6	Pass
T15	20 - 6.66667	Diagonal	1	683	-2.044	7.506	27.2	Pass
T16	6.66667 - 0	Diagonal	1	716	-1.332	10.166	13.1	Pass
T1	300 - 280	Horizontal	7/8	14	-0.077	8.224	0.9	Pass
T2	280 - 260	Horizontal	7/8	69	-0.273	8.224	3.3	Pass
T3	260 - 240	Horizontal	7/8	117	-0.312	8.224	3.8	Pass
T4	240 - 220	Horizontal	7/8	165	-0.315	8.224	3.8	Pass
T5	220 - 200	Horizontal	7/8	221	4.636	19.483	23.8	Pass
T6	200 - 180	Horizontal	7/8	254	-0.887	8.312	10.7	Pass
T7	180 - 160	Horizontal	7/8	304	-0.844	8.312	10.2	Pass
T8	160 - 140	Horizontal	7/8	350	-0.585	8.312	7.0	Pass
T9	140 - 120	Horizontal	7/8	406	-0.685	8.224	8.3	Pass
T10	120 - 100	Horizontal	7/8	454	-0.734	8.224	8.9	Pass
T11	100 - 80	Horizontal	7/8	502	-0.740	8.224	9.0	Pass
T12	80 - 60	Horizontal	7/8	556	4.162	19.483	21.4	Pass
T13	60 - 40	Horizontal	7/8	597	-0.865	8.224	10.5	Pass
T14	40 - 20	Horizontal	7/8	638	-0.886	8.224	10.8	Pass
T15	20 - 6.66667	Horizontal	7/8	688	-0.884	8.224	10.8	Pass
T16	6.66667 - 0	Horizontal	1 1/4	711	5.387	39.761	13.5	Pass
T1	300 - 280	Secondary Horizontal	3/4	27	-0.000	9.756	0.1	Pass
T2	280 - 260	Secondary Horizontal	3/4	61	-0.000	9.756	0.1	Pass
T3	260 - 240	Secondary Horizontal	3/4	109	-0.000	9.756	0.1	Pass
T4	240 - 220	Secondary Horizontal	3/4	157	-0.000	9.756	0.1	Pass
T5	220 - 200	Secondary Horizontal	3/4	205	-0.000	9.756	0.1	Pass
T6	200 - 180	Secondary Horizontal	3/4	253	0.000	14.314	0.1	Pass
T7	180 - 160	Secondary Horizontal	3/4	301	0.000	14.314	0.1	Pass
T8	160 - 140	Secondary Horizontal	3/4	363	0.000	14.314	0.1	Pass
T9	140 - 120	Secondary Horizontal	3/4	397	0.000	14.314	0.1	Pass
T10	120 - 100	Secondary Horizontal	3/4	445	0.000	14.314	0.1	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T11	100 - 80	Secondary Horizontal	3/4	493	0.000	14.314	0.1	Pass
T12	80 - 60	Secondary Horizontal	3/4	541	0.000	14.314	0.1	Pass
T13	60 - 40	Secondary Horizontal	3/4	589	0.000	14.314	0.1	Pass
T14	40 - 20	Secondary Horizontal	3/4	637	0.000	14.314	0.1	Pass
T15	20 - 6.66667	Secondary Horizontal	3/4	699	-0.000	9.756	0.1	Pass
T1	300 - 280	Top Girt	7/8	6	-0.022	8.224	0.3	Pass
T2	280 - 260	Top Girt	7/8	54	2.836	19.483	14.6	Pass
T3	260 - 240	Top Girt	7/8	101	-0.080	8.224	1.0	Pass
T4	240 - 220	Top Girt	7/8	150	-0.063	8.224	0.8	Pass
T5	220 - 200	Top Girt	7/8	198	-0.090	8.312	1.1	Pass
T6	200 - 180	Top Girt	7/8	245	-0.238	8.312	2.9	Pass
T7	180 - 160	Top Girt	7/8	294	-0.838	8.312	10.1	Pass
T8	160 - 140	Top Girt	7/8	342	-0.264	8.312	3.2	Pass
T9	140 - 120	Top Girt	7/8	390	4.012	19.483	20.6	Pass
T10	120 - 100	Top Girt	7/8	437	0.143	19.483	0.7	Pass
T11	100 - 80	Top Girt	7/8	485	0.152	19.483	0.8	Pass
T12	80 - 60	Top Girt	7/8	533	-0.187	8.224	2.3	Pass
T13	60 - 40	Top Girt	7/8	580	0.201	19.483	1.0	Pass
T14	40 - 20	Top Girt	7/8	628	0.138	19.483	0.7	Pass
T15	20 - 6.66667	Top Girt	7/8	677	0.240	19.483	1.2	Pass
T1	300 - 280	Bottom Girt	7/8	9	1.352	19.483	6.9	Pass
T2	280 - 260	Bottom Girt	7/8	56	-0.137	8.224	1.7	Pass
T3	260 - 240	Bottom Girt	7/8	104	-0.072	8.224	0.9	Pass
T4	240 - 220	Bottom Girt	7/8	151	-0.060	8.224	0.7	Pass
T5	220 - 200	Bottom Girt	7/8	200	-0.285	8.312	3.4	Pass
T6	200 - 180	Bottom Girt	7/8	248	-0.838	8.312	10.1	Pass
T7	180 - 160	Bottom Girt	7/8	297	-0.190	8.312	2.3	Pass
T8	160 - 140	Bottom Girt	7/8	345	2.643	19.483	13.6	Pass
T9	140 - 120	Bottom Girt	7/8	391	-0.116	8.224	1.4	Pass
T10	120 - 100	Bottom Girt	7/8	439	0.125	19.483	0.6	Pass
T11	100 - 80	Bottom Girt	7/8	488	0.223	19.483	1.1	Pass
T12	80 - 60	Bottom Girt	7/8	535	-0.151	8.224	1.8	Pass
T13	60 - 40	Bottom Girt	7/8	583	0.195	19.483	1.0	Pass
T14	40 - 20	Bottom Girt	7/8	632	0.159	19.483	0.8	Pass
T15	20 - 6.66667	Bottom Girt	7/8	679	3.686	19.483	18.9	Pass
T2	280 - 260	Guy A@279.917	3/4	730	13.630	34.980	39.0	Pass
T5	220 - 200	Guy A@210	5/8	727	11.527	25.440	45.3	Pass
T9	140 - 120	Guy A@139.917	5/8	724	12.635	25.440	49.7	Pass
T12	80 - 60	Guy A@70	1/2	721	7.337	16.140	45.5	Pass
T2	280 - 260	Guy B@279.917	3/4	729	13.629	34.980	39.0	Pass
T5	220 - 200	Guy B@210	5/8	726	11.536	25.440	45.3	Pass
T9	140 - 120	Guy B@139.917	5/8	723	12.624	25.440	49.6	Pass
T12	80 - 60	Guy B@70	1/2	720	7.321	16.140	45.4	Pass
T2	280 - 260	Guy C@279.917	3/4	728	13.717	34.980	39.2	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T5	220 - 200	Guy C@210	5/8	725	12.129	25.440	47.7	Pass
T9	140 - 120	Guy C@139.917	5/8	722	13.781	25.440	54.2	Pass
T12	80 - 60	Guy C@70	1/2	719	7.527	16.140	46.6	Pass
							Summary	
						Leg (T16)	62.7	Pass
						Diagonal (T8)	43.8	Pass
						Horizontal (T5)	23.8	Pass
						Secondary Horizontal (T1)	0.1	Pass
						Top Girt (T9)	20.6	Pass
						Bottom Girt (T15)	18.9	Pass
						Guy A (T9)	49.7	Pass
						Guy B (T9)	49.6	Pass
						Guy C (T9)	54.2	Pass
						Rating =	62.7	Pass

Table 5 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
2	Foundation	Base	--	Pass

Structure Rating (max from all components) =	62.7%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) The base foundation could not be analyzed as part of this analysis, as foundation and geotechnical information was not available. It is assumed that the foundation was designed with capacities similar to the tower itself and is therefore considered sufficient for the purposes of this analysis

4.1) Recommendations

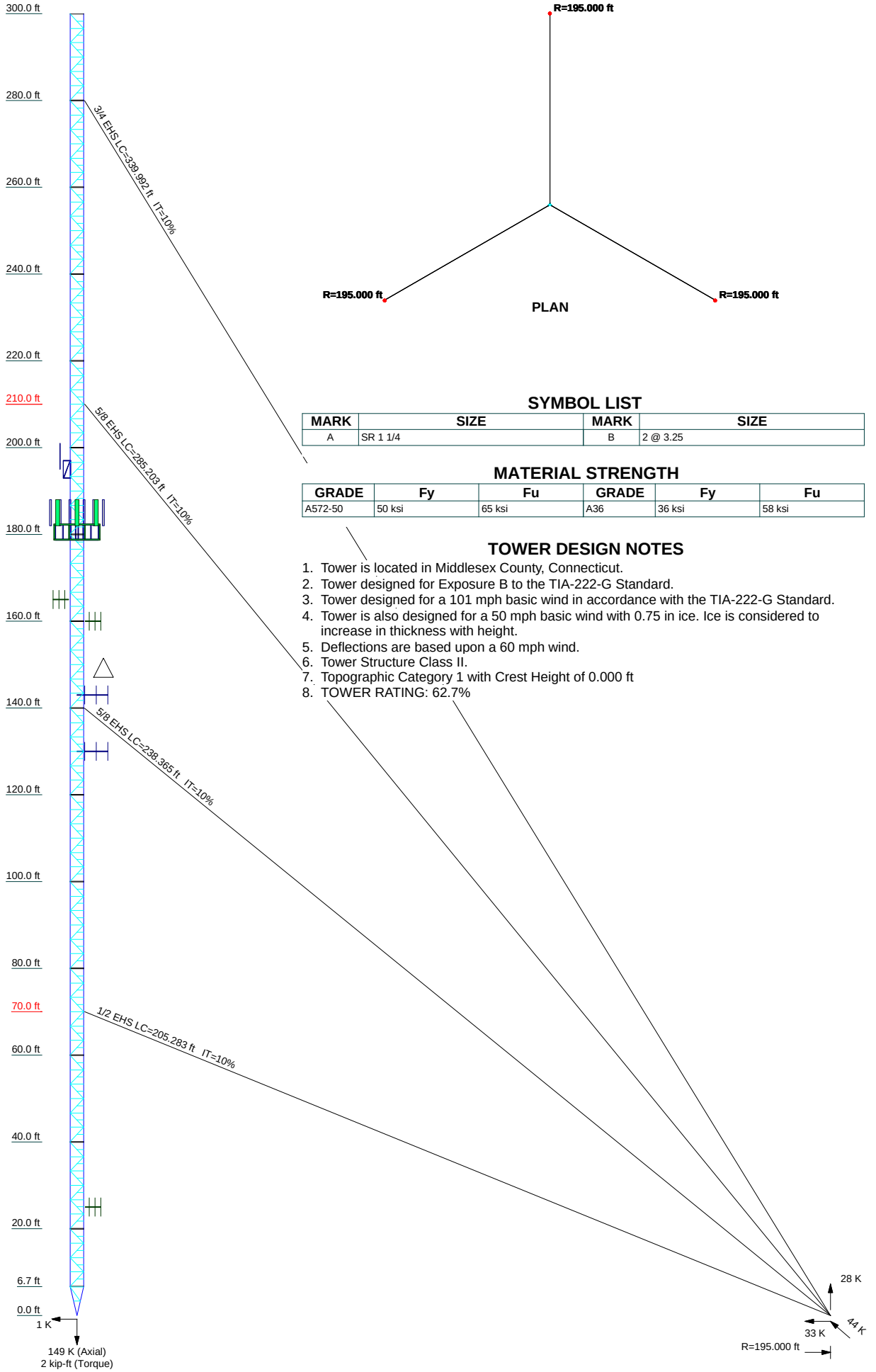
The tower and its foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16
Legs	SR 2				SR 2 1/4			A572-50								
Leg Grade																
Diagonals	SR 1				SR 1 1/8											
Diagonal Grade								A36								
Top Girts								SR 7/8								N.A.
Bottom Girts								SR 7/8								N.A.
Horizontals								SR 7/8								A
Sec. Horizontals								SR 3/4								N.A.
Face Width (ft)	3.5															
# Panels @ (ft)	84 @ 3.30556														4 @ 3.29167	B
Weight (K)	1.1	1.1	1.1	1.1	1.3	1.3	1.3	1.3	1.1	1.1	1.1	1.1	1.1	1.1	0.7	0.3

17.0



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1 1/4	B	2 @ 3.25

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 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: 62.7%

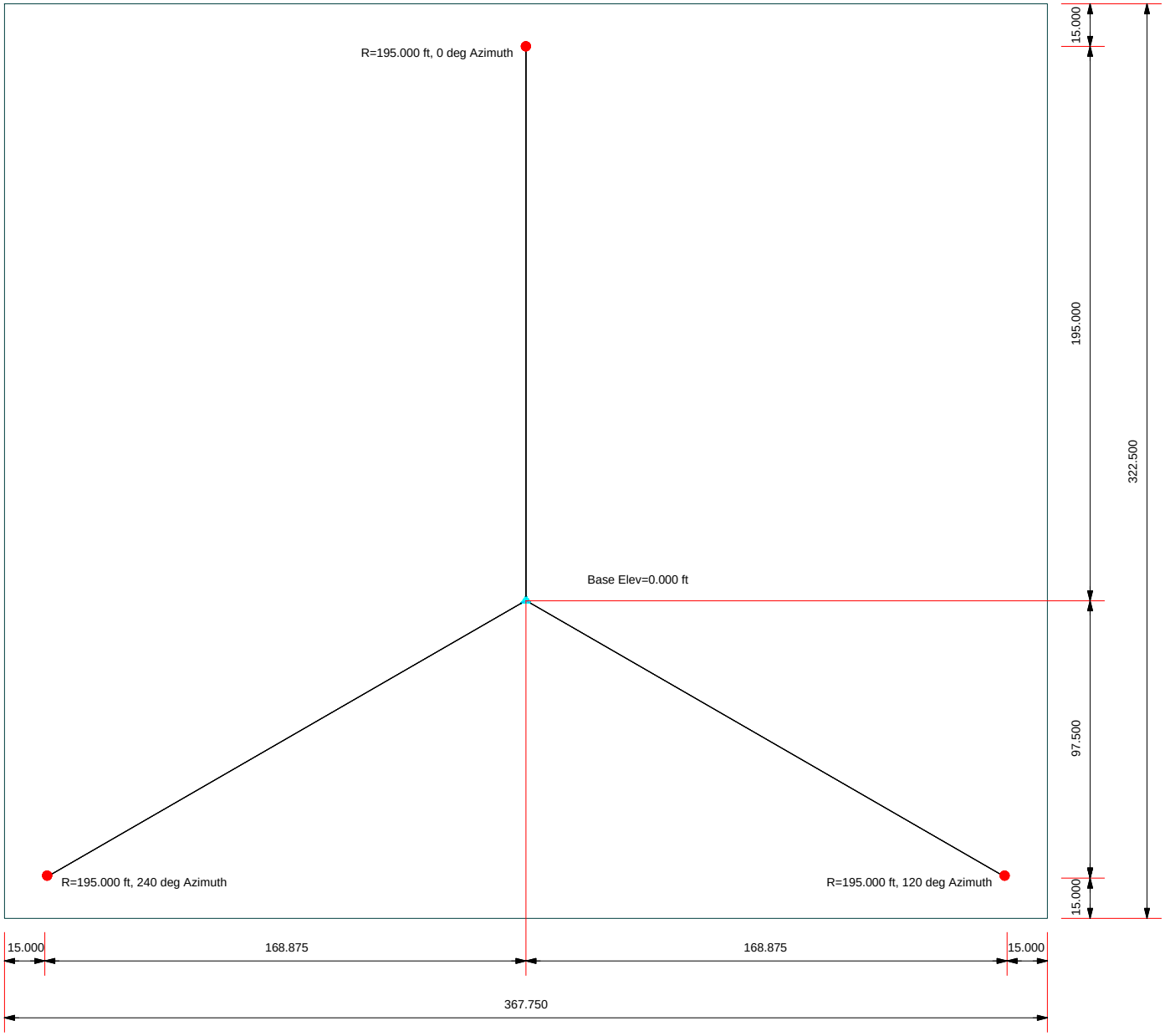
ALL REACTIONS ARE FACTORED

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

Job: 135097.003.01 - East Haddam-126 Parker Road,CT (Site# 1010		
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-1

Plot Plan

Total Area - 2.72 Acres



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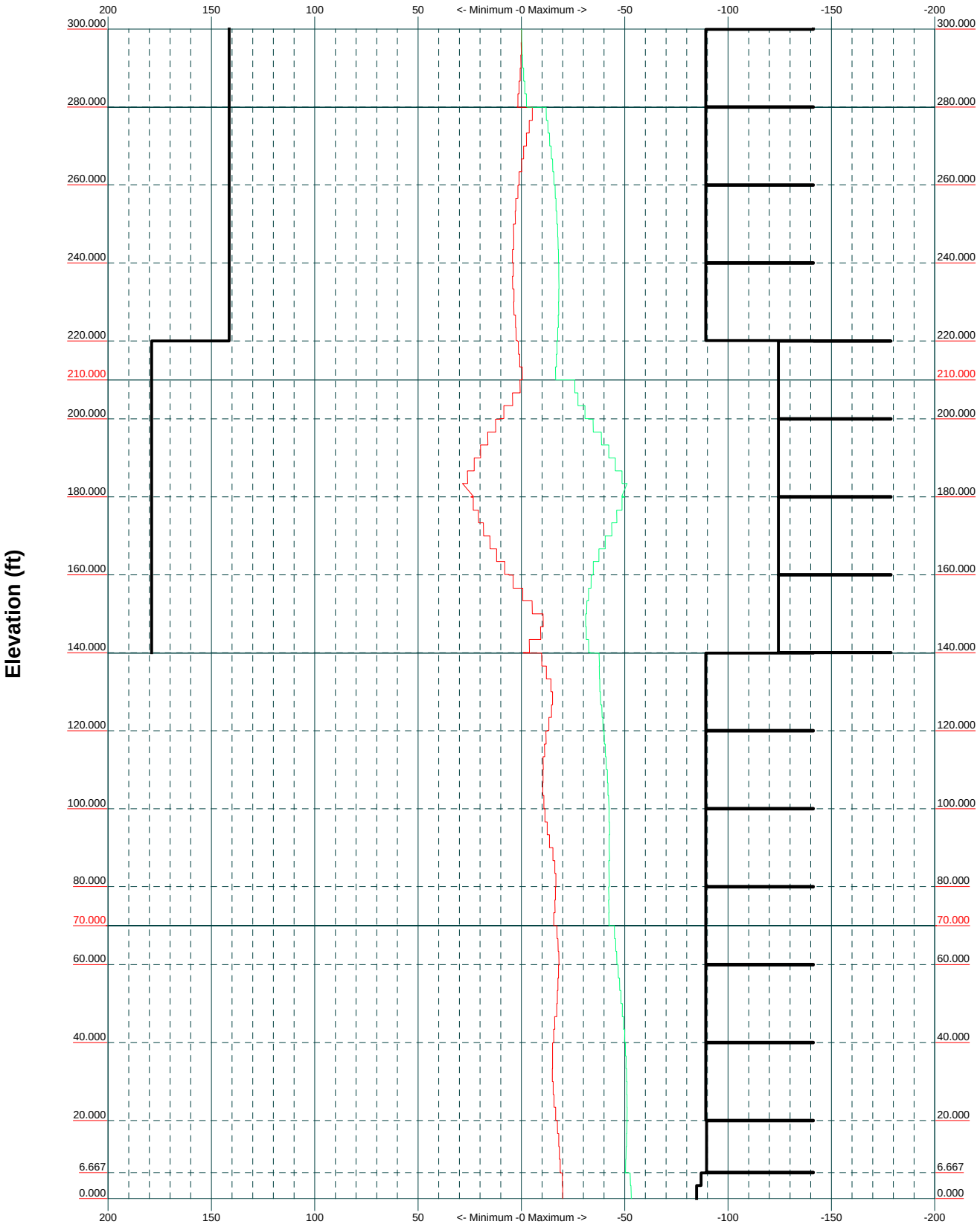
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-2

TIA-222-G - 101 mph/50 mph 0.750 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



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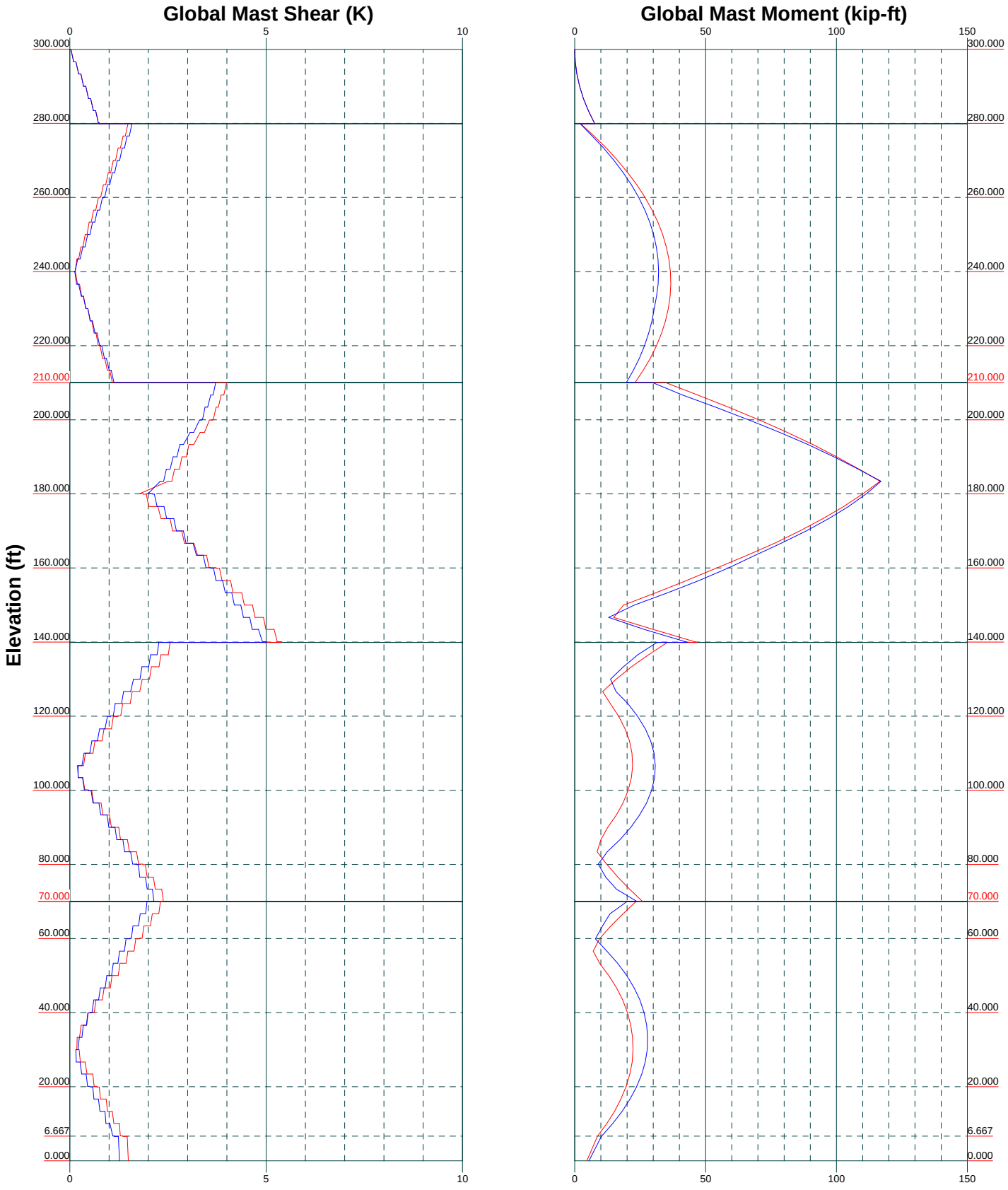
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-3

TIA-222-G - 101 mph/50 mph 0.750 in Ice Exposure B

Vx Vz

Maximum Values

Mx Mz



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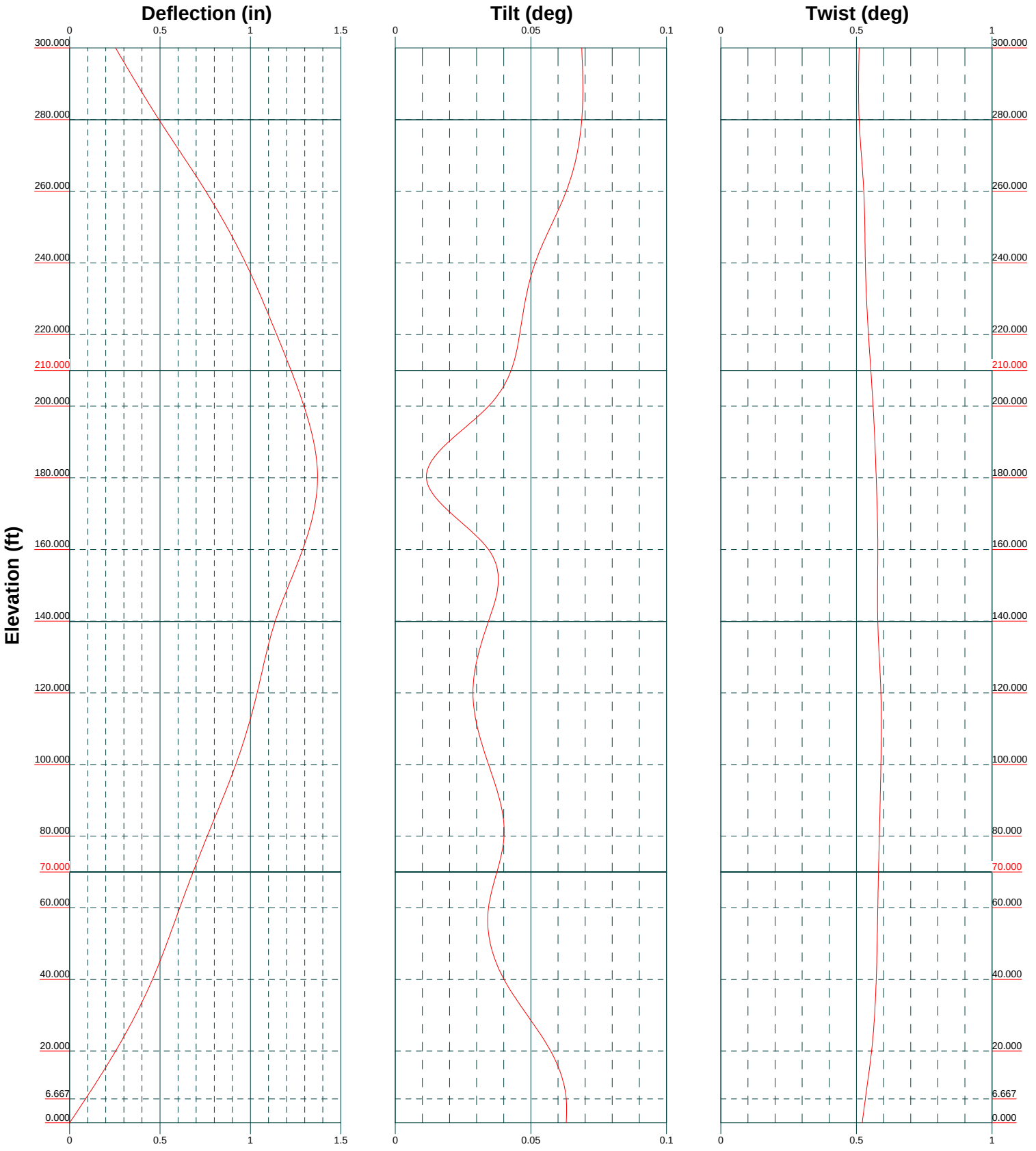
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-4

TIA-222-G - Service - 60 mph

Maximum Values



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Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-5

