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March 16, 2016

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

Regarding:	Notice of Exempt Modification – Addition of 3 Antennas, 3 radio heads, 1 DC-6 squid and associated lines
Property Address:	6 Progress Avenue, Seymour, CT (the "Property")
Applicant:	AT&T Mobility ("AT&T")

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 280 foot self-supporting lattice tower ("tower") at the above-referenced address, latitude 41.3914919, longitude -73.0532989. AT&T's facility consists of six (6) wireless telecommunications antennas at 160 feet. The tower is controlled by EMAC Communications, LLC.

AT&T desires to modify its existing telecommunications facility by adding three (3) antennas, adding three (3) remote-radio heads ("RRHs"), adding one (1) DC-6 squid, adding one (1) fiber trunk, and adding two (2) DC trunks. The centerline height of said antennas is and will remain at 160 feet.

Please accept this application as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72 (b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the First Selectman and Zoning Enforcement Officer for the Town of Seymour. A copy of this letter is also being sent to EMAC Communications, LLC, the owner of the structure that AT&T is located.

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

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T's additional antennas, RRHs, DC-9 squid and associated lines will be installed at 160 foot level of the 280 foot tall self-supporting lattice tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

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4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural analysis completed by Com-Ex Engineering dated March 14, 2016).

For the foregoing reasons AT&T respectfully requests that the proposed addition of 3 antennas, 3 RRHs, 1 DC-9 squid and associated lines be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Nicole Caplan
Site Acquisition Specialist
Empire Telecom

CC: The Honorable W. Kurt Miller, First Selectman for the Town of Seymour, CT
Bill Paecht, Zoning Enforcement Officer for the Town of Seymour, CT
EMAC Communications, LLC

16 Esquire Road, Billerica, MA 01862 Phone 978-284-3906 Email: ncaplan@empiretelecomm.com

PROJECT INFORMATION

SCOPE OF WORK:
- AT&T ANTENNAS: (1) NEW ANTENNA PER SECTOR, FOR A TOTAL (3) NEW ANTENNAS. (2) EXISTING ANTENNAS PER SECTOR FOR 3 SECTORS, FOR A TOTAL OF (6) EXISTING ANTENNAS TO REMAIN.
- AT&T RRUs: (1) NEW RRUS PER SECTOR, FOR A TOTAL OF (3) NEW RRUS; (2) EXISTING RRUS PER SECTOR, FOR A TOTAL OF (6) EXISTING RRUS TO BE REUSED.
- AT&T SQUID: ADD (1) NEW DC-6 SQUID; (1) EXISTING DC-6 SQUID TO REMAIN
- AT&T CABLES: ADD (1) NEW FIBER TRUNK & (2) NEW DC TRUNKS

SITE ADDRESS:	6 PROGRESS AVENUE SEYMOUR, CT 06483
LATITUDE: LONGITUDE:	41.3914919 41° 23' 29.37084"N -73.0532989 73° 3' 11.87604"W
USID:	26042
TOWER OWNER:	TBD
TYPE OF SITE:	LATTICE TOWER/OUTDOOR EQUIPMENT
TOWER HEIGHT:	280'-0"±
RAD CENTER:	160'-0"±
CURRENT USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
PROPOSED USE:	UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

at&t MOBILITY

FA CODE: 10099965
SITE NUMBER: CT5633
SITE NAME: SEYMOUR EAST

PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

ZONING:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

ENGINEERING:
COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46, SUITE E39, MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

DRAWING INDEX

VICINITY MAP

1. HEAD WEST ON COCHITUATE RD TOWARD BURR ST (0.3 MI). 2. TURN LEFT ONTO SHOPPERS WORLD DR (230 FT). 3. MAKE A U-TURN AT RING RD (138 FT). 4. TAKE THE 1ST RIGHT ONTO COCHITUATE RD (0.3 MI). 5. TAKE THE RAMP TO I-90 E/MASSPIKE W/SPRINGFIELD/BOSTON (0.6 MI). 6. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR INTERSTATE 90 AND MERGE ONTO I-90 W/MASSACHUSETTS TURNPIKE (0.5 MI). 7. FOLLOW I-90 W/MASSACHUSETTS TURNPIKE AND I-84 TO US-6 W/GRAND ARMY OF THE REPUBLIC HWY IN FARMINGTON. TAKE EXIT 38 FROM I-84 (89.9 MI). 8. MERGE ONTO I-90 W/MASSACHUSETTS TURNPIKE (37.8 MI). 9. TAKE EXIT 9 TO MERGE ONTO I-84 TOWARD US-20/HARTFORD/NEW YORK CITY (51.9 MI). 10. TAKE EXIT 38 FOR US-6 W TOWARD BRISTOL (0.3 MI) . 11. FOLLOW US-6 W/GRAND ARMY OF THE REPUBLIC HWY TO YOUR DESTINATION IN PLYMOUTH (16.1 MI). 12. CONTINUE STRAIGHT ONTO US-6 W/GRAND ARMY OF THE REPUBLIC HWY (14.6 MI). 13. TURN RIGHT ONTO NORTH ST (1.4 MI). 14. TURN LEFT (0.1 MI). 15. FOLLOW ACCESS ROAD TO SITE

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 REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 STOP · CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

DISCIPLINE:	NAME:	DATE:
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

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16 ESQUIRE ROAD
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at&t MOBILITY
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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/14/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: KCD

SEAL: STATE OF CONNECTICUT, NICHOLAS D. BARILE, 25008, REGISTERED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15203-EMP	T-1	0

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. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471-000-3PS-EG00-0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.

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 WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER 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 AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.

13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV-G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').

14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   - CONTRACTOR – EMPIRE TELECOM
   - SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   - OWNER – AT&T MOBILITY
   - OEM – ORIGINAL EQUIPMENT MANUFACTURER

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

7. 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.

8. 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. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR

9. 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.

10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF 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.

11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

14. 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). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741-000-3APS-A00Z-00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

16. 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.

17. 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 MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. 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.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA-101 2009 WITH LOCAL & COUNTY AMENDMENTS

20. 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, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA-222-G-1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR-1503, COAXIAL CABLE CONNECTIONS

21. 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.

22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY CENTEK ENGINEERING FOR A RECENT UPGRADE DATED 06/19/2012. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5633
SITE NAME: SEYMOUR EAST

6 PROGRESS AVENUE
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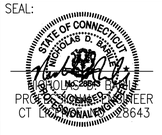
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: KCD

SEAL:

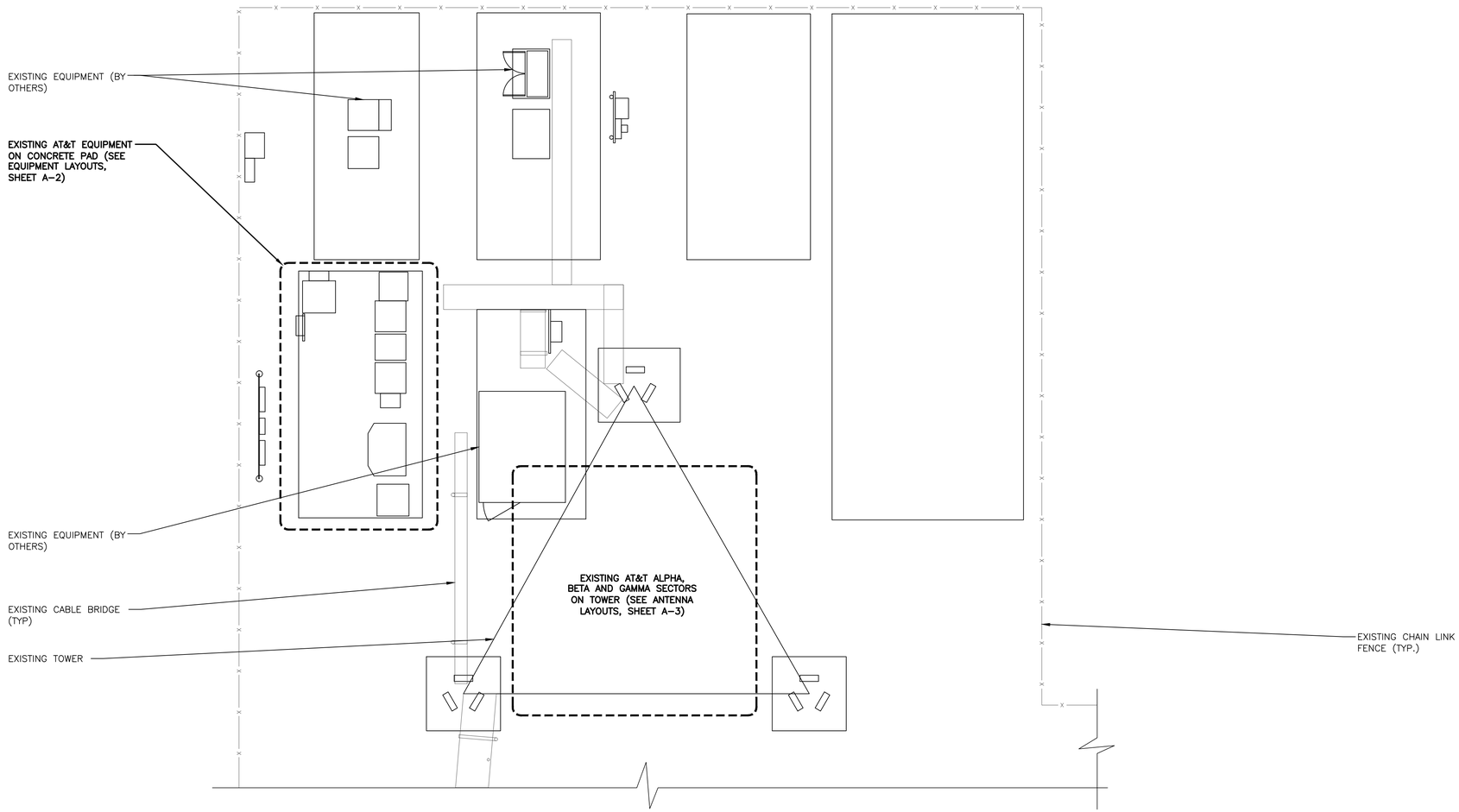


PROFESSIONAL ENGINEER
CT LICENSE NO. 23643

AT&T

DRAWING TITLE:
GROUNDING NOTES & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15203-EMP	GN-1	0



COMPOUND LAYOUT

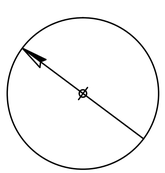
SCALE: 3/16" = 1'–0"

GRAPHIC SCALE

4 0 2 4 8 16

(IN FEET)

3/16th = 1 Foot



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SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: KCD

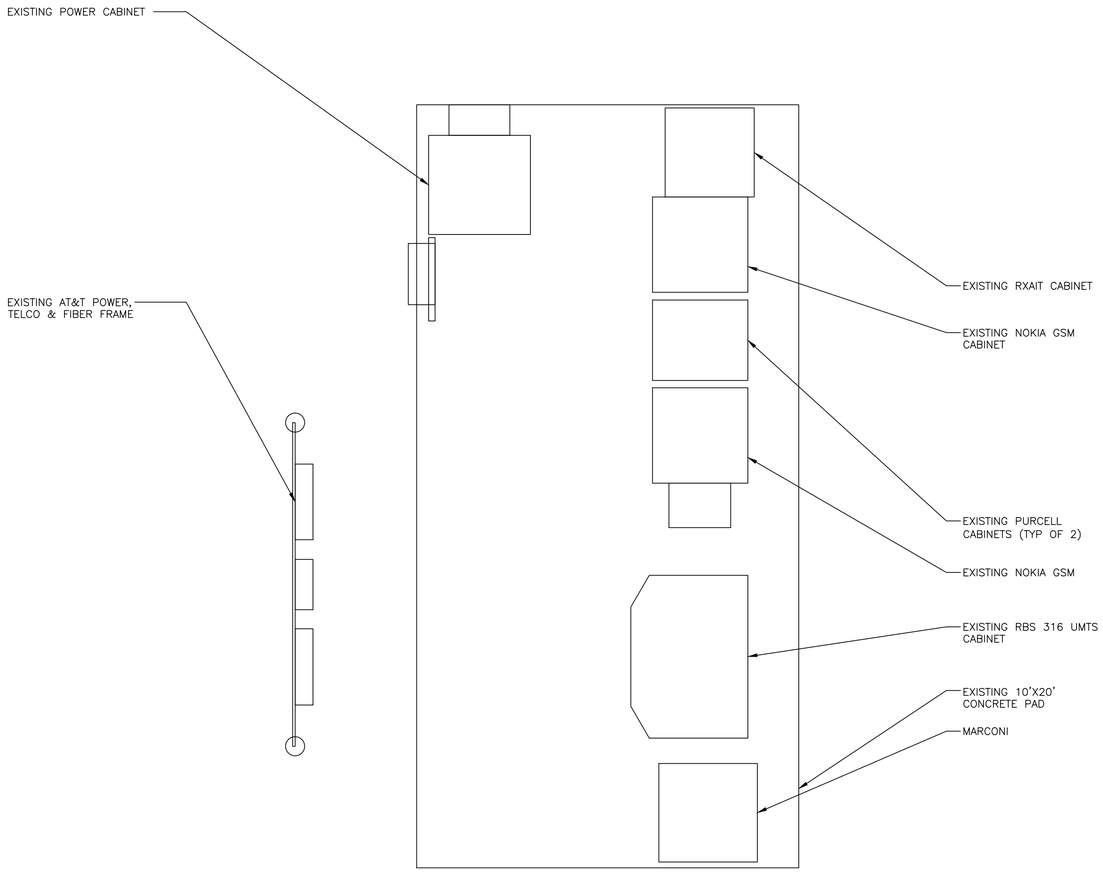
SEAL:

STATE OF CONNECTICUT
NICHOLAS D. BARBA
No. 28843
PROFESSIONAL ENGINEER
CT PROFESSIONAL ENGINEER 28643

AT&T

DRAWING TITLE: COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15203–EMP	A–1	0



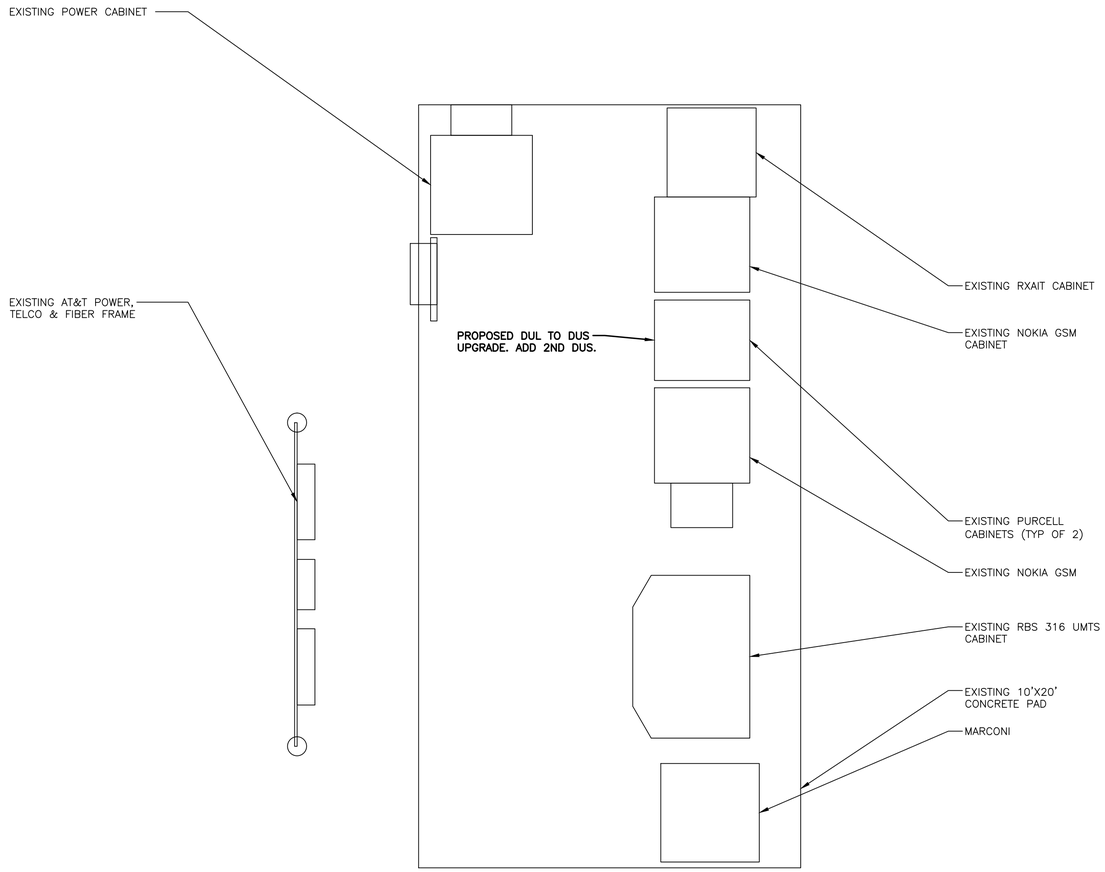
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