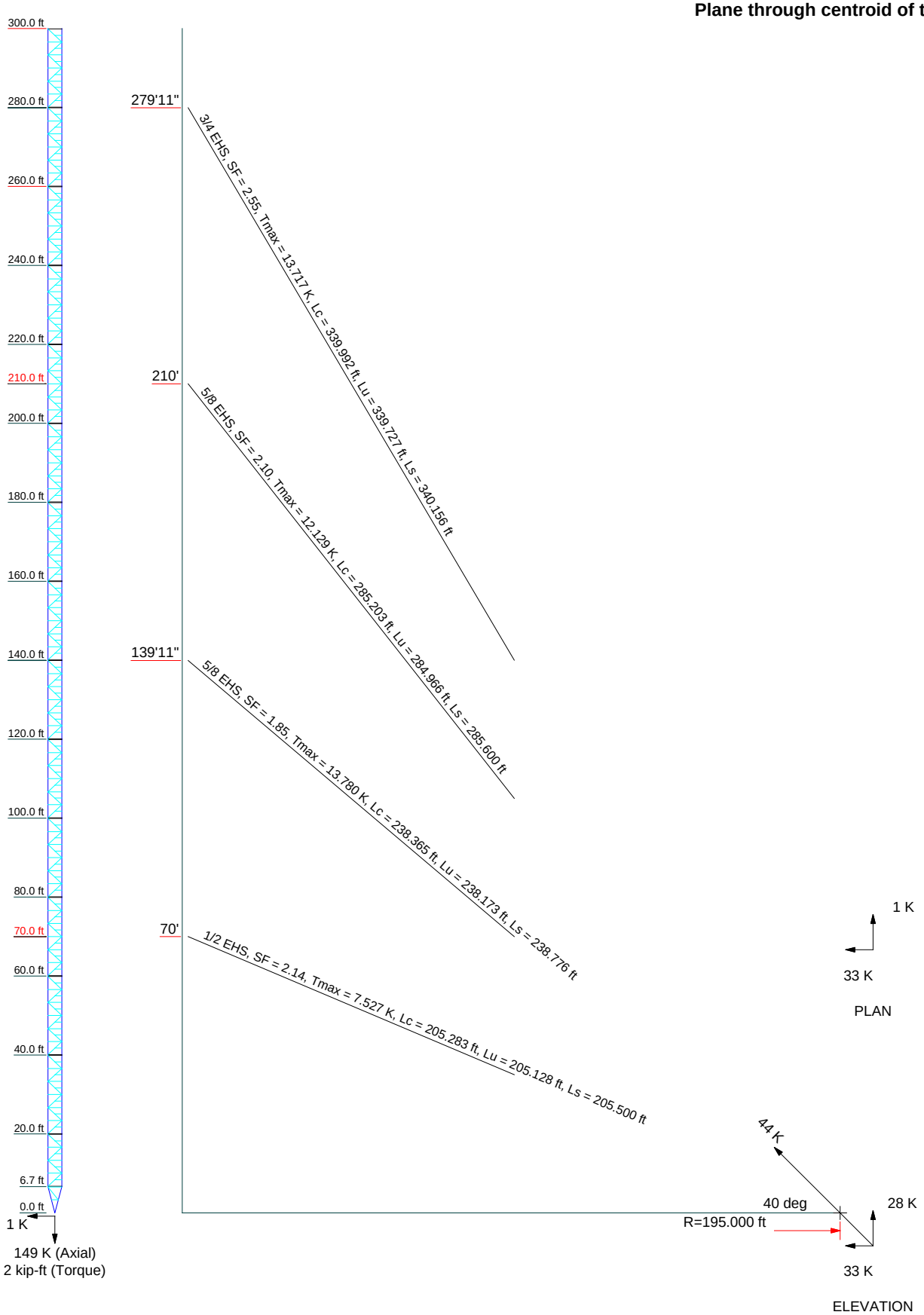
Guy Tensions and Tower Reactions

TIA-222-G - 101 mph/50 mph 0.750 in Ice Exposure B

Maximum Values

Anchor 'C'@195 ft Azimuth 240 deg Elev 0 ft

Plane through centroid of tower



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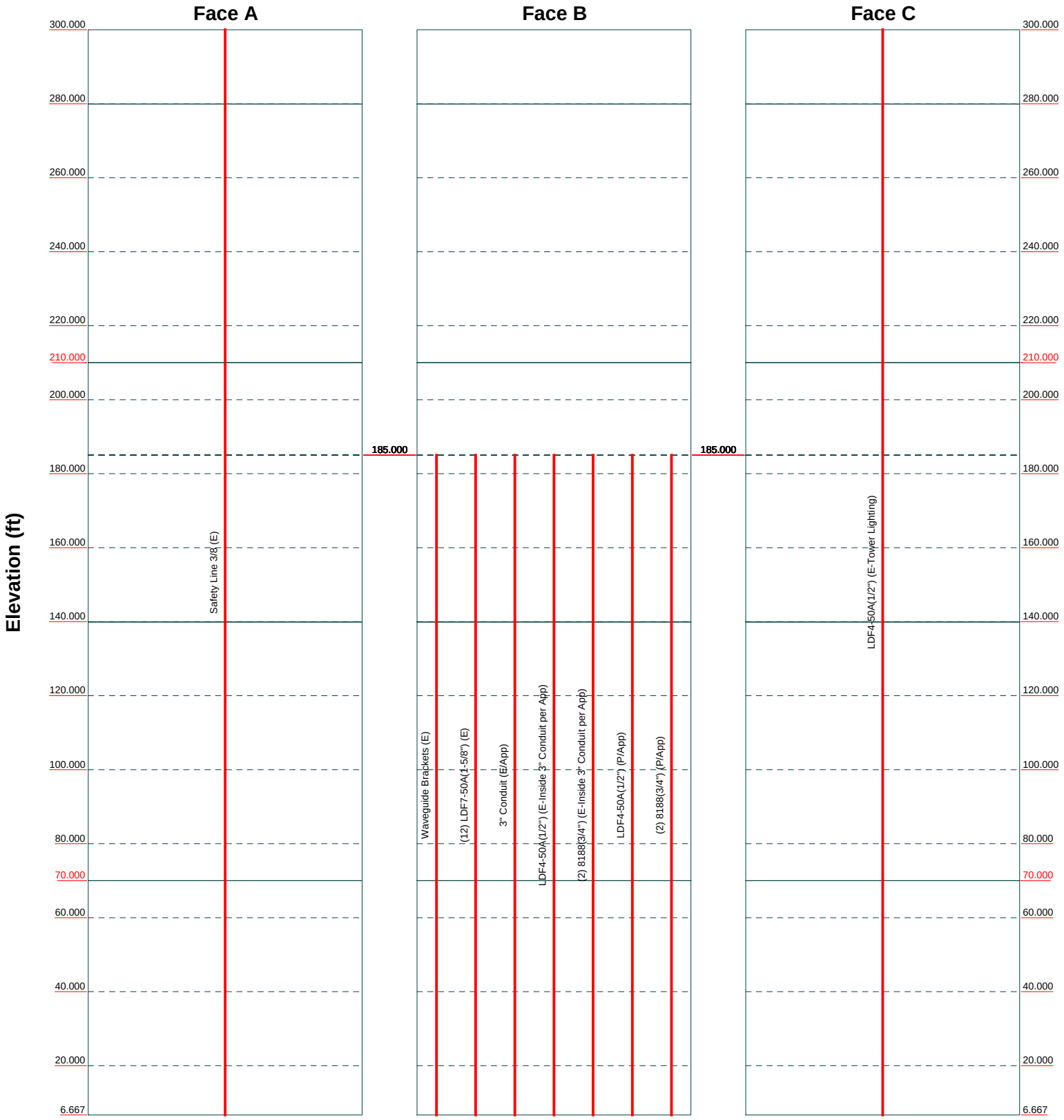
Job: 135097.003.01 - East Haddam-126 Parker Road,CT (Site# 1010		
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-6

Feed Line Distribution Chart
6'8" - 300'

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



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FAX: (918) 295-0265

Job: 135097.003.01 - East Haddam-126 Parker Road,CT (Site# 1010		
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-7

tnxTower	Job: 135097.003.01 - East Haddam-126 Parker Road,CT (Site# 10108)	Page: 1 of 51
B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Project	Date: 16:31:12 05/21/19
	Client: CTI Towers	Designed by: Vishwas

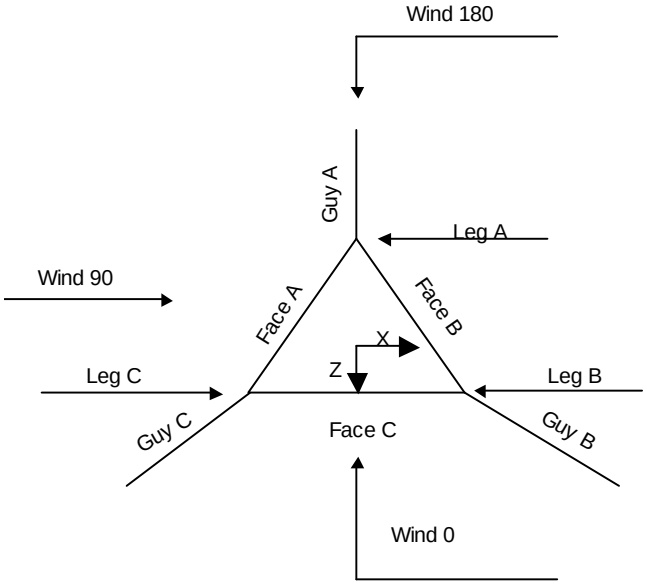
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 300.000 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 3.500 ft at the top and tapered at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Middlesex County, Connecticut.
Basic wind speed of 101 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 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.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member 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



Corner & Starmount Guyed Tower

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	300.000-280.000			3.500	1	20.000
T2	280.000-260.000			3.500	1	20.000
T3	260.000-240.000			3.500	1	20.000
T4	240.000-220.000			3.500	1	20.000
T5	220.000-200.000			3.500	1	20.000
T6	200.000-180.000			3.500	1	20.000
T7	180.000-160.000			3.500	1	20.000
T8	160.000-140.000			3.500	1	20.000
T9	140.000-120.000			3.500	1	20.000
T10	120.000-100.000			3.500	1	20.000
T11	100.000-80.000			3.500	1	20.000
T12	80.000-60.000			3.500	1	20.000
T13	60.000-40.000			3.500	1	20.000
T14	40.000-20.000			3.500	1	20.000
T15	20.000-6.667			3.500	1	13.333
T16	6.667-0.000			3.500	1	6.667

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	300.000-280.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T2	280.000-260.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T3	260.000-240.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T4	240.000-220.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T5	220.000-200.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T6	200.000-180.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T7	180.000-160.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T8	160.000-140.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T9	140.000-120.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T10	120.000-100.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T11	100.000-80.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T12	80.000-60.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T13	60.000-40.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T14	40.000-20.000	3.306	K Brace Left	No	Yes+Steps	1.000	1.000
T15	20.000-6.667	3.292	K Brace Left	No	Yes+Steps	1.000	1.000
T16	6.667-0.000	3.250	K Brace Left	No	Yes	1.000	1.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 300.000-280.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T2 280.000-260.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T3 260.000-240.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T4 240.000-220.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T5 220.000-200.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T6 200.000-180.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T7 180.000-160.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T8 160.000-140.000	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/8	A36 (36 ksi)
T9 140.000-120.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T10 120.000-100.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T11 100.000-80.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T12 80.000-60.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T13 60.000-40.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T14 40.000-20.000	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T15 20.000-6.667	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T16 6.667-0.000	Solid Round	2	A572-50	Solid Round	1	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
			(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 300.000-280.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 280.000-260.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 260.000-240.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T4 240.000-220.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T5 220.000-200.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T6 200.000-180.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T7 180.000-160.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T8 160.000-140.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T9 140.000-120.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T10 120.000-100.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T11 100.000-80.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T12 80.000-60.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 60.000-40.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T14 40.000-20.000	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T15 20.000-6.667	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 300.000-280.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 280.000-260.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 260.000-240.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T4	None	Flat Bar		A36	Solid Round	7/8	A36

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
240.000-220.000				(36 ksi)			(36 ksi)
T5 220.000-200.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T6 200.000-180.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T7 180.000-160.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T8 160.000-140.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T9 140.000-120.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T10 120.000-100.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T11 100.000-80.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T12 80.000-60.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 60.000-40.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T14 40.000-20.000	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T15 20.000-6.667	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T16 6.667-0.000	None	Flat Bar		A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T1 300.000-280.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 280.000-260.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 260.000-240.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 240.000-220.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 220.000-200.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T6 200.000-180.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T7 180.000-160.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T8 160.000-140.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T9 140.000-120.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T10 120.000-100.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T11 100.000-80.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T12	Solid Round	3/4	A36	Solid Round		A36

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
80.000-60.000			(36 ksi)			(36 ksi)
T13 60.000-40.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T14 40.000-20.000	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T15 20.000-6.667	Solid Round	3/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 300.000-280.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T2 280.000-260.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T3 260.000-240.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T4 240.000-220.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T5 220.000-200.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T6 200.000-180.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T7 180.000-160.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T8 160.000-140.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T9 140.000-120.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T10 120.000-100.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T11 100.000-80.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T12 80.000-60.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T13 60.000-40.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T14 40.000-20.000	0.000	0.625	A36 (36 ksi)	1	1	1.03	0.000	0.000	0.000
T15	0.000	0.625	A36	1	1	1.03	0.000	0.000	0.000

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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
20.000-6.667			(36 ksi)						
T16	0.000	0.625	A36	1	1	1.03	0.000	0.000	0.000
6.667-0.000			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	K Single Diags X	K Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
300.000-280.000				1	1	1	1	1	1	1	1	1	1	1	1
T2	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
280.000-260.000				1	1	1	1	1	1	1	1	1	1	1	1
T3	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
260.000-240.000				1	1	1	1	1	1	1	1	1	1	1	1
T4	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
240.000-220.000				1	1	1	1	1	1	1	1	1	1	1	1
T5	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
220.000-200.000				1	1	1	1	1	1	1	1	1	1	1	1
T6	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
200.000-180.000				1	1	1	1	1	1	1	1	1	1	1	1
T7	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
180.000-160.000				1	1	1	1	1	1	1	1	1	1	1	1
T8	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
160.000-140.000				1	1	1	1	1	1	1	1	1	1	1	1
T9	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
140.000-120.000				1	1	1	1	1	1	1	1	1	1	1	1
T10	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
120.000-100.000				1	1	1	1	1	1	1	1	1	1	1	1
T11	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
100.000-80.000				1	1	1	1	1	1	1	1	1	1	1	1
T12	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
80.000-60.000				1	1	1	1	1	1	1	1	1	1	1	1
T13	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
60.000-40.000				1	1	1	1	1	1	1	1	1	1	1	1
T14	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
40.000-20.000				1	1	1	1	1	1	1	1	1	1	1	1
T15	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
20.000-6.667				1	1	1	1	1	1	1	1	1	1	1	1
T16	No	Yes	1	1	1	1	1	1	1	1	1	1	1	1	1
6.667-0.000				1	1	1	1	1	1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 300.000-280.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T2 280.000-260.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T3 260.000-240.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T4 240.000-220.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T5 220.000-200.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T6 200.000-180.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T7 180.000-160.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T8 160.000-140.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T9 140.000-120.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T10 120.000-100.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T11 100.000-80.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T12 80.000-60.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T13 60.000-40.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T14 40.000-20.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T15 20.000-6.667	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1
T16 6.667-0.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	1

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
70	EHS	A	1/2	2.690	10%	23000.000	0.517	205.133	195.000	0.000	0.000	100%
		B	1/2	2.690	10%	23000.000	0.517	205.133	195.000	0.000	0.000	100%
		C	1/2	2.690	10%	23000.000	0.517	205.133	195.000	0.000	0.000	100%
139.917	EHS	A	5/8	4.240	10%	23000.000	0.813	238.189	195.000	0.000	0.000	100%
		B	5/8	4.240	10%	23000.000	0.813	238.189	195.000	0.000	0.000	100%
		C	5/8	4.240	10%	23000.000	0.813	238.189	195.000	0.000	0.000	100%
210	EHS	A	5/8	4.240	10%	23000.000	0.813	284.991	195.000	0.000	0.000	100%
		B	5/8	4.240	10%	23000.000	0.813	284.991	195.000	0.000	0.000	100%
		C	5/8	4.240	10%	23000.000	0.813	284.991	195.000	0.000	0.000	100%
279.917	EHS	A	3/4	5.830	10%	24000.000	1.155	339.759	195.000	0.000	0.000	100%
		B	3/4	5.830	10%	24000.000	1.155	339.759	195.000	0.000	0.000	100%
		C	3/4	5.830	10%	24000.000	1.155	339.759	195.000	0.000	0.000	100%

Guy Data *(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
70	Corner						
139.917	Corner						
210	Corner						
279.917	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
70.000	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
139.917	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
210.000	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	
279.917	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Flat Bar	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
70	0.106	0.106	0.106		4.020 3.5 sec/pulse	4.020 3.5 sec/pulse	4.020 3.5 sec/pulse	
139.917	0.194	0.194	0.194		5.372 4.0 sec/pulse	5.372 4.0 sec/pulse	5.372 4.0 sec/pulse	
210	0.232	0.232	0.232		7.640 4.8 sec/pulse	7.640 4.8 sec/pulse	7.640 4.8 sec/pulse	
279.917	0.392	0.392	0.392		11.136 5.8 sec/pulse	11.136 5.8 sec/pulse	11.136 5.8 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
70	No	No			0.7	0.7	1	1
139.917	No	No			0.7	0.7	1	1
210	No	No			0.7	0.7	1	1
279.917	No	No			0.7	0.7	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
70	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1
139.917	0.625 A325N	0	0.000	0.75	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1
210	0.625 A325N	0	0.000	0.75	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1
279.917	0.625 A325N	0	0.000	0.75	0.000 A325N	0	0.000	1	0.000 A325N	0	0.000	1

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
70	A	35.000	0.016	0.004	1.509
	B	35.000	0.016	0.004	1.509
	C	35.000	0.016	0.004	1.509
139.917	A	69.958	0.020	0.005	1.617
	B	69.958	0.020	0.005	1.617
	C	69.958	0.020	0.005	1.617
210	A	105.000	0.022	0.005	1.684
	B	105.000	0.022	0.005	1.684

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
	C	105.000	0.022	0.005	1.684
279.917	A	139.958	0.024	0.006	1.733
	B	139.958	0.024	0.006	1.733
	C	139.958	0.024	0.006	1.733

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
70	A	19.937	2.726 2.690	0.000	0.976	-2.545	-1.973	0.000	0.000
	B	19.937	2.726 2.690	2.204	0.976	1.273	0.987	0.000	-1.709
	C	19.937	2.726 2.690	-2.204	0.976	1.273	0.987	-0.000	1.709
			Sum:	0.000	2.929	0.000	0.000	0.000	0.000
139.917	A	35.943	4.354 4.240	0.000	2.619	-3.478	-5.292	0.000	0.000
	B	35.943	4.354 4.240	3.012	2.619	1.739	2.646	0.000	-4.583
	C	35.943	4.354 4.240	-3.012	2.619	1.739	2.646	-0.000	4.583
			Sum:	0.000	7.857	0.000	0.000	0.000	0.000
210	A	47.419	4.411 4.240	0.000	3.300	-2.926	-6.669	0.000	0.000
	B	47.419	4.411 4.240	2.534	3.300	1.463	3.335	0.000	-5.776
	C	47.419	4.411 4.240	-2.534	3.300	1.463	3.335	-0.000	5.776
			Sum:	0.000	9.901	0.000	0.000	0.000	0.000
279.917	A	55.417	6.153 5.830	0.000	5.129	-3.399	-10.364	0.000	0.000
	B	55.417	6.153 5.830	2.944	5.129	1.700	5.182	0.000	-8.975
	C	55.417	6.153 5.830	-2.944	5.129	1.700	5.182	-0.000	8.975
			Sum:	0.000	15.386	0.000	0.000	0.000	0.000

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
70	A	19.937	6.297 6.002	0.000	2.528	-5.767	-5.109	0.000	0.000
	B	19.937	6.297 6.002	4.994	2.528	2.884	2.554	0.000	-4.424
	C	19.937	6.297	-4.994	2.528	2.884	2.554	-0.000	4.424

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			6.002						
			Sum:	0.000	7.585	0.000	0.000	0.000	0.000
139.917	A	35.943	9.136	0.000	5.769	-7.084	-11.658	0.000	0.000
			8.404						
	B	35.943	9.136	6.135	5.769	3.542	5.829	0.000	-10.096
			8.404						
	C	35.943	9.136	-6.135	5.769	3.542	5.829	-0.000	10.096
			8.404						
			Sum:	0.000	17.308	0.000	0.000	0.000	0.000
210	A	47.419	9.604	0.000	7.431	-6.084	-15.016	0.000	0.000
			8.437						
	B	47.419	9.604	5.269	7.431	3.042	7.508	0.000	-13.004
			8.437						
	C	47.419	9.604	-5.269	7.431	3.042	7.508	-0.000	13.004
			8.437						
			Sum:	0.000	22.293	0.000	0.000	0.000	0.000
279.917	A	55.417	12.743	0.000	10.838	-6.702	-21.901	0.000	0.000
			10.950						
	B	55.417	12.743	5.804	10.838	3.351	10.951	0.000	-18.967
			10.950						
	C	55.417	12.743	-5.804	10.838	3.351	10.951	-0.000	18.967
			10.950						
			Sum:	0.000	32.515	0.000	0.000	0.000	0.000

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
70	A	19.937	2.726	0.000	0.976	-2.545	-1.973	0.000	0.000
			2.690						
	B	19.937	2.726	2.204	0.976	1.273	0.987	0.000	-1.709
			2.690						
	C	19.937	2.726	-2.204	0.976	1.273	0.987	-0.000	1.709
			2.690						
			Sum:	0.000	2.929	0.000	0.000	0.000	0.000
139.917	A	35.943	4.354	0.000	2.619	-3.478	-5.292	0.000	0.000
			4.240						
	B	35.943	4.354	3.012	2.619	1.739	2.646	0.000	-4.583
			4.240						
	C	35.943	4.354	-3.012	2.619	1.739	2.646	-0.000	4.583
			4.240						
			Sum:	0.000	7.857	0.000	0.000	0.000	0.000
210	A	47.419	4.411	0.000	3.300	-2.926	-6.669	0.000	0.000
			4.240						
	B	47.419	4.411	2.534	3.300	1.463	3.335	0.000	-5.776
			4.240						
	C	47.419	4.411	-2.534	3.300	1.463	3.335	-0.000	5.776
			4.240						
			Sum:	0.000	9.901	0.000	0.000	0.000	0.000
279.917	A	55.417	6.153	0.000	5.129	-3.399	-10.364	0.000	0.000
			5.830						

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
	B	55.417	6.153 5.830	2.944	5.129	1.700	5.182	0.000	-8.975
	C	55.417	6.153 5.830	-2.944	5.129	1.700	5.182	-0.000	8.975
			Sum:	0.000	15.386	0.000	0.000	0.000	0.000

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept ft
70	A	192.98	70.00	3.783	2.86	3.409	3.18	3.044	3.56	2.690	4.02	2.353	4.59	2.040	5.29	1.760	6.13
	B	192.98	70.00	3.783	2.86	3.409	3.18	3.044	3.56	2.690	4.02	2.353	4.59	2.040	5.29	1.760	6.13
	C	192.98	70.00	3.783	2.86	3.409	3.18	3.044	3.56	2.690	4.02	2.353	4.59	2.040	5.29	1.760	6.13
139.917	A	192.98	139.92	5.505	4.15	5.075	4.50	4.652	4.90	4.240	5.37	3.842	5.92	3.463	6.56	3.108	7.30
	B	192.98	139.92	5.505	4.15	5.075	4.50	4.652	4.90	4.240	5.37	3.842	5.92	3.463	6.56	3.108	7.30
	C	192.98	139.92	5.505	4.15	5.075	4.50	4.652	4.90	4.240	5.37	3.842	5.92	3.463	6.56	3.108	7.30
210	A	192.98	210.00	5.119	6.35	4.821	6.73	4.528	7.16	4.240	7.64	3.959	8.17	3.687	8.76	3.424	9.42
	B	192.98	210.00	5.119	6.35	4.821	6.73	4.528	7.16	4.240	7.64	3.959	8.17	3.687	8.76	3.424	9.42
	C	192.98	210.00	5.119	6.35	4.821	6.73	4.528	7.16	4.240	7.64	3.959	8.17	3.687	8.76	3.424	9.42
279.917	A	192.98	279.92	6.731	9.68	6.426	10.13	6.125	10.61	5.830	11.14	5.541	11.70	5.258	12.32	4.983	12.98
	B	192.98	279.92	6.731	9.68	6.426	10.13	6.125	10.61	5.830	11.14	5.541	11.70	5.258	12.32	4.983	12.98
	C	192.98	279.92	6.731	9.68	6.426	10.13	6.125	10.61	5.830	11.14	5.541	11.70	5.258	12.32	4.983	12.98

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Safety Line 3/8 (E) ***V***	A	No	No	Ar (CaAa)	300.000 - 0.000	0.000	-0.2	1	1	0.375	0.375		0.000
Waveguide Brackets (E)	B	No	No	Af (CaAa)	185.000 - 0.000	0.000	0	1	1	1.750	1.750		0.001
LDF7-50A(1-5/8") (E)	B	No	No	Ar (CaAa)	185.000 - 0.000	0.000	0	12	6	0.850 0.750	1.980		0.001
3" Conduit (E/App)	B	No	No	Ar (CaAa)	185.000 - 0.000	0.000	-0.3	1	1	3.000	3.000		0.003
LDF4-50A(1/2") (E-Inside 3" Conduit per App)	B	No	No	Ar (CaAa)	185.000 - 0.000	0.000	-0.3	1	1	0.500	0.630		0.000
8188(3/4") (E-Inside 3" Conduit per App)	B	No	No	Ar (CaAa)	185.000 - 0.000	0.000	-0.3	2	2	0.500	0.750		0.000

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF4-50A(1/2") (P/App)	B	No	No	Ar (CaAa)	185.000 - 0.000	0.000	0.3	1	1	0.750	0.630		0.000
8188(3/4") (P/App) ***V***	B	No	No	Ar (CaAa)	185.000 - 0.000	0.000	0.35	2	2	0.750	0.750		0.000
LDF4-50A(1/2") (E-Tower Lighting) ***V***	C	No	No	Ar (CaAa)	300.000 - 0.000	0.000	0	1	1	0.500	0.630		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
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
T1	300.000-280.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.260	0.000	0.003
T2	280.000-260.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.260	0.000	0.003
T3	260.000-240.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.260	0.000	0.003
T4	240.000-220.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.260	0.000	0.003
T5	220.000-200.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	1.260	0.000	0.003
T6	200.000-180.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	16.968	0.000	0.078
		C	0.000	0.000	1.260	0.000	0.003
T7	180.000-160.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T8	160.000-140.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T9	140.000-120.000	A	0.000	0.000	0.750	0.000	0.004

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T10	120.000-100.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T11	100.000-80.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T12	80.000-60.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T13	60.000-40.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T14	40.000-20.000	A	0.000	0.000	0.750	0.000	0.004
		B	0.000	0.000	67.873	0.000	0.312
		C	0.000	0.000	1.260	0.000	0.003
T15	20.000-6.667	A	0.000	0.000	0.500	0.000	0.003
		B	0.000	0.000	45.249	0.000	0.208
		C	0.000	0.000	0.840	0.000	0.002
T16	6.667-0.000	A	0.000	0.000	0.250	0.000	0.001
		B	0.000	0.000	22.624	0.000	0.104
		C	0.000	0.000	0.420	0.000	0.001

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
T1	300.000-280.000	A	1.864	0.000	0.000	8.207	0.000	0.106
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	8.717	0.000	0.117
T2	280.000-260.000	A	1.851	0.000	0.000	8.153	0.000	0.105
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	8.663	0.000	0.115
T3	260.000-240.000	A	1.837	0.000	0.000	8.097	0.000	0.104
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	8.607	0.000	0.114
T4	240.000-220.000	A	1.821	0.000	0.000	8.036	0.000	0.102
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	8.546	0.000	0.112
T5	220.000-200.000	A	1.805	0.000	0.000	7.970	0.000	0.101
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	8.480	0.000	0.110
T6	200.000-180.000	A	1.787	0.000	0.000	7.898	0.000	0.099
		B		0.000	0.000	33.038	0.000	0.540
		C		0.000	0.000	8.408	0.000	0.109
T7	180.000-160.000	A	1.767	0.000	0.000	7.819	0.000	0.097
		B		0.000	0.000	131.428	0.000	2.138
		C		0.000	0.000	8.329	0.000	0.107
T8	160.000-140.000	A	1.745	0.000	0.000	7.731	0.000	0.095
		B		0.000	0.000	130.625	0.000	2.112
		C		0.000	0.000	8.241	0.000	0.104
T9	140.000-120.000	A	1.720	0.000	0.000	7.632	0.000	0.092
		B		0.000	0.000	129.719	0.000	2.084
		C		0.000	0.000	8.142	0.000	0.102
T10	120.000-100.000	A	1.692	0.000	0.000	7.518	0.000	0.090
		B		0.000	0.000	128.677	0.000	2.051

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	8.028	0.000	0.099
T11	100.000-80.000	A	1.658	0.000	0.000	7.383	0.000	0.087
		B		0.000	0.000	127.450	0.000	2.013
		C		0.000	0.000	7.893	0.000	0.096
T12	80.000-60.000	A	1.617	0.000	0.000	7.219	0.000	0.083
		B		0.000	0.000	125.947	0.000	1.966
		C		0.000	0.000	7.729	0.000	0.092
T13	60.000-40.000	A	1.564	0.000	0.000	7.005	0.000	0.078
		B		0.000	0.000	123.993	0.000	1.907
		C		0.000	0.000	7.515	0.000	0.087
T14	40.000-20.000	A	1.486	0.000	0.000	6.693	0.000	0.072
		B		0.000	0.000	121.152	0.000	1.822
		C		0.000	0.000	7.203	0.000	0.080
T15	20.000-6.667	A	1.370	0.000	0.000	4.153	0.000	0.042
		B		0.000	0.000	77.955	0.000	1.134
		C		0.000	0.000	4.493	0.000	0.047
T16	6.667-0.000	A	1.193	0.000	0.000	1.840	0.000	0.017
		B		0.000	0.000	36.825	0.000	0.508
		C		0.000	0.000	2.010	0.000	0.019

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	300.000-280.000	-0.354	0.525	-0.967	0.933
T2	280.000-260.000	-0.354	0.525	-0.970	0.936
T3	260.000-240.000	-0.354	0.525	-0.974	0.939
T4	240.000-220.000	-0.354	0.525	-0.977	0.943
T5	220.000-200.000	-0.330	0.488	-0.944	0.911
T6	200.000-180.000	2.061	-1.549	0.799	-0.070
T7	180.000-160.000	5.670	-4.081	4.100	-1.796
T8	160.000-140.000	5.670	-4.081	4.125	-1.814
T9	140.000-120.000	5.876	-4.202	4.254	-1.875
T10	120.000-100.000	5.876	-4.202	4.287	-1.899
T11	100.000-80.000	5.876	-4.202	4.326	-1.927
T12	80.000-60.000	5.876	-4.202	4.373	-1.962
T13	60.000-40.000	5.876	-4.202	4.435	-2.009
T14	40.000-20.000	5.876	-4.202	4.524	-2.079
T15	20.000-6.667	5.853	-4.189	4.599	-2.163
T16	6.667-0.000	6.257	-4.270	4.493	-2.557

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	Safety Line 3/8	280.00 - 300.00	0.6000	0.5112
T1	11	LDF4-50A(1/2")	280.00 - 300.00	0.6000	0.5112
T2	1	Safety Line 3/8	260.00 -	0.6000	0.5134

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T2	11	LDF4-50A(1/2")	260.00 - 280.00	0.6000	0.5134
T3	1	Safety Line 3/8	240.00 - 260.00	0.6000	0.5158
T3	11	LDF4-50A(1/2")	240.00 - 260.00	0.6000	0.5158
T4	1	Safety Line 3/8	220.00 - 240.00	0.6000	0.5184
T4	11	LDF4-50A(1/2")	220.00 - 240.00	0.6000	0.5184
T5	1	Safety Line 3/8	200.00 - 220.00	0.6000	0.5113
T5	11	LDF4-50A(1/2")	200.00 - 220.00	0.6000	0.5113
T6	1	Safety Line 3/8	180.00 - 200.00	0.6000	0.5143
T6	3	Waveguide Brackets	180.00 - 185.00	0.6000	0.5143
T6	4	LDF7-50A(1-5/8")	180.00 - 185.00	0.6000	0.5143
T6	5	3" Conduit	180.00 - 185.00	0.6000	0.5143
T6	6	LDF4-50A(1/2")	180.00 - 185.00	0.0000	0.0000
T6	7	8188(3/4")	180.00 - 185.00	0.0000	0.0000
T6	8	LDF4-50A(1/2")	180.00 - 185.00	0.6000	0.5143
T6	9	8188(3/4")	180.00 - 185.00	0.6000	0.5143
T6	11	LDF4-50A(1/2")	180.00 - 200.00	0.6000	0.5143
T7	1	Safety Line 3/8	160.00 - 180.00	0.6000	0.5176
T7	3	Waveguide Brackets	160.00 - 180.00	0.6000	0.5176
T7	4	LDF7-50A(1-5/8")	160.00 - 180.00	0.6000	0.5176
T7	5	3" Conduit	160.00 - 180.00	0.6000	0.5176
T7	6	LDF4-50A(1/2")	160.00 - 180.00	0.0000	0.0000
T7	7	8188(3/4")	160.00 - 180.00	0.0000	0.0000
T7	8	LDF4-50A(1/2")	160.00 - 180.00	0.6000	0.5176
T7	9	8188(3/4")	160.00 - 180.00	0.6000	0.5176
T7	11	LDF4-50A(1/2")	160.00 - 180.00	0.6000	0.5176
T8	1	Safety Line 3/8	140.00 - 160.00	0.6000	0.5214
T8	3	Waveguide Brackets	140.00 - 160.00	0.6000	0.5214
T8	4	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.5214
T8	5	3" Conduit	140.00 - 160.00	0.6000	0.5214
T8	6	LDF4-50A(1/2")	140.00 - 160.00	0.0000	0.0000
T8	7	8188(3/4")	140.00 -	0.0000	0.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	8	LDF4-50A(1/2")	140.00 - 160.00	0.6000	0.5214
T8	9	8188(3/4")	140.00 - 160.00	0.6000	0.5214
T8	11	LDF4-50A(1/2")	140.00 - 160.00	0.6000	0.5214
T9	1	Safety Line 3/8	120.00 - 140.00	0.6000	0.5357
T9	3	Waveguide Brackets	120.00 - 140.00	0.6000	0.5357
T9	4	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.5357
T9	5	3" Conduit	120.00 - 140.00	0.6000	0.5357
T9	6	LDF4-50A(1/2")	120.00 - 140.00	0.0000	0.0000
T9	7	8188(3/4")	120.00 - 140.00	0.0000	0.0000
T9	8	LDF4-50A(1/2")	120.00 - 140.00	0.6000	0.5357
T9	9	8188(3/4")	120.00 - 140.00	0.6000	0.5357
T9	11	LDF4-50A(1/2")	120.00 - 140.00	0.6000	0.5357
T10	1	Safety Line 3/8	100.00 - 120.00	0.6000	0.5406
T10	3	Waveguide Brackets	100.00 - 120.00	0.6000	0.5406
T10	4	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.5406
T10	5	3" Conduit	100.00 - 120.00	0.6000	0.5406
T10	6	LDF4-50A(1/2")	100.00 - 120.00	0.0000	0.0000
T10	7	8188(3/4")	100.00 - 120.00	0.0000	0.0000
T10	8	LDF4-50A(1/2")	100.00 - 120.00	0.6000	0.5406
T10	9	8188(3/4")	100.00 - 120.00	0.6000	0.5406
T10	11	LDF4-50A(1/2")	100.00 - 120.00	0.6000	0.5406
T11	1	Safety Line 3/8	80.00 - 100.00	0.6000	0.5464
T11	3	Waveguide Brackets	80.00 - 100.00	0.6000	0.5464
T11	4	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.5464
T11	5	3" Conduit	80.00 - 100.00	0.6000	0.5464
T11	6	LDF4-50A(1/2")	80.00 - 100.00	0.0000	0.0000
T11	7	8188(3/4")	80.00 - 100.00	0.0000	0.0000
T11	8	LDF4-50A(1/2")	80.00 - 100.00	0.6000	0.5464
T11	9	8188(3/4")	80.00 - 100.00	0.6000	0.5464
T11	11	LDF4-50A(1/2")	80.00 - 100.00	0.6000	0.5464
T12	1	Safety Line 3/8	60.00 - 80.00	0.6000	0.5536
T12	3	Waveguide Brackets	60.00 - 80.00	0.6000	0.5536
T12	4	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5536
T12	5	3" Conduit	60.00 - 80.00	0.6000	0.5536
T12	6	LDF4-50A(1/2")	60.00 - 80.00	0.0000	0.0000
T12	7	8188(3/4")	60.00 - 80.00	0.0000	0.0000
T12	8	LDF4-50A(1/2")	60.00 - 80.00	0.6000	0.5536
T12	9	8188(3/4")	60.00 - 80.00	0.6000	0.5536
T12	11	LDF4-50A(1/2")	60.00 - 80.00	0.6000	0.5536
T13	1	Safety Line 3/8	40.00 - 60.00	0.6000	0.5629

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	3	Waveguide Brackets	40.00 - 60.00	0.6000	0.5629
T13	4	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.5629
T13	5	3" Conduit	40.00 - 60.00	0.6000	0.5629
T13	6	LDF4-50A(1/2")	40.00 - 60.00	0.0000	0.0000
T13	7	8188(3/4")	40.00 - 60.00	0.0000	0.0000
T13	8	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.5629
T13	9	8188(3/4")	40.00 - 60.00	0.6000	0.5629
T13	11	LDF4-50A(1/2")	40.00 - 60.00	0.6000	0.5629
T14	1	Safety Line 3/8	20.00 - 40.00	0.6000	0.5765
T14	3	Waveguide Brackets	20.00 - 40.00	0.6000	0.5765
T14	4	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.5765
T14	5	3" Conduit	20.00 - 40.00	0.6000	0.5765
T14	6	LDF4-50A(1/2")	20.00 - 40.00	0.0000	0.0000
T14	7	8188(3/4")	20.00 - 40.00	0.0000	0.0000
T14	8	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.5765
T14	9	8188(3/4")	20.00 - 40.00	0.6000	0.5765
T14	11	LDF4-50A(1/2")	20.00 - 40.00	0.6000	0.5765
T15	1	Safety Line 3/8	6.67 - 20.00	0.6000	0.5906
T15	3	Waveguide Brackets	6.67 - 20.00	0.6000	0.5906
T15	4	LDF7-50A(1-5/8")	6.67 - 20.00	0.6000	0.5906
T15	5	3" Conduit	6.67 - 20.00	0.6000	0.5906
T15	6	LDF4-50A(1/2")	6.67 - 20.00	0.0000	0.0000
T15	7	8188(3/4")	6.67 - 20.00	0.0000	0.0000
T15	8	LDF4-50A(1/2")	6.67 - 20.00	0.6000	0.5906
T15	9	8188(3/4")	6.67 - 20.00	0.6000	0.5906
T15	11	LDF4-50A(1/2")	6.67 - 20.00	0.6000	0.5906
T16	1	Safety Line 3/8	0.00 - 6.67	0.6000	0.4589
T16	3	Waveguide Brackets	0.00 - 6.67	0.6000	0.4589
T16	4	LDF7-50A(1-5/8")	0.00 - 6.67	0.6000	0.4589
T16	5	3" Conduit	0.00 - 6.67	0.6000	0.4589
T16	6	LDF4-50A(1/2")	0.00 - 6.67	0.0000	0.0000
T16	7	8188(3/4")	0.00 - 6.67	0.0000	0.0000
T16	8	LDF4-50A(1/2")	0.00 - 6.67	0.6000	0.4589
T16	9	8188(3/4")	0.00 - 6.67	0.6000	0.4589
T16	11	LDF4-50A(1/2")	0.00 - 6.67	0.6000	0.4589

Discrete Tower Loads

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
Pirod 4' Side Mount Standoff	A	From Face	2.000	0.000	195.000	No Ice	2.720	2.720	0.050
(E-Per Previous SA)			0.000			1/2" Ice	4.910	4.910	0.089
			0.000			1" Ice	7.100	7.100	0.128
Omni 3"x6'	A	From Face	4.000	0.000	198.000	No Ice	1.770	1.770	0.020
(E-Per Previous SA)			0.000			1/2" Ice	2.130	2.130	0.033
			0.000			1" Ice	2.490	2.490	0.046
V									
7770.00 w/ Mount Pipe	A	From Face	4.000	0.000	180.500	No Ice	5.845	4.353	0.057
(Existing/App)			0.000			1/2" Ice	6.322	5.198	0.105
			4.500			1" Ice	6.775	5.919	0.160

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
7770.00 w/ Mount Pipe	B	From Face	4.000	0.000	180.500	No Ice	5.845	4.353	0.057
(Existing/App)			0.000			1/2" Ice	6.322	5.198	0.105
			4.500			1" Ice	6.775	5.919	0.160
7770.00 w/ Mount Pipe	C	From Face	4.000	0.000	180.500	No Ice	5.845	4.353	0.057
(Existing/App)			0.000			1/2" Ice	6.322	5.198	0.105
			4.500			1" Ice	6.775	5.919	0.160
(2) LGP 21401	A	From Face	4.000	0.000	180.500	No Ice	1.104	0.347	0.014
(Existing/App)			0.000			1/2" Ice	1.239	0.442	0.021
			4.500			1" Ice	1.381	0.544	0.030
(2) LGP 21401	B	From Face	4.000	0.000	180.500	No Ice	1.104	0.347	0.014
(Existing/App)			0.000			1/2" Ice	1.239	0.442	0.021
			4.500			1" Ice	1.381	0.544	0.030
(2) LGP 21401	C	From Face	4.000	0.000	180.500	No Ice	1.104	0.347	0.014
(Existing/App)			0.000			1/2" Ice	1.239	0.442	0.021
			4.500			1" Ice	1.381	0.544	0.030
DC6-48-60-18-8F	A	From Face	4.000	0.000	180.500	No Ice	1.212	1.212	0.033
(Existing/App)			0.000			1/2" Ice	1.892	1.892	0.055
			4.500			1" Ice	2.105	2.105	0.080
800-10965	A	From Face	4.000	0.000	180.500	No Ice	13.814	5.833	0.109
(P/App)			0.000			1/2" Ice	14.347	6.324	0.185
			4.500			1" Ice	14.888	6.821	0.269
800-10965	B	From Face	4.000	0.000	180.500	No Ice	13.814	5.833	0.109
(P/App)			0.000			1/2" Ice	14.347	6.324	0.185
			4.500			1" Ice	14.888	6.821	0.269
800-10965	C	From Face	4.000	0.000	180.500	No Ice	13.814	5.833	0.109
(P/App)			0.000			1/2" Ice	14.347	6.324	0.185
			4.500			1" Ice	14.888	6.821	0.269
OPA65R-BU6A	A	From Face	4.000	0.000	180.500	No Ice	7.851	6.009	0.055
(P/App)			0.000			1/2" Ice	8.301	6.464	0.107
			4.500			1" Ice	8.758	6.926	0.166
OPA65R-BU6A	B	From Face	4.000	0.000	180.500	No Ice	7.851	6.009	0.055
(P/App)			0.000			1/2" Ice	8.301	6.464	0.107
			4.500			1" Ice	8.758	6.926	0.166
OPA65R-BU6A	C	From Face	4.000	0.000	180.500	No Ice	7.851	6.009	0.055
(P/App)			0.000			1/2" Ice	8.301	6.464	0.107
			4.500			1" Ice	8.758	6.926	0.166
DBCT108F1V92-1	A	From Face	4.000	0.000	180.500	No Ice	0.606	0.319	0.014
(P/App)			0.000			1/2" Ice	0.707	0.398	0.019
			4.500			1" Ice	0.816	0.485	0.026
DBCT108F1V92-1	B	From Face	4.000	0.000	180.500	No Ice	0.606	0.319	0.014
(P/App)			0.000			1/2" Ice	0.707	0.398	0.019
			4.500			1" Ice	0.816	0.485	0.026
DBCT108F1V92-1	C	From Face	4.000	0.000	180.500	No Ice	0.606	0.319	0.014
(P/App)			0.000			1/2" Ice	0.707	0.398	0.019
			4.500			1" Ice	0.816	0.485	0.026
DC6-48-60-0-8C	B	From Face	4.000	0.000	180.500	No Ice	2.040	2.040	0.019
(P/App)			0.000			1/2" Ice	2.228	2.228	0.040
			4.500			1" Ice	2.424	2.424	0.064
RRUS 4449 B5/B12	A	From Face	4.000	0.000	180.500	No Ice	1.968	1.408	0.071
(P/App)			0.000			1/2" Ice	2.144	1.564	0.090
			4.500			1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	B	From Face	4.000	0.000	180.500	No Ice	1.968	1.408	0.071
(P/App)			0.000			1/2" Ice	2.144	1.564	0.090
			4.500			1" Ice	2.328	1.727	0.111
RRUS 4449 B5/B12	C	From Face	4.000	0.000	180.500	No Ice	1.968	1.408	0.071
(P/App)			0.000			1/2" Ice	2.144	1.564	0.090
			4.500			1" Ice	2.328	1.727	0.111

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 8843 B2/B66A	A	From Face	4.000	0.000	180.500	No Ice	1.639	1.353	0.072
(P/App)			0.000			1/2" Ice	1.799	1.500	0.090
			4.500			1" Ice	1.966	1.655	0.110
RRUS 8843 B2/B66A	B	From Face	4.000	0.000	180.500	No Ice	1.639	1.353	0.072
(P/App)			0.000			1/2" Ice	1.799	1.500	0.090
			4.500			1" Ice	1.966	1.655	0.110
RRUS 8843 B2/B66A	C	From Face	4.000	0.000	180.500	No Ice	1.639	1.353	0.072
(P/App)			0.000			1/2" Ice	1.799	1.500	0.090
			4.500			1" Ice	1.966	1.655	0.110
8' x 2" Pipe Mount	A	From Face	4.000	0.000	180.500	No Ice	1.900	1.900	0.029
(E-Per Photo/MA)			0.000			1/2" Ice	2.728	2.728	0.044
			2.000			1" Ice	3.401	3.401	0.063
8' x 2" Pipe Mount	B	From Face	4.000	0.000	180.500	No Ice	1.900	1.900	0.029
(E-Per Photo/MA)			0.000			1/2" Ice	2.728	2.728	0.044
			2.000			1" Ice	3.401	3.401	0.063
8' x 2" Pipe Mount	C	From Face	4.000	0.000	180.500	No Ice	1.900	1.900	0.029
(E-Per Photo/MA)			0.000			1/2" Ice	2.728	2.728	0.044
			2.000			1" Ice	3.401	3.401	0.063
(2) 5' x 2" Pipe Mount	A	From Face	4.000	0.000	180.500	No Ice	1.000	1.000	0.029
(E-Per Photo/MA)			0.000			1/2" Ice	1.393	1.393	0.037
			2.000			1" Ice	1.703	1.703	0.048
(2) 5' x 2" Pipe Mount	B	From Face	4.000	0.000	180.500	No Ice	1.000	1.000	0.029
(E-Per Photo/MA)			0.000			1/2" Ice	1.393	1.393	0.037
			2.000			1" Ice	1.703	1.703	0.048
(2) 5' x 2" Pipe Mount	C	From Face	4.000	0.000	180.500	No Ice	1.000	1.000	0.029
(E-Per Photo/MA)			0.000			1/2" Ice	1.393	1.393	0.037
			2.000			1" Ice	1.703	1.703	0.048
(4) L 2.5x2.5x3/16x6'	A	From Face	2.000	0.000	180.500	No Ice	1.500	0.005	0.025
(P-SFR-K-L)			0.000			1/2" Ice	1.918	0.024	0.034
			2.000			1" Ice	2.343	0.049	0.048
(4) L 2.5x2.5x3/16x6'	B	From Face	2.000	0.000	180.500	No Ice	1.500	0.005	0.025
(P-SFR-K-L)			0.000			1/2" Ice	1.918	0.024	0.034
			2.000			1" Ice	2.343	0.049	0.048
(4) L 2.5x2.5x3/16x6'	C	From Face	2.000	0.000	180.500	No Ice	1.500	0.005	0.025
(P-SFR-K-L)			0.000			1/2" Ice	1.918	0.024	0.034
			2.000			1" Ice	2.343	0.049	0.048
5' x 2" x 2" Tube Mount	A	From Face	0.500	0.000	180.500	No Ice	1.667	1.667	0.100
(E-Per Photos)			0.000			1/2" Ice	2.163	2.163	0.110
			2.000			1" Ice	2.527	2.527	0.124
5' x 2" x 2" Tube Mount	B	From Face	0.500	0.000	180.500	No Ice	1.667	1.667	0.100
(E-Per Photos)			0.000			1/2" Ice	2.163	2.163	0.110
			2.000			1" Ice	2.527	2.527	0.124
5' x 2" x 2" Tube Mount	C	From Face	0.500	0.000	180.500	No Ice	1.667	1.667	0.100
(E-Per Photos)			0.000			1/2" Ice	2.163	2.163	0.110
			2.000			1" Ice	2.527	2.527	0.124
5' x 2" x 2" Tube Mount	A	From Face	0.500	0.000	180.500	No Ice	1.667	1.667	0.100
(E-Per Photos)			0.000			1/2" Ice	2.163	2.163	0.110
			-2.000			1" Ice	2.527	2.527	0.124
5' x 2" x 2" Tube Mount	B	From Face	0.500	0.000	180.500	No Ice	1.667	1.667	0.100
(E-Per Photos)			0.000			1/2" Ice	2.163	2.163	0.110
			-2.000			1" Ice	2.527	2.527	0.124
5' x 2" x 2" Tube Mount	C	From Face	0.500	0.000	180.500	No Ice	1.667	1.667	0.100
(E-Per Photos)			0.000			1/2" Ice	2.163	2.163	0.110
			-2.000			1" Ice	2.527	2.527	0.124
Sector Mount [SM 402-1]	A	From Face	2.000	0.000	180.500	No Ice	9.760	7.050	0.284
(E-2 M.P included)			0.000			1/2" Ice	13.670	10.130	0.411
			0.000			1" Ice	17.580	13.210	0.539

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Sector Mount [SM 402-1]	B	From Face	2.000	0.000	180.500	No Ice	9.760	7.050	0.284
(E-2 M.P included)			0.000			1/2" Ice	13.670	10.130	0.411
			0.000			1" Ice	17.580	13.210	0.539
Sector Mount [SM 402-1]	C	From Face	2.000	0.000	180.500	No Ice	9.760	7.050	0.284
(E-2 M.P included)			0.000			1/2" Ice	13.670	10.130	0.411
			0.000			1" Ice	17.580	13.210	0.539
V									
4' Yagi Antenna	C	From Leg	0.500	0.000	165.000	No Ice	0.930	0.470	0.010
(E)			0.000			1/2" Ice	1.260	0.640	0.054
			0.000			1" Ice	1.590	0.810	0.099
V									
4' Yagi Antenna	B	From Leg	0.500	0.000	160.000	No Ice	0.930	0.470	0.010
(E)			0.000			1/2" Ice	1.260	0.640	0.054
			0.000			1" Ice	1.590	0.810	0.099
V									
4' Yagi Antenna	A	From Leg	0.500	0.000	143.000	No Ice	0.930	0.470	0.010
(E)			0.000			1/2" Ice	1.260	0.640	0.054
			0.000			1" Ice	1.590	0.810	0.099
V									
4' Yagi Antenna	A	From Leg	0.500	0.000	130.000	No Ice	0.930	0.470	0.010
(E)			0.000			1/2" Ice	1.260	0.640	0.054
			0.000			1" Ice	1.590	0.810	0.099
V									
4' Yagi Antenna	B	From Leg	0.500	0.000	25.000	No Ice	0.930	0.470	0.010
(E)			0.000			1/2" Ice	1.260	0.640	0.054
			0.000			1" Ice	1.590	0.810	0.099
V									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy