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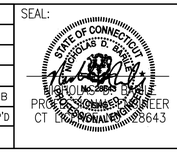
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/14/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: KCD

SEAL:



PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

DRAWING TITLE:
EQUIPMENT LAYOUTS

JOB NUMBER	DRAWING NUMBER	REV
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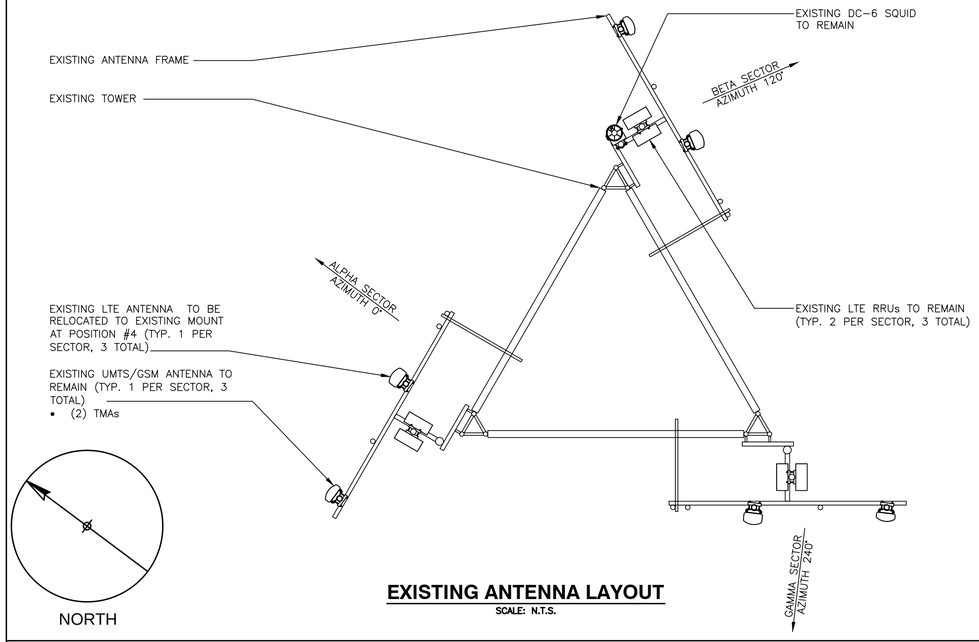
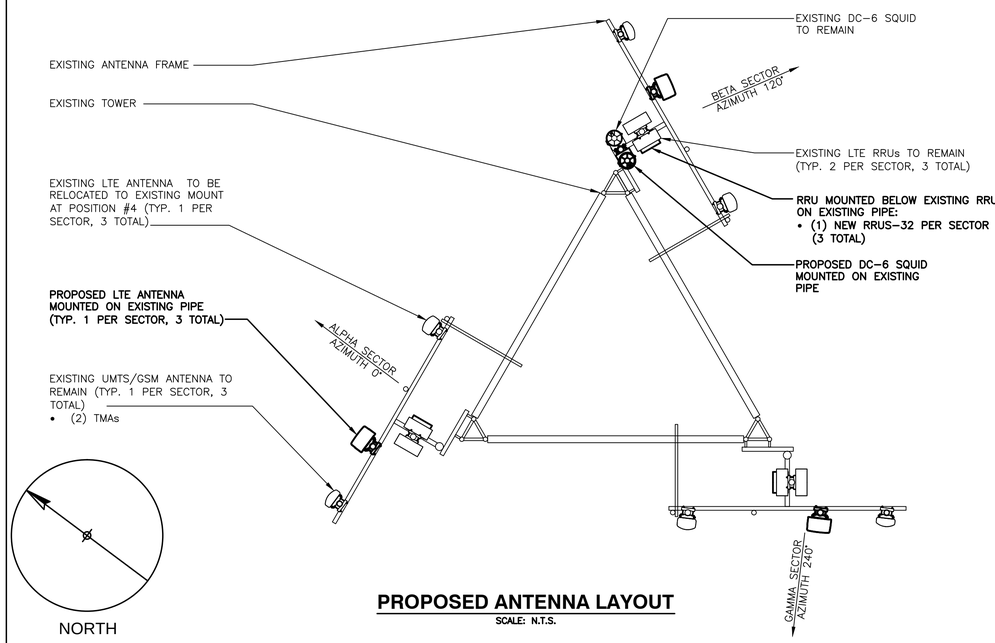


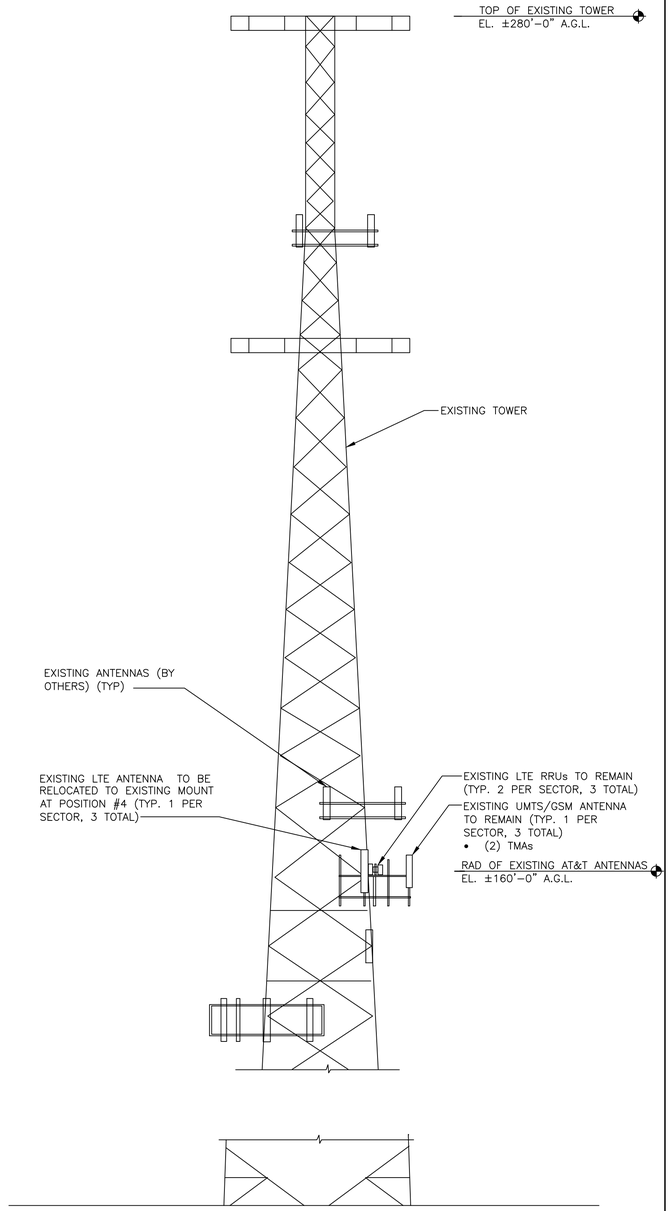
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



PROPOSED ANTENNA LAYOUT

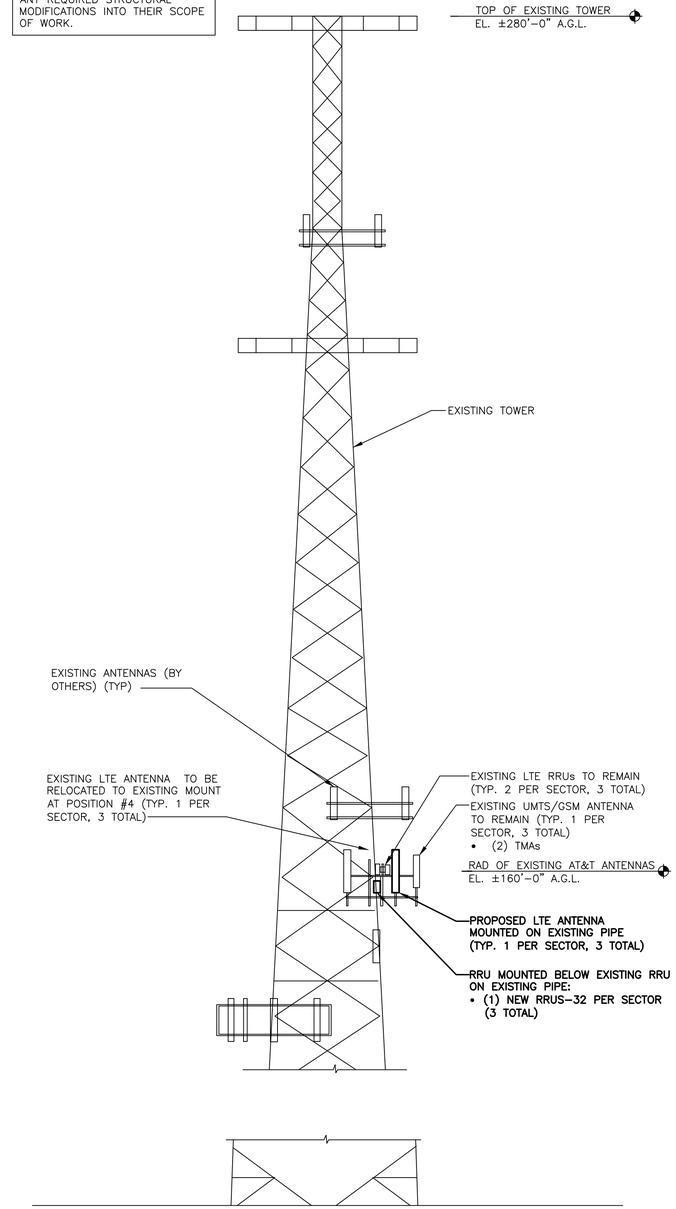
SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.



PROPOSED TOWER ELEVATION

SCALE: NTS

COM-EX Consultants
115 ROUTE 46
SUITE E39
MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5633
SITE NAME: SEYMOUR EAST

6 PROGRESS AVENUE
SEYMOUR, CT 06483
NEW HAVEN COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/14/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: KCD

SEAL:

AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
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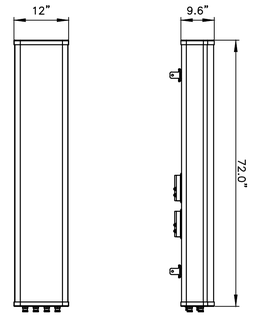
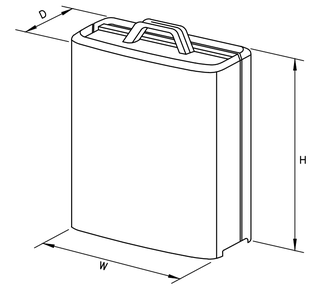


MANUFACTURER	QUINTEL
MODEL	QS66512-3
WEIGHT	105 LBS

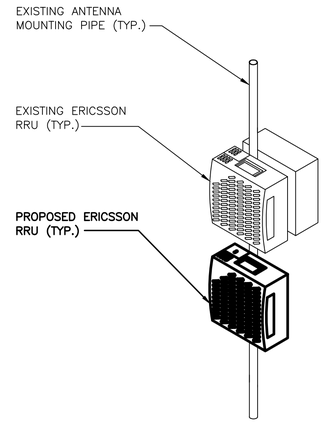
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-32	29.9" x 13.3" x 9.5"	77 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KATHREIN	800-10121	54.4"x10.3"x5.9"
	A2	–	–	–
	A3	KMW	AM-X-CD-16-65-00T-RET	72"x11.8"x5.9"
	A4	–	–	–
BETA	B1	KATHREIN	800-10121	55"X11"X5"
	B2	–	–	–
	B3	KMW	AM-X-CD-16-65-00T-RET	72"X11.8"X5.9"
	B4	–	–	–
GAMMA	G1	KATHREIN	800-10121	55"X11"X5"
	G2	–	–	–
	G3	KMW	AM-X-CD-16-65-00T-RET	72"X11.8"X5.9"
	G4	–	–	–

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	KATHREIN	800-10121	54.4"X10.3"X5.9"
	A2	**QUINTEL**	**QS66512-3**	**72"x12"x9.6"**
	A3	–	–	–
	A4	KMW	AM-X-CD-16-65-00T-RET	72"X11.8"X5.9"
BETA	B1	KATHREIN	800-10121	54.4"X10.3"X5.9"
	B2	**QUINTEL**	**QS66512-3**	**72"x12"x9.6"**
	B3	–	–	–
	B4	KMW	AM-X-CD-16-65-00T-RET	72"X11.8"X5.9"
GAMMA	G1	KATHREIN	800-10121	54.4"X10.3"X5.9"
	G2	**QUINTEL**	**QS66512-3**	**72"x12"x9.6"**
	G3	–	–	–
	G4	KMW	AM-X-CD-16-65-00T-RET	72"X11.8"X5.9"

PROPOSED RRH SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
BETA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
GAMMA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		
	ERICSSON	RRUS-11	19.7"x16.9"x7.2"		

PROJECT OWNER IS RESPONSIBLE FOR PROVIDING A STRUCTURAL STABILITY ANALYSIS TO DETERMINE THE CAPACITY AND SUITABILITY OF THE EXISTING ANTENNA SUPPORT STRUCTURE TO SAFELY CARRY ALL ADDITIONAL LOADS IMPOSED BY THE PROPOSED EQUIPMENT AS SHOWN HEREIN. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR INCORPORATING ANY REQUIRED STRUCTURAL MODIFICATIONS INTO THEIR SCOPE OF WORK.