Comb. No.	Description
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

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
T1	300 - 280	Leg	Max Tension	4	2.051	0.120	-0.073
			Max. Compression	2	-2.895	0.014	0.016
			Max. Mx	25	0.124	-0.144	-0.069
			Max. My	21	0.213	0.009	0.160
			Max. Vy	25	-1.879	0.012	0.017
			Max. Vx	21	2.187	0.006	-0.022
		Diagonal	Max Tension	5	0.663	0.000	0.000
			Max. Compression	3	-0.655	0.000	0.000
			Max. Mx	16	-0.332	0.021	0.000
			Max. My	6	0.006	0.000	0.000
			Max. Vy	16	0.017	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	4	0.057	0.000	0.000
			Max. Compression	5	-0.077	0.000	0.000
			Max. Mx	17	0.028	0.013	0.000
			Max. My	5	0.040	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	23	0.000	-0.003	-0.000
			Max. Compression	18	-0.000	-0.003	-0.000
			Max. Mx	22	0.000	-0.003	0.000
			Max. My	2	-0.000	-0.001	0.000
			Max. Vy	22	0.009	-0.003	0.000
			Max. Vx	2	-0.000	-0.001	0.000
		Top Girt	Max Tension	4	0.022	0.000	0.000
			Max. Compression	2	-0.022	0.000	0.000
			Max. Mx	17	-0.005	0.013	0.000
			Max. My	5	0.019	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Bottom Girt	Max Tension	18	1.352	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	23	1.288	0.013	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	5	0.521	0.000	0.000
			Max. Vy	23	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
T2	280 - 260	Leg	Max Tension	4	2.049	-0.027	0.017
			Max. Compression	17	-16.123	-0.031	-0.057
			Max. Mx	17	-11.967	-0.180	0.099
			Max. My	8	1.951	-0.010	-0.208
			Max. Vy	25	-1.879	0.169	0.103
			Max. Vx	21	2.187	0.004	-0.204
		Diagonal	Max Tension	13	1.578	0.000	0.000
			Max. Compression	7	-1.618	0.000	0.000
			Max. Mx	16	0.486	0.021	0.000
			Max. My	6	0.394	0.000	0.000
			Max. Vy	16	-0.017	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.273	0.000	0.000
			Max. Compression	17	-0.273	0.000	0.000
			Max. Mx	14	0.200	0.013	0.000
			Max. My	5	0.243	0.000	0.000
			Max. Vy	14	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	23	0.000	-0.003	-0.000
			Max. Compression	18	-0.000	-0.003	-0.000
			Max. Mx	22	0.000	-0.003	0.000
			Max. My	2	0.000	-0.001	0.000
			Max. Vy	22	0.009	-0.003	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Top Girt	Max Tension	18	2.836	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	23	2.770	0.013	0.000
			Max. My	5	1.519	0.000	0.000
			Max. Vy	23	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Bottom Girt	Max Tension	12	0.172	0.000	0.000
			Max. Compression	6	-0.137	0.000	0.000
			Max. Mx	17	0.010	0.013	0.000
			Max. My	5	0.046	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Guy A	Bottom Tension	21	11.839		
			Top Tension	21	13.630		
			Top Cable Vert	21	11.696		
			Top Cable Norm	21	6.999		
			Top Cable Tan	21	0.000		
			Bot Cable Vert	21	-9.240		
			Bot Cable Norm	21	7.401		
			Bot Cable Tan	21	0.000		
		Guy B	Bottom Tension	25	11.838		
			Top Tension	25	13.629		
			Top Cable Vert	25	11.695		
			Top Cable Norm	25	6.999		
			Top Cable Tan	25	0.000		
			Bot Cable Vert	25	-9.239		
			Bot Cable Norm	25	7.401		
			Bot Cable Tan	25	0.000		
		Guy C	Bottom Tension	17	11.925		
			Top Tension	17	13.717		
			Top Cable Vert	17	11.767		
			Top Cable Norm	17	7.049		
			Top Cable Tan	17	0.000		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Vert	17	-9.311		
			Bot Cable Norm	17	7.451		
			Bot Cable Tan	17	0.000		
T3	260 - 240	Leg	Max Tension	2	4.304	-0.026	-0.002
			Max. Compression	17	-18.121	-0.033	-0.063
			Max. Mx	20	-16.503	0.074	-0.002
			Max. My	7	0.396	0.014	0.074
			Max. Vy	9	0.391	-0.012	-0.026
			Max. Vx	13	0.567	-0.028	0.037
		Diagonal	Max Tension	13	0.968	0.000	0.000
			Max. Compression	6	-1.102	0.000	0.000
			Max. Mx	18	0.146	0.020	0.000
			Max. My	6	0.369	0.000	0.000
			Max. Vy	18	0.017	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.312	0.000	0.000
			Max. Compression	17	-0.312	0.000	0.000
			Max. Mx	14	0.217	0.013	0.000
			Max. My	5	0.290	0.000	0.000
			Max. Vy	14	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	23	0.000	-0.003	-0.000
			Max. Compression	18	-0.000	-0.003	-0.000
			Max. Mx	22	0.000	-0.003	0.000
			Max. My	2	-0.000	-0.001	0.000
			Max. Vy	22	0.008	-0.003	0.000
			Max. Vx	2	-0.000	-0.001	0.000
		Top Girt	Max Tension	6	0.133	0.000	0.000
			Max. Compression	12	-0.080	0.000	0.000
			Max. Mx	17	0.040	0.013	0.000
			Max. My	5	0.034	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Bottom Girt	Max Tension	12	0.106	0.000	0.000
			Max. Compression	6	-0.072	0.000	0.000
			Max. Mx	17	0.029	0.013	0.000
			Max. My	5	-0.018	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
T4	240 - 220	Leg	Max Tension	2	4.251	-0.023	-0.006
			Max. Compression	17	-18.183	-0.037	-0.068
			Max. Mx	21	-16.943	0.081	-0.003
			Max. My	21	-11.964	-0.029	0.071
			Max. Vy	12	-0.670	-0.014	-0.030
			Max. Vx	8	0.518	0.062	-0.008
		Diagonal	Max Tension	5	0.971	0.000	0.000
			Max. Compression	12	-1.148	0.000	0.000
			Max. Mx	19	-0.245	0.020	0.000
			Max. My	6	0.359	0.000	0.000
			Max. Vy	19	0.017	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.315	0.000	0.000
			Max. Compression	17	-0.315	0.000	0.000
			Max. Mx	14	0.235	0.013	0.000
			Max. My	11	0.286	0.000	0.000
			Max. Vy	14	-0.015	0.000	0.000
			Max. Vx	11	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	23	0.000	-0.003	-0.000
			Max. Compression	19	-0.000	-0.003	-0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	22	0.000	-0.003	0.000
			Max. My	2	-0.000	-0.001	0.000
			Max. Vy	22	0.008	-0.003	0.000
			Max. Vx	2	-0.000	-0.001	0.000
		Top Girt	Max Tension	8	0.107	0.000	0.000
			Max. Compression	12	-0.063	0.000	0.000
			Max. Mx	17	0.025	0.013	0.000
			Max. My	5	0.098	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Bottom Girt	Max Tension	12	0.102	0.000	0.000
			Max. Compression	5	-0.060	0.000	0.000
			Max. Mx	17	0.046	0.013	0.000
			Max. My	5	-0.060	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
T5	220 - 200	Leg	Max Tension	10	10.446	0.118	-0.045
			Max. Compression	4	-32.924	-0.039	-0.100
			Max. Mx	4	-30.846	-0.193	-0.091
			Max. My	12	-29.714	0.032	0.253
			Max. Vy	10	1.917	0.118	-0.045
			Max. Vx	7	-2.071	-0.099	-0.108
		Diagonal	Max Tension	7	3.779	0.000	0.000
			Max. Compression	13	-3.903	0.000	0.000
			Max. Mx	23	0.848	0.022	0.000
			Max. My	6	0.891	0.000	0.000
			Max. Vy	23	-0.019	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	12	4.636	0.000	0.000
			Max. Compression	4	-0.534	0.000	0.000
			Max. Mx	14	0.370	0.013	0.000
			Max. My	11	0.511	0.000	0.000
			Max. Vy	14	-0.015	0.000	0.000
			Max. Vx	11	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	23	0.000	-0.003	-0.000
			Max. Compression	19	-0.000	-0.003	-0.000
			Max. Mx	22	0.000	-0.003	0.000
			Max. My	10	0.000	-0.001	-0.000
			Max. Vy	22	0.008	-0.003	0.000
			Max. Vx	10	0.000	0.000	0.000
		Top Girt	Max Tension	8	0.162	0.000	0.000
			Max. Compression	2	-0.090	0.000	0.000
			Max. Mx	17	0.022	0.013	0.000
			Max. My	5	0.150	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Bottom Girt	Max Tension	12	0.399	0.000	0.000
			Max. Compression	6	-0.285	0.000	0.000
			Max. Mx	17	0.026	0.013	0.000
			Max. My	5	0.191	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Guy A	Bottom Tension	8	11.357		
			Top Tension	8	11.527		
			Top Cable Vert	8	8.626		
			Top Cable Norm	8	7.646		
			Top Cable Tan	8	0.002		
			Bot Cable Vert	8	-8.197		
			Bot Cable Norm	8	7.861		
			Bot Cable Tan	8	0.002		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Guy B	Bottom Tension	12	11.366		
			Top Tension	12	11.536		
			Top Cable Vert	12	8.633		
			Top Cable Norm	12	7.652		
			Top Cable Tan	12	0.003		
			Bot Cable Vert	12	-8.203		
			Bot Cable Norm	12	7.867		
			Bot Cable Tan	12	0.003		
		Guy C	Bottom Tension	4	11.959		
			Top Tension	4	12.129		
			Top Cable Vert	4	9.068		
			Top Cable Norm	4	8.055		
			Top Cable Tan	4	0.000		
			Bot Cable Vert	4	-8.639		
			Bot Cable Norm	4	8.270		
			Bot Cable Tan	4	0.000		
T6	200 - 180	Leg	Max Tension	10	28.537	0.069	-0.022
			Max. Compression	4	-51.231	0.012	0.181
			Max. Mx	5	-17.562	0.494	0.054
			Max. My	2	-34.592	0.116	-0.490
			Max. Vy	10	1.916	-0.042	-0.034
			Max. Vx	7	-2.071	-0.007	0.065
		Diagonal	Max Tension	13	3.530	0.000	0.000
			Max. Compression	7	-3.773	0.000	0.000
			Max. Mx	23	0.668	0.022	0.000
			Max. My	6	0.747	0.000	0.000
			Max. Vy	23	-0.018	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	4	0.887	0.000	0.000
			Max. Compression	4	-0.887	0.000	0.000
			Max. Mx	14	0.446	0.013	0.000
			Max. My	11	0.816	0.000	0.000
			Max. Vy	14	-0.015	0.000	0.000
			Max. Vx	11	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	23	0.000	-0.003	-0.000
			Max. Compression	19	-0.000	-0.003	-0.000
			Max. Mx	22	0.000	-0.003	0.000
			Max. My	10	0.000	-0.001	-0.000
			Max. Vy	22	0.008	-0.003	0.000
			Max. Vx	10	0.000	0.000	0.000
		Top Girt	Max Tension	6	0.304	0.000	0.000
			Max. Compression	12	-0.238	0.000	0.000
			Max. Mx	17	0.094	0.013	0.000
			Max. My	5	-0.075	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	5	-0.000	0.000	0.000
		Bottom Girt	Max Tension	12	0.886	0.000	0.000
			Max. Compression	6	-0.838	0.000	0.000
			Max. Mx	17	-0.023	0.013	0.000
			Max. My	12	0.886	0.000	0.000
			Max. Vy	17	-0.015	0.000	0.000
			Max. Vx	12	-0.000	0.000	0.000
T7	180 - 160	Leg	Max Tension	10	24.352	0.107	-0.088
			Max. Compression	4	-49.904	-0.244	-0.034
			Max. Mx	10	-34.079	0.290	-0.052
			Max. My	13	-41.160	0.007	0.274
			Max. Vy	5	2.391	-0.025	-0.111
			Max. Vx	3	-2.175	0.077	-0.026
		Diagonal	Max Tension	9	3.678	0.000	0.000
			Max. Compression	3	-3.978	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	17	0.619	0.022	0.000
			Max. My	12	0.446	0.000	-0.000
			Max. Vy	17	-0.018	0.000	0.000
			Max. Vx	12	0.000	0.000	0.000
		Horizontal	Max Tension	4	0.844	0.000	0.000
			Max. Compression	4	-0.844	0.000	0.000
			Max. Mx	14	0.480	0.013	0.000
			Max. My	12	0.801	0.000	0.000
			Max. Vy	14	0.014	0.000	0.000
			Max. Vx	12	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	17	0.000	-0.003	-0.000
			Max. Compression	25	-0.000	-0.003	-0.000
			Max. Mx	18	0.000	-0.003	0.000
			Max. My	8	-0.000	-0.001	0.000
			Max. Vy	18	0.008	-0.003	0.000
			Max. Vx	8	-0.000	0.000	0.000
		Top Girt	Max Tension	8	0.946	0.000	0.000
			Max. Compression	2	-0.838	0.000	0.000
			Max. Mx	17	-0.046	0.013	0.000
			Max. My	12	0.838	0.000	0.000
			Max. Vy	17	0.014	0.000	0.000
			Max. Vx	12	-0.000	0.000	0.000
		Bottom Girt	Max Tension	2	0.297	0.000	0.000
			Max. Compression	8	-0.190	0.000	0.000
			Max. Mx	23	0.052	0.013	0.000
			Max. My	12	-0.075	0.000	0.000
			Max. Vy	23	0.014	0.000	0.000
			Max. Vx	12	-0.000	0.000	0.000
T8	160 - 140	Leg	Max Tension	10	6.012	0.108	-0.053
			Max. Compression	17	-34.507	-0.087	-0.162
			Max. Mx	5	-4.905	0.340	-0.210
			Max. My	9	-5.161	0.005	0.405
			Max. Vy	5	4.387	-0.025	-0.053
			Max. Vx	9	4.785	0.059	0.006
		Diagonal	Max Tension	9	5.022	0.000	0.000
			Max. Compression	3	-5.309	0.000	0.000
			Max. Mx	17	1.118	0.022	0.000
			Max. My	6	-0.144	0.000	0.000
			Max. Vy	17	0.018	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.585	0.000	0.000
			Max. Compression	17	-0.585	0.000	0.000
			Max. Mx	14	0.518	0.012	0.000
			Max. My	12	0.474	0.000	0.000
			Max. Vy	14	-0.014	0.000	0.000
			Max. Vx	12	-0.000	0.000	0.000
		Secondary Horizontal	Max Tension	17	0.000	-0.003	-0.000
			Max. Compression	25	-0.000	-0.003	-0.000
			Max. Mx	18	0.000	-0.003	-0.000
			Max. My	8	-0.000	-0.000	0.000
			Max. Vy	18	0.008	-0.003	-0.000
			Max. Vx	8	-0.000	0.000	0.000
		Top Girt	Max Tension	8	0.382	0.000	0.000
			Max. Compression	2	-0.264	0.000	0.000
			Max. Mx	23	0.150	0.012	0.000
			Max. My	12	0.313	0.000	0.000
			Max. Vy	23	-0.014	0.000	0.000
			Max. Vx	12	-0.000	0.000	0.000
		Bottom Girt	Max Tension	4	2.643	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	10	-0.323	0.000	0.000
			Max. Mx	17	1.148	0.012	0.000
			Max. My	5	-0.265	0.000	-0.000
			Max. Vy	17	-0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
T9	140 - 120	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-39.980	0.191	0.005
			Max. Mx	4	-10.708	-0.394	0.152
			Max. My	9	-5.164	0.114	-0.392
			Max. Vy	5	4.387	-0.391	0.104
			Max. Vx	9	4.784	0.114	-0.392
		Diagonal	Max Tension	4	2.114	0.000	0.000
			Max. Compression	4	-2.370	0.000	0.000
			Max. Mx	17	-0.998	0.019	0.000
			Max. My	6	-0.566	0.000	0.000
			Max. Vy	17	-0.016	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	23	0.685	0.000	0.000
			Max. Compression	23	-0.685	0.000	0.000
			Max. Mx	24	0.666	0.012	0.000
			Max. My	5	0.425	0.000	-0.000
			Max. Vy	24	-0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary Horizontal	Max Tension	17	0.000	-0.003	0.000
			Max. Compression	25	-0.000	-0.003	-0.000
			Max. Mx	18	0.000	-0.003	0.000
			Max. My	2	0.000	-0.001	0.000
			Max. Vy	18	0.008	-0.003	0.000
			Max. Vx	2	-0.000	0.000	0.000
		Top Girt	Max Tension	5	4.012	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	17	2.126	0.012	0.000
			Max. My	5	0.957	0.000	-0.000
			Max. Vy	17	-0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	0.259	0.000	0.000
			Max. Compression	10	-0.116	0.000	0.000
			Max. Mx	23	0.107	0.012	0.000
			Max. My	5	0.171	0.000	-0.000
			Max. Vy	23	-0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Guy A	Bottom Tension	9	12.522		
			Top Tension	9	12.635		
			Top Cable Vert	9	7.526		
			Top Cable Norm	9	10.149		
			Top Cable Tan	9	0.055		
			Bot Cable Vert	9	-7.215		
			Bot Cable Norm	9	10.235		
			Bot Cable Tan	9	0.088		
		Guy B	Bottom Tension	11	12.511		
			Top Tension	11	12.624		
			Top Cable Vert	11	7.520		
			Top Cable Norm	11	10.140		
			Top Cable Tan	11	0.056		
			Bot Cable Vert	11	-7.208		
			Bot Cable Norm	11	10.226		
			Bot Cable Tan	11	0.087		
		Guy C	Bottom Tension	4	13.667		
			Top Tension	4	13.780		
			Top Cable Vert	4	8.193		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Top Cable Norm	4	11.081		
			Top Cable Tan	4	0.001		
			Bot Cable Vert	4	-7.887		
			Bot Cable Norm	4	11.162		
			Bot Cable Tan	4	0.001		
T10	120 - 100	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-42.524	0.200	0.005
			Max. Mx	23	-40.983	-0.216	-0.003
			Max. My	23	-41.310	-0.102	0.189
			Max. Vy	4	-0.769	-0.057	-0.096
			Max. Vx	8	-0.695	-0.055	0.081
		Diagonal	Max Tension	4	0.975	0.000	0.000
			Max. Compression	8	-1.330	0.000	0.000
			Max. Mx	18	-0.289	0.019	0.000
			Max. My	6	-0.258	0.000	0.000
			Max. Vy	18	-0.016	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	22	0.734	0.000	0.000
			Max. Compression	22	-0.734	0.000	0.000
			Max. Mx	23	0.728	0.012	0.000
			Max. My	5	0.476	0.000	-0.000
			Max. Vy	23	0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary Horizontal	Max Tension	18	0.000	-0.003	-0.000
			Max. Compression	24	-0.000	-0.003	-0.000
			Max. Mx	18	0.000	-0.003	-0.000
			Max. My	2	0.000	-0.001	0.000
			Max. Vy	18	0.008	-0.003	-0.000
			Max. Vx	5	0.000	0.000	0.000
		Top Girt	Max Tension	8	0.143	0.000	0.000
			Max. Compression	12	-0.037	0.000	0.000
			Max. Mx	23	0.094	0.012	0.000
			Max. My	5	0.013	0.000	-0.000
			Max. Vy	23	0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	17	0.125	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	23	0.087	0.012	0.000
			Max. My	5	0.080	0.000	-0.000
			Max. Vy	23	0.014	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
T11	100 - 80	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-42.699	0.218	0.003
			Max. Mx	23	-42.203	-0.223	-0.002
			Max. My	19	-39.141	-0.089	0.198
			Max. Vy	10	-1.018	-0.054	-0.095
			Max. Vx	10	0.938	0.116	0.002
		Diagonal	Max Tension	10	1.583	0.000	0.000
			Max. Compression	3	-1.699	0.000	0.000
			Max. Mx	18	0.166	0.018	0.000
			Max. My	6	-0.055	0.000	0.000
			Max. Vy	18	-0.015	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	22	0.740	0.000	0.000
			Max. Compression	22	-0.740	0.000	0.000
			Max. Mx	23	0.738	0.012	0.000
			Max. My	5	0.470	0.000	-0.000
			Max. Vy	23	-0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary	Max Tension	18	0.000	-0.003	-0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Horizontal					
			Max. Compression	24	-0.000	-0.003	-0.000
			Max. Mx	17	0.000	-0.003	-0.000
			Max. My	5	0.000	-0.001	-0.000
			Max. Vy	17	0.007	-0.003	-0.000
			Max. Vx	5	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.152	0.000	0.000
			Max. Compression	5	-0.046	0.000	0.000
			Max. Mx	23	0.121	0.012	0.000
			Max. My	5	0.104	0.000	-0.000
			Max. Vy	23	-0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	5	0.223	0.000	0.000
			Max. Compression	11	-0.092	0.000	0.000
			Max. Mx	14	0.086	0.012	0.000
			Max. My	5	-0.007	0.000	-0.000
			Max. Vy	14	-0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
T12	80 - 60	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-46.609	0.227	0.003
			Max. Mx	23	-45.690	-0.238	-0.002
			Max. My	26	-45.394	-0.104	0.221
			Max. Vy	5	-1.152	-0.156	-0.110
			Max. Vx	3	0.954	0.079	0.080
		Diagonal	Max Tension	11	1.984	0.000	0.000
			Max. Compression	10	-2.378	0.000	0.000
			Max. Mx	18	0.291	0.018	0.000
			Max. My	6	0.170	0.000	0.000
			Max. Vy	18	-0.015	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	16	4.162	0.000	0.000
			Max. Compression	23	-0.801	0.000	0.000
			Max. Mx	14	3.442	0.011	0.000
			Max. My	5	0.495	0.000	-0.000
			Max. Vy	14	-0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary Horizontal	Max Tension	18	0.000	-0.003	-0.000
			Max. Compression	24	-0.000	-0.002	-0.000
			Max. Mx	17	0.000	-0.003	-0.000
			Max. My	5	0.000	-0.001	-0.000
			Max. Vy	17	0.007	-0.003	-0.000
			Max. Vx	5	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.300	0.000	0.000
			Max. Compression	5	-0.187	0.000	0.000
			Max. Mx	14	0.104	0.011	0.000
			Max. My	5	0.189	0.000	-0.000
			Max. Vy	14	-0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	4	0.297	0.000	0.000
			Max. Compression	10	-0.151	0.000	0.000
			Max. Mx	14	0.099	0.011	0.000
			Max. My	5	0.270	0.000	-0.000
			Max. Vy	14	-0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Guy A	Bottom Tension	21	7.042		
			Top Tension	21	7.337		
			Top Cable Vert	21	2.893		
			Top Cable Norm	21	6.742		
			Top Cable Tan	21	0.000		
			Bot Cable Vert	21	-2.001		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Norm	21	6.752		
			Bot Cable Tan	21	0.000		
		Guy B	Bottom Tension	24	7.027		
			Top Tension	24	7.321		
			Top Cable Vert	24	2.894		
			Top Cable Norm	24	6.725		
			Top Cable Tan	24	0.034		
			Bot Cable Vert	24	-1.989		
			Bot Cable Norm	24	6.739		
			Bot Cable Tan	24	0.037		
		Guy C	Bottom Tension	17	7.256		
			Top Tension	4	7.527		
			Top Cable Vert	17	2.958		
			Top Cable Norm	17	6.922		
			Top Cable Tan	17	0.000		
			Bot Cable Vert	4	-2.411		
			Bot Cable Norm	4	6.844		
			Bot Cable Tan	4	0.000		
T13	60 - 40	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-50.365	-0.129	-0.208
			Max. Mx	22	-49.552	-0.256	-0.000
			Max. My	23	-48.249	-0.123	0.223
			Max. Vy	5	-1.152	-0.060	-0.105
			Max. Vx	3	0.954	0.123	0.001
		Diagonal	Max Tension	5	1.626	0.000	0.000
			Max. Compression	11	-1.941	0.000	0.000
			Max. Mx	18	-0.570	0.017	0.000
			Max. My	6	-0.050	0.000	0.000
			Max. Vy	18	-0.014	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.865	0.000	0.000
			Max. Compression	17	-0.865	0.000	0.000
			Max. Mx	14	0.799	0.011	0.000
			Max. My	5	0.541	0.000	-0.000
			Max. Vy	14	0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary Horizontal	Max Tension	18	0.000	-0.002	-0.000
			Max. Compression	24	-0.000	-0.002	-0.000
			Max. Mx	17	0.000	-0.002	-0.000
			Max. My	5	0.000	-0.001	-0.000
			Max. Vy	17	0.007	-0.002	-0.000
			Max. Vx	5	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.201	0.000	0.000
			Max. Compression	4	-0.083	0.000	0.000
			Max. Mx	14	0.103	0.011	0.000
			Max. My	5	-0.083	0.000	-0.000
			Max. Vy	14	0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	5	0.195	0.000	0.000
			Max. Compression	11	-0.057	0.000	0.000
			Max. Mx	14	0.097	0.011	0.000
			Max. My	5	0.195	0.000	-0.000
			Max. Vy	14	0.013	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
T14	40 - 20	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-51.312	-0.113	-0.215
			Max. Mx	22	-50.604	-0.265	-0.000
			Max. My	23	-49.768	-0.127	0.230
			Max. Vy	5	-0.531	-0.057	-0.119
			Max. Vx	12	-0.472	-0.066	0.117

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	12	0.696	0.000	0.000
			Max. Compression	6	-1.020	0.000	0.000
			Max. Mx	18	-0.208	0.017	0.000
			Max. My	6	0.198	0.000	0.000
			Max. Vy	18	0.014	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.886	0.000	0.000
			Max. Compression	17	-0.886	0.000	0.000
			Max. Mx	25	0.809	0.010	0.000
			Max. My	5	0.575	0.000	-0.000
			Max. Vy	25	-0.012	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary Horizontal	Max Tension	18	0.000	-0.002	-0.000
			Max. Compression	24	-0.000	-0.002	-0.000
			Max. Mx	17	0.000	-0.002	-0.000
			Max. My	5	0.000	-0.001	-0.000
			Max. Vy	17	0.006	-0.002	-0.000
			Max. Vx	5	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.138	0.000	0.000
			Max. Compression	6	-0.009	0.000	0.000
			Max. Mx	14	0.113	0.010	0.000
			Max. My	5	-0.009	0.000	-0.000
			Max. Vy	14	-0.012	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	5	0.159	0.000	0.000
			Max. Compression	11	-0.032	0.000	0.000
			Max. Mx	19	0.104	0.010	0.000
			Max. My	5	0.127	0.000	-0.000
			Max. Vy	19	-0.012	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
T15	20 - 6.66667	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	17	-51.311	-0.123	-0.215
			Max. Mx	18	-50.306	-0.693	0.100
			Max. My	22	-50.357	0.278	-0.641
			Max. Vy	17	5.494	-0.651	0.179
			Max. Vx	23	6.313	0.197	-0.636
		Diagonal	Max Tension	12	1.801	0.000	0.000
			Max. Compression	6	-2.044	0.000	0.000
			Max. Mx	18	-0.037	0.015	0.000
			Max. My	6	0.414	0.000	0.000
			Max. Vy	18	0.013	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	17	0.884	0.000	0.000
			Max. Compression	17	-0.884	0.000	0.000
			Max. Mx	25	0.840	0.010	0.000
			Max. My	5	0.560	0.000	-0.000
			Max. Vy	25	-0.011	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
		Secondary Horizontal	Max Tension	18	0.000	-0.002	-0.000
			Max. Compression	24	-0.000	-0.002	-0.000
			Max. Mx	17	0.000	-0.002	-0.000
			Max. My	5	0.000	-0.001	-0.000
			Max. Vy	17	0.006	-0.002	-0.000
			Max. Vx	5	0.000	0.000	0.000
		Top Girt	Max Tension	11	0.240	0.000	0.000
			Max. Compression	5	-0.098	0.000	0.000
			Max. Mx	19	0.119	0.010	0.000
			Max. My	5	0.060	0.000	-0.000
			Max. Vy	19	-0.011	0.000	0.000

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	5	0.000	0.000	0.000
		Bottom Girt	Max Tension	23	3.686	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	17	3.497	0.010	0.000
			Max. My	5	1.900	0.000	-0.000
			Max. Vy	17	-0.011	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000
T16	6.66667 - 0	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	22	-53.176	-0.049	-0.074
			Max. Mx	17	-50.083	0.653	0.164
			Max. My	12	-25.548	0.008	1.580
			Max. Vy	23	8.655	-0.120	0.180
			Max. Vx	12	-0.574	0.008	1.580
		Diagonal	Max Tension	6	0.886	0.000	0.000
			Max. Compression	12	-1.332	0.000	0.000
			Max. Mx	23	-0.279	0.009	0.000
			Max. My	6	0.771	0.000	0.000
			Max. Vy	23	-0.009	0.000	0.000
			Max. Vx	6	-0.000	0.000	0.000
		Horizontal	Max Tension	23	5.387	0.000	0.000
			Max. Compression	22	-0.952	0.000	0.000
			Max. Mx	17	5.165	0.013	0.000
			Max. My	5	2.599	0.000	-0.000
			Max. Vy	17	0.015	0.000	0.000
			Max. Vx	5	0.000	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	23	149.201	0.353	-0.203
	Max. H_x	11	78.838	1.150	0.054
	Max. H_z	3	79.155	-0.610	0.940
	Max. M_x	1	0.000	0.016	-0.011
	Max. M_z	1	0.000	0.016	-0.011
	Max. Torsion	6	1.648	-0.722	-0.438
	Min. Vert	1	59.447	0.016	-0.011
	Min. H_x	4	78.592	-1.146	0.657
	Min. H_z	9	78.825	0.526	-1.021
	Min. M_x	1	0.000	0.016	-0.011
	Min. M_z	1	0.000	0.016	-0.011
	Min. Torsion	12	-1.680	0.816	0.445
Guy C @ 195 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-4.190	-2.651	1.530
	Max. H_x	10	-4.190	-2.651	1.530
	Max. H_z	4	-28.310	-28.778	16.617
	Min. Vert	4	-28.310	-28.778	16.617
	Min. H_x	4	-28.310	-28.778	16.617
	Min. H_z	10	-4.190	-2.651	1.530
Guy B @ 195 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-4.331	2.862	1.651
	Max. H_x	11	-26.117	26.716	14.931
	Max. H_z	12	-26.511	26.309	15.202
	Min. Vert	12	-26.511	26.309	15.202

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy A @ 195 ft Elev 0 ft Azimuth 0 deg	Min. H_x	6	-4.331	2.862	1.651
	Min. H_z	6	-4.331	2.862	1.651
	Max. Vert	2	-4.217	0.001	-3.209
	Max. H_x	11	-15.993	1.047	-17.739
	Max. H_z	2	-4.217	0.001	-3.209
	Min. Vert	8	-26.505	-0.009	-30.383
	Min. H_x	5	-16.102	-1.048	-17.886
	Min. H_z	9	-26.112	0.430	-30.603

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	59.447	-0.016	0.011	-0.000	-0.000	0.009
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	77.107	-0.022	-0.849	-0.000	-0.000	1.478
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	79.155	0.610	-0.940	-0.000	-0.000	1.277
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	78.592	1.146	-0.657	-0.000	-0.000	-0.159
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	79.159	1.127	-0.055	-0.000	-0.000	-1.542
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	76.757	0.722	0.438	-0.000	-0.000	-1.648
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	76.627	0.270	0.651	-0.000	-0.000	-1.212
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	77.468	-0.017	0.927	-0.000	-0.000	-1.458
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	78.825	-0.526	1.021	-0.000	-0.000	-1.249
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	79.870	-1.123	0.648	-0.000	-0.000	0.184
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	78.838	-1.150	-0.054	-0.000	-0.000	1.581
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	77.485	-0.816	-0.445	-0.000	-0.000	1.680
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	76.636	-0.433	-0.553	-0.000	-0.000	1.242
1.2 Dead+1.0 Ice+1.0 Temp+Guy	147.054	-0.099	0.057	-0.000	-0.000	0.033
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	149.175	-0.099	-0.184	-0.000	-0.000	0.325
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.804	0.033	-0.185	-0.000	-0.000	0.365
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.462	0.155	-0.088	-0.000	-0.000	0.073
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.803	0.180	0.064	-0.000	-0.000	-0.239
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	149.155	0.110	0.175	-0.000	-0.000	-0.236
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.689	0.020	0.239	-0.000	-0.000	-0.151
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.331	-0.099	0.284	-0.000	-0.000	-0.259

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
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.741	-0.244	0.287	-0.000	-0.000	-0.298
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	149.201	-0.353	0.203	-0.000	-0.000	-0.006
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.742	-0.372	0.068	-0.000	-0.000	0.307
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.333	-0.298	-0.055	-0.000	-0.000	0.305
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	148.690	-0.199	-0.135	-0.000	-0.000	0.219
Dead+Wind 0 deg - Service+Guy	60.080	-0.016	-0.225	-0.000	-0.000	0.392
Dead+Wind 30 deg - Service+Guy	60.016	0.131	-0.248	-0.000	-0.000	0.349
Dead+Wind 60 deg - Service+Guy	59.960	0.268	-0.153	-0.000	-0.000	-0.039
Dead+Wind 90 deg - Service+Guy	60.020	0.283	0.013	-0.000	-0.000	-0.413
Dead+Wind 120 deg - Service+Guy	60.085	0.185	0.126	-0.000	-0.000	-0.423
Dead+Wind 150 deg - Service+Guy	59.992	0.083	0.178	-0.000	-0.000	-0.303
Dead+Wind 180 deg - Service+Guy	59.935	-0.015	0.238	-0.000	-0.000	-0.371
Dead+Wind 210 deg - Service+Guy	60.016	-0.164	0.263	-0.000	-0.000	-0.328
Dead+Wind 240 deg - Service+Guy	60.104	-0.300	0.174	-0.000	-0.000	0.061
Dead+Wind 270 deg - Service+Guy	60.019	-0.310	0.012	-0.000	-0.000	0.435
Dead+Wind 300 deg - Service+Guy	59.938	-0.214	-0.103	-0.000	-0.000	0.445
Dead+Wind 330 deg - Service+Guy	59.992	-0.112	-0.158	-0.000	-0.000	0.324

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-26.164	0.000	0.000	26.164	-0.001	0.002%
2	-0.004	-31.052	-23.048	0.004	31.052	23.045	0.006%
3	12.650	-30.843	-21.923	-12.651	30.843	21.921	0.006%
4	22.897	-30.633	-13.222	-22.898	30.633	13.220	0.005%
5	25.308	-30.843	0.004	-25.307	30.843	-0.003	0.004%
6	19.621	-31.052	11.335	-19.620	31.052	-11.335	0.004%
7	10.690	-30.843	18.519	-10.688	30.843	-18.519	0.004%
8	0.004	-30.633	22.664	-0.003	30.633	-22.664	0.004%
9	-12.458	-30.843	21.591	12.456	30.843	-21.590	0.005%
10	-22.565	-31.052	13.030	22.563	31.052	-13.029	0.006%
11	-24.924	-30.843	-0.004	24.922	30.843	0.006	0.006%
12	-19.621	-30.633	-11.335	19.620	30.633	11.337	0.005%
13	-10.690	-30.843	-18.519	10.690	30.843	18.518	0.004%
14	0.000	-92.021	0.000	0.002	92.021	-0.002	0.003%
15	-0.001	-92.222	-11.051	0.001	92.222	11.049	0.002%
16	5.694	-92.021	-9.866	-5.694	92.021	9.864	0.002%
17	10.023	-91.820	-5.788	-10.022	91.820	5.787	0.001%
18	11.390	-92.021	0.001	-11.389	92.021	-0.001	0.001%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
19	9.267	-92.222	5.353	-9.262	92.222	-5.352	0.005%
20	5.258	-92.021	9.109	-5.256	92.021	-9.108	0.003%
21	0.001	-91.820	10.703	-0.000	91.820	-10.702	0.002%
22	-5.520	-92.021	9.565	5.519	92.021	-9.564	0.001%
23	-9.722	-92.222	5.614	9.718	92.222	-5.612	0.005%
24	-11.042	-92.021	-0.001	11.041	92.021	0.002	0.001%
25	-9.267	-91.820	-5.353	9.266	91.820	5.353	0.001%
26	-5.258	-92.021	-9.109	5.256	92.021	9.105	0.005%
27	-0.001	-26.210	-5.084	0.000	26.210	5.085	0.004%
28	2.790	-26.164	-4.836	-2.791	26.164	4.836	0.004%
29	5.050	-26.118	-2.916	-5.050	26.118	2.915	0.005%
30	5.582	-26.164	0.001	-5.581	26.164	-0.002	0.006%
31	4.328	-26.210	2.500	-4.327	26.210	-2.501	0.006%
32	2.358	-26.164	4.085	-2.357	26.164	-4.086	0.004%
33	0.001	-26.118	4.999	-0.000	26.118	-5.000	0.005%
34	-2.748	-26.164	4.762	2.748	26.164	-4.763	0.004%
35	-4.977	-26.210	2.874	4.976	26.210	-2.873	0.006%
36	-5.497	-26.164	-0.001	5.497	26.164	0.002	0.006%
37	-4.328	-26.118	-2.500	4.327	26.118	2.501	0.006%
38	-2.358	-26.164	-4.085	2.357	26.164	4.086	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	10	0.00000001	0.00002017
2	Yes	20	0.00009606	0.00006156
3	Yes	20	0.00009042	0.00005766
4	Yes	15	0.00000001	0.00003338
5	Yes	21	0.00000001	0.00004636
6	Yes	21	0.00000001	0.00005351
7	Yes	20	0.00000001	0.00004873
8	Yes	18	0.00000001	0.00003707
9	Yes	20	0.00008442	0.00005714
10	Yes	21	0.00009198	0.00006151
11	Yes	21	0.00009796	0.00005541
12	Yes	19	0.00008889	0.00004152
13	Yes	19	0.00000001	0.00004239
14	Yes	11	0.00010000	0.00002975
15	Yes	16	0.00000001	0.00002560
16	Yes	15	0.00000001	0.00003855
17	Yes	16	0.00000001	0.00001763
18	Yes	17	0.00000001	0.00001840
19	Yes	15	0.00010000	0.00007590
20	Yes	15	0.00010000	0.00005172
21	Yes	15	0.00000001	0.00002574
22	Yes	15	0.00000001	0.00003513
23	Yes	15	0.00010000	0.00006808
24	Yes	17	0.00000001	0.00001637
25	Yes	16	0.00000001	0.00002031
26	Yes	14	0.00010000	0.00008198
27	Yes	15	0.00000001	0.00003546
28	Yes	15	0.00000001	0.00002961
29	Yes	13	0.00000001	0.00003753
30	Yes	15	0.00000001	0.00006177
31	Yes	15	0.00000001	0.00006111

32	Yes	15	0.00000001	0.00003759
33	Yes	15	0.00000001	0.00004926
34	Yes	15	0.00000001	0.00004230
35	Yes	13	0.00000001	0.00004162
36	Yes	15	0.00000001	0.00004924
37	Yes	15	0.00000001	0.00004798
38	Yes	15	0.00000001	0.00002969

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	0.254	33	0.066	0.513
T2	280 - 260	0.494	29	0.067	0.509
T3	260 - 240	0.753	29	0.062	0.526
T4	240 - 220	0.973	29	0.052	0.535
T5	220 - 200	1.145	29	0.044	0.545
T6	200 - 180	1.296	29	0.037	0.561
T7	180 - 160	1.371	29	0.009	0.573
T8	160 - 140	1.289	29	0.033	0.579
T9	140 - 120	1.137	29	0.033	0.576
T10	120 - 100	1.037	29	0.027	0.591
T11	100 - 80	0.919	29	0.033	0.592
T12	80 - 60	0.761	29	0.039	0.587
T13	60 - 40	0.609	29	0.035	0.581
T14	40 - 20	0.458	35	0.042	0.572
T15	20 - 6.66667	0.254	35	0.055	0.558
T16	6.66667 - 0	0.088	35	0.061	0.534

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
279.917	Guy	29	0.495	0.067	0.509	43764
210.000	Guy	29	1.225	0.043	0.553	132681
198.000	Omni 3"x6'	29	1.309	0.034	0.563	61861
195.000	Pirod 4' Side Mount Standoff	29	1.326	0.029	0.565	49304
180.500	7770.00 w/ Mount Pipe	29	1.371	0.009	0.573	25472
165.000	4' Yagi Antenna	29	1.322	0.027	0.578	42575
160.000	4' Yagi Antenna	29	1.289	0.033	0.579	58625
143.000	4' Yagi Antenna	29	1.157	0.034	0.576	59386
139.917	Guy	29	1.136	0.033	0.576	49708
130.000	4' Yagi Antenna	29	1.082	0.029	0.583	121980
70.000	Guy	29	0.683	0.036	0.585	240251
25.000	4' Yagi Antenna	35	0.311	0.052	0.563	82292

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	3.742	8	0.433	1.760
T2	280 - 260	4.683	4	0.438	1.757
T3	260 - 240	5.709	4	0.407	1.812
T4	240 - 220	6.630	3	0.344	1.860
T5	220 - 200	7.762	10	0.276	1.909
T6	200 - 180	8.837	10	0.212	1.974
T7	180 - 160	9.447	10	0.094	2.046
T8	160 - 140	9.213	10	0.209	2.093
T9	140 - 120	8.514	10	0.216	2.108
T10	120 - 100	7.878	10	0.191	2.166
T11	100 - 80	6.996	10	0.247	2.182
T12	80 - 60	5.814	10	0.295	2.168
T13	60 - 40	4.587	10	0.290	2.147
T14	40 - 20	3.317	10	0.334	2.117
T15	20 - 6.66667	1.778	10	0.398	2.065
T16	6.66667 - 0	0.608	10	0.426	1.992

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
279.917	Guy	4	4.688	0.438	1.757	2881
210.000	Guy	10	8.333	0.258	1.940	17445
198.000	Omni 3"x6'	10	8.927	0.195	1.981	10142
195.000	Pirod 4' Side Mount Standoff	10	9.052	0.167	1.992	8509
180.500	7770.00 w/ Mount Pipe	10	9.442	0.091	2.045	4879
165.000	4' Yagi Antenna	10	9.340	0.184	2.086	7426
160.000	4' Yagi Antenna	10	9.213	0.209	2.093	9521
143.000	4' Yagi Antenna	10	8.619	0.221	2.103	12716
139.917	Guy	10	8.511	0.216	2.108	10664
130.000	4' Yagi Antenna	10	8.198	0.200	2.136	23635
70.000	Guy	10	5.198	0.293	2.158	31649
25.000	4' Yagi Antenna	10	2.190	0.384	2.084	16997

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T2	279.917 (A) (730)	3/4 EHS	5.830	58.300	13.630	34.980	1.000	2.566 ✔
	279.917 (B) (729)	3/4 EHS	5.830	58.300	13.629	34.980	1.000	2.567 ✔
	279.917 (C) (728)	3/4 EHS	5.830	58.300	13.717	34.980	1.000	2.550 ✔
T5	210.000 (A) (727)	5/8 EHS	4.240	42.400	11.527	25.440	1.000	2.207 ✔
	210.000 (B) (726)	5/8 EHS	4.240	42.400	11.536	25.440	1.000	2.205 ✔
	210.000 (C) (725)	5/8 EHS	4.240	42.400	12.129	25.440	1.000	2.097 ✔