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115 ROUTE 46
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0	03/14/16	ISSUED AS FINAL	NJM	NDB	NDB

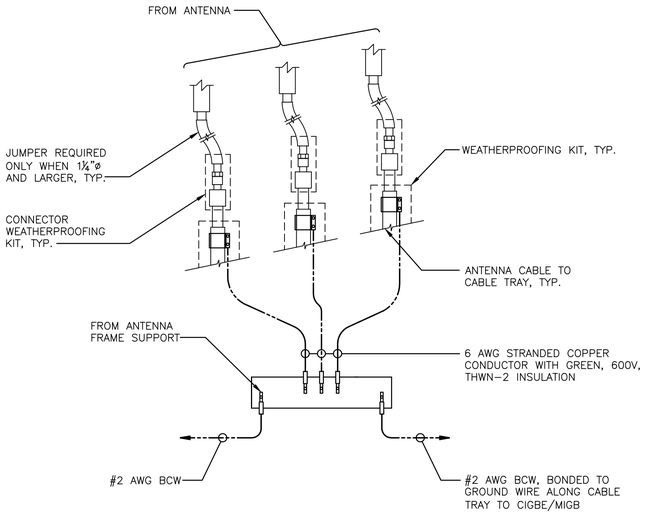
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: KCD

SEAL:
STATE OF CONNECTICUT
DOUGLAS E. BARTLETT
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
CT LICENSE NO. 28643

AT&T

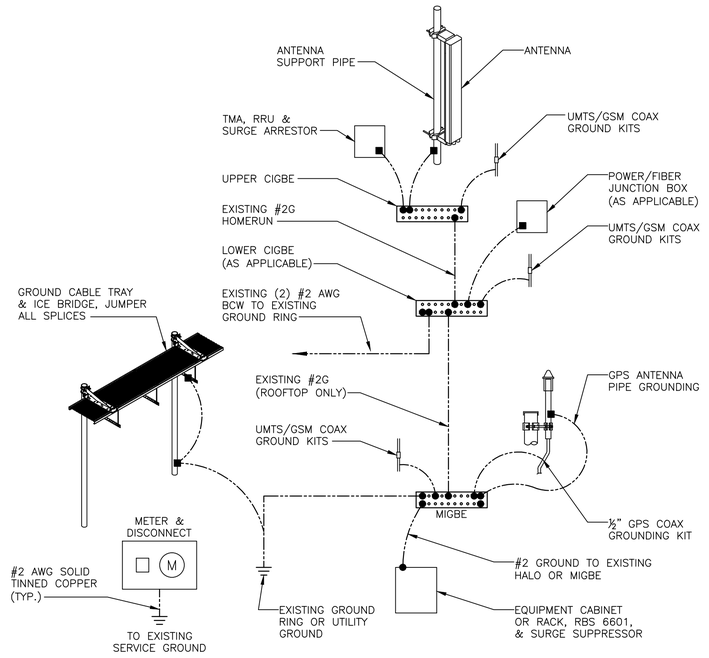
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15203-EMP	A-4	0



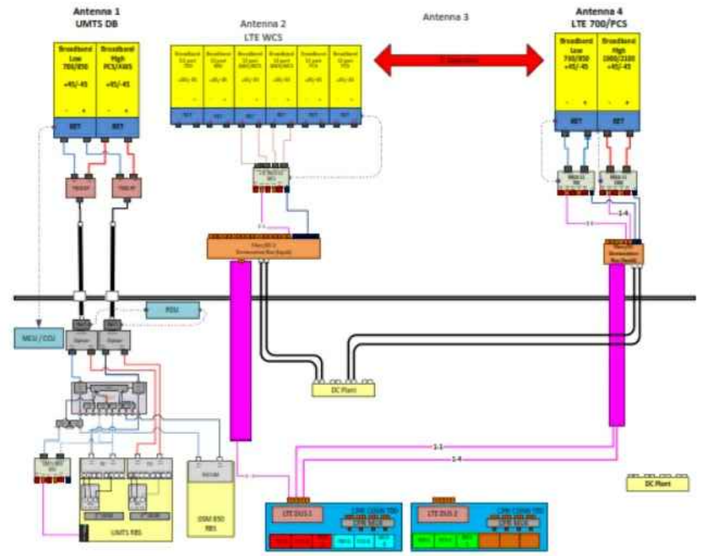
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



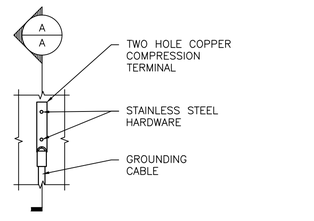
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

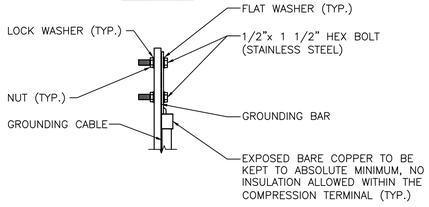


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



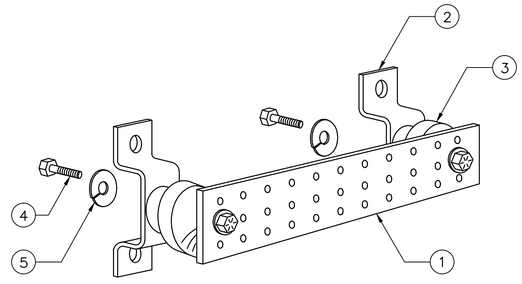
SECTION "A–A"

NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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.

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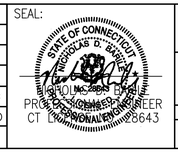


AT&T

DRAWING TITLE:

GROUNDING DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15203–EMP	G–1	0

STRUCTURAL ANALYSIS REPORT -REV.1
SELF-SUPPORTING TOWER

Prepared For:

Com-Ex Consultants, LLC
115 Route 46 – Suite E39
Mountain Lakes, NJ 07046

Structure Rating:

Self-Supporting Tower: 90.3%(Pass)

Sincerely,
Destek Engineering, LLC

3-14-2016

STATE OF CONNECTICUT
AHMET COLAKOGLU
PEN. 27057
LICENSED
PROFESSIONAL ENGINEER

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site ID: CT5633
Site Name: Seymour East
FA Code: 10099965
6 Progress Avenue
Seymour, CT 06483

Destek Job No: 1529150

March 14, 2015

CONTENTS

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 280 feet tall self-supporting tower located at 6 Progress Avenue, Seymour, CT 06483 for the additions and alterations proposed by AT&T. The structural analysis is based on the following information provided to Destek Engineering, LLC (Destek):

- Structural Analysis Report prepared by Centek Engineering, dated 4/04/2015.
- RFDS provided by Com-Ex Consultants, dated 12/10/2015.

1.1 STRUCTURE

The subject structure is a 3-sided, 280 feet tall self-supporting tower formed by thirteen 20 feet sections and two 10 feet sections. The upper 3 straight sections of the tower are formed by solid rod legs which are X-braced with solid round welded diagonals. The lower 12 sections are formed by truss legs which are X-braced with bolted single and double angles. The face width of the tower is 5 feet at the top and 28 feet at the base, with a slope change at 230 feet level. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

The analysis is based on the following existing and proposed appurtenances:

Existing AT&T Appurtenance Configuration:

RAD CENTER (FT)	ANTENNA & TMA	MOUNT	FEED LINES
160	(3) Kathrein 800-10121 (3) KMW AM-X-CD-16-65-00T-RET (6) Kathrein 782-10250 Diplexers (6) Powerwave LGP21401 – TMAs (6) RRUS-11 (1) DC/Fiber Squid	(3) Sector Mounts	(12) 1-5/8” + (1) Fiber + 2 DC Trunk

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

Proposed and Final AT&T Appurtenances:

RAD CENTER (FT)	ANTENNA & TMA	MOUNT	FEED LINES
160	(3) Kathrein 800-10121 (3) KMW AM-X-CD-16-65-00T-RET (3) Quintel QS66512-3 (6) Kathrein 782-10250 Dixplexers (6) Powerwave LGP21401 – TMAs (6) RRUS-11 (3) RRUS-32 (2) DC/Fiber Squid	(3) Sector Mounts	(12) 1-5/8" + (1) Fiber + 2 DC Trunk

Existing and Reserved Appurtenances included in this analysis and utilized by others are as per the referenced analysis report, please refer to the excerpt in Appendix B.

3.0 CODES AND LOADING

The tower was analyzed per *TIA/EIA-222-F* Standard as referenced by the *2005 State Building Code with all of the adopted Supplements and Amendments.* The following wind loading was used in compliance with the Standard for New Haven County:

- Basic wind speed 85 mph (W) without ice
- Basic wind speed 73.6 mph (W_i) with 1/2" radial ice.

The following load combinations were used with wind blowing at 0^o, 60^o and 90^o, measured from a line normal to the face of the tower.

- $D + W_o$
- $D + W_i + I$

D: Dead Load
W_o: Wind Load, without ice
W_i: Wind Load with ice
I: Ice Gravity Load

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to Destek and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.
The analysis does not include a qualification of the mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and appurtenance placement will require Destek to generate an additional structural analysis. Additionally, the proposed linear appurtenances should be placed per recommendations of this report.

5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear 3-Dimensional finite element software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix-A of this report.

6.0 RESULTS AND CONCLUSION

The existing tower is found to have **adequate** structural capacity for the proposed changes by AT&T. For the aforementioned load combinations and as a maximum, the connections of the tower diagonals between 180 and 200 feet are stressed to **90.3%** of their capacity. The tower legs and diagonals are stressed to maximum 78.4**%** and 72.5% of their respective structural capacities. The tower foundation is also found to have **adequate** structural capacity for the proposed additions.

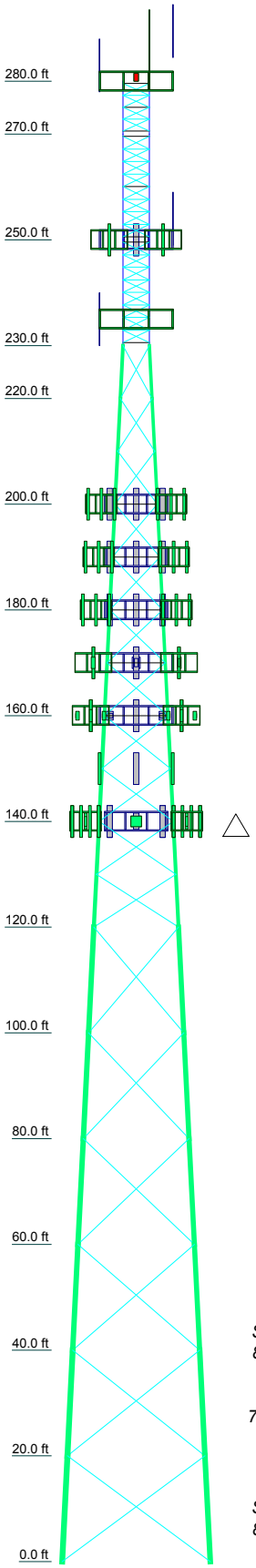
Therefore, the proposed additions by AT&T **can** be implemented as intended, with the conditions outlined in this report.

Should you have any questions about this report, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Ste 100, Marietta, GA 30066 -Tel: (770) 693-0835

APPENDIX A
SOFTWARE OUTPUT

Section	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	Pirod 112740	Pirod 112745	Pirod 112744		Pirod 112743		Pirod 105220		Pirod 105219		Pirod 105218		SR 2 1/2	SR 2	A
Leg Grade	A572-50														
Diagonals	2L3 1/2x3 1/2x5/16x3/8						L3 1/2x3 1/2x5/16		L3x5x5/16		L3x3x3/16	C	SR 1	SR 7/8	
Diagonal Grade	A572-50						A36						A572-50		
Top Girts	N.A.							D	L4x4x1/4	L3x3x3/16	N.A.		SR 1 1/4	SR 1	
Mid Girts	N.A.								L4x4x1/4	L3x3x3/16		N.A.		SR 1	
Bottom Girts	N.A.												SR 1 1/4	SR 1	
Horizontals	N.A.													SR 7/8	
Face Width (ft)	28	26	24	22	20	18	16	14	12	10	8	6	5		
# Panels @ (ft)	6 @ 20								11 @ 10				16 @ 2.375	4 @ 2.25	
Weight (K)	76.6	9.6	9.5	8.5	8.3	7.5	7.4	5.0	5.1	4.4	3.1	2.8	1.2	2.0	1.4	0.7



MAX. CORNER REACTIONS AT BASE:
DOWN: 602 K
SHEAR: 54 K

UPLIFT: -483 K
SHEAR: 51 K

AXIAL
170 K

SHEAR
87 K

MOMENT
13220 kip-ft

TORQUE 5 kip-ft
74 mph WIND - 0.50 in ICE

AXIAL
109 K

SHEAR
87 K

MOMENT
12848 kip-ft

TORQUE 4 kip-ft
REACTIONS - 85 mph WIND

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1 3/4	C	L2 1/2x2 1/2x3/16
B	Pirod 105245	D	L3 1/2x3 1/2x5/16

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 New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 90.3%

Destek Engineering, LLC
1281 Kennestone Circle, Ste 100
Marietta, GA 30066
Phone: (770) 693-0835
FAX:

Job: ***CT5633***			
Project: ***1529150***			
Client: Com-Ex Consultants	Drawn by: Ahmet Colakoglu	App'd:	
Code: TIA/EIA-222-F	Date: 03/14/16	Scale: NTS	
Path: \\FILESERVER\Users\admin\Documents\2015\29 - Com-Ex Consultants\1529150 - CT5633\tnxTower\CT5633-Rev.1.eri		Dwg No. E-1	

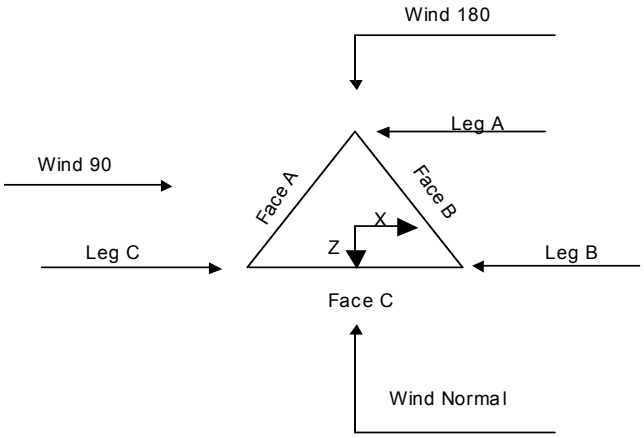
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 280.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 5.00 ft at the top and 28.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.50 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
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		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate	√	Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r	√	SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt.	√	Include Angle Block Shear Check
√	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends		Include Shear-Torsion Interaction
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	280.00-270.00			5.00	1	10.00
T2	270.00-250.00			5.00	1	20.00
T3	250.00-230.00			5.00	1	20.00
T4	230.00-220.00			5.00	1	10.00
T5	220.00-200.00			6.00	1	20.00
T6	200.00-180.00			8.00	1	20.00
T7	180.00-160.00			10.00	1	20.00
T8	160.00-140.00			12.00	1	20.00
T9	140.00-120.00			14.00	1	20.00
T10	120.00-100.00			16.00	1	20.00
T11	100.00-80.00			18.00	1	20.00
T12	80.00-60.00			20.00	1	20.00
T13	60.00-40.00			22.00	1	20.00
T14	40.00-20.00			24.00	1	20.00
T15	20.00-0.00			26.00	1	20.00

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

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	280.00-270.00	2.25	X Brace	No	Steps	5.50	6.50
T2	270.00-250.00	2.38	X Brace	No	Steps	5.50	6.50
T3	250.00-230.00	2.38	X Brace	No	Steps	5.50	6.50
T4	230.00-220.00	10.00	X Brace	No	No	0.00	0.00
T5	220.00-200.00	10.00	X Brace	No	No	0.00	0.00
T6	200.00-180.00	10.00	X Brace	No	No	0.00	0.00
T7	180.00-160.00	10.00	X Brace	No	No	0.00	0.00
T8	160.00-140.00	10.00	X Brace	No	No	0.00	0.00
T9	140.00-120.00	10.00	X Brace	No	No	0.00	0.00
T10	120.00-100.00	20.00	X Brace	No	No	0.00	0.00
T11	100.00-80.00	20.00	X Brace	No	No	0.00	0.00
T12	80.00-60.00	20.00	X Brace	No	No	0.00	0.00
T13	60.00-40.00	20.00	X Brace	No	No	0.00	0.00
T14	40.00-20.00	20.00	X Brace	No	No	0.00	0.00
T15	20.00-0.00	20.00	X Brace	No	No	0.00	0.00