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T9	139.917 (A) (724)	5/8 EHS	4.240	42.400	12.635	25.440	1.000	2.013 ✔
	139.917 (B) (723)	5/8 EHS	4.240	42.400	12.624	25.440	1.000	2.015 ✔
	139.917 (C) (722)	5/8 EHS	4.240	42.400	13.781	25.440	1.000	1.846 ✔
T12	70.000 (A) (721)	1/2 EHS	2.690	26.900	7.337	16.140	1.000	2.200 ✔
	70.000 (B) (720)	1/2 EHS	2.690	26.900	7.321	16.140	1.000	2.205 ✔
	70.000 (C) (719)	1/2 EHS	2.690	26.900	7.527	16.140	1.000	2.144 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2	20.000	3.306	79.3 K=1.00	3.142	-2.476	89.229	0.028 [1] ✔
T2	280 - 260	2	20.000	3.306	79.3 K=1.00	3.142	-15.790	89.229	0.177 [1] ✔
T3	260 - 240	2	20.000	3.306	79.3 K=1.00	3.142	-18.006	89.229	0.202 [1] ✔
T4	240 - 220	2	20.000	3.306	79.3 K=1.00	3.142	-18.183	89.229	0.204 [1] ✔
T5	220 - 200	2 1/4	20.000	3.306	70.5 K=1.00	3.976	-30.846	124.382	0.248 [1] ✔
T6	200 - 180	2 1/4	20.000	3.306	70.5 K=1.00	3.976	-51.231	124.382	0.412 [1] ✔
T7	180 - 160	2 1/4	20.000	3.306	70.5 K=1.00	3.976	-48.731	124.382	0.392 [1] ✔
T8	160 - 140	2 1/4	20.000	3.306	70.5 K=1.00	3.976	-33.759	124.382	0.271 [1] ✔
T9	140 - 120	2	20.000	3.306	79.3 K=1.00	3.142	-39.531	89.229	0.443 [1] ✔
T10	120 - 100	2	20.000	3.306	79.3 K=1.00	3.142	-42.376	89.229	0.475 [1] ✔
T11	100 - 80	2	20.000	3.306	79.3 K=1.00	3.142	-42.699	89.229	0.479 [1] ✔
T12	80 - 60	2	20.000	3.306	79.3 K=1.00	3.142	-46.239	89.229	0.518 [1] ✔
T13	60 - 40	2	20.000	3.306	79.3 K=1.00	3.142	-49.961	89.229	0.560 [1] ✔
T14	40 - 20	2	20.000	3.306	79.3 K=1.00	3.142	-51.161	89.229	0.573 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T15	20 - 6.66667	2	13.333	3.292	79.0 K=1.00	3.142	-51.057	89.574	0.570 [1] ✔
T16	6.66667 - 0	2	6.966	3.483	83.6 K=1.00	3.142	-53.176	84.813	0.627 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	4.814	4.585	154.1 K=0.70	0.785	-0.655	7.476	0.088 [1] ✔
T2	280 - 260	1	4.814	4.585	154.1 K=0.70	0.785	-1.618	7.476	0.216 [1] ✔
T3	260 - 240	1	4.814	4.585	154.1 K=0.70	0.785	-1.102	7.476	0.147 [1] ✔
T4	240 - 220	1	4.814	4.585	154.1 K=0.70	0.785	-1.148	7.476	0.154 [1] ✔
T5	220 - 200	1 1/8	4.814	4.556	136.1 K=0.70	0.994	-3.903	12.127	0.322 [1] ✔
T6	200 - 180	1 1/8	4.814	4.556	136.1 K=0.70	0.994	-3.773	12.127	0.311 [1] ✔
T7	180 - 160	1 1/8	4.814	4.556	136.1 K=0.70	0.994	-3.978	12.127	0.328 [1] ✔
T8	160 - 140	1 1/8	4.814	4.556	136.1 K=0.70	0.994	-5.309	12.127	0.438 [1] ✔
T9	140 - 120	1	4.814	4.585	154.1 K=0.70	0.785	-2.370	7.476	0.317 [1] ✔
T10	120 - 100	1	4.814	4.585	154.1 K=0.70	0.785	-1.330	7.476	0.178 [1] ✔
T11	100 - 80	1	4.814	4.585	154.1 K=0.70	0.785	-1.699	7.476	0.227 [1] ✔
T12	80 - 60	1	4.814	4.585	154.1 K=0.70	0.785	-2.378	7.476	0.318 [1] ✔
T13	60 - 40	1	4.814	4.585	154.1 K=0.70	0.785	-1.941	7.476	0.260 [1] ✔
T14	40 - 20	1	4.814	4.585	154.1 K=0.70	0.785	-1.020	7.476	0.136 [1] ✔
T15	20 - 6.66667	1	4.805	4.576	153.8 K=0.70	0.785	-2.044	7.506	0.272 [1] ✔
T16	6.66667 - 0	1	4.193	3.929	132.0 K=0.70	0.785	-1.332	10.166	0.131 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.077	8.224	0.009 [1] ✔
T2	280 - 260	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.273	8.224	0.033 [1] ✔
T3	260 - 240	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.312	8.224	0.038 [1] ✔
T4	240 - 220	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.315	8.224	0.038 [1] ✔
T5	220 - 200	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.534	8.312	0.064 [1] ✔
T6	200 - 180	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.887	8.312	0.107 [1] ✔
T7	180 - 160	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.844	8.312	0.102 [1] ✔
T8	160 - 140	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.585	8.312	0.070 [1] ✔
T9	140 - 120	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.685	8.224	0.083 [1] ✔
T10	120 - 100	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.734	8.224	0.089 [1] ✔
T11	100 - 80	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.740	8.224	0.090 [1] ✔
T12	80 - 60	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.801	8.224	0.097 [1] ✔
T13	60 - 40	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.865	8.224	0.105 [1] ✔
T14	40 - 20	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.886	8.224	0.108 [1] ✔
T15	20 - 6.66667	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.884	8.224	0.108 [1] ✔
T16	6.66667 - 0	1 1/4	3.456	3.290	88.4 K=0.70	1.227	-0.952	26.345	0.036 [1] ✔

[1] $P_u / \phi P_n$ controls

Secondary Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	1.750	1.667	85.3 K=0.80	0.442	-0.000	9.756	0.000 [1] ✔
T2	280 - 260	3/4	1.750	1.667	85.3 K=0.80	0.442	-0.000	9.756	0.000 [1] ✔
T3	260 - 240	3/4	1.750	1.667	85.3 K=0.80	0.442	-0.000	9.756	0.000 [1] ✔
T4	240 - 220	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
					K=0.80				✔
T5	220 - 200	3/4	1.750	1.656	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T6	200 - 180	3/4	1.750	1.656	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T7	180 - 160	3/4	1.750	1.656	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T8	160 - 140	3/4	1.750	1.656	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T9	140 - 120	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T10	120 - 100	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T11	100 - 80	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T12	80 - 60	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T13	60 - 40	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T14	40 - 20	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔
T15	20 - 6.66667	3/4	1.750	1.667	85.3	0.442	-0.000	9.756	0.000 [1]
					K=0.80				✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	7/8	3.500	3.333	128.0	0.601	-0.022	8.224	0.003 [1]
					K=0.70				✔
T3	260 - 240	7/8	3.500	3.333	128.0	0.601	-0.080	8.224	0.010 [1]
					K=0.70				✔
T4	240 - 220	7/8	3.500	3.333	128.0	0.601	-0.063	8.224	0.008 [1]
					K=0.70				✔
T5	220 - 200	7/8	3.500	3.313	127.2	0.601	-0.090	8.312	0.011 [1]
					K=0.70				✔
T6	200 - 180	7/8	3.500	3.313	127.2	0.601	-0.238	8.312	0.029 [1]
					K=0.70				✔
T7	180 - 160	7/8	3.500	3.313	127.2	0.601	-0.838	8.312	0.101 [1]
					K=0.70				✔
T8	160 - 140	7/8	3.500	3.313	127.2	0.601	-0.264	8.312	0.032 [1]
					K=0.70				✔
T10	120 - 100	7/8	3.500	3.333	128.0	0.601	-0.037	8.224	0.004 [1]
					K=0.70				✔
T11	100 - 80	7/8	3.500	3.333	128.0	0.601	-0.046	8.224	0.006 [1]
					K=0.70				✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T12	80 - 60	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.187	8.224	0.023 [1] ✔
T13	60 - 40	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.083	8.224	0.010 [1] ✔
T14	40 - 20	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.009	8.224	0.001 [1] ✔
T15	20 - 6.66667	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.098	8.224	0.012 [1] ✔

[1] $P_u / \phi P_n$ controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	280 - 260	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.137	8.224	0.017 [1] ✔
T3	260 - 240	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.072	8.224	0.009 [1] ✔
T4	240 - 220	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.060	8.224	0.007 [1] ✔
T5	220 - 200	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.285	8.312	0.034 [1] ✔
T6	200 - 180	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.838	8.312	0.101 [1] ✔
T7	180 - 160	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.190	8.312	0.023 [1] ✔
T8	160 - 140	7/8	3.500	3.313	127.2 K=0.70	0.601	-0.323	8.312	0.039 [1] ✔
T9	140 - 120	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.116	8.224	0.014 [1] ✔
T11	100 - 80	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.092	8.224	0.011 [1] ✔
T12	80 - 60	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.151	8.224	0.018 [1] ✔
T13	60 - 40	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.057	8.224	0.007 [1] ✔
T14	40 - 20	7/8	3.500	3.333	128.0 K=0.70	0.601	-0.032	8.224	0.004 [1] ✔

[1] $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	2	20.000	0.083	2.0	3.142	2.051	141.372	0.015 [1] ✔
T2	280 - 260	2	20.000	0.083	2.0	3.142	2.049	141.372	0.014 [1] ✔
T3	260 - 240	2	20.000	3.306	79.3	3.142	4.304	141.372	0.030 [1] ✔
T4	240 - 220	2	20.000	3.306	79.3	3.142	4.251	141.372	0.030 [1] ✔
T5	220 - 200	2 1/4	20.000	0.083	1.8	3.976	10.446	178.924	0.058 [1] ✔
T6	200 - 180	2 1/4	20.000	3.306	70.5	3.976	28.537	178.924	0.159 [1] ✔
T7	180 - 160	2 1/4	20.000	0.083	1.8	3.976	24.352	178.924	0.136 [1] ✔
T8	160 - 140	2 1/4	20.000	0.083	1.8	3.976	6.012	178.924	0.034 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1	4.814	4.585	220.1	0.785	0.663	25.447	0.026 [1] ✔
T2	280 - 260	1	4.814	4.585	220.1	0.785	1.578	25.447	0.062 [1] ✔
T3	260 - 240	1	4.814	4.585	220.1	0.785	0.968	25.447	0.038 [1] ✔
T4	240 - 220	1	4.814	4.585	220.1	0.785	0.971	25.447	0.038 [1] ✔
T5	220 - 200	1 1/8	4.814	4.556	194.4	0.994	3.779	32.206	0.117 [1] ✔
T6	200 - 180	1 1/8	4.814	4.556	194.4	0.994	3.530	32.206	0.110 [1] ✔
T7	180 - 160	1 1/8	4.814	4.556	194.4	0.994	3.678	32.206	0.114 [1] ✔
T8	160 - 140	1 1/8	4.814	4.556	194.4	0.994	5.022	32.206	0.156 [1] ✔
T9	140 - 120	1	4.814	4.585	220.1	0.785	2.114	25.447	0.083 [1] ✔
T10	120 - 100	1	4.814	4.585	220.1	0.785	0.975	25.447	0.038 [1] ✔
T11	100 - 80	1	4.814	4.585	220.1	0.785	1.583	25.447	0.062 [1] ✔
T12	80 - 60	1	4.814	4.585	220.1	0.785	1.984	25.447	0.078 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T13	60 - 40	1	4.814	4.585	220.1	0.785	1.626	25.447	0.064 [1]
T14	40 - 20	1	4.814	4.585	220.1	0.785	0.696	25.447	0.027 [1]
T15	20 - 6.66667	1	4.805	4.576	219.6	0.785	1.801	25.447	0.071 [1]
T16	6.66667 - 0	1	4.193	3.929	188.6	0.785	0.886	25.447	0.035 [1]

[1] $P_u / \phi P_n$ controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	7/8	3.500	3.333	182.9	0.601	0.057	19.483	0.003 [1]
T2	280 - 260	7/8	3.500	3.333	182.9	0.601	0.273	19.483	0.014 [1]
T3	260 - 240	7/8	3.500	3.333	182.9	0.601	0.312	19.483	0.016 [1]
T4	240 - 220	7/8	3.500	3.333	182.9	0.601	0.315	19.483	0.016 [1]
T5	220 - 200	7/8	3.500	3.313	181.7	0.601	4.636	19.483	0.238 [1]
T6	200 - 180	7/8	3.500	3.313	181.7	0.601	0.887	19.483	0.046 [1]
T7	180 - 160	7/8	3.500	3.313	181.7	0.601	0.844	19.483	0.043 [1]
T8	160 - 140	7/8	3.500	3.313	181.7	0.601	0.585	19.483	0.030 [1]
T9	140 - 120	7/8	3.500	3.333	182.9	0.601	0.685	19.483	0.035 [1]
T10	120 - 100	7/8	3.500	3.333	182.9	0.601	0.734	19.483	0.038 [1]
T11	100 - 80	7/8	3.500	3.333	182.9	0.601	0.740	19.483	0.038 [1]
T12	80 - 60	7/8	3.500	3.333	182.9	0.601	4.162	19.483	0.214 [1]
T13	60 - 40	7/8	3.500	3.333	182.9	0.601	0.865	19.483	0.044 [1]
T14	40 - 20	7/8	3.500	3.333	182.9	0.601	0.886	19.483	0.045 [1]
T15	20 - 6.66667	7/8	3.500	3.333	182.9	0.601	0.884	19.483	0.045 [1]
T16	6.66667 - 0	1 1/4	3.456	3.290	126.3	1.227	5.387	39.761	0.135 [1]

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	

[1] $P_u / \phi P_n$ controls

Secondary Horizontal Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	300 - 280	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T2	280 - 260	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T3	260 - 240	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T4	240 - 220	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T5	220 - 200	3/4	1.750	1.656	106.0	0.442	0.000	14.314	0.000 [1]
T6	200 - 180	3/4	1.750	1.656	106.0	0.442	0.000	14.314	0.000 [1]
T7	180 - 160	3/4	1.750	1.656	106.0	0.442	0.000	14.314	0.000 [1]
T8	160 - 140	3/4	1.750	1.656	106.0	0.442	0.000	14.314	0.000 [1]
T9	140 - 120	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T10	120 - 100	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T11	100 - 80	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T12	80 - 60	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T13	60 - 40	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T14	40 - 20	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]
T15	20 - 6.66667	3/4	1.750	1.667	106.7	0.442	0.000	14.314	0.000 [1]

[1] $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	300 - 280	7/8	3.500	3.333	182.9	0.601	0.022	19.483	0.001 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	280 - 260	7/8	3.500	3.333	182.9	0.601	2.836	19.483	0.146 [1]
T3	260 - 240	7/8	3.500	3.333	182.9	0.601	0.133	19.483	0.007 [1]
T4	240 - 220	7/8	3.500	3.333	182.9	0.601	0.107	19.483	0.006 [1]
T5	220 - 200	7/8	3.500	3.313	181.7	0.601	0.162	19.483	0.008 [1]
T6	200 - 180	7/8	3.500	3.313	181.7	0.601	0.304	19.483	0.016 [1]
T7	180 - 160	7/8	3.500	3.313	181.7	0.601	0.946	19.483	0.049 [1]
T8	160 - 140	7/8	3.500	3.313	181.7	0.601	0.382	19.483	0.020 [1]
T9	140 - 120	7/8	3.500	3.333	182.9	0.601	4.012	19.483	0.206 [1]
T10	120 - 100	7/8	3.500	3.333	182.9	0.601	0.143	19.483	0.007 [1]
T11	100 - 80	7/8	3.500	3.333	182.9	0.601	0.152	19.483	0.008 [1]
T12	80 - 60	7/8	3.500	3.333	182.9	0.601	0.300	19.483	0.015 [1]
T13	60 - 40	7/8	3.500	3.333	182.9	0.601	0.201	19.483	0.010 [1]
T14	40 - 20	7/8	3.500	3.333	182.9	0.601	0.138	19.483	0.007 [1]
T15	20 - 6.66667	7/8	3.500	3.333	182.9	0.601	0.240	19.483	0.012 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	7/8	3.500	3.333	182.9	0.601	1.352	19.483	0.069 [1]
T2	280 - 260	7/8	3.500	3.333	182.9	0.601	0.172	19.483	0.009 [1]
T3	260 - 240	7/8	3.500	3.333	182.9	0.601	0.106	19.483	0.005 [1]
T4	240 - 220	7/8	3.500	3.333	182.9	0.601	0.102	19.483	0.005 [1]
T5	220 - 200	7/8	3.500	3.313	181.7	0.601	0.399	19.483	0.020 [1]
T6	200 - 180	7/8	3.500	3.313	181.7	0.601	0.886	19.483	0.045 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	180 - 160	7/8	3.500	3.313	181.7	0.601	0.297	19.483	0.015 [1] ✔
T8	160 - 140	7/8	3.500	3.313	181.7	0.601	2.643	19.483	0.136 [1] ✔
T9	140 - 120	7/8	3.500	3.333	182.9	0.601	0.259	19.483	0.013 [1] ✔
T10	120 - 100	7/8	3.500	3.333	182.9	0.601	0.125	19.483	0.006 [1] ✔
T11	100 - 80	7/8	3.500	3.333	182.9	0.601	0.223	19.483	0.011 [1] ✔
T12	80 - 60	7/8	3.500	3.333	182.9	0.601	0.297	19.483	0.015 [1] ✔
T13	60 - 40	7/8	3.500	3.333	182.9	0.601	0.195	19.483	0.010 [1] ✔
T14	40 - 20	7/8	3.500	3.333	182.9	0.601	0.159	19.483	0.008 [1] ✔
T15	20 - 6.66667	7/8	3.500	3.333	182.9	0.601	3.686	19.483	0.189 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	300 - 280	Leg	2	3	-2.476	89.229	2.8	Pass
T2	280 - 260	Leg	2	49	-15.790	89.229	17.7	Pass
T3	260 - 240	Leg	2	97	-18.006	89.229	20.2	Pass
T4	240 - 220	Leg	2	145	-18.183	89.229	20.4	Pass
T5	220 - 200	Leg	2 1/4	193	-30.846	124.382	24.8	Pass
T6	200 - 180	Leg	2 1/4	241	-51.231	124.382	41.2	Pass
T7	180 - 160	Leg	2 1/4	289	-48.731	124.382	39.2	Pass
T8	160 - 140	Leg	2 1/4	337	-33.759	124.382	27.1	Pass
T9	140 - 120	Leg	2	387	-39.531	89.229	44.3	Pass
T10	120 - 100	Leg	2	435	-42.376	89.229	47.5	Pass
T11	100 - 80	Leg	2	483	-42.699	89.229	47.9	Pass
T12	80 - 60	Leg	2	530	-46.239	89.229	51.8	Pass
T13	60 - 40	Leg	2	577	-49.961	89.229	56.0	Pass
T14	40 - 20	Leg	2	625	-51.161	89.229	57.3	Pass
T15	20 - 6.66667	Leg	2	673	-51.057	89.574	57.0	Pass
T16	6.66667 - 0	Leg	2	709	-53.176	84.813	62.7	Pass
T1	300 - 280	Diagonal	1	12	-0.655	7.476	8.8	Pass
T2	280 - 260	Diagonal	1	94	-1.618	7.476	21.6	Pass
T3	260 - 240	Diagonal	1	142	-1.102	7.476	14.7	Pass
T4	240 - 220	Diagonal	1	154	-1.148	7.476	15.4	Pass
T5	220 - 200	Diagonal	1 1/8	217	-3.903	12.127	32.2	Pass
T6	200 - 180	Diagonal	1 1/8	286	-3.773	12.127	31.1	Pass
T7	180 - 160	Diagonal	1 1/8	300	-3.978	12.127	32.8	Pass
T8	160 - 140	Diagonal	1 1/8	348	-5.309	12.127	43.8	Pass
T9	140 - 120	Diagonal	1	422	-2.370	7.476	31.7	Pass
T10	120 - 100	Diagonal	1	478	-1.330	7.476	17.8	Pass
T11	100 - 80	Diagonal	1	492	-1.699	7.476	22.7	Pass
T12	80 - 60	Diagonal	1	561	-2.378	7.476	31.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T13	60 - 40	Diagonal	1	621	-1.941	7.476	26.0	Pass
T14	40 - 20	Diagonal	1	635	-1.020	7.476	13.6	Pass
T15	20 - 6.66667	Diagonal	1	683	-2.044	7.506	27.2	Pass
T16	6.66667 - 0	Diagonal	1	716	-1.332	10.166	13.1	Pass
T1	300 - 280	Horizontal	7/8	14	-0.077	8.224	0.9	Pass
T2	280 - 260	Horizontal	7/8	69	-0.273	8.224	3.3	Pass
T3	260 - 240	Horizontal	7/8	117	-0.312	8.224	3.8	Pass
T4	240 - 220	Horizontal	7/8	165	-0.315	8.224	3.8	Pass
T5	220 - 200	Horizontal	7/8	221	4.636	19.483	23.8	Pass
T6	200 - 180	Horizontal	7/8	254	-0.887	8.312	10.7	Pass
T7	180 - 160	Horizontal	7/8	304	-0.844	8.312	10.2	Pass
T8	160 - 140	Horizontal	7/8	350	-0.585	8.312	7.0	Pass
T9	140 - 120	Horizontal	7/8	406	-0.685	8.224	8.3	Pass
T10	120 - 100	Horizontal	7/8	454	-0.734	8.224	8.9	Pass
T11	100 - 80	Horizontal	7/8	502	-0.740	8.224	9.0	Pass
T12	80 - 60	Horizontal	7/8	556	4.162	19.483	21.4	Pass
T13	60 - 40	Horizontal	7/8	597	-0.865	8.224	10.5	Pass
T14	40 - 20	Horizontal	7/8	638	-0.886	8.224	10.8	Pass
T15	20 - 6.66667	Horizontal	7/8	688	-0.884	8.224	10.8	Pass
T16	6.66667 - 0	Horizontal	1 1/4	711	5.387	39.761	13.5	Pass
T1	300 - 280	Secondary Horizontal	3/4	27	-0.000	9.756	0.1	Pass
T2	280 - 260	Secondary Horizontal	3/4	61	-0.000	9.756	0.1	Pass
T3	260 - 240	Secondary Horizontal	3/4	109	-0.000	9.756	0.1	Pass
T4	240 - 220	Secondary Horizontal	3/4	157	-0.000	9.756	0.1	Pass
T5	220 - 200	Secondary Horizontal	3/4	205	-0.000	9.756	0.1	Pass
T6	200 - 180	Secondary Horizontal	3/4	253	0.000	14.314	0.1	Pass
T7	180 - 160	Secondary Horizontal	3/4	301	0.000	14.314	0.1	Pass
T8	160 - 140	Secondary Horizontal	3/4	363	0.000	14.314	0.1	Pass
T9	140 - 120	Secondary Horizontal	3/4	397	0.000	14.314	0.1	Pass
T10	120 - 100	Secondary Horizontal	3/4	445	0.000	14.314	0.1	Pass
T11	100 - 80	Secondary Horizontal	3/4	493	0.000	14.314	0.1	Pass
T12	80 - 60	Secondary Horizontal	3/4	541	0.000	14.314	0.1	Pass
T13	60 - 40	Secondary Horizontal	3/4	589	0.000	14.314	0.1	Pass
T14	40 - 20	Secondary Horizontal	3/4	637	0.000	14.314	0.1	Pass
T15	20 - 6.66667	Secondary Horizontal	3/4	699	-0.000	9.756	0.1	Pass
T1	300 - 280	Top Girt	7/8	6	-0.022	8.224	0.3	Pass
T2	280 - 260	Top Girt	7/8	54	2.836	19.483	14.6	Pass
T3	260 - 240	Top Girt	7/8	101	-0.080	8.224	1.0	Pass
T4	240 - 220	Top Girt	7/8	150	-0.063	8.224	0.8	Pass
T5	220 - 200	Top Girt	7/8	198	-0.090	8.312	1.1	Pass
T6	200 - 180	Top Girt	7/8	245	-0.238	8.312	2.9	Pass
T7	180 - 160	Top Girt	7/8	294	-0.838	8.312	10.1	Pass
T8	160 - 140	Top Girt	7/8	342	-0.264	8.312	3.2	Pass
T9	140 - 120	Top Girt	7/8	390	4.012	19.483	20.6	Pass
T10	120 - 100	Top Girt	7/8	437	0.143	19.483	0.7	Pass
T11	100 - 80	Top Girt	7/8	485	0.152	19.483	0.8	Pass
T12	80 - 60	Top Girt	7/8	533	-0.187	8.224	2.3	Pass
T13	60 - 40	Top Girt	7/8	580	0.201	19.483	1.0	Pass
T14	40 - 20	Top Girt	7/8	628	0.138	19.483	0.7	Pass
T15	20 - 6.66667	Top Girt	7/8	677	0.240	19.483	1.2	Pass
T1	300 - 280	Bottom Girt	7/8	9	1.352	19.483	6.9	Pass
T2	280 - 260	Bottom Girt	7/8	56	-0.137	8.224	1.7	Pass
T3	260 - 240	Bottom Girt	7/8	104	-0.072	8.224	0.9	Pass
T4	240 - 220	Bottom Girt	7/8	151	-0.060	8.224	0.7	Pass
T5	220 - 200	Bottom Girt	7/8	200	-0.285	8.312	3.4	Pass
T6	200 - 180	Bottom Girt	7/8	248	-0.838	8.312	10.1	Pass
T7	180 - 160	Bottom Girt	7/8	297	-0.190	8.312	2.3	Pass
T8	160 - 140	Bottom Girt	7/8	345	2.643	19.483	13.6	Pass
T9	140 - 120	Bottom Girt	7/8	391	-0.116	8.224	1.4	Pass
T10	120 - 100	Bottom Girt	7/8	439	0.125	19.483	0.6	Pass
T11	100 - 80	Bottom Girt	7/8	488	0.223	19.483	1.1	Pass

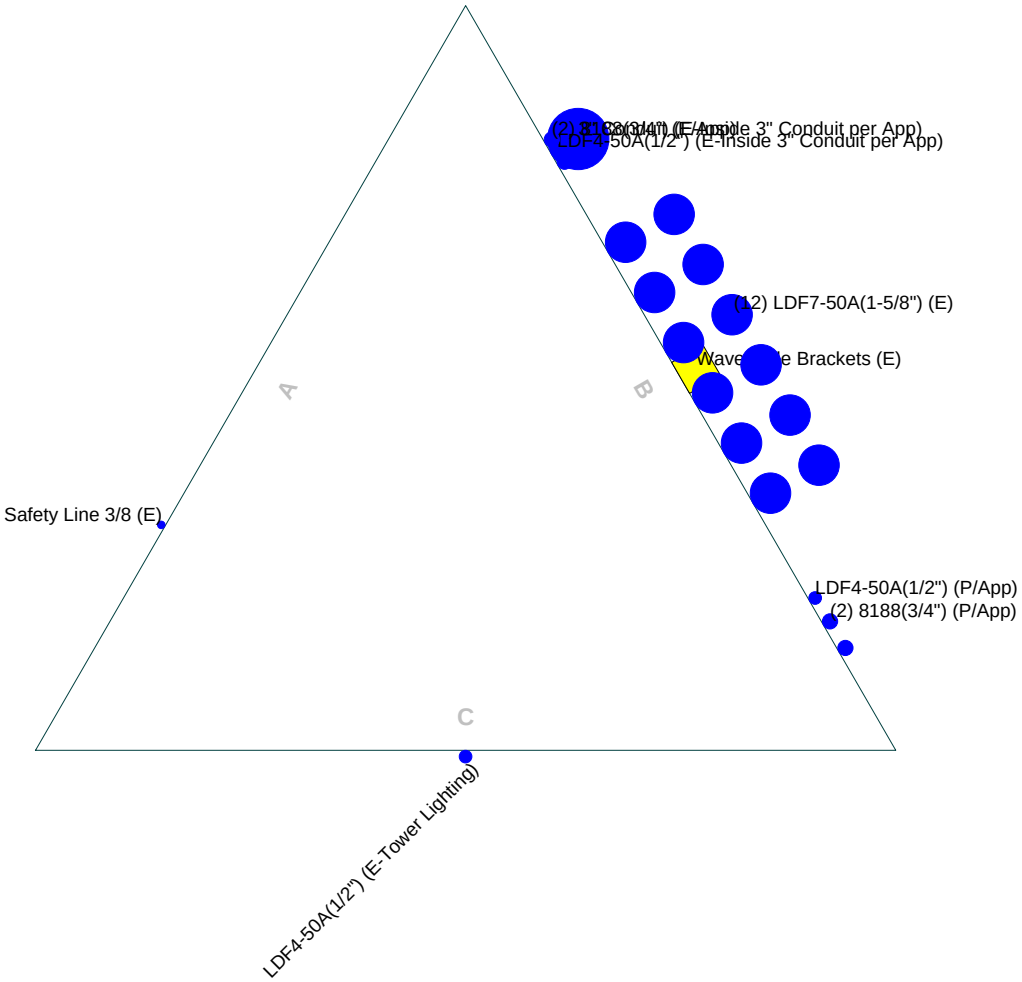
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T12	80 - 60	Bottom Girt	7/8	535	-0.151	8.224	1.8	Pass
T13	60 - 40	Bottom Girt	7/8	583	0.195	19.483	1.0	Pass
T14	40 - 20	Bottom Girt	7/8	632	0.159	19.483	0.8	Pass
T15	20 - 6.66667	Bottom Girt	7/8	679	3.686	19.483	18.9	Pass
T2	280 - 260	Guy A@279.917	3/4	730	13.630	34.980	39.0	Pass
T5	220 - 200	Guy A@210	5/8	727	11.527	25.440	45.3	Pass
T9	140 - 120	Guy A@139.917	5/8	724	12.635	25.440	49.7	Pass
T12	80 - 60	Guy A@70	1/2	721	7.337	16.140	45.5	Pass
T2	280 - 260	Guy B@279.917	3/4	729	13.629	34.980	39.0	Pass
T5	220 - 200	Guy B@210	5/8	726	11.536	25.440	45.3	Pass
T9	140 - 120	Guy B@139.917	5/8	723	12.624	25.440	49.6	Pass
T12	80 - 60	Guy B@70	1/2	720	7.321	16.140	45.4	Pass
T2	280 - 260	Guy C@279.917	3/4	728	13.717	34.980	39.2	Pass
T5	220 - 200	Guy C@210	5/8	725	12.129	25.440	47.7	Pass
T9	140 - 120	Guy C@139.917	5/8	722	13.781	25.440	54.2	Pass
T12	80 - 60	Guy C@70	1/2	719	7.527	16.140	46.6	Pass
							Summary	
						Leg (T16)	62.7	Pass
						Diagonal (T8)	43.8	Pass
						Horizontal (T5)	23.8	Pass
						Secondary Horizontal (T1)	0.1	Pass
						Top Girt (T9)	20.6	Pass
						Bottom Girt (T15)	18.9	Pass
						Guy A (T9)	49.7	Pass
						Guy B (T9)	49.6	Pass
						Guy C (T9)	54.2	Pass
						RATING =	**62.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING