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 280.00-270.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 270.00-250.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 250.00-230.00	Solid Round	2 1/2	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T4 230.00-220.00	Truss Leg	Pirod 105245	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 220.00-200.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T6 200.00-180.00	Truss Leg	Pirod 105218	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T7 180.00-160.00	Truss Leg	Pirod 105219	A572-50 (50 ksi)	Equal Angle	L3x3x5/16	A36 (36 ksi)
T8 160.00-140.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T9 140.00-120.00	Truss Leg	Pirod 105220	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)
T10 120.00-100.00	Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (36 ksi)
T11 100.00-80.00	Truss Leg	Pirod 112743	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (36 ksi)
T12 80.00-60.00	Truss Leg	Pirod 112744	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (36 ksi)
T13 60.00-40.00	Truss Leg	Pirod 112744	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (36 ksi)
T14 40.00-20.00	Truss Leg	Pirod 112745	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (36 ksi)
T15 20.00-0.00	Truss Leg	Pirod 112740	A572-50 (50 ksi)	Double Angle	2L3 1/2x3 1/2x5/16x3/8	A36 (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 280.00-270.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T2 270.00-250.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 250.00-230.00	Solid Round	1 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A572-50 (50 ksi)
T6 200.00-180.00	Single Angle	L3x3x3/16	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T7 180.00-160.00	Single Angle	L4x4x1/4	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T8 160.00-140.00	Single Angle	L3 1/2x3 1/2x5/16	A36 (36 ksi)	Flat Bar		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 280.00-270.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 270.00-250.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 250.00-230.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T6 200.00-180.00	1	Single Angle	L3x3x3/16	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T7 180.00-160.00	1	Single Angle	L4x4x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 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
T1 280.00-270.00	0.00	0.00	A36 (36 ksi)	1.03	1	1.05	36.00	36.00
T2 270.00-250.00	0.00	0.00	A36 (36 ksi)	1.03	1	1.05	36.00	36.00
T3 250.00-230.00	0.00	0.00	A36 (36 ksi)	1.03	1	1.05	36.00	36.00
T4 230.00-220.00	0.00	0.00	A36 (36 ksi)	1.03	1	1.05	36.00	36.00
T5 220.00-200.00	0.00	0.00	A36 (36 ksi)	1.03	1	1.05	36.00	36.00
T6	0.00	0.00	A36	1.03	1	1.05	36.00	36.00

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
200.00-180.00			(36 ksi)					
T7	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
180.00-160.00			(36 ksi)					
T8	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
160.00-140.00			(36 ksi)					
T9	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
140.00-120.00			(36 ksi)					
T10	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
120.00-100.00			(36 ksi)					
T11	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
100.00-80.00			(36 ksi)					
T12	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
80.00-60.00			(36 ksi)					
T13	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
60.00-40.00			(36 ksi)					
T14	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
40.00-20.00			(36 ksi)					
T15 20.00-0.00	0.00	0.00	A36	1.03	1	1.05	36.00	36.00
			(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 Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
280.00-270.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
270.00-250.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
250.00-230.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
230.00-220.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
40.00-20.00				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
20.00-0.00				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	Truss-Leg K Factors: Truss-Legs Used As Leg Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals	Truss-Legs Used As Inner Members — Leg Panels	X Brace Diagonals	Z Brace Diagonals
T4 230.00-220.00	1	1	1	1	0.5	0.85
T5 220.00-200.00	1	0.5	0.85	1	0.5	0.85
T6 200.00-180.00	1	0.5	0.85	1	0.5	0.85
T7 180.00-160.00	1	0.5	0.85	1	0.5	0.85
T8 160.00-140.00	1	0.5	0.85	1	0.5	0.85
T9 140.00-120.00	1	0.5	0.85	1	0.5	0.85
T10 120.00-100.00	1	0.5	0.85	1	0.5	0.85
T11 100.00-80.00	1	0.5	0.85	1	0.5	0.85
T12 80.00-60.00	1	0.5	0.85	1	0.5	0.85
T13 60.00-40.00	1	0.5	0.85	1	0.5	0.85
T14 40.00-20.00	1	0.5	0.85	1	0.5	0.85
T15 20.00-0.00	1	0.5	0.85	1	0.5	0.85

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1 280.00-270.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

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
T2 270.00-250.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T3 250.00-230.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T4 230.00-220.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T5 220.00-200.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T6 200.00-180.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T7 180.00-160.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T8 160.00-140.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T9 140.00-120.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T10 120.00-100.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T11 100.00-80.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T12 80.00-60.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T13 60.00-40.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T14 40.00-20.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75
T15 20.00-0.00	0.00	1	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75	0.00	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 280.00-270.00	Sleeve DS	0.63 A325N	5	0.00 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T2 270.00-250.00	Sleeve DS	0.75 A325N	5	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T3 250.00-230.00	Flange	1.00 A325N	6	0.00 A325N	0	0.63 A325N	0	0.00 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T4 230.00-220.00	Flange	1.00 A325N	6	1.00 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T5 220.00-200.00	Flange	1.00 A325N	6	1.00 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T6 200.00-180.00	Flange	1.00 A325N	6	1.00 A325N	1	1.00 A325N	1	0.63 A325N	0	1.00 A325N	1	0.63 A325N	0	0.63 A325N	0
T7 180.00-160.00	Flange	1.25 A325N	6	1.25 A325N	1	1.25 A325N	1	0.63 A325N	0	1.25 A325N	1	0.63 A325N	0	0.63 A325N	0
T8 160.00-140.00	Flange	1.25 A325N	6	1.25 A325N	1	1.25 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T9 140.00-120.00	Flange	1.25 A325N	6	1.25 A325N	1	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T10 120.00-100.00	Flange	1.25 A325N	12	1.00 A325N	2	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T11 100.00-80.00	Flange	1.25 A325N	12	1.00 A325N	2	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T12 80.00-60.00	Flange	1.25 A325N	12	1.00 A325N	2	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T13 60.00-40.00	Flange	1.25 A325N	12	1.00 A325N	2	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T14 40.00-20.00	Flange	1.25 A325N	12	1.00 A325N	2	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0
T15 20.00-0.00	Flange	2.00 A687	6	1.00 A325N	2	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0	0.63 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
AVA7-50 (1-5/8 LOW DENSI. FOAM)	B	No	Ar (Leg)	140.00 - 0.00	0.00	0.075	12	6	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	No	Ar (Leg)	280.00 - 0.00	0.00	0.045	4	2	1.98	1.98		0.00
HB158-1-13U6-S6F18(1-5/8)	B	No	Ar (Leg)	140.00 - 0.00	0.00	0.12	1	1	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	No	Ar (Leg)	180.00 - 0.00	0.00	0.1	18	5	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI. FOAM)	C	No	Ar (Leg)	190.00 - 180.00	0.00	0.1	9	5	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI. FOAM)	B	No	Ar (Leg)	200.00 - 0.00	0.00	0.14	9	3	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI. FOAM)	A	No	Ar (Leg)	160.00 - 0.00	0.00	0.075	21	7	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI. FOAM)	A	Yes	Ar (CfAe)	170.00 - 160.00	0.00	0.1	15	8	1.98	1.98		0.00
AVA7-50 (1-5/8 LOW DENSI.	A	Yes	Ar (CfAe)	250.00 - 170.00	0.00	0.12	12	8	1.98	1.98		0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
FOAM) AVA7-50 (1-5/8 LOW DENSI. FOAM)	A	No	Ar (Leg)	150.00 - 0.00	0.00	0.14	6	2	1.98	1.98		0.00
RFS HYBRIFLEX 1 1/4	A	No	Ar (Leg)	170.00 - 0.00	0.00	0.12	1	1	1.54	1.54		0.00
3/8" Fiber Cable	C	No	Ar (Leg)	160.00 - 0.00	0.00	0.12	1	1	0.40 0.38	0.40		0.00
DC Trunk	C	No	Ar (Leg)	160.00 - 0.00	0.00	0.12	2	2	0.40 0.38	0.40		0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	280.00-270.00	A	3.300	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	3.300	0.000	0.000	0.000	0.03
T2	270.00-250.00	A	6.600	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	6.600	0.000	0.000	0.000	0.06
T3	250.00-230.00	A	33.000	0.000	0.000	0.000	0.17
		B	0.000	0.000	0.000	0.000	0.00
		C	6.600	0.000	0.000	0.000	0.06
T4	230.00-220.00	A	16.500	0.000	0.000	0.000	0.09
		B	0.000	0.000	0.000	0.000	0.00
		C	3.300	0.000	0.000	0.000	0.03
T5	220.00-200.00	A	33.000	0.000	0.000	0.000	0.17
		B	0.000	0.000	0.000	0.000	0.00
		C	6.600	0.000	0.000	0.000	0.06
T6	200.00-180.00	A	41.250	0.000	0.000	0.000	0.17
		B	9.900	0.000	0.000	0.000	0.13
		C	24.750	0.000	0.000	0.000	0.12
T7	180.00-160.00	A	50.783	0.000	0.000	0.000	0.21
		B	11.183	0.000	0.000	0.000	0.13
		C	33.000	0.000	0.000	0.000	0.32
T8	160.00-140.00	A	54.067	0.000	0.000	0.000	0.37
		B	38.867	0.000	0.000	0.000	0.13
		C	35.000	0.000	0.000	0.000	0.38
T9	140.00-120.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38
T10	120.00-100.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38
T11	100.00-80.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38
T12	80.00-60.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38
T13	60.00-40.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38

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
T14	40.00-20.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38
T15	20.00-0.00	A	57.367	0.000	0.000	0.000	0.41
		B	65.267	0.000	0.000	0.000	0.34
		C	58.100	0.000	0.000	0.000	0.38

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	280.00-270.00	A	0.500	4.967	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		4.967	0.000	0.000	0.000	0.09
T2	270.00-250.00	A	0.500	9.933	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		9.933	0.000	0.000	0.000	0.18
T3	250.00-230.00	A	0.500	49.667	0.000	0.000	0.000	0.54
		B		0.000	0.000	0.000	0.000	0.00
		C		9.933	0.000	0.000	0.000	0.18
T4	230.00-220.00	A	0.500	24.833	0.000	0.000	0.000	0.27
		B		0.000	0.000	0.000	0.000	0.00
		C		4.967	0.000	0.000	0.000	0.09
T5	220.00-200.00	A	0.500	49.667	0.000	0.000	0.000	0.54
		B		0.000	0.000	0.000	0.000	0.00
		C		9.933	0.000	0.000	0.000	0.18
T6	200.00-180.00	A	0.500	62.083	0.000	0.000	0.000	0.54
		B		14.900	0.000	0.000	0.000	0.40
		C		37.250	0.000	0.000	0.000	0.38
T7	180.00-160.00	A	0.500	76.617	0.000	0.000	0.000	0.63
		B		17.017	0.000	0.000	0.000	0.40
		C		49.667	0.000	0.000	0.000	0.98
T8	160.00-140.00	A	0.500	83.400	1.333	0.000	0.000	1.12
		B		58.867	0.000	0.000	0.000	0.40
		C		54.333	1.333	0.000	0.000	1.07
T9	140.00-120.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07
T10	120.00-100.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07
T11	100.00-80.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07
T12	80.00-60.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07
T13	60.00-40.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07
T14	40.00-20.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07
T15	20.00-0.00	A	0.500	88.367	1.333	0.000	0.000	1.26
		B		98.600	0.000	0.000	0.000	1.01
		C		89.100	1.333	0.000	0.000	1.07

Feed Line Shielding

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
T1	280.00-270.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	270.00-250.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	250.00-230.00	A	2.223	6.610	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T4	230.00-220.00	A	0.000	0.686	1.140	1.716
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T5	220.00-200.00	A	0.000	1.159	2.310	3.476
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T6	200.00-180.00	A	0.000	1.323	2.637	3.968
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T7	180.00-160.00	A	0.000	1.227	2.666	4.012
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T8	160.00-140.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T9	140.00-120.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T10	120.00-100.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T11	100.00-80.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T12	80.00-60.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T13	60.00-40.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T14	40.00-20.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T15	20.00-0.00	A	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	280.00-270.00	-3.15	1.82	-2.62	1.51
T2	270.00-250.00	-3.17	1.83	-2.70	1.56
T3	250.00-230.00	-5.84	-3.26	-5.23	-2.72
T4	230.00-220.00	-4.06	-2.26	-3.82	-2.07
T5	220.00-200.00	-4.73	-2.63	-4.58	-2.48
T6	200.00-180.00	-4.29	-0.12	-4.20	0.00
T7	180.00-160.00	-6.20	0.72	-6.18	0.81
T8	160.00-140.00	-3.82	-3.30	-3.91	-3.30
T9	140.00-120.00	1.64	-0.88	1.54	-0.88
T10	120.00-100.00	1.78	-0.96	1.71	-0.98
T11	100.00-80.00	1.98	-1.06	1.90	-1.09
T12	80.00-60.00	2.14	-1.15	2.06	-1.18
T13	60.00-40.00	2.33	-1.25	2.24	-1.29
T14	40.00-20.00	2.47	-1.32	2.38	-1.37
T15	20.00-0.00	2.64	-1.42	2.55	-1.47

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Flash Beacon Lighting	B	None		0.00	280.00	No Ice	2.70	2.70	0.05
						1/2" Ice	3.10	3.10	0.07
Lightning Rod 2"x15'	B	From Leg	0.00 0.00 6.00	0.00	280.00	No Ice 1/2" Ice	3.00 4.53	3.00 4.53	0.08 0.10
DB420-A	B	From Centroid-Face	8.00 0.00 9.50	0.00	280.00	No Ice 1/2" Ice	3.33 5.99	3.33 5.99	0.03 0.04
DB420-A	A	From Centroid-Face	8.00 0.00 3.00	0.00	280.00	No Ice 1/2" Ice	3.33 5.99	3.33 5.99	0.03 0.04
Sector Mount [SM 412-1]	C	None		0.00	280.00	No Ice 1/2" Ice	70.47 100.14	70.47 100.14	3.08 4.50
***									
RR90-17-02DP w/Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	0.04 0.08
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	11.68 12.40	9.84 11.37	0.08 0.17
RR90-17-02DP w/Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	0.04 0.08
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	11.68 12.40	9.84 11.37	0.08 0.17
RR90-17-02DP w/Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	4.91 5.57	3.64 4.70	0.04 0.08
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	3.00 0.00	0.00	250.00	No Ice 1/2" Ice	11.68 12.40	9.84 11.37	0.08 0.17

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00						
TMA 10"x8"x3"	A	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	0.02 0.03
TMA 10"x8"x3"	B	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	0.02 0.03
TMA 10"x8"x3"	C	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	0.78 0.90	0.29 0.38	0.02 0.03
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00 0.00	0.00	250.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
***									
DB420-A	B	From Centroid-Face	8.00 0.00 9.00	0.00	245.00	No Ice 1/2" Ice	3.33 5.99	3.33 5.99	0.03 0.04
DB225-2-F	A	From Centroid-Face	8.00 0.00 0.00	0.00	235.00	No Ice 1/2" Ice	1.36 2.45	1.36 2.45	0.05 0.07
Sector Mount [SM 412-1]	C	None		0.00	235.00	No Ice 1/2" Ice	70.47 100.14	70.47 100.14	3.08 4.50
***									
(3) DB980H120E-M w/Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	200.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
(3) DB980H120E-M w/Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	200.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
(3) DB980H120E-M w/Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	200.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
Pirod 12' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	200.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	200.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00 0.00	0.00	200.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
***									
(3) DB980H120E-M w/Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	190.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
(3) DB980H120E-M w/Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	190.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
(3) DB980H120E-M w/Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	190.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07