Feed Line Plan

Round Flat App In Face App Out Face



B+T Group
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Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: ***135097.003.01 - East Haddam-126 Parker Road,CT (Site# 1010***		
Project:		
Client: CTI Towers	Drawn by: Vishwas	App'd:
Code: TIA-222-G	Date: 05/21/19	Scale: NTS
Path:		Dwg No. E-7

APPENDIX C

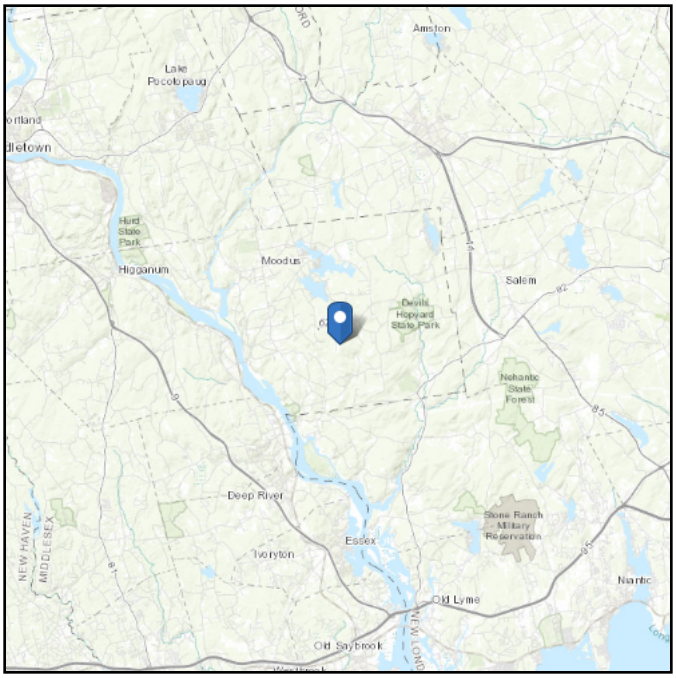
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 591.02 ft (NAVD 88)
Latitude: 41.460908
Longitude: -72.395221



Wind

Results:

Wind Speed:	130 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	96 Vmph
100-year MRI	105 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:	Tue May 21 2019

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

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

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

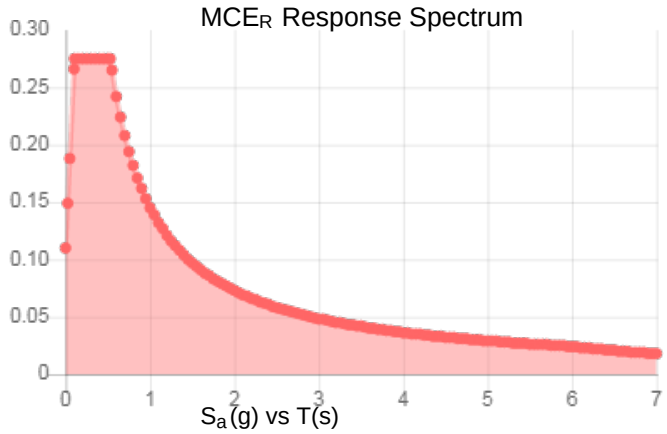
Seismic

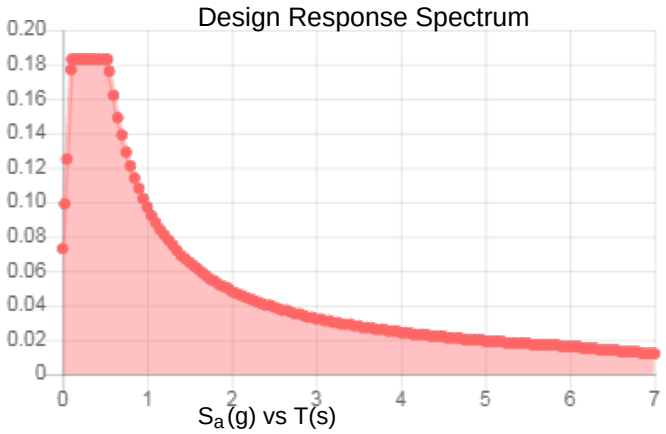
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.172	S_{DS} :	0.183
S_1 :	0.061	S_{D1} :	0.097
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.087
S_{MS} :	0.275	PGA_M :	0.139
S_{M1} :	0.145	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue May 21 2019

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:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue May 21 2019

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.

May 24, 2019

Brandon Barnes
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Subject:	**Appurtenance Mount Modification Report**	
Carrier Designation:	**Site Number:**	10108
	Site Name:	East Haddam-126 Parker Road
Engineering Firm Designation:	**B+T Group Project Number:**	135097.004.01
Site Data:	**126 Parker Road, East Haddam, CT, 06423, Middlesex County** **Latitude *41.46090*°, Longitude *-72.39522*°** **Guyed Tower** **12' T-Arm Mount**	

Dear Mr. Barnes,

B+T Group is pleased to submit this **"Appurtenance Mount Modification Report"** to determine the structural integrity of the antenna mount on the above-mentioned structure.

The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level for the mount under the following load case to be:

Existing + Proposed Equipment Note: See Table 1 for the final loading configuration	**Sufficient Capacity** (Passing at 64.4 %)

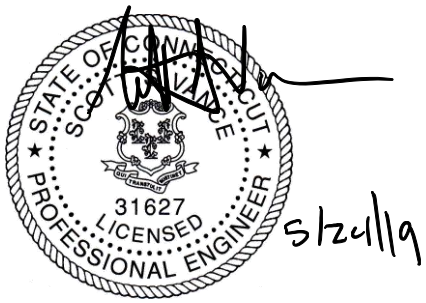
This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 123 mph. Exposure Category C and Risk Category II were used in this analysis.

All the equipment proposed in this report shall be installed in accordance with the drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and *CTI Towers, Inc.* If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: Ramya Pasnoor, E.I.T.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2020



Scott S. Vance, P.E.

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Modification Drawings

1) INTRODUCTION

The appurtenance mount consists of T-Arm mount at 180.5 ft., attached to guyed tower at 126 Parker Road, East Haddam, CT, 06423, Middlesex County. The proposed antenna loading information was obtained from CTI Towers, Inc. All information provided to B+T Group was assumed accurate and complete.

2) ANALYSIS CRITERIA

The structural analysis was performed for this mount in accordance with the ANSI/TIA-222-H-2018 Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures 2 using a 3-second gust wind speed of 123 mph with no ice and 50 mph with 1 inch escalated ice thickness. Exposure Category C & Topographic Category 1 and Risk Category II were used in this analysis. In addition, the T-Arm mount have been analyzed for various live loading conditions consisting of a 250-lb man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 250-pound man live load applied individually at mount pipe locations using a 3-second gust of 30mph. The mount was analyzed under 30º increments in the wind direction. The analyzed loading is detailed in Table 1.

Table 1 – Proposed and Existing Equipment Information

Loading	RAD Ctr. Elev. (ft.)	Position	Qty.	Manufacturer	Model / Type	Note
Existing	183	1	3	Powerwave	RA21.7770	1
			6	Powerwave	LGP21401	
		--	1	Raycap	DC6-48-60-18-8F	2
Proposed	183	2	3	Katherin	80010965	3
				Ericsson	RRUS 4449 B5/B12	
				Ericsson	RRUS 8843 B2/B66A	
		4	3	CCI	OPA45R-BU6A	
				Kaelus	DBCT108F1V92-1	
		--	1	Raycap	DC6-48-60-18-8F	4

Note:
(1) Existing Equipment installed on the Mount.
(2) Existing Equipment installed on the Tower.
(3) Proposed Equipment to be installed on the mount
(4) Proposed Equipment to be installed on the tower leg

Table 2 - Documents Provided

Documents	Remarks	Reference	Source
CD Rev A	Existing Loading Proposed Loading	Date: 03/13/2019	CTI Towers, Inc.
Mount Mapping	B+T Group	Date: 05/01/2019	On file
MA Report	B+T Group	Date: 05/17/2019	On file

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 17.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses and deflections for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. The mount was built in accordance with the manufacturer's specifications.
2. The mount has been maintained in accordance with the manufacturer's specifications and is free of damage.
3. The configuration of antennas and other appurtenances are as specified in Table 1.
4. All mount components have been assumed to be in sufficient condition to carry their full design capacity for the analysis.
5. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
6. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
7. All prior structural modifications, if any are assumed to be correctly installed and fully effective.
8. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
9. The following material grades were assumed (Unless Noted Otherwise):
   a. Channels — ASTM A36 (GR 36)
   b. Solid Rods — ASTM A36 (GR 36)
   c. Angles — ASTM A36 (GR 36)
   d. Plates — ASTM A36 (GR 36)
   e. HSS (Rectangular) — ASTM 500 (GR B-46)
   f. HSS (Round) — ASTM 500 (GR B-42)
   g. Pipes — ASTM A53 (GR 35)
   h. Connection Bolts — ASTM A325

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity

Notes	Component	Elevation (ft.)	% Capacity	Pass / Fail
-	Main Horizontals	180.5	52.3	Pass
-	Verticals	180.5	7.0	Pass
-	Diagonals	180.5	10.6	Pass
-	Connection Pipe	180.5	26.0	Pass
-	Support Tubes	180.5	49.1	Pass
-	Mount Pipes	180.5	34.7	Pass
-	Tieback	180.5	7.3	Pass
-	Connection Plates	180.5	64.4	Pass
-	Unistruts	180.5	31.3	Pass
	Stabilizer kit	180.5	31.5	Pass
	Additional Horizontal pipe	180.5	36.6	Pass

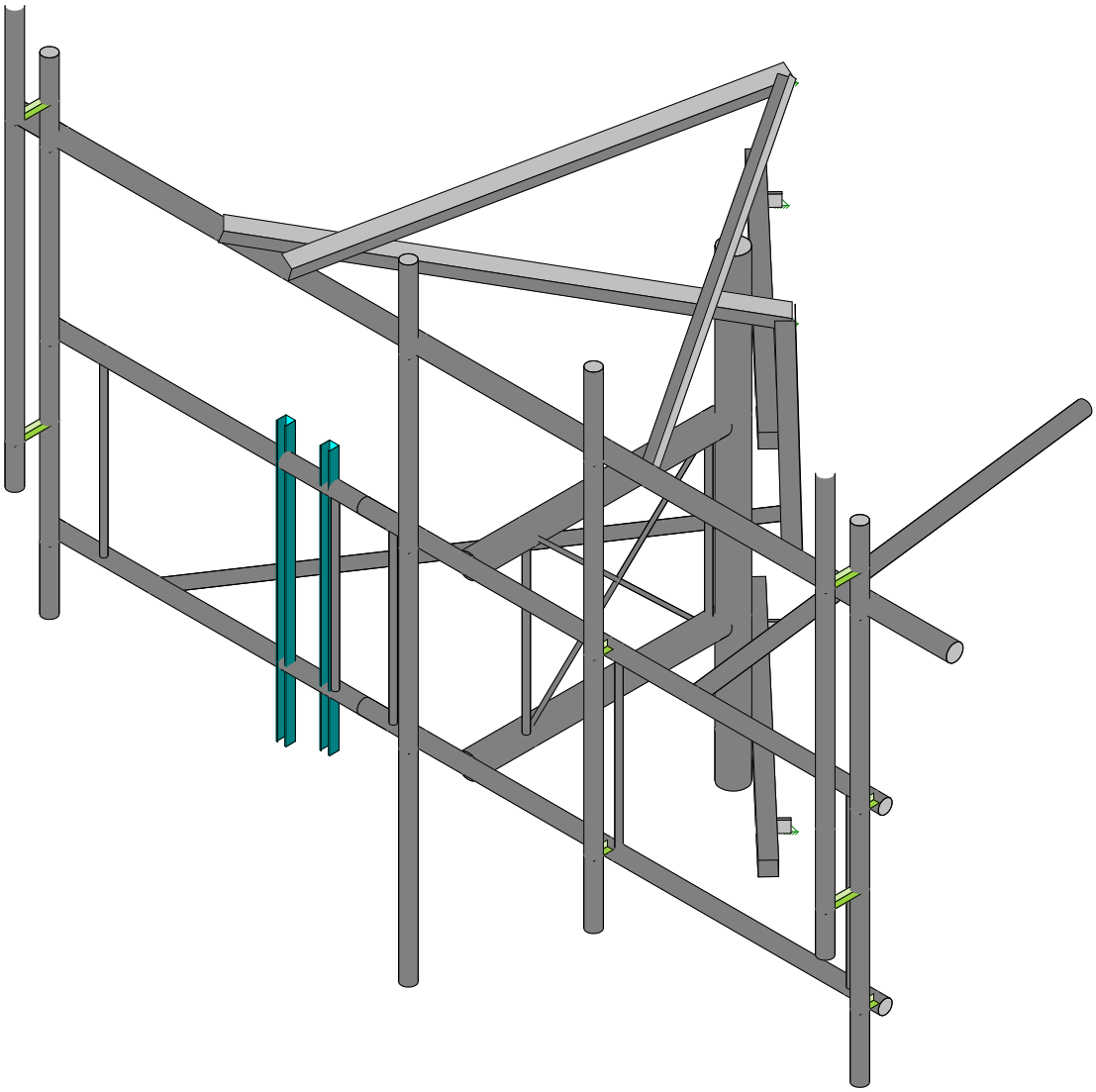
4.1) Structural Notes:

1) All modifications proposed in this report shall be installed in accordance with the attached drawing for the determined available structural capacity to be effective.
2) If the loading differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
3) B+T Group certifies that carrier's entire antenna structure will support the equipment deployment.
4) No erection or modification of the structure shall be made without approval of the structural engineer.

Note: Proposed tieback of 2'' STD was considered as installed, in the analysis and modification report, as mentioned in the CD's Rev A (Date: 03/13/2019)

APPENDIX A

(RISA-3D Output)



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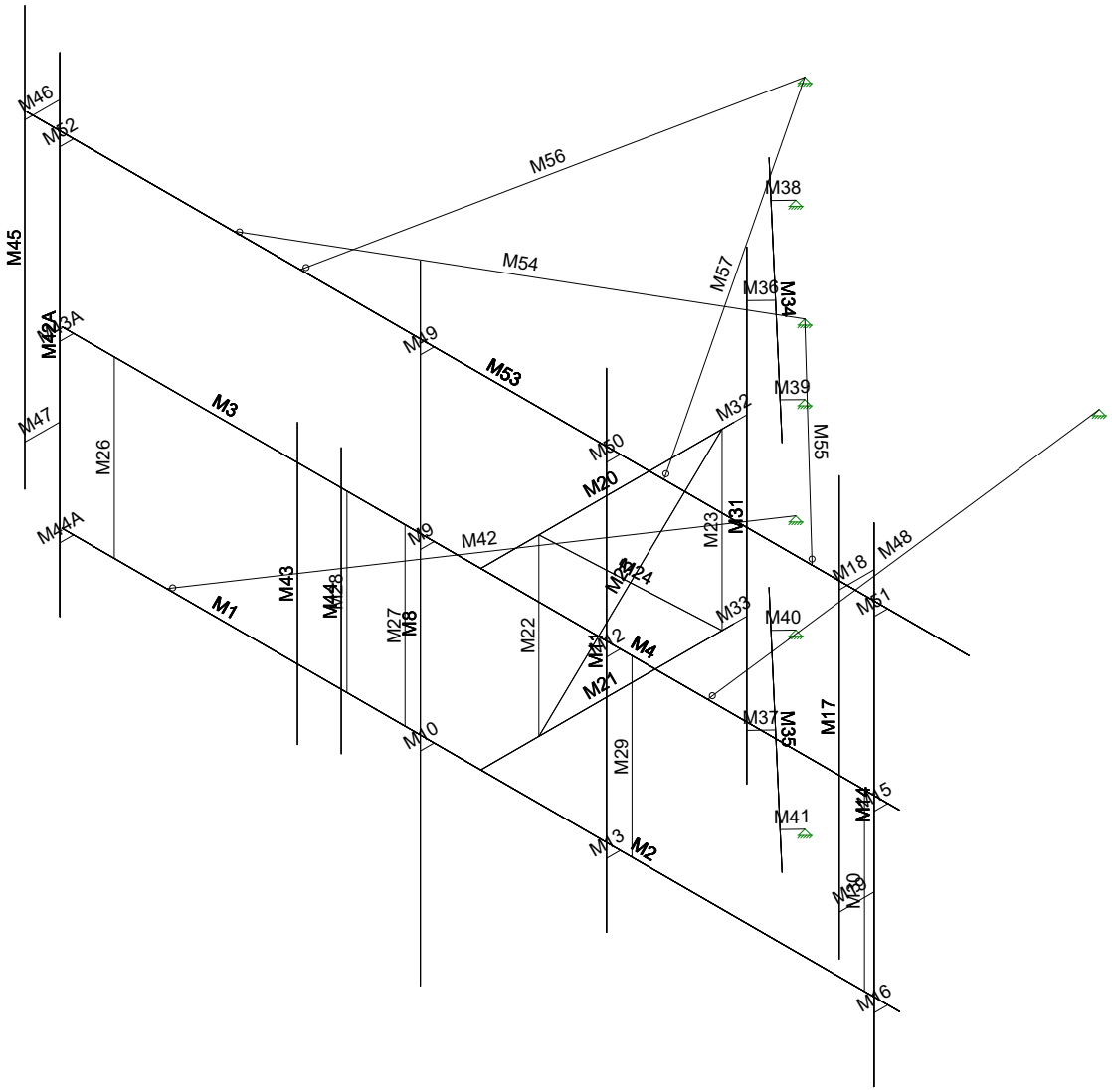

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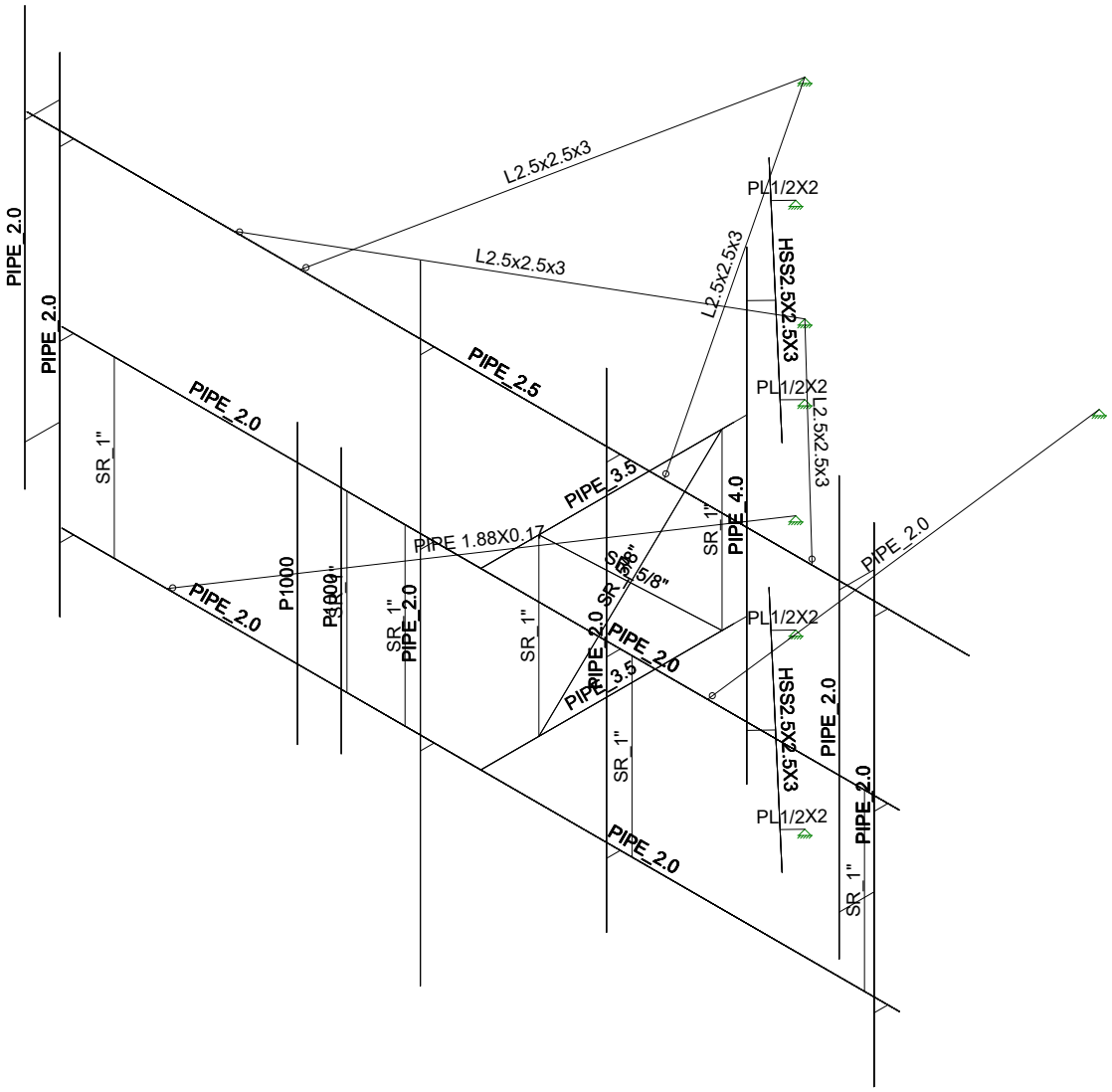

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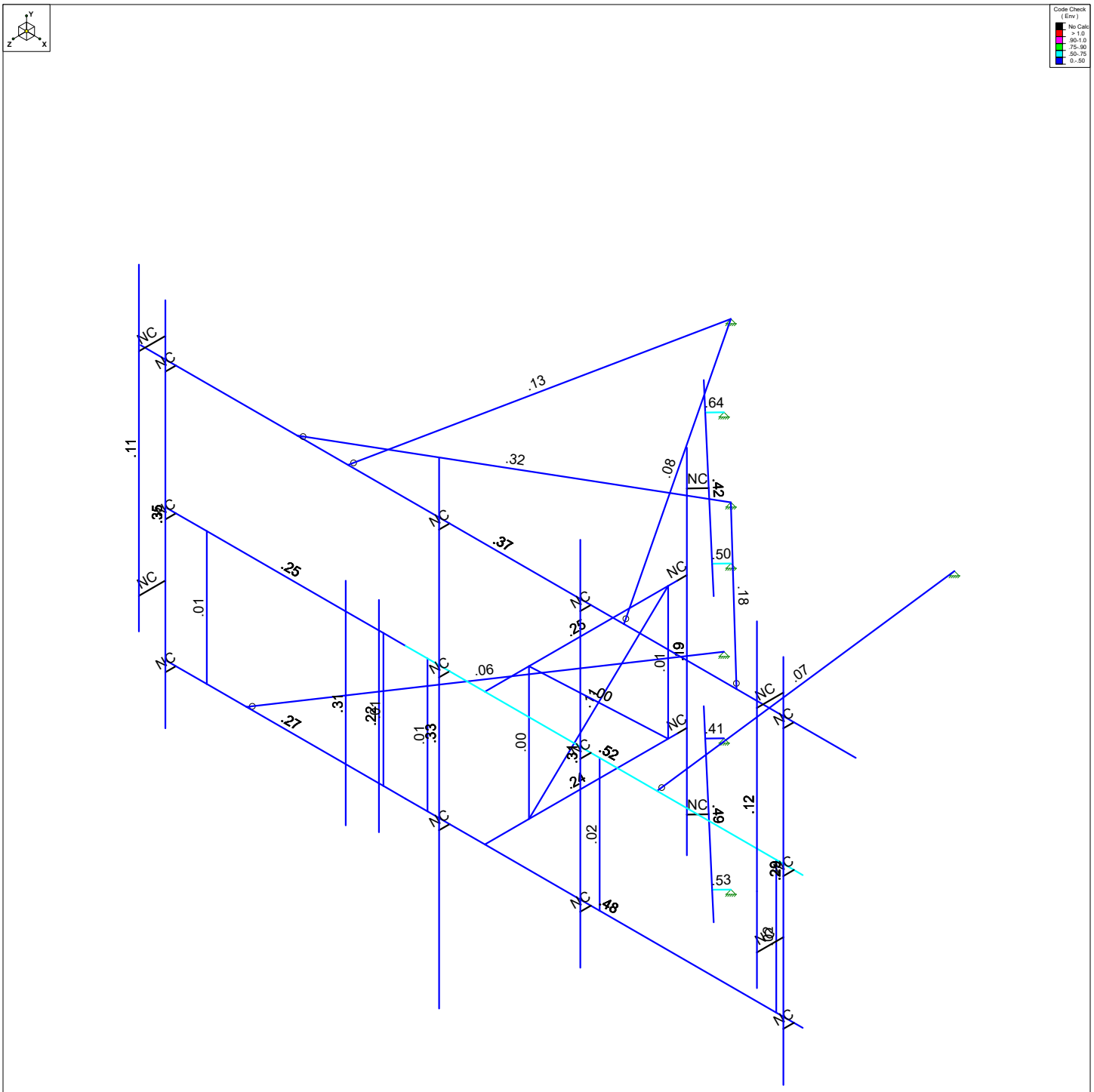
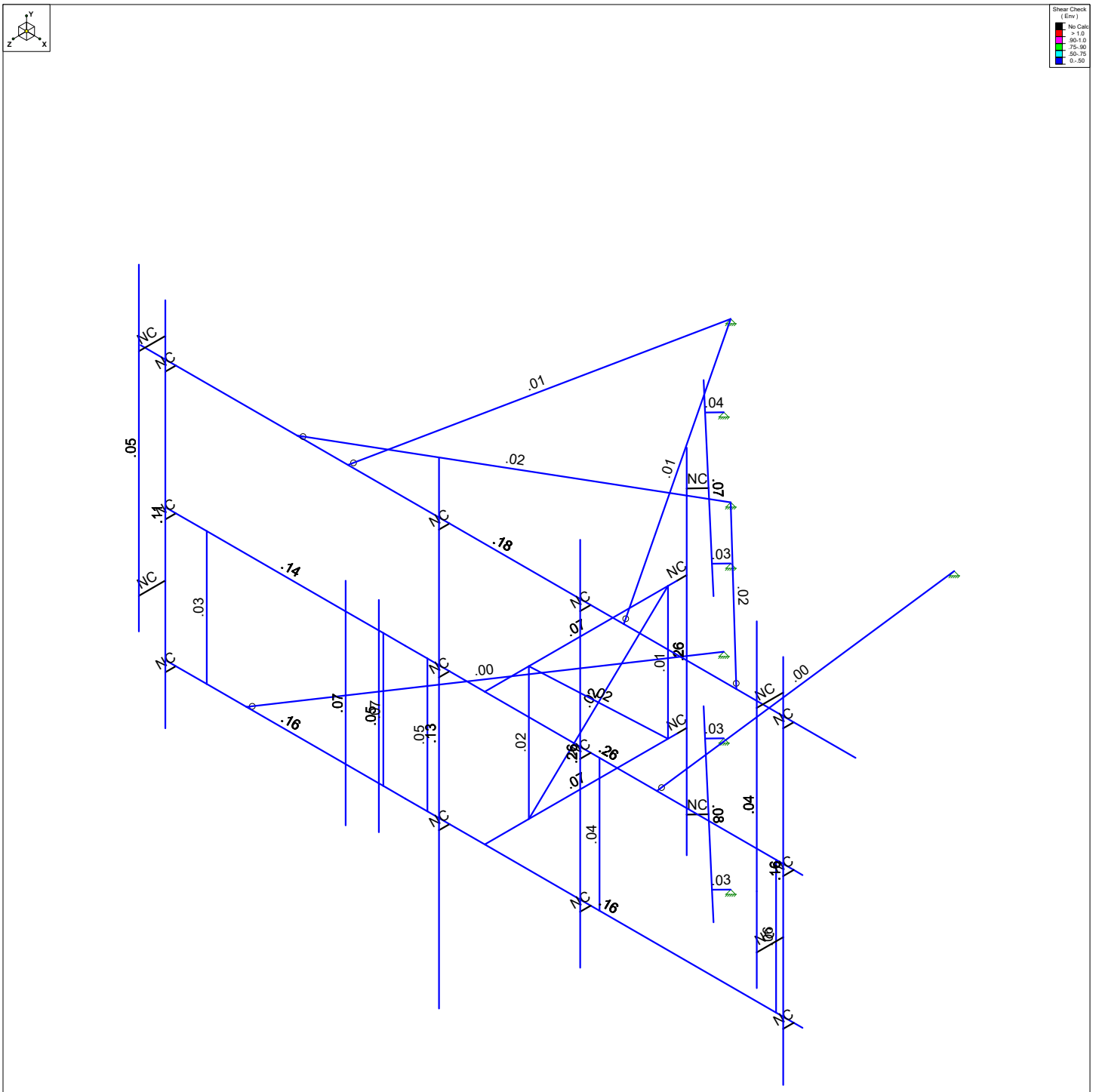


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT2053 - East Haddam-126 Parker Road	SK - 5
RP		May 24, 2019 at 3:39 PM
135098.004.01		135097_002_01_East Haddam-12...



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

B+T Group	CT2053 - East Haddam-126 Parker Road	SK - 4
RP		May 24, 2019 at 3:39 PM
135098.004.01		135097_002_01_East Haddam-12...

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	MF-H1	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	MF-P1	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	F1-V1	SR_1"	Column	BAR	A36 Gr.36	Typical	.785	.049	.049	.098
4	F1-S1	PIPE_3.5	Beam	Pipe	A53 Gr.B	Typical	2.5	4.52	4.52	9.04
5	F1-D1	SR_5/8"	VBrace	BAR	A36 Gr.36	Typical	.307	.007	.007	.015
6	F1-P1	PIPE_4.0	Column	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6
7	F1-ST1	HSS2.5X2.5X3	Beam	Tube	A500 Gr.B Rect	Typical	1.54	1.35	1.35	2.25
8	Tieback	PIPE 1.88X0.17	Beam	Pipe	A53 Gr.B	Typical	.913	.337	.337	.674
9	CP	PL1/2X2	Beam	RECT	A36 Gr.36	Typical	1	.021	.333	.07
10	ADD HR	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
11	s kit	L2.5x2.5x3	Beam	Single Angle	A36 Gr.36	Typical	.901	.535	.535	.011
12	SF-T	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF1	P1000	Column	CS	A570 Gr.33	Typical	.517	.165	.222	.002

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N3			MF-H1	Beam	Pipe	A53 Gr.B	Typical
2	M2	N3	N2			MF-H1	Beam	Pipe	A53 Gr.B	Typical
3	M3	N4	N6			MF-H1	Beam	Pipe	A53 Gr.B	Typical
4	M4	N6	N5			MF-H1	Beam	Pipe	A53 Gr.B	Typical
5	M8	N17	N18			MF-P1	Column	Pipe	A53 Gr.B	Typical
6	M9	N15	N13			RIGID	None	None	RIGID	Typical
7	M10	N16	N14			RIGID	None	None	RIGID	Typical
8	M11	N23	N24			MF-P1	Column	Pipe	A53 Gr.B	Typical
9	M12	N21	N19			RIGID	None	None	RIGID	Typical
10	M13	N22	N20			RIGID	None	None	RIGID	Typical
11	M14	N29	N30			MF-P1	Column	Pipe	A53 Gr.B	Typical
12	M15	N27	N25			RIGID	None	None	RIGID	Typical
13	M16	N28	N26			RIGID	None	None	RIGID	Typical
14	M17	N31	N32			MF-P1	Column	Pipe	A53 Gr.B	Typical
15	M18	N35	N34			RIGID	None	None	RIGID	Typical
16	M19	N37	N36			RIGID	None	None	RIGID	Typical
17	M20	N38	N40			F1-S1	Beam	Pipe	A53 Gr.B	Typical
18	M21	N37A	N39			F1-S1	Beam	Pipe	A53 Gr.B	Typical
19	M22	N41	N45			F1-V1	Column	BAR	A36 Gr.36	Typical
20	M23	N42	N46			F1-V1	Column	BAR	A36 Gr.36	Typical
21	M24	N41	N46			F1-D1	VBrace	BAR	A36 Gr.36	Typical
22	M25	N42	N45			F1-D1	VBrace	BAR	A36 Gr.36	Typical
23	M26	N45A	N46A			F1-V1	Column	BAR	A36 Gr.36	Typical
24	M27	N47	N48			F1-V1	Column	BAR	A36 Gr.36	Typical
25	M28	N49	N50			F1-V1	Column	BAR	A36 Gr.36	Typical
26	M29	N51	N52			F1-V1	Column	BAR	A36 Gr.36	Typical
27	M30	N53	N54			F1-V1	Column	BAR	A36 Gr.36	Typical
28	M31	N55	N56			F1-P1	Column	Pipe	A53 Gr.B	Typical
29	M32	N40	N58			RIGID	None	None	RIGID	Typical
30	M33	N39	N57			RIGID	None	None	RIGID	Typical
31	M34	N59	N60			F1-ST1	Beam	Tube	A500 Gr.B...	Typical
32	M35	N61	N62			F1-ST1	Beam	Tube	A500 Gr.B...	Typical
33	M36	N65	N66			RIGID	None	None	RIGID	Typical
34	M37	N63	N64			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
35	M38	N68	N69			CP	Beam	RECT	A36 Gr.36	Typical
36	M39	N67	N71			CP	Beam	RECT	A36 Gr.36	Typical
37	M40	N75	N74			CP	Beam	RECT	A36 Gr.36	Typical
38	M41	N72	N73			CP	Beam	RECT	A36 Gr.36	Typical
39	M42	N76	N77			Tieback	Beam	Pipe	A53 Gr.B	Typical
40	M43	N78	N79		180	CF1	Column	CS	A570 Gr.33	Typical
41	M44	N80	N81		180	CF1	Column	CS	A570 Gr.33	Typical
42	M42A	N87	N88			MF-P1	Column	Pipe	A53 Gr.B	Typical
43	M43A	N85A	N7			RIGID	None	None	RIGID	Typical
44	M44A	N86A	N8			RIGID	None	None	RIGID	Typical
45	M45	N89	N90			MF-P1	Column	Pipe	A53 Gr.B	Typical
46	M46	N92	N91			RIGID	None	None	RIGID	Typical
47	M47	N94	N93			RIGID	None	None	RIGID	Typical
48	M48	N94A	N95A			SF-T	Beam	Pipe	A53 Gr.B	Typical
49	M49	N101	N100			RIGID	None	None	RIGID	Typical
50	M50	N103	N102			RIGID	None	None	RIGID	Typical
51	M51	N105	N104			RIGID	None	None	RIGID	Typical
52	M52	N106	N99			RIGID	None	None	RIGID	Typical
53	M53	N97	N98			ADD HR	Beam	Pipe	A53 Gr.B	Typical
54	M54	N107	N96			s kit	Beam	Single Angle	A36 Gr.36	Typical
55	M55	N96	N108			s kit	Beam	Single Angle	A36 Gr.36	Typical
56	M56	N109	N110			s kit	Beam	Single Angle	A36 Gr.36	Typical
57	M57	N110	N111			s kit	Beam	Single Angle	A36 Gr.36	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Dead	DL		-1			15			
2	0 Wind - No Ice	WLZ					15	35		
3	90 Wind - No Ice	WLX					15	35		
4	0 Wind - Ice	WLZ					15	35		
5	90 Wind - Ice	WLX					15	35		
6	0 Wind - Service	WLZ					15	35		
7	90 Wind - Service	WLX					15	35		
8	Ice	OL1					15	35		
9	Live Load a	LL				1				
10	Live Load b	LL				1				
11	Live Load c	LL				1				
12	Live Load d	LL				1				
13	Maint LL 1	LL					1			
14	Maint LL 2	LL					1			
15	Maint LL 3	LL					1			
16	Maint LL 4	LL					1			
17	Maint LL 5	LL					1			
18	Maint LL 6	LL					1			

Load Combinations

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
1	1.4 Dead	Yes	Y		1	1.4																		
2	1.2 D + 1.0 - 0 W	Yes	Y		1	1.2	2	1																
3	1.2 D + 1.0 - 30 W	Yes	Y		1	1.2	2	.866	3	.5														
4	1.2 D + 1.0 - 60 W	Yes	Y		1	1.2	3	.866	2	.5														
5	1.2 D + 1.0 - 90 W	Yes	Y		1	1.2	3	1																
6	1.2 D + 1.0 - 120 ...	Yes	Y		1	1.2	3	.866	2	-.5														
7	1.2 D + 1.0 - 150 ...	Yes	Y		1	1.2	2	-.866	3	.5														

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
8	1.2 D + 1.0 - 180 ...	Yes	Y		1	1.2	2	-1																		
9	1.2 D + 1.0 - 210 ...	Yes	Y		1	1.2	2	-.866	3	-.5																
10	1.2 D + 1.0 - 240 ...	Yes	Y		1	1.2	3	-.866	2	-.5																
11	1.2 D + 1.0 - 270 ...	Yes	Y		1	1.2	3	-1																		
12	1.2 D + 1.0 - 300 ...	Yes	Y		1	1.2	3	-.866	2	.5																
13	1.2 D + 1.0 - 330 ...	Yes	Y		1	1.2	2	.866	3	-.5																
14	1.2 D + 1.0 - 0 W/...	Yes	Y		1	1.2	4	1			8	1														
15	1.2 D + 1.0 - 30 ...	Yes	Y		1	1.2	4	.866	5	.5	8	1														
16	1.2 D + 1.0 - 60 ...	Yes	Y		1	1.2	5	.866	4	.5	8	1														
17	1.2 D + 1.0 - 90 ...	Yes	Y		1	1.2	5	1			8	1														
18	1.2 D + 1.0 - 120 ...	Yes	Y		1	1.2	5	.866	4	-.5	8	1														
19	1.2 D + 1.0 - 150 ...	Yes	Y		1	1.2	4	-.866	5	.5	8	1														
20	1.2 D + 1.0 - 180 ...	Yes	Y		1	1.2	4	-1			8	1														
21	1.2 D + 1.0 - 210 ...	Yes	Y		1	1.2	4	-.866	5	-.5	8	1														
22	1.2 D + 1.0 - 240 ...	Yes	Y		1	1.2	5	-.866	4	-.5	8	1														
23	1.2 D + 1.0 - 270 ...	Yes	Y		1	1.2	5	-1			8	1														
24	1.2 D + 1.0 - 300 ...	Yes	Y		1	1.2	5	-.866	4	.5	8	1														
25	1.2 D + 1.0 - 330 ...	Yes	Y		1	1.2	4	.866	5	-.5	8	1														
26	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	6	1			9	1.5														
27	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	6	.866	7	.5	9	1.5														
28	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	7	.866	6	.5	9	1.5														
29	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	7	1			9	1.5														
30	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	7	.866	6	-.5	9	1.5														
31	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	6	-.866	7	.5	9	1.5														
32	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	6	-1			9	1.5														
33	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	6	-.866	7	-.5	9	1.5														
34	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	7	-.866	6	-.5	9	1.5														
35	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	7	-1			9	1.5														
36	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	7	-.866	6	.5	9	1.5														
37	1.2 D + 1.5 LL a ...	Yes	Y		1	1.2	6	.866	7	-.5	9	1.5														
38	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	6	1			10	1.5														
39	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	6	.866	7	.5	10	1.5														
40	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	7	.866	6	.5	10	1.5														
41	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	7	1			10	1.5														
42	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	7	.866	6	-.5	10	1.5														
43	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	6	-.866	7	.5	10	1.5														
44	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	6	-1			10	1.5														
45	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	6	-.866	7	-.5	10	1.5														
46	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	7	-.866	6	-.5	10	1.5														
47	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	7	-1			10	1.5														
48	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	7	-.866	6	.5	10	1.5														
49	1.2 D + 1.5 LL b ...	Yes	Y		1	1.2	6	.866	7	-.5	10	1.5														
50	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	6	1			11	1.5														
51	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	6	.866	7	.5	11	1.5														
52	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	7	.866	6	.5	11	1.5														
53	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	7	1			11	1.5														
54	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	7	.866	6	-.5	11	1.5														
55	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	6	-.866	7	.5	11	1.5														
56	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	6	-1			11	1.5														
57	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	6	-.866	7	-.5	11	1.5														
58	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	7	-.866	6	-.5	11	1.5														
59	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	7	-1			11	1.5														
60	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	7	-.866	6	.5	11	1.5														
61	1.2 D + 1.5 LL c +...	Yes	Y		1	1.2	6	.866	7	-.5	11	1.5														
62	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	6	1			12	1.5														
63	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	6	.866	7	.5	12	1.5														
64	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	7	.866	6	.5	12	1.5														

Load Combinations (Continued)

	Description	So...	P...	S...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...	BLC	Fac...
65	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	7	1			12	1.5														
66	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	7	.866	6	-.5	12	1.5														
67	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	6	-.866	7	.5	12	1.5														
68	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	6	-1			12	1.5														
69	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	6	-.866	7	-.5	12	1.5														
70	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	7	-.866	6	-.5	12	1.5														
71	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	7	-1			12	1.5														
72	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	7	-.866	6	.5	12	1.5														
73	1.2 D + 1.5 LL d ...	Yes	Y		1	1.2	6	.866	7	-.5	12	1.5														
74	1.2 D + 1.5 LL M...	Yes	Y		1	1.2					13	1.5														
75	1.2 D + 1.5 LL M...	Yes	Y		1	1.2					14	1.5														
76	1.2 D + 1.5 LL M...	Yes	Y		1	1.2					15	1.5														
77	1.2 D + 1.5 LL M...	Yes	Y		1	1.2					16	1.5														
78	1.2 D + 1.5 LL M...	Yes	Y		1	1.2					17	1.5														
79	1.2 D + 1.5 LL M...	Yes	Y		1	1.2					18	1.5														

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	Y	-.014	%10
2	M17	Y	-.014	%90
3	M17	Y	-.028	%50
4	M17	Y	0	0
5	M17	Y	0	0
6	M11	Y	-.049	%5
7	M11	Y	-.049	%95
8	M11	Y	-.071	%50
9	M11	Y	-.072	%50
10	M11	Y	0	0
11	M45	Y	-.029	%5
12	M45	Y	-.029	%95
13	M45	Y	-.014	%50
14	M45	Y	0	0
15	M45	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	Z	-.151	%10
2	M17	Z	-.151	%90
3	M17	Z	-.103	%50
4	M17	Z	0	0
5	M17	Z	0	0
6	M11	Z	-.322	%5
7	M11	Z	-.322	%95
8	M11	Z	-.092	%50
9	M11	Z	-.076	%50
10	M11	Z	0	0
11	M45	Z	-.183	%5
12	M45	Z	-.183	%95
13	M45	Z	-.028	%50
14	M45	Z	0	0
15	M45	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	X	-.081	%10
2	M17	X	-.081	%90
3	M17	X	-.032	%50
4	M17	X	0	0
5	M17	X	0	0
6	M11	X	-.136	%5
7	M11	X	-.136	%95
8	M11	X	-.066	%50
9	M11	X	-.063	%50
10	M11	X	0	0
11	M45	X	-.14	%5
12	M45	X	-.14	%95
13	M45	X	-.015	%50
14	M45	X	0	0
15	M45	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	Z	-.025	%10
2	M17	Z	-.025	%90
3	M17	Z	-.017	%50
4	M17	Z	0	0
5	M17	Z	0	0
6	M11	Z	-.053	%5
7	M11	Z	-.053	%95
8	M11	Z	-.015	%50
9	M11	Z	-.013	%50
10	M11	Z	0	0
11	M45	Z	-.03	%5
12	M45	Z	-.03	%95
13	M45	Z	-.005	%50
14	M45	Z	0	0
15	M45	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	X	-.013	%10
2	M17	X	-.013	%90
3	M17	X	-.005	%50
4	M17	X	0	0
5	M17	X	0	0
6	M11	X	-.022	%5
7	M11	X	-.022	%95
8	M11	X	-.011	%50
9	M11	X	-.01	%50
10	M11	X	0	0
11	M45	X	-.023	%5
12	M45	X	-.023	%95
13	M45	X	-.003	%50
14	M45	X	0	0
15	M45	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	Z	-.009	%10

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
2	M17	Z	-.009	%90
3	M17	Z	-.006	%50
4	M17	Z	0	0
5	M17	Z	0	0
6	M11	Z	-.019	%5
7	M11	Z	-.019	%95
8	M11	Z	-.005	%50
9	M11	Z	-.004	%50
10	M11	Z	0	0
11	M45	Z	-.011	%5
12	M45	Z	-.011	%95
13	M45	Z	-.002	%50
14	M45	Z	0	0
15	M45	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	X	-.005	%10
2	M17	X	-.005	%90
3	M17	X	-.002	%50
4	M17	X	0	0
5	M17	X	0	0
6	M11	X	-.008	%5
7	M11	X	-.008	%95
8	M11	X	-.004	%50
9	M11	X	-.004	%50
10	M11	X	0	0
11	M45	X	-.008	%5
12	M45	X	-.008	%95
13	M45	X	-.0009	%50
14	M45	X	0	0
15	M45	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M17	Y	-.051	%10
2	M17	Y	-.051	%90
3	M17	Y	-.037	%50
4	M17	Y	0	0
5	M17	Y	0	0
6	M11	Y	-.106	%5
7	M11	Y	-.106	%95
8	M11	Y	-.038	%50
9	M11	Y	-.033	%50
10	M11	Y	0	0
11	M45	Y	-.067	%5
12	M45	Y	-.067	%95
13	M45	Y	-.011	%50
14	M45	Y	0	0
15	M45	Y	0	0

Member Point Loads (BLC 13 : Maint LL 1)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M4	Y	-.25	%5

Member Point Loads (BLC 14 : Maint LL 2)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M2	Y	-.25	%5

Member Point Loads (BLC 15 : Maint LL 3)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M20	Y	-.25	%50

Member Point Loads (BLC 16 : Maint LL 4)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M21	Y	-.25	%50

Member Point Loads (BLC 17 : Maint LL 5)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M3	Y	-.25	%95

Member Point Loads (BLC 18 : Maint LL 6)

	Member Label	Direction	Magnitude[k,k-ft]	Location[in,%]
1	M1	Y	-.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.011	-.011	0	0
2	M2	Z	-.011	-.011	0	0
3	M3	Z	-.011	-.011	0	0
4	M4	Z	-.011	-.011	0	0
5	M8	Z	-.011	-.011	0	0
6	M11	Z	-.011	-.011	0	0
7	M14	Z	-.011	-.011	0	0
8	M17	Z	-.011	-.011	0	0
9	M20	Z	-.01	-.01	0	0
10	M21	Z	-.01	-.01	0	0
11	M22	Z	-.005	-.005	0	0
12	M23	Z	-.005	-.005	0	0
13	M24	Z	-.003	-.003	0	0
14	M25	Z	-.003	-.003	0	0
15	M26	Z	-.005	-.005	0	0
16	M27	Z	-.005	-.005	0	0
17	M28	Z	-.005	-.005	0	0
18	M29	Z	-.005	-.005	0	0
19	M30	Z	-.005	-.005	0	0
20	M31	Z	-.009	-.009	0	0
21	M34	Z	-.019	-.019	0	0
22	M35	Z	-.019	-.019	0	0
23	M38	Z	-.009	-.009	0	0
24	M39	Z	-.009	-.009	0	0
25	M40	Z	-.009	-.009	0	0
26	M41	Z	-.009	-.009	0	0
27	M42	Z	-.009	-.009	0	0
28	M42A	Z	-.011	-.011	0	0
29	M45	Z	-.011	-.011	0	0
30	M48	Z	-.011	-.011	0	0
31	M53	Z	-.013	-.013	0	0
32	M54	Z	-.019	-.019	0	0
33	M55	Z	-.018	-.018	0	0

Member Distributed Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
34	M56	Z	-.019	-.019	0	0
35	M57	Z	-.019	-.019	0	0

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	X	-.011	-.011	0	0
2	M2	X	-.011	-.011	0	0
3	M3	X	-.011	-.011	0	0
4	M4	X	-.011	-.011	0	0
5	M8	X	-.011	-.011	0	0
6	M11	X	-.011	-.011	0	0
7	M14	X	-.011	-.011	0	0
8	M17	X	-.011	-.011	0	0
9	M20	X	-.01	-.01	0	0
10	M21	X	-.01	-.01	0	0
11	M22	X	-.005	-.005	0	0
12	M23	X	-.005	-.005	0	0
13	M24	X	-.003	-.003	0	0
14	M25	X	-.003	-.003	0	0
15	M26	X	-.005	-.005	0	0
16	M27	X	-.005	-.005	0	0
17	M28	X	-.005	-.005	0	0
18	M29	X	-.005	-.005	0	0
19	M30	X	-.005	-.005	0	0
20	M31	X	-.009	-.009	0	0
21	M34	X	-.019	-.019	0	0
22	M35	X	-.019	-.019	0	0
23	M38	X	-.009	-.009	0	0
24	M39	X	-.009	-.009	0	0
25	M40	X	-.009	-.009	0	0
26	M41	X	-.009	-.009	0	0
27	M42	X	-.009	-.009	0	0
28	M42A	X	-.011	-.011	0	0
29	M45	X	-.011	-.011	0	0
30	M48	X	-.011	-.011	0	0
31	M53	X	-.013	-.013	0	0
32	M54	X	-.019	-.019	0	0
33	M55	X	-.018	-.018	0	0
34	M56	X	-.019	-.019	0	0
35	M57	X	-.019	-.019	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.002	-.002	0	0
2	M2	Z	-.002	-.002	0	0
3	M3	Z	-.002	-.002	0	0
4	M4	Z	-.002	-.002	0	0
5	M8	Z	-.002	-.002	0	0
6	M11	Z	-.002	-.002	0	0
7	M14	Z	-.002	-.002	0	0
8	M17	Z	-.002	-.002	0	0
9	M20	Z	-.003	-.003	0	0
10	M21	Z	-.003	-.003	0	0
11	M22	Z	-.002	-.002	0	0
12	M23	Z	-.002	-.002	0	0
13	M24	Z	-.002	-.002	0	0

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
14	M25	Z	-.002	-.002	0	0
15	M26	Z	-.002	-.002	0	0
16	M27	Z	-.002	-.002	0	0
17	M28	Z	-.002	-.002	0	0
18	M29	Z	-.002	-.002	0	0
19	M30	Z	-.002	-.002	0	0
20	M31	Z	-.003	-.003	0	0
21	M34	Z	-.006	-.006	0	0
22	M35	Z	-.006	-.006	0	0
23	M38	Z	-.006	-.006	0	0
24	M39	Z	-.006	-.006	0	0
25	M40	Z	-.006	-.006	0	0
26	M41	Z	-.006	-.006	0	0
27	M42	Z	-.002	-.002	0	0
28	M42A	Z	-.002	-.002	0	0
29	M45	Z	-.002	-.002	0	0
30	M48	Z	-.002	-.002	0	0
31	M53	Z	-.002	-.002	0	0
32	M54	Z	-.006	-.006	0	0
33	M55	Z	-.006	-.006	0	0
34	M56	Z	-.006	-.006	0	0
35	M57	Z	-.006	-.006	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	X	-.002	-.002	0	0
2	M2	X	-.002	-.002	0	0
3	M3	X	-.002	-.002	0	0
4	M4	X	-.002	-.002	0	0
5	M8	X	-.002	-.002	0	0
6	M11	X	-.002	-.002	0	0
7	M14	X	-.002	-.002	0	0
8	M17	X	-.002	-.002	0	0
9	M20	X	-.003	-.003	0	0
10	M21	X	-.003	-.003	0	0
11	M22	X	-.002	-.002	0	0
12	M23	X	-.002	-.002	0	0
13	M24	X	-.002	-.002	0	0
14	M25	X	-.002	-.002	0	0
15	M26	X	-.002	-.002	0	0
16	M27	X	-.002	-.002	0	0
17	M28	X	-.002	-.002	0	0
18	M29	X	-.002	-.002	0	0
19	M30	X	-.002	-.002	0	0
20	M31	X	-.003	-.003	0	0
21	M34	X	-.006	-.006	0	0
22	M35	X	-.006	-.006	0	0
23	M38	X	-.006	-.006	0	0
24	M39	X	-.006	-.006	0	0
25	M40	X	-.006	-.006	0	0
26	M41	X	-.006	-.006	0	0
27	M42	X	-.002	-.002	0	0
28	M42A	X	-.002	-.002	0	0
29	M45	X	-.002	-.002	0	0
30	M48	X	-.002	-.002	0	0
31	M53	X	-.002	-.002	0	0

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
32	M54	X	-.006	-.006	0	0
33	M55	X	-.006	-.006	0	0
34	M56	X	-.006	-.006	0	0
35	M57	X	-.006	-.006	0	0

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	Z	-.0003	-.0003	0	0
2	M2	Z	-.0003	-.0003	0	0
3	M3	Z	-.0003	-.0003	0	0
4	M4	Z	-.0003	-.0003	0	0
5	M8	Z	-.0003	-.0003	0	0
6	M11	Z	-.0003	-.0003	0	0
7	M14	Z	-.0003	-.0003	0	0
8	M17	Z	-.0003	-.0003	0	0
9	M20	Z	-.0006	-.0006	0	0
10	M21	Z	-.0006	-.0006	0	0
11	M22	Z	-.0001	-.0001	0	0
12	M23	Z	-.0001	-.0001	0	0
13	M24	Z	-.0001	-.0001	0	0
14	M25	Z	-.0001	-.0001	0	0
15	M26	Z	-.0001	-.0001	0	0
16	M27	Z	-.0001	-.0001	0	0
17	M28	Z	-.0001	-.0001	0	0
18	M29	Z	-.0001	-.0001	0	0
19	M30	Z	-.0001	-.0001	0	0
20	M31	Z	-.0006	-.0006	0	0
21	M34	Z	-.001	-.001	0	0
22	M35	Z	-.001	-.001	0	0
23	M38	Z	-.0006	-.0006	0	0
24	M39	Z	-.0006	-.0006	0	0
25	M40	Z	-.0006	-.0006	0	0
26	M41	Z	-.0006	-.0006	0	0
27	M42	Z	-.0003	-.0003	0	0
28	M42A	Z	-.0003	-.0003	0	0
29	M45	Z	-.0003	-.0003	0	0
30	M48	Z	-.0003	-.0003	0	0
31	M53	Z	-.0004	-.0004	0	0
32	M54	Z	-.001	-.001	0	0
33	M55	Z	-.001	-.001	0	0
34	M56	Z	-.001	-.001	0	0
35	M57	Z	-.001	-.001	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	X	-.0003	-.0003	0	0
2	M2	X	-.0003	-.0003	0	0
3	M3	X	-.0003	-.0003	0	0
4	M4	X	-.0003	-.0003	0	0
5	M8	X	-.0003	-.0003	0	0
6	M11	X	-.0003	-.0003	0	0
7	M14	X	-.0003	-.0003	0	0
8	M17	X	-.0003	-.0003	0	0
9	M20	X	-.0006	-.0006	0	0
10	M21	X	-.0006	-.0006	0	0
11	M22	X	-.0001	-.0001	0	0

Member Distributed Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
12	M23	X	-.0001	-.0001	0	0
13	M24	X	-.0001	-.0001	0	0
14	M25	X	-.0001	-.0001	0	0
15	M26	X	-.0001	-.0001	0	0
16	M27	X	-.0001	-.0001	0	0
17	M28	X	-.0001	-.0001	0	0
18	M29	X	-.0001	-.0001	0	0
19	M30	X	-.0001	-.0001	0	0
20	M31	X	-.0006	-.0006	0	0
21	M34	X	-.001	-.001	0	0
22	M35	X	-.001	-.001	0	0
23	M38	X	-.0006	-.0006	0	0
24	M39	X	-.0006	-.0006	0	0
25	M40	X	-.0006	-.0006	0	0
26	M41	X	-.0006	-.0006	0	0
27	M42	X	-.0003	-.0003	0	0
28	M42A	X	-.0003	-.0003	0	0
29	M45	X	-.0003	-.0003	0	0
30	M48	X	-.0003	-.0003	0	0
31	M53	X	-.0004	-.0004	0	0
32	M54	X	-.001	-.001	0	0
33	M55	X	-.001	-.001	0	0
34	M56	X	-.001	-.001	0	0
35	M57	X	-.001	-.001	0	0

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
1	M1	Y	-.005	-.005	0	0
2	M2	Y	-.005	-.005	0	0
3	M3	Y	-.005	-.005	0	0
4	M4	Y	-.005	-.005	0	0
5	M8	Y	-.005	-.005	0	0
6	M11	Y	-.005	-.005	0	0
7	M14	Y	-.005	-.005	0	0
8	M17	Y	-.005	-.005	0	0
9	M20	Y	-.008	-.008	0	0
10	M21	Y	-.008	-.008	0	0
11	M22	Y	-.003	-.003	0	0
12	M23	Y	-.003	-.003	0	0
13	M24	Y	-.003	-.003	0	0
14	M25	Y	-.003	-.003	0	0
15	M26	Y	-.003	-.003	0	0
16	M27	Y	-.003	-.003	0	0
17	M28	Y	-.003	-.003	0	0
18	M29	Y	-.003	-.003	0	0
19	M30	Y	-.003	-.003	0	0
20	M31	Y	-.008	-.008	0	0
21	M34	Y	-.007	-.007	0	0
22	M35	Y	-.007	-.007	0	0
23	M38	Y	-.005	-.005	0	0
24	M39	Y	-.005	-.005	0	0
25	M40	Y	-.005	-.005	0	0
26	M41	Y	-.005	-.005	0	0
27	M42	Y	-.004	-.004	0	0
28	M42A	Y	-.005	-.005	0	0
29	M45	Y	-.005	-.005	0	0

Member Distributed Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F,...	Start Location[in,%]	End Location[in,%]
30	M48	Y	-.005	-.005	0	0
31	M53	Y	-.006	-.006	0	0
32	M54	Y	-.007	-.007	0	0
33	M55	Y	-.007	-.007	0	0
34	M56	Y	-.007	-.007	0	0
35	M57	Y	-.007	-.007	0	0

Joint Loads and Enforced Displacements (BLC 9 : Live Load a)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N8	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 10 : Live Load b)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N14	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 11 : Live Load c)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N20	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 12 : Live Load d)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/i...
1	N26	L	Y	-.5

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N69	max	.051	11	.307	10	.958	4	0	79	0	79	0	79
2		min	-.081	5	-.032	4	-1.173	10	0	1	0	1	0	1
3	N71	max	.959	5	.312	17	.127	12	0	79	0	79	0	79
4		min	-.956	11	-.037	11	-.168	6	0	1	0	1	0	1
5	N74	max	.218	11	.34	16	.774	4	0	79	0	79	0	79
6		min	-.125	5	.071	11	-.308	10	0	1	0	1	0	1
7	N73	max	1.017	4	.343	10	.372	11	0	79	0	79	0	79
8		min	-1.156	11	-.063	4	-.228	5	0	1	0	1	0	1
9	N77	max	.336	9	.025	21	.508	3	0	79	0	79	0	79
10		min	-.311	3	.012	2	-.556	9	0	1	0	1	0	1
11	N95A	max	.149	12	.03	17	1.426	12	0	79	0	79	0	79
12		min	-.114	6	.012	11	-1.229	6	0	1	0	1	0	1
13	N96	max	.965	6	.054	20	2.169	2	0	79	0	79	0	79
14		min	-1.471	36	.015	63	-1.433	8	0	1	0	1	0	1
15	N110	max	1.649	27	1.45	15	-.519	9	0	79	0	79	0	79
16		min	-.585	69	.455	9	-1.376	18	0	1	0	1	0	1
17	Totals:	max	2.756	5	2.682	17	3.476	2						
18		min	-2.756	11	1.241	11	-3.476	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code ...	Loc[in]	LC	She...	Loc[in]	...	...	phi*P...	phi*P...	phi*M...	phi*M.....		Eqn
1	M1	PIPE_2.0	.273	18	9	.158	40.5		10	25.204	32.13	1.872	1.872	...	H1-1b
2	M2	PIPE_2.0	.480	18.75	10	.161	18.75		9	16.369	32.13	1.872	1.872	...	H1-1b
3	M3	PIPE_2.0	.249	2.25	31	.137	47.813		10	25.204	32.13	1.872	1.872	...	H1-1b
4	M4	PIPE_2.0	.523	18.75	5	.259	17.813		4	16.369	32.13	1.872	1.872	...	H1-1b
5	M8	PIPE_2.0	.329	42.75	5	.131	42.75		70	12.144	32.13	1.872	1.872	...	H1-1b