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 12' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	190.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	190.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00 0.00	0.00	190.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
***									
(3) DB980H120E-M w/Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	180.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
(3) DB980H120E-M w/Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	180.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
(3) DB980H120E-M w/Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	180.00	No Ice 1/2" Ice	4.22 4.81	3.83 4.92	0.03 0.07
Pirod 12' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	180.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	180.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00 0.00	0.00	180.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
***									
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	0.08 0.15
APXVTM14-ALU-I20 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	7.13 7.66	4.96 5.75	0.08 0.13
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	0.08 0.15
APXVTM14-ALU-I20 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	7.13 7.66	4.96 5.75	0.08 0.13
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	8.50 9.15	6.95 8.13	0.08 0.15
APXVTM14-ALU-I20 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	7.13 7.66	4.96 5.75	0.08 0.13
FD-RRH-2x50-800	A	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	1.59 1.77	3.51 3.76	0.05 0.08
FD-RRH-2x50-800	B	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	1.59 1.77	3.51 3.76	0.05 0.08
FD-RRH-2x50-800	C	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	1.59 1.77	3.51 3.76	0.05 0.08
FD-RRH 4x40 1900	A	From Leg	3.00	0.00	170.00	No Ice	2.61	2.71	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00			1/2" Ice	2.81	2.95	0.08
FD-RRH 4x40 1900	B	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	2.61 2.81	2.71 2.95	0.06 0.08
FD-RRH 4x40 1900	C	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	2.61 2.81	2.71 2.95	0.06 0.08
TD-RRH8x20-25	A	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	0.07 0.10
TD-RRH8x20-25	B	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	0.07 0.10
TD-RRH8x20-25	C	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	4.72 5.01	1.70 1.92	0.07 0.10
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00 0.00	0.00	170.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
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AM-X-CD-16-65-00T-RET w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	8.50 9.15	6.30 7.48	0.07 0.14
AM-X-CD-16-65-00T-RET w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	8.50 9.15	6.30 7.48	0.07 0.14
AM-X-CD-16-65-00T-RET w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	8.50 9.15	6.30 7.48	0.07 0.14
800 10121 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	5.69 6.18	4.60 5.35	0.07 0.11
800 10121 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	5.69 6.18	4.60 5.35	0.07 0.11
800 10121 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	5.69 6.18	4.60 5.35	0.07 0.11
QS66512-3 w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	8.64 9.29	8.46 9.66	0.13 0.21
QS66512-3 w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	8.64 9.29	8.46 9.66	0.13 0.21
QS66512-3 w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	8.64 9.29	8.46 9.66	0.13 0.21
(2) 782-10250	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	0.52 0.63	0.27 0.36	0.01 0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 782-10250	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	0.52 0.63	0.27 0.36	0.01 0.01
(2) 782-10250	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	0.52 0.63	0.27 0.36	0.01 0.01
(2) LGP21401	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	0.01 0.02
(2) LGP21401	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	0.01 0.02
(2) LGP21401	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	1.29 1.45	0.23 0.31	0.01 0.02
(2) RRUS 11	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	3.25 3.49	1.37 1.55	0.05 0.07
(2) RRUS 11	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	3.25 3.49	1.37 1.55	0.05 0.07
(2) RRUS 11	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	3.25 3.49	1.37 1.55	0.05 0.07
RRUS 32	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	3.33 3.60	1.98 2.21	0.06 0.08
RRUS 32	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	3.33 3.60	1.98 2.21	0.06 0.08
RRUS 32	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	3.33 3.60	1.98 2.21	0.06 0.08
DC/Fiber Squid	A	From Leg	0.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	1.67 1.85	0.69 0.81	0.01 0.02
DC/Fiber Squid	A	From Leg	0.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	1.67 1.85	0.69 0.81	0.01 0.02
Pirod 15' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
Pirod 15' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
Pirod 15' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00 0.00	0.00	160.00	No Ice 1/2" Ice	15.00 20.60	15.00 20.60	0.50 0.65
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APXV18-206517S-ACU w/ Mount Pipe	A	From Leg	0.50 0.00 0.00	0.00	150.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.10
APXV18-206517S-ACU w/ Mount Pipe	B	From Leg	0.50 0.00 0.00	0.00	150.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.10
APXV18-206517S-ACU w/ Mount Pipe	C	From Leg	0.50 0.00	0.00	150.00	No Ice 1/2" Ice	5.40 5.96	4.70 5.86	0.05 0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00						
***									
(2) LNX-6514DS-VTM w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.65 9.31	7.08 8.27	0.06 0.13
(2) LNX-6514DS-VTM w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.65 9.31	7.08 8.27	0.06 0.13
(2) LNX-6514DS-VTM w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.65 9.31	7.08 8.27	0.06 0.13
(2) HBXX-6517DS-VTM w/ Mount Pipe	A	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.98 9.65	6.96 8.18	0.07 0.14
(2) HBXX-6517DS-VTM w/ Mount Pipe	B	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.98 9.65	6.96 8.18	0.07 0.14
(2) HBXX-6517DS-VTM w/ Mount Pipe	C	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.98 9.65	6.96 8.18	0.07 0.14
(2) FD9R6004/2C-3L	A	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	0.37 0.45	0.08 0.14	0.00 0.01
(2) FD9R6004/2C-3L	B	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.98 9.65	6.96 8.18	0.07 0.14
(2) FD9R6004/2C-3L	C	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	8.98 9.65	6.96 8.18	0.07 0.14
RRH2x60-AWS	A	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	3.96 4.27	2.16 2.44	0.06 0.08
RRH2x60-AWS	B	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	3.96 4.27	2.16 2.44	0.06 0.08
RRH2x60-AWS	C	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	3.96 4.27	2.16 2.44	0.06 0.08
RRH2X60-PCS	A	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	2.57 2.79	2.01 2.22	0.06 0.08
RRH2X60-PCS	B	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	2.57 2.79	2.01 2.22	0.06 0.08
RRH2X60-PCS	C	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	2.57 2.79	2.01 2.22	0.06 0.08
DB-T1-6Z-8AB-0Z	C	None		0.00	140.00	No Ice 1/2" Ice	5.60 5.92	2.33 2.56	0.04 0.08
Pirod 12' T-Frame Sector Mount (1)	A	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	B	From Leg	3.00 0.00 0.00	0.00	140.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	3.00 0.00	0.00	140.00	No Ice 1/2" Ice	13.60 18.40	13.60 18.40	0.47 0.60

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***			0.00					

Truss-Leg Properties

Section Designation	Area in^2	Area Ice in^2	Self Weight K	Ice Weight K	Equiv. Diameter in	Equiv. Diameter Ice in	Leg Area in^2
Pirod 105245	1090.33	1814.35	0.68	0.22	7.57	12.60	5.30
Pirod 105218	2263.47	3690.86	0.75	0.46	7.86	12.82	7.22
Pirod 105218	2263.47	3690.86	0.75	0.46	7.86	12.82	7.22
Pirod 105219	2441.87	3942.29	0.94	0.49	8.48	13.69	9.42
Pirod 105220	2578.80	4132.55	1.12	0.50	8.95	14.35	11.93
Pirod 105220	2578.80	4132.55	1.12	0.50	8.95	14.35	11.93
Pirod 112743	3466.52	5074.95	1.69	0.68	12.04	17.62	14.73
Pirod 112743	3466.52	5074.95	1.69	0.68	12.04	17.62	14.73
Pirod 112744	3599.56	5237.81	1.90	0.70	12.50	18.19	17.82
Pirod 112744	3599.56	5237.81	1.90	0.70	12.50	18.19	17.82
Pirod 112745	3789.33	5488.65	2.19	0.72	13.16	19.06	21.21
Pirod 112740	3789.33	5488.65	2.19	0.72	13.16	19.06	21.21

Load Combinations

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

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	280 - 270	Leg	Max Tension	17	7.59	0.51	-0.34
			Max. Compression	15	-11.31	0.00	0.22
			Max. Mx	24	-1.60	0.60	-0.00
			Max. My	15	-11.31	-0.01	-0.61
			Max. Vy	24	-1.43	0.19	0.00
			Max. Vx	15	-1.54	0.00	0.22
		Diagonal	Max Tension	26	1.99	0.00	0.00
			Max. Compression	26	-1.98	0.00	0.00
			Max. Mx	23	0.14	-0.00	-0.00
			Max. My	25	-1.59	-0.00	0.00
			Max. Vy	23	-0.01	-0.00	-0.00
			Max. Vx	25	0.00	0.00	0.00
		Horizontal	Max Tension	21	0.32	0.00	0.00
			Max. Compression	15	-0.20	0.00	0.00
			Max. Mx	14	0.06	0.01	0.00
			Max. My	24	0.05	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Top Girt	Max Tension	23	0.81	0.00	0.00
			Max. Compression	17	-0.84	0.00	0.00
			Max. Mx	14	-0.01	0.01	0.00
			Max. My	23	-0.41	0.00	0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Bottom Girt	Max Tension	21	0.85	0.00	0.00
			Max. Compression	23	-0.83	0.00	0.00
			Max. Mx	14	0.01	0.01	0.00
			Max. My	24	0.07	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
		Mid Girt	Max Tension	21	0.11	0.00	0.00
			Max. Compression	2	-0.02	0.00	0.00
			Max. Mx	14	0.01	0.01	0.00
			Max. My	24	0.06	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	24	0.00	0.00	0.00
T2	270 - 250	Leg	Max Tension	21	30.06	-0.01	0.83

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	23	-35.14	0.31	-0.21
			Max. Mx	24	-10.03	0.85	-0.13
			Max. My	15	-11.32	0.01	0.93
			Max. Vy	24	-2.05	0.33	-0.09
			Max. Vx	15	-2.25	-0.01	0.38
		Diagonal	Max Tension	22	2.64	0.00	0.00
			Max. Compression	16	-2.64	0.00	0.00
			Max. Mx	23	0.06	-0.00	-0.00
			Max. My	25	-2.02	-0.00	0.00
			Max. Vy	22	-0.01	-0.00	0.00
			Max. Vx	25	0.00	0.00	0.00
		Horizontal	Max Tension	21	0.51	0.00	0.00
			Max. Compression	15	-0.39	0.00	0.00
			Max. Mx	14	0.07	0.01	0.00
			Max. My	17	-0.16	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	17	0.00	0.00	0.00
		Top Girt	Max Tension	23	0.96	0.00	0.00
			Max. Compression	25	-0.95	0.00	0.00
			Max. Mx	14	-0.00	0.01	0.00
			Max. My	23	-0.48	0.00	0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
		Bottom Girt	Max Tension	21	1.15	0.00	0.00
			Max. Compression	15	-1.09	0.00	0.00
			Max. Mx	14	0.02	0.01	0.00
			Max. My	17	-0.46	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	17	0.00	0.00	0.00
		Mid Girt	Max Tension	21	0.33	0.00	0.00
			Max. Compression	15	-0.22	0.00	0.00
			Max. Mx	14	0.02	0.01	0.00
			Max. My	23	0.08	0.00	0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	23	-0.00	0.00	0.00
T3	250 - 230	Leg	Max Tension	25	77.28	-0.44	-0.27
			Max. Compression	23	-89.14	2.71	-1.73
			Max. Mx	19	-88.50	-2.73	-1.69
			Max. My	15	-88.98	-0.04	3.22
			Max. Vy	19	5.86	-2.73	-1.69
			Max. Vx	15	-6.87	-0.04	3.22
		Diagonal	Max Tension	16	5.86	0.00	0.00
			Max. Compression	22	-5.95	0.00	0.00
			Max. Mx	22	2.52	-0.01	0.00
			Max. My	17	-3.89	-0.00	-0.00
			Max. Vy	15	0.01	-0.01	0.00
			Max. Vx	17	-0.00	0.00	0.00
		Horizontal	Max Tension	21	0.87	0.00	0.00
			Max. Compression	15	-0.71	0.00	0.00
			Max. Mx	14	0.13	0.01	0.00
			Max. My	17	-0.32	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	17	0.00	0.00	0.00
		Top Girt	Max Tension	19	1.72	0.00	0.00
			Max. Compression	17	-1.68	0.00	0.00
			Max. Mx	14	0.01	0.02	0.00
			Max. My	23	-0.87	0.00	0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	23	0.00	0.00	0.00
		Bottom Girt	Max Tension	21	1.23	0.00	0.00
			Max. Compression	15	-1.08	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	14	0.03	0.02	0.00
			Max. My	17	-0.55	0.00	-0.00
			Max. Vy	14	0.01	0.00	0.00
			Max. Vx	17	0.00	0.00	0.00
T4	230 - 220	Leg	Max Tension	25	82.01	-3.06	-0.09
			Max. Compression	23	-93.23	4.46	-0.07
			Max. Mx	25	81.71	-4.95	-0.05
			Max. My	24	-6.18	-0.24	-7.58
			Max. Vy	17	0.35	-4.93	0.12
			Max. Vx	26	-0.77	-0.25	7.45
		Diagonal	Max Tension	17	5.89	0.00	0.00
			Max. Compression	23	-6.74	0.00	0.00
			Max. Mx	25	4.89	0.07	0.00
			Max. My	16	-5.57	-0.04	0.03
			Max. Vy	25	0.02	0.07	0.00
			Max. Vx	16	-0.01	0.00	0.00
T5	220 - 200	Leg	Max Tension	25	111.61	-4.39	-0.01
			Max. Compression	23	-126.84	5.42	-0.02
			Max. Mx	23	-126.84	5.42	-0.02
			Max. My	24	-7.39	-0.24	-7.58
			Max. Vy	19	-0.24	5.39	0.01
			Max. Vx	26	0.54	-0.09	6.12
		Diagonal	Max Tension	16	5.85	0.00	0.00
			Max. Compression	23	-6.23	0.00	0.00
			Max. Mx	23	4.53	0.10	-0.01
			Max. My	24	-5.04	-0.04	-0.02
			Max. Vy	23	-0.03	0.10	-0.01
			Max. Vx	24	0.00	-0.04	-0.02
T6	200 - 180	Leg	Max Tension	25	140.10	-3.86	0.01
			Max. Compression	23	-161.28	5.94	-0.12
			Max. Mx	23	-161.28	5.94	-0.12
			Max. My	24	-11.31	0.06	-5.08
			Max. Vy	17	-1.16	-5.06	0.04
			Max. Vx	26	0.98	-0.13	5.03
		Diagonal	Max Tension	17	8.18	0.00	0.00
			Max. Compression	23	-9.51	0.00	0.00
			Max. Mx	23	3.18	0.08	-0.01
			Max. My	22	-7.25	-0.03	-0.01
			Max. Vy	25	0.03	0.08	-0.01
			Max. Vx	17	-0.00	0.00	0.00
		Top Girt	Max Tension	25	4.05	0.00	0.00
			Max. Compression	23	-3.10	0.00	0.00
			Max. Mx	14	0.46	-0.05	0.00
			Max. My	22	-2.64	0.00	0.00
			Max. Vy	14	-0.03	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Mid Girt	Max Tension	25	5.04	0.00	0.00
			Max. Compression	23	-3.64	0.00	0.00
			Max. Mx	14	0.69	-0.07	0.00
			Max. My	22	-3.09	0.00	0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T7	180 - 160	Leg	Max Tension	25	176.41	-4.04	0.03
			Max. Compression	23	-206.93	6.21	-0.04
			Max. Mx	23	-206.93	6.21	-0.04
			Max. My	26	-13.84	-0.16	5.17
			Max. Vy	4	-1.21	-3.56	-0.00
			Max. Vx	13	1.56	-0.10	4.66
		Diagonal	Max Tension	17	10.64	0.00	0.00
			Max. Compression	15	-12.47	0.00	0.00
			Max. Mx	23	4.80	0.12	-0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	22	-9.81	-0.02	-0.01
			Max. Vy	25	0.04	0.12	-0.01
			Max. Vx	22	0.00	0.00	0.00
		Top Girt	Max Tension	25	6.53	0.00	0.00
			Max. Compression	23	-4.74	0.00	0.00
			Max. Mx	14	0.85	-0.13	0.00
			Max. My	22	-4.02	0.00	0.00
			Max. Vy	14	0.05	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
		Mid Girt	Max Tension	25	6.93	0.00	0.00
			Max. Compression	23	-4.91	0.00	0.00
			Max. Mx	14	0.98	-0.16	0.00
			Max. My	22	-4.13	0.00	0.00
			Max. Vy	14	0.06	0.00	0.00
			Max. Vx	22	-0.00	0.00	0.00
T8	160 - 140	Leg	Max Tension	25	220.41	-4.51	0.02
			Max. Compression	23	-263.92	4.96	-0.10
			Max. Mx	23	-233.88	6.21	-0.04
			Max. My	26	-20.31	-0.32	7.80
			Max. Vy	8	-1.80	-5.25	-0.06
			Max. Vx	5	1.14	0.17	2.49
		Diagonal	Max Tension	16	12.20	0.00	0.00
			Max. Compression	16	-12.19	0.00	0.00
			Max. Mx	23	9.79	0.17	-0.01
			Max. My	22	-12.10	-0.02	-0.03
			Max. Vy	23	-0.06	0.17	-0.01
			Max. Vx	22	0.01	0.00	0.00
		Top Girt	Max Tension	25	5.42	0.00	0.00
			Max. Compression	23	-3.89	0.00	0.00
			Max. Mx	14	0.75	-0.19	0.00
			Max. My	22	-3.28	0.00	0.01
			Max. Vy	14	0.06	0.00	0.00
			Max. Vx	22	0.00	0.00	0.00
T9	140 - 120	Leg	Max Tension	25	266.45	-4.89	0.02
			Max. Compression	23	-320.78	10.64	-0.05
			Max. Mx	25	265.71	-11.32	0.02
			Max. My	26	-27.61	-0.35	10.43
			Max. Vy	4	-2.12	-4.64	0.14
			Max. Vx	3	-2.32	-0.04	-3.87
		Diagonal	Max Tension	3	13.68	0.00	0.00
			Max. Compression	16	-14.43	0.00	0.00
			Max. Mx	25	9.80	0.19	0.01
			Max. My	22	-12.73	0.01	-0.04
			Max. Vy	25	0.06	0.19	0.01
			Max. Vx	21	0.01	0.00	0.00
T10	120 - 100	Leg	Max Tension	25	296.33	-11.32	0.02
			Max. Compression	23	-354.30	11.98	0.04
			Max. Mx	12	286.31	-12.17	-0.03
			Max. My	24	-29.77	-0.08	-20.10
			Max. Vy	8	0.42	-12.16	0.03
			Max. Vx	22	-0.79	-0.09	20.08
		Diagonal	Max Tension	3	17.14	0.00	0.00
			Max. Compression	16	-18.98	0.00	0.00
			Max. Mx	25	15.55	-0.50	-0.03
			Max. My	22	-18.51	-0.09	0.14
			Max. Vy	25	-0.13	-0.50	-0.03
			Max. Vx	22	-0.01	0.00	0.00
T11	100 - 80	Leg	Max Tension	25	337.68	-11.97	-0.02
			Max. Compression	23	-408.44	12.96	0.01
			Max. Mx	25	335.45	-16.91	-0.03
			Max. My	24	-33.53	-0.08	-20.10