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code ...	Loc[in]	LC	She...	Loc[in]	...	...	phi*P...	phi*P...	phi*M...	phi*M...	...	Eqn
6	M11	PIPE_2.0	.315	42.875	11	.261	42.875		11	17.855	32.13	1.872	1.872	...	H3-6
7	M14	PIPE_2.0	.291	14	70	.158	72.625		5	17.855	32.13	1.872	1.872	...	H1-1b
8	M17	PIPE_2.0	.116	17.25	9	.043	17.25		3	20.867	32.13	1.872	1.872	...	H1-1b
9	M20	PIPE_3.5	.252	43.5	10	.073	43.5		10	74.643	78.75	7.954	7.954	...	H1-1b
10	M21	PIPE_3.5	.245	43.5	11	.070	43.5		4	74.643	78.75	7.954	7.954	...	H1-1b
11	M22	SR_1"	.004	0	10	.022	0		69	11.923	25.447	.424	.424	...	H1-...
12	M23	SR_1"	.014	0	9	.007	0		73	11.923	25.447	.424	.424	...	H1-...
13	M24	SR_5/8"	.000	0	79	.018	43.5		11	.894	9.94	.104	.104	...	H1-1a
14	M25	SR_5/8"	.106	0	21	.017	0		11	.894	9.94	.104	.104	...	H1-...
15	M26	SR_1"	.006	0	12	.029	30		10	11.923	25.447	.424	.424	...	H1-...
16	M27	SR_1"	.008	0	11	.053	0		10	11.923	25.447	.424	.424	...	H1-...
17	M28	SR_1"	.005	0	79	.070	30		10	11.923	25.447	.424	.424	...	H1-...
18	M29	SR_1"	.016	0	6	.045	0		7	11.923	25.447	.424	.424	...	H1-...
19	M30	SR_1"	.015	0	4	.064	0		11	11.923	25.447	.424	.424	...	H1-...
20	M31	PIPE_4.0	.186	25	10	.260	8.333		10	80.883	93.24	10.631	10.631	...	H3-6
21	M34	HSS2.5X2.5X3	.416	30	10	.072	30	z	10	48.367	63.756	4.554	4.554	...	H1-1b
22	M35	HSS2.5X2.5X3	.491	30	11	.082	50.625	z	11	48.367	63.756	4.554	4.554	...	H1-1b
23	M38	PL1/2X2	.644	0	10	.040	3	z	10	31.671	32.4	.338	1.35	...	H1-1b
24	M39	PL1/2X2	.503	0	4	.032	3	z	10	31.671	32.4	.338	1.35	...	H1-1b
25	M40	PL1/2X2	.414	0	15	.026	3	y	16	31.671	32.4	.338	1.35	...	H1-1b
26	M41	PL1/2X2	.528	0	10	.031	3	z	10	31.671	32.4	.338	1.35	...	H1-1b
27	M42	PIPE 1.88X0.17	.059	39	4	.004	0		10	12.375	28.768	1.309	1.309	...	H1-1b
28	M42A	PIPE_2.0	.347	14	29	.111	72.625		10	17.855	32.13	1.872	1.872	...	H1-1b
29	M45	PIPE_2.0	.112	16.5	8	.050	17.25		9	20.867	32.13	1.872	1.872	...	H1-1b
30	M48	PIPE_2.0	.073	77.438	12	.004	0		11	19.502	32.13	1.872	1.872	...	H1-...
31	M53	PIPE_2.5	.366	109.688	64	.179	135		3	12.482	50.715	3.596	3.596	...	H1-1b
32	M54	L2.5x2.5x3	.315	71.88	2	.017	71.88	z	4	9.152	29.192	.873	1.829	...	H2-1
33	M55	L2.5x2.5x3	.184	0	3	.019	0	y	70	15.878	29.192	.873	1.846	...	H2-1
34	M56	L2.5x2.5x3	.128	32.937	3	.012	71.863	z	4	9.157	29.192	.873	1.735	...	H2-1
35	M57	L2.5x2.5x3	.076	26.134	14	.010	52.268	y	3	15.719	29.192	.873	1.671	...	H2-1

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

	Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pn[k]	phi*Tn[k]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn
1	M43	P1000	.313	6	27	.069	6	y	29	6.765	15.362	.403	.676	2.36	4.72	1.551	H1.2-1
2	M44	P1000	.225	6.175	30	.052	6.175	y	29	7.07	15.362	.432	.676	2.36	4.72	1.646	H1.1-1

APPENDIX B

(Modification Drawings)

MI CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
		PRE-CONSTRUCTION
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
N/A	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ASSEMBLY DRAWINGS	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE, PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	A VISUAL OBSERVATION BY CWI OF A PORTION OF WELDING ON THE PROPOSED STRUCTURAL MEMBERS IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL AS SPECIFIED IN THE MODIFICATION DRAWINGS AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	FABRICATOR NDE INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
		CONSTRUCTION (PERFORMED BY CONTRACTOR)
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS. A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
N/A	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED AS SPECIFIED IN THE MODIFICATION DRAWINGS.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
		POST-CONSTRUCTION
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
ADDITIONAL TESTING AND INSPECTIONS:		
NOTE: X DENOTES A DOCUMENT NEEDED FOR THE MI REPORT AND N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT		

MODIFICATION INSPECTION NOTES:

GENERAL

THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT B+T GROUP.

MI INSPECTOR

THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ONSITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS

THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT.

GENERAL CONTRACTOR

THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
- WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE MI INSPECTIONS
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS

THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST.

RECOMMENDATIONS

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

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

CANCELLATION OR DELAYS IN SCHEDULED MI

IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CARRIER SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CARRIER CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

CORRECTION OF FAILING MI'S

IF THE MODIFICATION INSPECTOR FAILS THE MI ("FAILED MI"), THE GC SHALL WORK WITH CARRIER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

- CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
- OR, WITH CARRIER'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION
- THE ADDITIONAL COST INCURRED IN THE SECOND SUPERVISION PROCESS WOULD BE BORNE BY THE GENERAL CONTRACTOR.

MI VERIFICATION INSPECTIONS

CARRIER RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS.

VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.

REQUIRED PHOTOS

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

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

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

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T

CTI TOWERS

EAST HADDAM-
126 PARKER ROAD

126 PARKER ROAD
EAST HADDAM, CT 06423
MIDDLESEX

EXISTING T-ARM
AT 180'-6"

PROJECT NO:	135097.004.01
CHECKED BY:	RP

ISSUED FOR:

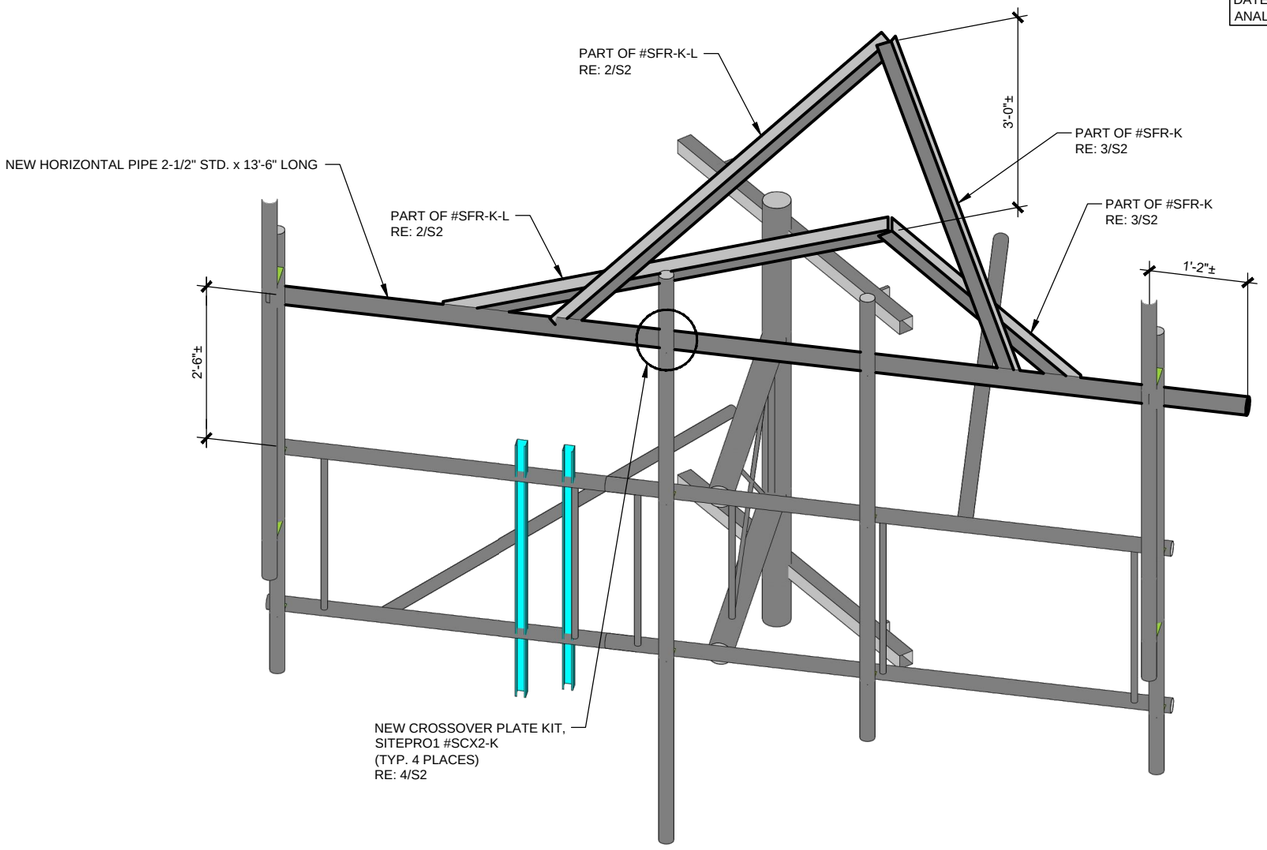
REV	DATE	DRWN	DESCRIPTION
0	05/24/19	PMS	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

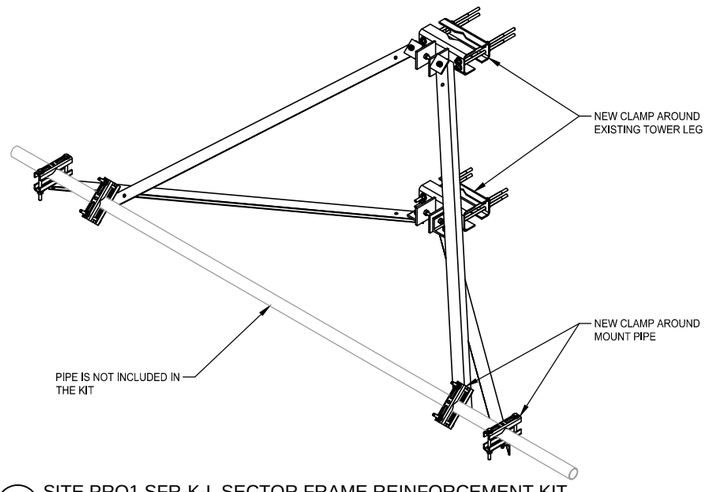
STATE OF CONNECTICUT
SCOTT M. SWANCE
31627
LICENSED
PROFESSIONAL ENGINEER
5/24/19

SHEET NUMBER:	REVISION:
S1	0

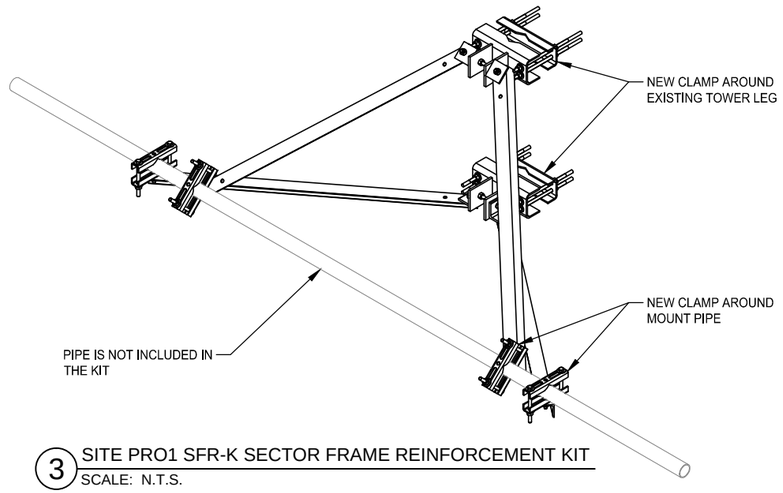
MODIFICATIONS BASED ON THE FAILING STRUCTURAL ANALYSIS FROM B+T GROUP DATED 05/17/19 AND ACCOMPANIED BY ANALYSIS FROM B+T GROUP DATED 05/24/19



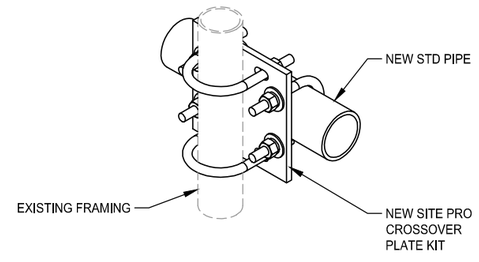
1 MODIFIED T-ARM MOUNT (TYP. ALL SECTORS)
SCALE: N.T.S.



2 SITE PRO1 SFR-K-L SECTOR FRAME REINFORCEMENT KIT
SCALE: N.T.S.



3 SITE PRO1 SFR-K SECTOR FRAME REINFORCEMENT KIT
SCALE: N.T.S.



4 SITE PRO1 SCX2-K CROSSOVER PLATE KIT
SCALE: N.T.S.

GENERAL NOTES

1.1 CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE MOBILIZING ON THE SITE FOR INSTALLATION OF THE MOUNT MODIFICATION AND SHALL NOTIFY THE ENGINEER OF RECORD IF THE FIELD CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS. IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD PRIOR TO MOBILIZING AT THE SITE IF THE MOUNT REINFORCEMENT SHOWN WILL NEED TO BE REVISED TO SATISFY FIELD CONDITIONS

1.2 CONTRACTOR SHALL RELOCATE NON-ANTENNA EQUIPMENT ALONG THE EXISTING PIPE MOUNT THAT IT IS MOUNTED TO, TO ALLOW FOR INSTALLATION OF MOUNT REINFORCEMENT. ENGINEER OF RECORD WILL BE NOTIFIED IF NON-ANTENNA EQUIPMENT NEEDS TO BE RELOCATED TO ANY OTHER EXISTING MEMBERS TO ALLOW FOR INSTALLATION OF MOUNT MODIFICATION.

1.3 MODIFICATION SHALL BE COMPLETED PRIOR TO ADDING THE PROPOSED APPURTENANCES.

1.4 ALL WORK SHALL COMPLY WITH THE TIA-222-H STANDARD, TIA-1019-A STANDARD, AS WELL AS ANY OTHER GOVERNING BUILDING CODES.

1.5 FIELD WORK WILL BE DONE AROUND EXISTING COAXIAL CABLE AND EQUIPMENT. ALL WORK SHALL BE DONE IN A MANNER SUCH THAT NO DAMAGE OCCURS TO THE EXISTING EQUIPMENT OR THE STRUCTURE.

1.6 A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND (OR APPROVED EQUIVALENT) SHALL BE APPLIED TO ANY FIELD CUTS OR FIELD DRILLED HOLES.

1.7 THE USE OF A GAS TORCH OR WELDER WILL NOT BE PERMITTED ON THE TOWER WITHOUT THE CONSENT OF THE OWNER.

1.8 ALL FIELD CONNECTIONS SHALL BE MADE WITH A325N BOLTS, U.N.O.

1.9 IN LIEU OF TEMPORARY BRACING, CONTRACTOR MAY HAVE A STABILITY ANALYSIS PERFORMED BY AN ENGINEER LICENSED IN THE STATE THE TOWER IS LOCATED. THE ANALYSIS SHALL USE A MINIMUM WIND SPEED OF 45 mph (3-SEC) PER TIA-1019.

1.10 ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CCUSA POLICY "CUTTING AND WELDING PLAN" (DOC #ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT.

1.11 DIMENSIONS WITH "±" MUST BE WITHIN 3" OF THE INDICATED DIMENSION.

FABRICATION

2.1 ALL WORK SHALL BE DONE IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."

2.2 STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

	YIELD	ASTM SPECS
STEEL PIPE, U.N.O.	35ksi	A53 GR.B

2.3 ALL NEW MATERIAL INCLUDING STRUCTURAL STEEL AND FASTENERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 AND A153.

2.4 WELDING SHALL MEET ANSI/AWS D1.1 STRUCTURAL WELDING CODE (LATEST REVISION). ELECTRODES SHALL BE E80 SERIES.

2.5 CONTRACTOR SHALL PROVIDE SHOP FABRICATION DRAWINGS TO B+T GROUP 5 DAYS PRIOR TO FABRICATION.

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EXISTING T-ARM
AT 180'-6"

PROJECT NO:	135097.004.01
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ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	05/24/19	PMS	CONSTRUCTION

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

STATE OF CONNECTICUT
SCOTT M. SHELLENBERGER
31627
LICENSED
PROFESSIONAL ENGINEER
5/24/19

SHEET NUMBER: S2

REVISION: 0

126 PARKER RD

Location	126 PARKER RD	**Mblu**	M29/ / L020/ /
Acct#	00094600	**Owner**	ERLANDSON BRIDGET & SCOTT
Assessment	$384,200	**Appraisal**	$562,960
PID	1113	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$433,200	$129,760	$562,960
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$303,240	$80,960	$384,200

Owner of Record

Owner	ERLANDSON BRIDGET & SCOTT	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	126 PARKER RD EAST HADDAM, CT 06423	**Book & Page**	960/ 164
		Sale Date	03/31/2014
		Instrument	28

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
ERLANDSON BRIDGET & SCOTT	$0		960/ 164	28	03/31/2014
ERLANDSON BRIDGET & SCOTT	$0		960/ 161	28	03/31/2014
DEAN PETER W & ERLANDSON BRIDGET	$0		960/ 159	00	03/31/2014
DEAN PETER W & ERLANDSON BRIDGET	$0		927/ 069	00	12/10/2012
DEAN PETER W	$0		699/ 317	29	06/06/2005

Building Information

Building 1 : Section 1

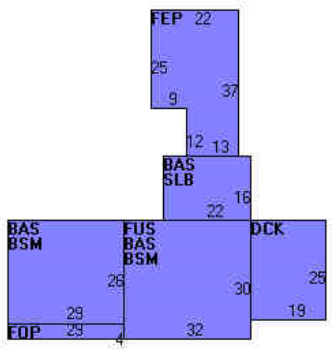
Year Built:	1790
Living Area:	3,026
Replacement Cost:	$467,977
Building Percent Good:	64
Replacement Cost Less Depreciation:	$299,500

Building Attributes	
Field	**Description**
Style	Colonial
Model	Residential
Grade:	A-
Stories	2.00
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Arch Shingles
Interior Wall 1	Drywall
Interior Wall 2	Plaster
Interior Flr 1	Pine/Soft Wood
Interior Flr 2	
Heat Fuel	Oil
Heat Type	Forced Hot Air
AC Type	None
Bedrooms	4 Bedrooms
Full Baths	2
Half Baths	1
Extra Fixtures	0
Total Rooms	12
Bath Style	Average
Kitchen Style	Average
Fireplace(s)	1
Extra Openings	2

Building Photo

(http://images.vgsi.com/photos/EastHaddamCTPhotos//\00\00\57/27.jpg)

Building Layout



(http://images.vgsi.com/photos/EastHaddamCTPhotos//Sketch

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,066	2,066
FUS	Finished Upper Story	960	960
BSM	Basement	1,714	0
DCK	Deck	475	0

Gas Fireplace(s)	0
Bsmt Garage(s)	0
Foundation	Stone/Brick
Fin Bsmnt	0
Int Vs Ext	Same

FEP	Finished Enclosed Porch	706	0
FOP	Open Porch	116	0
SLB	Slab	352	0
		6,389	3,026

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Res Dwelling
Zone	R2
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	5
Frontage	
Depth	
Assessed Value	$80,960
Appraised Value	$129,760

Outbuildings

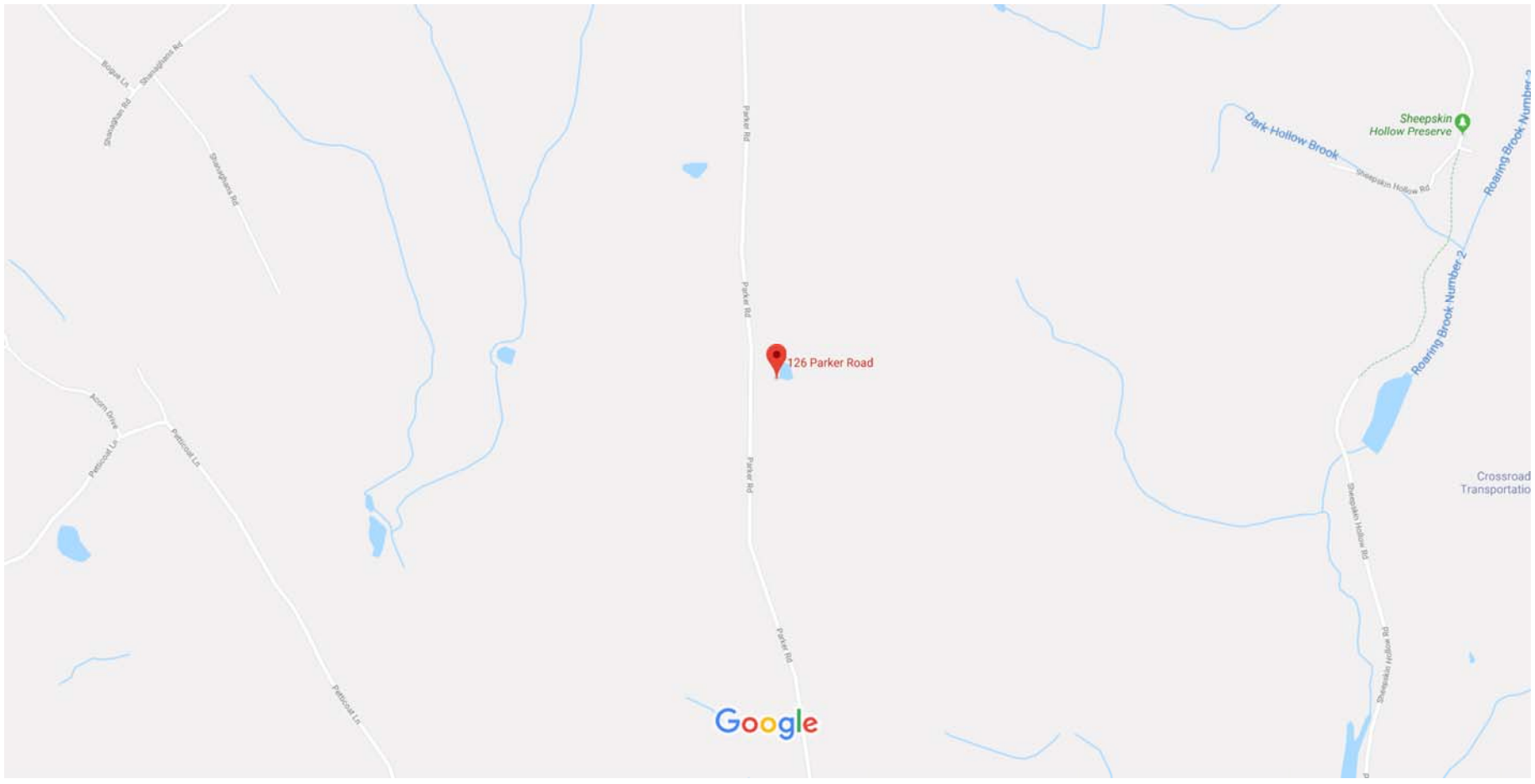
Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR1	Garage			540 S.F.	$6,800	1
BRN1	1 Story Barn			840 S.F.	$7,600	1
SHD1	Shed			224 S.F.	$1,500	1
SPL1	Inground Pool - Typical			800 S.F.	$14,800	1
BRN3	1S Barn W/Loft			1120 S.F.	$12,300	1
BRN8	Pole Barn			8400 S.F.	$90,700	1

Valuation History

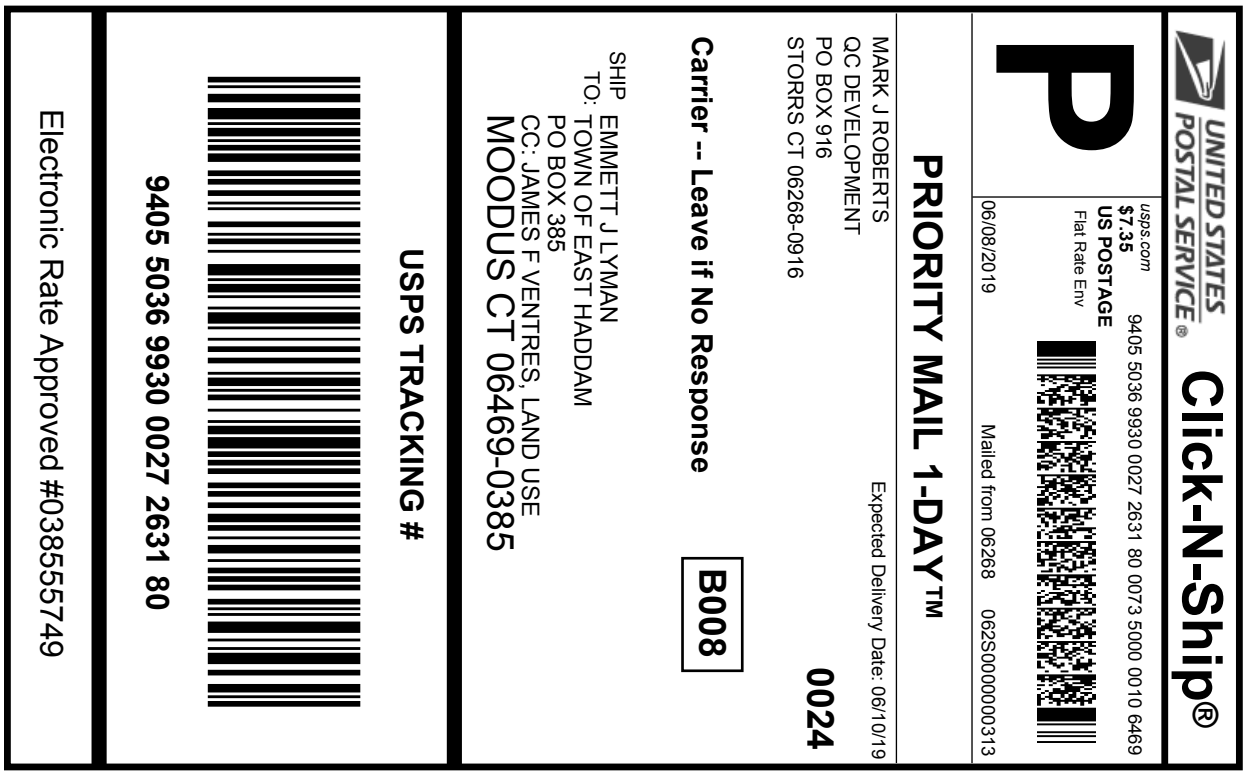
Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$433,200	$129,760	$562,960
2017	$433,200	$129,760	$562,960
2016	$318,100	$138,750	$456,850

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$303,240	$80,960	$384,200
2017	$303,240	$80,960	$384,200
2016	$222,670	$87,260	$309,930

Google Maps 126 Parker Rd



Map data ©2019 500 ft



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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0027 2631 80

Trans. #:	465656663
Print Date:	06/07/2019
Ship Date:	06/08/2019
Expected Delivery Date:	06/10/2019

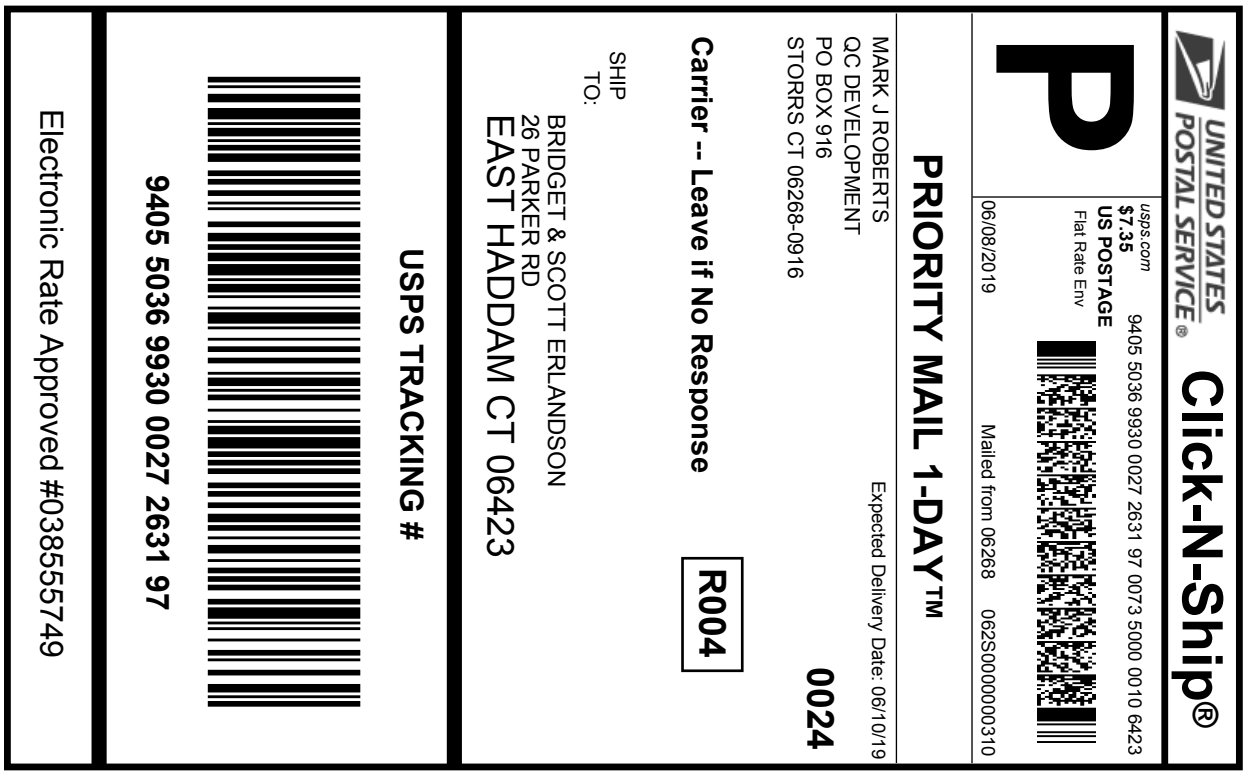
Priority Mail® Postage:	**$7.35**
Total	**$7.35**

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

To: EMMETT J LYMAN
TOWN OF EAST HADDAM
PO BOX 385
CC: JAMES F VENTRES, LAND USE
MOODUS CT 06469-0385

* 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.**
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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0027 2631 97

Trans. #:	465656663
Print Date:	06/07/2019
Ship Date:	06/08/2019
Expected Delivery Date:	06/10/2019

Priority Mail® Postage:	**$7.35**
Total	**$7.35**

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

To: BRIDGET & SCOTT ERLANDSON
26 PARKER RD
EAST HADDAM CT 06423

* 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