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	21	0.59	-16.88	0.01
			Max. Vx	24	-0.85	-0.08	-20.10
		Diagonal	Max Tension	16	18.05	0.00	0.00
			Max. Compression	3	-18.19	0.00	0.00
			Max. Mx	25	14.96	-0.53	0.08
			Max. My	22	8.48	-0.49	0.08
			Max. Vy	25	-0.14	-0.53	0.08
			Max. Vx	22	-0.01	0.00	0.00
T12	80 - 60	Leg	Max Tension	25	375.97	-16.91	-0.03
			Max. Compression	23	-453.50	17.18	0.03
			Max. Mx	23	-453.50	17.18	0.03
			Max. My	24	-39.16	4.60	-17.35
			Max. Vy	21	-0.81	-16.88	0.01
			Max. Vx	24	0.70	4.60	-17.35
		Diagonal	Max Tension	3	16.64	0.00	0.00
			Max. Compression	16	-18.44	0.00	0.00
			Max. Mx	25	13.17	-0.56	0.07
			Max. My	26	-9.28	-0.41	-0.08
			Max. Vy	25	-0.15	-0.56	0.07
			Max. Vx	26	0.01	0.00	0.00
T13	60 - 40	Leg	Max Tension	25	405.73	-7.66	-0.02
			Max. Compression	15	-499.75	5.32	-0.03
			Max. Mx	25	403.27	-24.21	-0.02
			Max. My	24	-44.37	4.60	-17.36
			Max. Vy	21	1.15	-24.18	0.01
			Max. Vx	24	-0.78	4.60	-17.36
		Diagonal	Max Tension	16	18.38	0.00	0.00
			Max. Compression	3	-17.78	0.00	0.00
			Max. Mx	25	16.45	-0.58	0.07
			Max. My	21	16.33	-0.58	0.07
			Max. Vy	25	-0.16	-0.58	0.07
			Max. Vx	22	0.01	0.00	0.00
T14	40 - 20	Leg	Max Tension	25	444.89	-24.21	-0.02
			Max. Compression	15	-540.04	25.23	-0.06
			Max. Mx	23	-539.83	25.24	0.05
			Max. My	24	-47.57	12.02	-25.91
			Max. Vy	21	-1.48	-24.18	0.01
			Max. Vx	24	1.19	12.02	-25.91
		Diagonal	Max Tension	3	16.17	0.00	0.00
			Max. Compression	22	-19.52	0.00	0.00
			Max. Mx	25	9.30	-0.69	0.09
			Max. My	17	-17.83	-0.39	-0.12
			Max. Vy	25	-0.17	-0.69	0.09
			Max. Vx	17	0.01	0.00	0.00
T15	20 - 0	Leg	Max Tension	12	466.62	-13.81	-0.02
			Max. Compression	15	-583.74	-0.00	-0.00
			Max. Mx	23	-580.48	25.24	0.05
			Max. My	24	-57.18	12.02	-25.91
			Max. Vy	19	1.42	25.21	0.02
			Max. Vx	24	-1.53	12.02	-25.91
		Diagonal	Max Tension	17	21.30	0.00	0.00
			Max. Compression	10	-19.30	0.00	0.00
			Max. Mx	26	20.12	-0.63	-0.09
			Max. My	16	7.04	-0.58	-0.10
			Max. Vy	26	-0.18	-0.63	-0.09
			Max. Vx	16	0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	23	601.52	46.88	-27.21
	Max. H_x	10	566.18	50.11	-29.02
	Max. H_z	17	-480.86	-48.88	28.31
	Min. Vert	4	-482.65	-43.83	25.38
	Min. H_x	17	-480.86	-48.88	28.31
	Min. H_z	10	566.18	50.11	-29.02
Leg B	Max. Vert	19	600.18	-46.89	-27.12
	Max. H_x	25	-482.20	48.93	28.29
	Max. H_z	25	-482.20	48.93	28.29
	Min. Vert	12	-483.15	43.86	25.35
	Min. H_x	6	565.68	-50.13	-28.97
	Min. H_z	6	565.68	-50.13	-28.97
Leg A	Max. Vert	15	601.86	-0.08	54.21
	Max. H_x	11	36.48	2.77	2.98
	Max. H_z	2	566.02	-0.05	57.89
	Min. Vert	8	-482.51	0.04	-50.63
	Min. H_x	5	36.48	-2.78	2.98
	Min. H_z	21	-480.55	0.04	-56.48

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	108.96	0.00	0.00	-3.85	6.96	-0.00
Dead+Wind 0 deg - No Ice	108.96	-0.00	-86.66	-12844.48	7.06	-2.25
Dead+Wind 30 deg - No Ice	108.96	42.50	-73.58	-10957.99	-6319.78	-3.13
Dead+Wind 60 deg - No Ice	108.96	73.13	-42.20	-6296.31	-10895.92	-3.28
Dead+Wind 90 deg - No Ice	108.96	85.00	-0.00	-3.94	-12646.55	-2.66
Dead+Wind 120 deg - No Ice	108.96	75.09	43.33	6416.44	-11117.45	-1.30
Dead+Wind 150 deg - No Ice	108.96	42.50	73.58	10950.31	-6319.69	0.63
Dead+Wind 180 deg - No Ice	108.96	-0.00	84.39	12580.96	7.06	2.15
Dead+Wind 210 deg - No Ice	108.96	-42.50	73.58	10950.28	6333.79	3.13
Dead+Wind 240 deg - No Ice	108.96	-75.09	43.33	6416.41	11131.52	3.53
Dead+Wind 270 deg - No Ice	108.96	-85.00	-0.00	-3.94	12660.59	2.66
Dead+Wind 300 deg - No Ice	108.96	-73.13	-42.20	-6296.27	10909.98	1.12
Dead+Wind 330 deg - No Ice	108.96	-42.50	-73.58	-10957.96	6333.88	-0.64
Dead+Ice+Temp	169.96	0.00	0.00	-15.93	18.52	-0.00
Dead+Wind 0 deg+Ice+Temp	169.96	-0.00	-87.46	-13220.41	18.80	-3.04
Dead+Wind 30 deg+Ice+Temp	169.96	43.19	-74.80	-11346.17	-6522.53	-4.49
Dead+Wind 60 deg+Ice+Temp	169.96	74.49	-43.00	-6537.33	-11275.98	-4.88
Dead+Wind 90 deg+Ice+Temp	169.96	86.37	-0.00	-16.14	-13063.71	-4.03
Dead+Wind 120 deg+Ice+Temp	169.96	75.75	43.73	6586.20	-11416.16	-2.00
Dead+Wind 150 deg+Ice+Temp	169.96	43.19	74.80	11314.25	-6522.35	0.71
Dead+Wind 180 deg+Ice+Temp	169.96	0.00	86.01	13026.56	18.81	2.99
Dead+Wind 210 deg+Ice+Temp	169.96	-43.19	74.80	11314.22	6559.95	4.49
Dead+Wind 240 deg+Ice+Temp	169.96	-75.75	43.73	6586.17	11453.71	5.04
Dead+Wind 270 deg+Ice+Temp	169.96	-86.37	-0.00	-16.13	13101.24	4.03
Dead+Wind 300 deg+Ice+Temp	169.96	-74.49	-43.00	-6537.28	11313.53	1.88
Dead+Wind 330 deg+Ice+Temp	169.96	-43.19	-74.80	-11346.12	6560.12	-0.71
Dead+Wind 0 deg - Service	108.96	0.00	-29.99	-4447.14	7.03	-0.78
Dead+Wind 30 deg - Service	108.96	14.71	-25.46	-3794.34	-2182.24	-1.09
Dead+Wind 60 deg - Service	108.96	25.30	-14.60	-2181.23	-3765.72	-1.14
Dead+Wind 90 deg - Service	108.96	29.41	0.00	-3.88	-4371.50	-0.91

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 120 deg - Service	108.96	25.98	14.99	2217.77	-3842.41	-0.45
Dead+Wind 150 deg - Service	108.96	14.71	25.46	3786.61	-2182.23	0.21
Dead+Wind 180 deg - Service	108.96	0.00	29.20	4350.85	7.03	0.75
Dead+Wind 210 deg - Service	108.96	-14.71	25.46	3786.60	2196.28	1.09
Dead+Wind 240 deg - Service	108.96	-25.98	14.99	2217.76	3856.46	1.22
Dead+Wind 270 deg - Service	108.96	-29.41	0.00	-3.88	4385.55	0.91
Dead+Wind 300 deg - Service	108.96	-25.30	-14.60	-2181.23	3779.77	0.39
Dead+Wind 330 deg - Service	108.96	-14.71	-25.46	-3794.33	2196.30	-0.21

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.00	-108.96	0.00	0.00	108.96	0.00	0.000%
2	0.00	-108.96	-86.66	0.00	108.96	86.66	0.000%
3	42.50	-108.96	-73.58	-42.50	108.96	73.58	0.000%
4	73.13	-108.96	-42.20	-73.13	108.96	42.20	0.000%
5	85.00	-108.96	-0.00	-85.00	108.96	0.00	0.000%
6	75.09	-108.96	43.33	-75.09	108.96	-43.33	0.000%
7	42.50	-108.96	73.58	-42.50	108.96	-73.58	0.000%
8	0.00	-108.96	84.39	0.00	108.96	-84.39	0.000%
9	-42.50	-108.96	73.58	42.50	108.96	-73.58	0.000%
10	-75.09	-108.96	43.33	75.09	108.96	-43.33	0.000%
11	-85.00	-108.96	-0.00	85.00	108.96	0.00	0.000%
12	-73.13	-108.96	-42.20	73.13	108.96	42.20	0.000%
13	-42.50	-108.96	-73.58	42.50	108.96	73.58	0.000%
14	0.00	-169.96	0.00	-0.00	169.96	-0.00	0.000%
15	0.00	-169.96	-87.46	0.00	169.96	87.46	0.000%
16	43.19	-169.96	-74.80	-43.19	169.96	74.80	0.000%
17	74.49	-169.96	-43.00	-74.49	169.96	43.00	0.000%
18	86.37	-169.96	-0.00	-86.37	169.96	0.00	0.000%
19	75.75	-169.96	43.73	-75.75	169.96	-43.73	0.000%
20	43.19	-169.96	74.80	-43.19	169.96	-74.80	0.000%
21	0.00	-169.96	86.01	-0.00	169.96	-86.01	0.000%
22	-43.19	-169.96	74.80	43.19	169.96	-74.80	0.000%
23	-75.75	-169.96	43.73	75.75	169.96	-43.73	0.000%
24	-86.37	-169.96	-0.00	86.37	169.96	0.00	0.000%
25	-74.49	-169.96	-43.00	74.49	169.96	43.00	0.000%
26	-43.19	-169.96	-74.80	43.19	169.96	74.80	0.000%
27	0.00	-108.96	-29.99	0.00	108.96	29.99	0.000%
28	14.71	-108.96	-25.46	-14.71	108.96	25.46	0.000%
29	25.30	-108.96	-14.60	-25.30	108.96	14.60	0.000%
30	29.41	-108.96	0.00	-29.41	108.96	0.00	0.000%
31	25.98	-108.96	14.99	-25.98	108.96	-14.99	0.000%
32	14.71	-108.96	25.46	-14.71	108.96	-25.46	0.000%
33	0.00	-108.96	29.20	0.00	108.96	-29.20	0.000%
34	-14.71	-108.96	25.46	14.71	108.96	-25.46	0.000%
35	-25.98	-108.96	14.99	25.98	108.96	-14.99	0.000%
36	-29.41	-108.96	0.00	29.41	108.96	0.00	0.000%
37	-25.30	-108.96	-14.60	25.30	108.96	14.60	0.000%
38	-14.71	-108.96	-25.46	14.71	108.96	25.46	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000079
3	Yes	4	0.00000001	0.00000141
4	Yes	4	0.00000001	0.00000124
5	Yes	4	0.00000001	0.00000146
6	Yes	4	0.00000001	0.00000079
7	Yes	4	0.00000001	0.00000147
8	Yes	4	0.00000001	0.00000124
9	Yes	4	0.00000001	0.00000141
10	Yes	4	0.00000001	0.00000081
11	Yes	4	0.00000001	0.00000146
12	Yes	4	0.00000001	0.00000123
13	Yes	4	0.00000001	0.00000148
14	Yes	4	0.00000001	0.00000001
15	Yes	4	0.00000001	0.00000318
16	Yes	4	0.00000001	0.00000384
17	Yes	4	0.00000001	0.00000416
18	Yes	4	0.00000001	0.00000391
19	Yes	4	0.00000001	0.00000318
20	Yes	4	0.00000001	0.00000395
21	Yes	4	0.00000001	0.00000416
22	Yes	4	0.00000001	0.00000384
23	Yes	4	0.00000001	0.00000319
24	Yes	4	0.00000001	0.00000390
25	Yes	4	0.00000001	0.00000415
26	Yes	4	0.00000001	0.00000395
27	Yes	4	0.00000001	0.00000001
28	Yes	4	0.00000001	0.00000001
29	Yes	4	0.00000001	0.00000001
30	Yes	4	0.00000001	0.00000001
31	Yes	4	0.00000001	0.00000001
32	Yes	4	0.00000001	0.00000001
33	Yes	4	0.00000001	0.00000001
34	Yes	4	0.00000001	0.00000001
35	Yes	4	0.00000001	0.00000001
36	Yes	4	0.00000001	0.00000001
37	Yes	4	0.00000001	0.00000001
38	Yes	4	0.00000001	0.00000001

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	12.40	35	0.46	0.03
T2	270 - 250	11.42	35	0.45	0.03
T3	250 - 230	9.54	35	0.42	0.03
T4	230 - 220	7.80	35	0.38	0.02
T5	220 - 200	7.03	35	0.34	0.02
T6	200 - 180	5.67	35	0.30	0.01
T7	180 - 160	4.49	35	0.25	0.01
T8	160 - 140	3.48	35	0.22	0.00
T9	140 - 120	2.61	35	0.18	0.00
T10	120 - 100	1.87	35	0.15	0.00
T11	100 - 80	1.27	35	0.12	0.00
T12	80 - 60	0.81	35	0.09	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T13	60 - 40	0.46	35	0.07	0.00
T14	40 - 20	0.21	35	0.04	0.00
T15	20 - 0	0.06	35	0.02	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.00	Flash Beacon Lighting	35	12.40	0.46	0.03	84848
250.00	RR90-17-02DP w/Mount Pipe	35	9.54	0.42	0.03	37630
245.00	DB420-A	35	9.09	0.41	0.02	28938
235.00	DB225-2-F	35	8.22	0.39	0.02	18597
200.00	(3) DB980H120E-M w/Mount Pipe	35	5.67	0.30	0.01	29464
190.00	(3) DB980H120E-M w/Mount Pipe	35	5.06	0.27	0.01	27528
180.00	(3) DB980H120E-M w/Mount Pipe	35	4.49	0.25	0.01	25615
170.00	APXVSPP18-C-A20 w/ Mount Pipe	35	3.97	0.23	0.00	30050
160.00	AM-X-CD-16-65-00T-RET w/ Mount Pipe	35	3.48	0.22	0.00	36817
150.00	APXV18-206517S-ACU w/ Mount Pipe	35	3.03	0.20	0.00	38478
140.00	(2) LNX-6514DS-VTM w/ Mount Pipe	35	2.61	0.18	0.00	38985

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	280 - 270	38.00	23	1.42	0.12
T2	270 - 250	34.94	23	1.41	0.11
T3	250 - 230	29.08	23	1.32	0.09
T4	230 - 220	23.70	23	1.16	0.07
T5	220 - 200	21.32	23	1.06	0.05
T6	200 - 180	17.12	23	0.91	0.03
T7	180 - 160	13.50	23	0.77	0.02
T8	160 - 140	10.44	23	0.65	0.01
T9	140 - 120	7.81	23	0.56	0.01
T10	120 - 100	5.58	23	0.45	0.00
T11	100 - 80	3.79	15	0.36	0.00
T12	80 - 60	2.41	15	0.27	0.00
T13	60 - 40	1.36	15	0.20	0.00
T14	40 - 20	0.63	15	0.12	0.00
T15	20 - 0	0.17	15	0.06	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
280.00	Flash Beacon Lighting	23	38.00	1.42	0.12	27003
250.00	RR90-17-02DP w/Mount Pipe	23	29.08	1.32	0.09	11375
245.00	DB420-A	23	27.67	1.29	0.09	8894
235.00	DB225-2-F	23	24.97	1.21	0.08	5867
200.00	(3) DB980H120E-M w/Mount Pipe	23	17.12	0.91	0.03	9117
190.00	(3) DB980H120E-M w/Mount Pipe	23	15.24	0.84	0.03	8583
180.00	(3) DB980H120E-M w/Mount Pipe	23	13.50	0.77	0.02	8055
170.00	APXVSPP18-C-A20 w/ Mount Pipe	23	11.90	0.71	0.02	9486
160.00	AM-X-CD-16-65-00T-RET w/ Mount Pipe	23	10.44	0.65	0.01	11674
150.00	APXV18-206517S-ACU w/ Mount Pipe	23	9.07	0.60	0.01	12207
140.00	(2) LNX-6514DS-VTM w/ Mount Pipe	23	7.81	0.56	0.01	12395

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	280	Leg	A325N	0.63	5	2.26	12.89	0.176 ✔	1.333	Bolt DS
T2	270	Leg	A325N	0.75	5	7.03	18.56	0.379 ✔	1.333	Bolt DS
T3	250	Leg	A325N	1.00	6	12.88	34.48	0.374 ✔	1.333	Bolt Tension
T4	230	Leg	A325N	1.00	6	13.67	34.56	0.396 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	1	5.89	6.12	0.962 ✔	1.333	Member Block Shear
T5	220	Leg	A325N	1.00	6	18.60	34.56	0.538 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	1	5.85	6.80	0.861 ✔	1.333	Member Block Shear
T6	200	Leg	A325N	1.00	6	23.22	34.56	0.672 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	1	8.18	6.80	1.204 ✔	1.333	Member Block Shear
		Top Girt	A325N	1.00	1	4.05	6.80	0.596 ✔	1.333	Member Block Shear
		Mid Girt	A325N	1.00	1	5.04	6.80	0.742 ✔	1.333	Member Block Shear
T7	180	Leg	A325N	1.25	6	29.22	54.00	0.541 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.25	1	10.64	11.55	0.921 ✔	1.333	Member Block Shear
		Top Girt	A325N	1.25	1	6.53	11.06	0.591 ✔	1.333	Member Block Shear
		Mid Girt	A325N	1.25	1	6.93	11.06	0.627 ✔	1.333	Member Block Shear
T8	160	Leg	A325N	1.25	6	36.72	54.00	0.680 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.25	1	12.20	13.82	0.883 ✔	1.333	Member Block Shear
		Top Girt	A325N	1.25	1	5.42	13.82	0.392 ✔	1.333	Member Block Shear
T9	140	Leg	A325N	1.25	6	44.41	54.00	0.822 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.25	1	13.68	13.82	0.990 ✔	1.333	Member Block Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T10	120	Leg	A325N	1.25	12	24.69	54.00	0.457 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	2	8.57	23.79	0.360 ✔	1.333	Member Block Shear
T11	100	Leg	A325N	1.25	12	28.14	54.00	0.521 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	2	9.03	23.79	0.379 ✔	1.333	Member Block Shear
T12	80	Leg	A325N	1.25	12	31.33	54.00	0.580 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	2	8.32	23.79	0.350 ✔	1.333	Member Block Shear
T13	60	Leg	A325N	1.25	12	33.81	54.00	0.626 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	2	9.19	23.79	0.386 ✔	1.333	Member Block Shear
T14	40	Leg	A325N	1.25	12	37.07	54.00	0.687 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	2	8.08	23.79	0.340 ✔	1.333	Member Block Shear
T15	20	Leg	A687	2.00	6	77.77	155.51	0.500 ✔	1.333	Bolt Tension
		Diagonal	A325N	1.00	2	10.65	23.79	0.448 ✔	1.333	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio P / P_a
T1	280 - 270	1 3/4	10.00	2.25	61.7 K=1.00	22.42	2.41	-11.31	53.93	0.210 ✔
T2	270 - 250	2	20.00	2.38	57.0 K=1.00	23.22	3.14	-35.14	72.96	0.482 ✔
T3	250 - 230	2 1/2	20.00	2.38	45.6 K=1.00	25.02	4.91	-89.14	122.83	0.726 ✔
T4	230 - 220	Pirod 105245	10.02	10.02	37.8 K=1.00	26.13	5.30	-93.23	138.54	0.673 ✔
T5	220 - 200	Pirod 105218	20.03	10.02	32.4 K=1.00	26.85	7.22	-126.84	193.73	0.655 ✔
T6	200 - 180	Pirod 105218	20.03	10.02	32.4 K=1.00	26.85	7.22	-161.28	193.73	0.833 ✔
T7	180 - 160	Pirod 105219	20.03	10.02	28.4 K=1.00	27.35	9.42	-206.93	257.78	0.803 ✔
T8	160 - 140	Pirod 105220	20.03	10.02	25.2 K=1.00	27.72	11.93	-263.92	330.69	0.798 ✔
T9	140 - 120	Pirod 105220	20.03	10.02	25.2 K=1.00	27.72	11.93	-320.78	330.69	0.970 ✔
T10	120 - 100	Pirod 112743	20.03	20.03	32.6 K=1.00	26.83	14.73	-354.30	395.05	0.897 ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T11	100 - 80	Pirod 112743	20.03	20.03	32.6 K=1.00	26.83	14.73	-408.44	395.05	1.034 ✔
T12	80 - 60	Pirod 112744	20.03	20.03	32.6 K=1.00	26.83	17.82	-453.50	478.06	0.949 ✔
T13	60 - 40	Pirod 112744	20.03	20.03	32.6 K=1.00	26.83	17.82	-499.75	478.06	1.045 ✔
T14	40 - 20	Pirod 112745	20.03	20.03	32.5 K=1.00	26.83	21.21	-540.04	569.01	0.949 ✔
T15	20 - 0	Pirod 112740	20.03	20.03	32.5 K=1.00	26.83	21.21	-583.74	569.01	1.026 ✔

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	F_a ksi	A in^2	Actual V K	Allow. V_a K	Stress Ratio
T4	230 - 220	0.5	1.47	141.2	7.49	0.20	0.78	1.65	0.471 ✔
T5	220 - 200	0.5	1.46	119.0	10.42	0.20	0.54	2.29	0.237 ✔
T6	200 - 180	0.5	1.46	119.0	10.42	0.20	1.16	2.29	0.508 ✔
T7	180 - 160	0.625	1.45	94.4	13.67	0.31	1.21	4.69	0.257 ✔
T8	160 - 140	0.625	1.43	93.6	13.77	0.31	1.80	4.73	0.380 ✔
T9	140 - 120	0.625	1.43	93.6	13.77	0.31	2.37	4.73	0.502 ✔
T10	120 - 100	0.75	1.73	93.9	16.08	0.44	0.79	9.78	0.081 ✔
T11	100 - 80	0.75	1.73	93.9	16.08	0.44	0.87	9.78	0.088 ✔
T12	80 - 60	0.75	1.71	93.1	16.27	0.44	0.86	9.90	0.087 ✔
T13	60 - 40	0.75	1.71	93.1	16.27	0.44	1.17	9.90	0.118 ✔
T14	40 - 20	0.875	1.70	79.1	19.20	0.60	1.67	15.90	0.105 ✔
T15	20 - 0	0.875	1.70	79.1	19.20	0.60	1.68	15.90	0.106 ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	7/8	5.48	2.66	131.4	8.65	0.60	-1.98	5.20	0.381

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
					K=0.90					✔
T2	270 - 250	7/8	5.54	2.68	132.1 K=0.90	8.56	0.60	-2.64	5.15	0.513 ✔
T3	250 - 230	1	5.54	2.65	114.6 K=0.90	11.37	0.79	-5.95	8.93	0.666 ✔
T4	230 - 220	L2 1/2x2 1/2x3/16	11.42	5.02	121.8 K=1.00	10.02	0.90	-6.74	9.04	0.746 ✔
T5	220 - 200	L3x3x3/16	12.50	5.67	115.6 K=1.01	10.80	1.09	-6.23	11.77	0.530 ✔
T6	200 - 180	L3x3x3/16	13.80	6.37	128.2 K=1.00	9.08	1.09	-9.51	9.90	0.960 ✔
T7	180 - 160	L3x3x5/16	15.24	7.09	144.5 K=1.00	7.15	1.78	-12.47	12.73	0.980 ✔
T8	160 - 140	L3 1/2x3 1/2x5/16	16.80	7.89	137.3 K=1.00	7.93	2.09	-12.19	16.57	0.736 ✔
T9	140 - 120	L3 1/2x3 1/2x5/16	17.62	8.32	144.7 K=1.00	7.13	2.09	-14.43	14.91	0.968 ✔
T10	120 - 100	2L3 1/2x3 1/2x5/16x3/8	26.26	12.45	134.0 K=0.97	8.31	4.18	-18.98	34.76	0.546 ✔
T11	100 - 80	2L3 1/2x3 1/2x5/16x3/8	27.59	13.14	139.9 K=0.96	7.63	4.18	-18.19	31.91	0.570 ✔
T12	80 - 60	2L3 1/2x3 1/2x5/16x3/8	29.01	13.87	146.0 K=0.95	7.01	4.18	-18.44	29.28	0.630 ✔
T13	60 - 40	2L3 1/2x3 1/2x5/16x3/8	30.49	14.62	152.4 K=0.94	6.43	4.18	-17.78	26.88	0.661 ✔
T14	40 - 20	2L3 1/2x3 1/2x5/16x3/8	32.02	15.40	159.0 K=0.93	5.91	4.18	-19.52	24.70	0.790 ✔
T15	20 - 0	2L3 1/2x3 1/2x5/16x3/8	33.61	16.20	165.8 K=0.92	5.43	4.18	-19.30	22.72	0.850 ✔

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	7/8	5.00	4.85	186.4 K=0.70	4.30	0.60	-0.20	2.58	0.076 ✔
T2	270 - 250	7/8	5.00	4.83	185.6 K=0.70	4.34	0.60	-0.39	2.61	0.148 ✔
T3	250 - 230	7/8	5.00	4.79	184.0 K=0.70	4.41	0.60	-0.71	2.65	0.267 ✔

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1	5.00	4.85	163.1 K=0.70	5.61	0.79	-0.84	4.41	0.191 ✔
T2	270 - 250	1	5.00	4.83	162.4 K=0.70	5.66	0.79	-0.95	4.45	0.213 ✔
T3	250 - 230	1 1/4	5.00	4.79	128.8 K=0.70	9.00	1.23	-1.68	11.05	0.152 ✔
T6	200 - 180	L3x3x3/16	8.00	6.67	134.2 K=1.00	8.29	1.09	-3.10	9.03	0.343 ✔
T7	180 - 160	L4x4x1/4	10.00	8.60	129.9 K=1.00	8.85	1.94	-4.74	17.18	0.276 ✔
T8	160 - 140	L3 1/2x3 1/2x5/16	12.00	10.60	184.4 K=1.00	4.39	2.09	-3.89	9.18	0.424 ✔

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1	5.00	4.85	163.1 K=0.70	5.61	0.79	-0.83	4.41	0.187 ✔
T2	270 - 250	1	5.00	4.83	162.4 K=0.70	5.66	0.79	-1.09	4.45	0.245 ✔
T3	250 - 230	1 1/4	5.00	4.79	128.8 K=0.70	9.00	1.23	-1.08	11.05	0.098 ✔

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1	5.00	4.85	163.1 K=0.70	5.61	0.79	-0.02	4.41	0.004 ✔
T2	270 - 250	1	5.00	4.83	162.4 K=0.70	5.66	0.79	-0.22	4.45	0.048 ✔
T6	200 - 180	L3x3x3/16	9.00	7.67	154.4 K=1.00	6.27	1.09	-3.64	6.83	0.533 ✔
T7	180 - 160	L4x4x1/4	11.00	9.60	145.0 K=1.00	7.11	1.94	-4.91	13.79	0.356 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1 3/4	10.00	0.54	14.9	32.50	1.23	7.59	40.10	0.189
T2	270 - 250	2	20.00	0.54	13.0	32.50	1.56	30.06	50.78	0.592
T3	250 - 230	2 1/2	20.00	0.54	10.4	30.00	4.91	77.28	147.26	0.525
T4	230 - 220	Pirod 105245	10.02	10.02	37.8	30.00	5.30	82.01	159.04	0.516
T5	220 - 200	Pirod 105218	20.03	10.02	32.4	30.00	7.22	111.61	216.47	0.516
T6	200 - 180	Pirod 105218	20.03	10.02	32.4	30.00	7.22	139.34	216.47	0.644
T7	180 - 160	Pirod 105219	20.03	10.02	28.4	30.00	9.42	175.31	282.74	0.620
T8	160 - 140	Pirod 105220	20.03	10.02	25.2	30.00	11.93	220.32	357.85	0.616
T9	140 - 120	Pirod 105220	20.03	10.02	25.2	30.00	11.93	266.45	357.85	0.745
T10	120 - 100	Pirod 112743	20.03	20.03	32.6	30.00	14.73	296.33	441.79	0.671
T11	100 - 80	Pirod 112743	20.03	20.03	32.6	30.00	14.73	337.68	441.79	0.764
T12	80 - 60	Pirod 112744	20.03	20.03	32.6	30.00	17.82	375.97	534.56	0.703
T13	60 - 40	Pirod 112744	20.03	20.03	32.6	30.00	17.82	405.73	534.56	0.759
T14	40 - 20	Pirod 112745	20.03	20.03	32.5	30.00	21.21	444.88	636.17	0.699
T15	20 - 0	Pirod 112740	20.03	20.03	32.5	30.00	21.21	466.62	636.17	0.733

Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	F_a ksi	A in^2	Actual V K	Allow. V_a K	Stress Ratio
T4	230 - 220	0.5	1.47	141.2	7.49	0.20	0.78	1.65	0.471
T5	220 - 200	0.5	1.46	119.0	10.42	0.20	0.54	2.29	0.237
T6	200 - 180	0.5	1.46	119.0	10.42	0.20	1.16	2.29	0.508
T7	180 - 160	0.625	1.45	94.4	13.67	0.31	1.21	4.69	0.257
T8	160 - 140	0.625	1.43	93.6	13.77	0.31	1.80	4.73	0.380
T9	140 - 120	0.625	1.43	93.6	13.77	0.31	2.37	4.73	0.502
T10	120 - 100	0.75	1.73	93.9	16.08	0.44	0.79	9.78	0.081

Section No.	Elevation ft	Diagonal Size	L_d ft	Kl/r	F_a ksi	A in^2	Actual V K	Allow. V_a K	Stress Ratio
T11	100 - 80	0.75	1.73	93.9	16.08	0.44	0.87	9.78	0.088 ✔
T12	80 - 60	0.75	1.71	93.1	16.27	0.44	0.86	9.90	0.087 ✔
T13	60 - 40	0.75	1.71	93.1	16.27	0.44	1.17	9.90	0.118 ✔
T14	40 - 20	0.875	1.70	79.1	19.20	0.60	1.67	15.90	0.105 ✔
T15	20 - 0	0.875	1.70	79.1	19.20	0.60	1.68	15.90	0.106 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	7/8	5.48	2.66	146.0	30.00	0.60	1.99	18.04	0.110 ✔
T2	270 - 250	7/8	5.54	2.68	146.8	30.00	0.60	2.64	18.04	0.147 ✔
T3	250 - 230	1	5.54	2.65	127.3	30.00	0.79	5.86	23.56	0.249 ✔
T4	230 - 220	L2 1/2x2 1/2x3/16	11.42	5.02	80.1	29.00	0.52	5.89	15.03	0.392 ✔
T5	220 - 200	L3x3x3/16	11.93	5.42	71.5	29.00	0.66	5.85	19.12	0.306 ✔
T6	200 - 180	L3x3x3/16	13.80	6.37	83.5	29.00	0.66	8.18	19.12	0.428 ✔
T7	180 - 160	L3x3x5/16	15.24	7.09	94.9	29.00	1.01	10.64	29.37	0.362 ✔
T8	160 - 140	L3 1/2x3 1/2x5/16	16.80	7.89	89.9	29.00	1.25	12.20	36.11	0.338 ✔
T9	140 - 120	L3 1/2x3 1/2x5/16	17.62	8.32	94.6	29.00	1.25	13.68	36.11	0.379 ✔
T10	120 - 100	2L3 1/2x3 1/2x5/16x3/8	26.26	12.45	141.6	29.00	2.61	17.14	75.62	0.227 ✔
T11	100 - 80	2L3 1/2x3 1/2x5/16x3/8	27.59	13.14	149.3	29.00	2.61	18.05	75.62	0.239 ✔
T12	80 - 60	2L3 1/2x3 1/2x5/16x3/8	29.01	13.87	157.3	29.00	2.61	16.64	75.62	0.220 ✔
T13	60 - 40	2L3 1/2x3 1/2x5/16x3/8	30.49	14.62	165.7	29.00	2.61	18.38	75.62	0.243 ✔
T14	40 - 20	2L3 1/2x3 1/2x5/16x3/8	32.02	15.40	174.3	29.00	2.61	16.17	75.62	0.214 ✔
T15	20 - 0	2L3 1/2x3 1/2x5/16x3/8	33.61	16.20	183.2	29.00	2.61	21.30	75.62	0.282 ✔

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	7/8	5.00	4.85	266.3	30.00	0.60	0.32	18.04	0.018 ✔
T2	270 - 250	7/8	5.00	4.83	265.1	30.00	0.60	0.51	18.04	0.028 ✔
T3	250 - 230	7/8	5.00	4.79	262.9	30.00	0.60	0.87	18.04	0.048 ✔

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1	5.00	4.85	233.0	30.00	0.79	0.81	23.56	0.035 ✔
T2	270 - 250	1	5.00	4.83	232.0	30.00	0.79	0.96	23.56	0.041 ✔
T3	250 - 230	1 1/4	5.00	4.79	184.0	30.00	1.23	1.72	36.82	0.047 ✔
T6	200 - 180	L3x3x3/16	8.00	6.67	89.5	29.00	0.66	4.05	19.12	0.212 ✔
T7	180 - 160	L4x4x1/4	10.00	8.60	86.4	29.00	1.20	6.53	34.72	0.188 ✔
T8	160 - 140	L3 1/2x3 1/2x5/16	12.00	10.60	122.2	29.00	1.25	5.42	36.11	0.150 ✔

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1	5.00	4.85	233.0	30.00	0.79	0.85	23.56	0.036 ✔
T2	270 - 250	1	5.00	4.83	232.0	30.00	0.79	1.15	23.56	0.049 ✔
T3	250 - 230	1 1/4	5.00	4.79	184.0	30.00	1.23	1.23	36.82	0.034 ✔

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
T1	280 - 270	1	5.00	4.85	233.0	30.00	0.79	0.11	23.56	0.005 ✔
T2	270 - 250	1	5.00	4.83	232.0	30.00	0.79	0.33	23.56	0.014 ✔
T6	200 - 180	L3x3x3/16	9.00	7.67	102.2	29.00	0.66	5.04	19.12	0.264 ✔
T7	180 - 160	L4x4x1/4	11.00	9.60	96.0	29.00	1.20	6.93	34.72	0.200 ✔

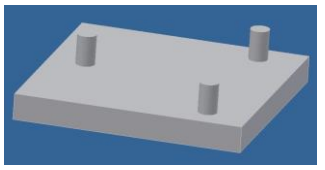
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
T1	280 - 270	Leg	1 3/4	3	-11.31	71.89	15.7	Pass
T2	270 - 250	Leg	2	41	30.06	67.69	44.4	Pass
T3	250 - 230	Leg	2 1/2	105	-89.14	163.73	54.4	Pass
T4	230 - 220	Leg	Pirod 105245	169	-93.23	184.67	50.5	Pass
T5	220 - 200	Leg	Pirod 105218	178	-126.84	258.24	49.1	Pass
T6	200 - 180	Leg	Pirod 105218	193	-161.28	258.24	62.5	Pass
T7	180 - 160	Leg	Pirod 105219	214	-206.93	343.62	60.2	Pass
T8	160 - 140	Leg	Pirod 105220	235	-263.92	440.81	59.9	Pass
T9	140 - 120	Leg	Pirod 105220	253	-320.78	440.81	72.8	Pass
T10	120 - 100	Leg	Pirod 112743	268	-354.30	526.59	67.3	Pass
T11	100 - 80	Leg	Pirod 112743	277	-408.44	526.59	77.6	Pass
T12	80 - 60	Leg	Pirod 112744	286	-453.50	637.26	71.2	Pass
T13	60 - 40	Leg	Pirod 112744	297	-499.75	637.26	78.4	Pass
T14	40 - 20	Leg	Pirod 112745	306	-540.04	758.48	71.2	Pass
T15	20 - 0	Leg	Pirod 112740	315	-583.74	758.48	77.0	Pass
T1	280 - 270	Diagonal	7/8	16	-1.98	6.93	28.6	Pass
T2	270 - 250	Diagonal	7/8	55	-2.64	6.86	38.5	Pass
T3	250 - 230	Diagonal	1	119	-5.95	11.91	50.0	Pass
T4	230 - 220	Diagonal	L2 1/2x2 1/2x3/16	177	-6.74	12.05	55.9 72.2 (b)	Pass
T5	220 - 200	Diagonal	L3x3x3/16	186	-6.23	15.69	39.7 64.6 (b)	Pass
T6	200 - 180	Diagonal	L3x3x3/16	207	-9.51	13.20	72.1 90.3 (b)	Pass
T7	180 - 160	Diagonal	L3x3x5/16	227	-12.47	16.97	73.5	Pass
T8	160 - 140	Diagonal	L3 1/2x3 1/2x5/16	245	-12.19	22.08	55.2 66.2 (b)	Pass
T9	140 - 120	Diagonal	L3 1/2x3 1/2x5/16	266	-14.43	19.88	72.6 74.3 (b)	Pass
T10	120 - 100	Diagonal	2L3 1/2x3 1/2x5/16x3/8	275	-18.98	46.33	41.0	Pass
T11	100 - 80	Diagonal	2L3 1/2x3 1/2x5/16x3/8	284	-18.19	42.53	42.8	Pass
T12	80 - 60	Diagonal	2L3 1/2x3 1/2x5/16x3/8	293	-18.44	39.03	47.2	Pass
T13	60 - 40	Diagonal	2L3 1/2x3 1/2x5/16x3/8	302	-17.78	35.83	49.6	Pass
T14	40 - 20	Diagonal	2L3 1/2x3 1/2x5/16x3/8	312	-19.52	32.92	59.3	Pass
T15	20 - 0	Diagonal	2L3 1/2x3 1/2x5/16x3/8	321	-19.30	30.28	63.7	Pass
T1	280 - 270	Horizontal	7/8	32	-0.20	3.45	5.7	Pass
T2	270 - 250	Horizontal	7/8	98	-0.39	3.47	11.1	Pass
T3	250 - 230	Horizontal	7/8	162	-0.71	3.54	20.0	Pass
T1	280 - 270	Top Girt	1	5	-0.84	5.88	14.3	Pass
T2	270 - 250	Top Girt	1	44	-0.95	5.93	16.0	Pass
T3	250 - 230	Top Girt	1 1/4	109	-1.68	14.73	11.4	Pass
T6	200 - 180	Top Girt	L3x3x3/16	197	-3.10	12.04	25.7	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
							44.7 (b)	
T7	180 - 160	Top Girt	L4x4x1/4	218	-4.74	22.89	20.7	Pass
							44.3 (b)	
T8	160 - 140	Top Girt	L3 1/2x3 1/2x5/16	239	-3.89	12.23	31.8	Pass
T1	280 - 270	Bottom Girt	1	8	-0.83	5.88	14.0	Pass
T2	270 - 250	Bottom Girt	1	45	-1.09	5.93	18.4	Pass
T3	250 - 230	Bottom Girt	1 1/4	111	-1.08	14.73	7.3	Pass
T1	280 - 270	Mid Girt	1	10	0.11	31.41	0.4	Pass
T2	270 - 250	Mid Girt	1	48	-0.22	5.93	3.6	Pass
T6	200 - 180	Mid Girt	L3x3x3/16	200	-3.64	9.11	40.0	Pass
							55.6 (b)	
T7	180 - 160	Mid Girt	L4x4x1/4	221	-4.91	18.38	26.7	Pass
							47.0 (b)	
							Summary	
						Leg (T13)	78.4	Pass
						Diagonal (T6)	90.3	Pass
						Horizontal (T3)	20.0	Pass
						Top Girt (T6)	44.7	Pass
						Bottom Girt (T2)	18.4	Pass
						Mid Girt (T6)	55.6	Pass
						Bolt Checks	90.3	Pass
						RATING =	**90.3**	**Pass**

Unit Base Foundation

Checks capacity of square mat foundation with raised piers for a self-supporting tower



Site Number: CT5633
Site Name: Seymour East

TIA-222 Revision: F

Design Reactions		
Shear, **S**:	87.00	kips
Moment, **M**:	12848.00	ft-kips
Compression/leg, **Ca**:	602.00	kips
Uplift/leg, **Ua**:	483.00	kips
Tower Weight, **Wt**:	100.00	kips
Tower Height, **H**:	280	ft
Base Face Width, **w'**:	28	ft

Pad Properties		
Depth, **D**:	6.0	ft
Pad Width, **W**:	38.5	ft
Pad Thickness, **T**:	3.3	ft
Ext. Above Grade, **E**:	0.5	ft
Neglected Depth, **N**:	3.3	ft
Pad Rebar Size, **Sp**:	11	
Pad Rebar Quantity, **mp**:	60	18

Pier Properties		
Pier Shape:	Circular	
Pier Width, di:	5.0	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	23	15
Pier Tie Size, **St**:	3	
Tie Quantity, **mt**:	3	10

Material Properties		
Rebar Tensile, **Fy**:	60000	psi
Concrete Strength, **F'c**:	4000	psi
Concrete Density, δ**c**:	150	pcf
Clear Cover, **cc**:	3	in

Soil Properties		
Soil Unit Weight, γ:	120	pcf
Ultimate Bearing: **Bc**:	10.000	ksf
Cohesion, **Co**:	0.000	ksf
Friction Angle, φ:	30	degrees
Base Sliding, **μ**:	0.45	

Design Checks	***Capacity/ Availability***	***Demand/ Limits***	***Check***
Base Sliding (kips):	404.88	87.00	**21.5%**
Overturning (k-ft):	15075.14	12848.00	**85.2%**
Bearing (ksf):	7.50	3.14	**41.8%**
1-way Shear (kips):	1485.15	118.78	**8.0%**
2-way Shear (kips):	1896.29	782.60	**41.3%**
Pier concrete stress (ksf):	5881.06	782.60	**13.3%**
Pier moment capacity (k-ft):	232.00	141.38	**60.9%**
Pad moment capacity(k-ft):	13519.41	4206.71	**31.1%**

☐ Tower centroid is offset from foundation centroid

APPENDIX B
EXCERPT FOR EXISTING APPURTENANCES

Antenna and Appurtenance Summary

The existing tower supports several communication antennas. The existing and proposed loads considered in the analysis consist of the following:

- EMAC (Existing):
  Antenna: One (1) DB420-A dipole antenna and one (1) DB586-XC omni-directional whip antenna mounted on a 9-arm halo with an elevation of ±280-ft above grade level.
  Coax Cable: Two (2) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- T-Mobile (Existing/Reserved):
  Antenna: Three (3) EMS RR90-17-02DP panel antennas, three (3) Andrew LNX-6515DS panel antennas and three (3) TMA's mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±250-ft above grade level.
  Coax Cable: Twelve (12) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- EMAC (Existing):
  Antenna: One (1) DB420-A dipole antenna and one (1) DB225-2-F dipole antenna mounted on a 9-arm halo with an elevation of ±235-ft above grade level.
  Coax Cable: Two (2) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.

- Future Carrier (Reserved):
  Antenna: Nine (9) Decibel DB980H120E-M panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±200-ft above grade level.
  Coax Cable: Nine (9) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- Future Carrier (Reserved):
  Antenna: Nine (9) Decibel DB980H120E-M panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±190-ft above grade level.
  Coax Cable: Nine (9) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- Future Carrier (Reserved):
  Antenna: Nine (9) Decibel DB980H120E-M panel antennas mounted on three (3) 10-ft T-Frames with a RAD center elevation of ±180-ft above grade level.
  Coax Cable: Nine (9) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- Sprint (Existing):
  Antenna: Three (3) RFS APXVSPP18 panel antennas, three (3) RFS APXVTM14 panel antennas, three (3) 800 MHZ RRH's, three (3) 1900 MHZ RRH's and three (3) TD-RRH8x20-25 RRH's mounted on three (3) 15-ft T-Frames with a RAD center elevation of ±170-ft above grade level.
  Coax Cable: Three (3) 1-5/8" ∅ coax cables and one (1) 1-/4" ∅ fiber cable running on a leg of the existing tower as specified in Section 3 of this report.

- MetroPCS (Reserved):
  Antenna: Three (3) RFS APX18-206517DS panel antennas leg mounted with a RAD center elevation of ±150-ft above grade level.
  Coax Cable: Six (6) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing to Remain):
  Antennas: Three (3) Andrew LNX-6514DS panel antennas and six (6) RFS FD9R6004/2C-3L diplexers mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±140-ft above grade level.
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables running on a leg of the existing tower as specified in Section 3 of this report.

- VERIZON (Existing to Remove):
  Antennas: Six (6) Antel LPA-80063-6CF and three (3) Antel BXA-171063-12BF panel antennas mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±140-ft above grade level.

- **VERIZON (Proposed):**
  Antennas: Three (3) Andrew LNX-6514DS panel antennas, six (6) Andrew HBXX-6517DS panel antennas, three (3) Alcatel-Lucent RRH2x60-AWS remote radio heads, three (3) Alcatel-Lucent RRH2x60-PCS remote radio heads and one (1) RFS DB-T1-6Z-8AB-0Z main distribution box mounted on three (3) 12-ft T-Frames with a RAD center elevation of ±140-ft above grade level.
  Coax Cables: One (1) 1-5/8" Ø fiber cable running on a leg of the existing tower as specified in Section 3 of this report.

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT5633

Seymour East
6 Progress Avenue
Seymour, CT 06483

March 9, 2016

EBI Project Number: 6216000917

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	6.44 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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March 9, 2016

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

Emissions Analysis for Site: **CT5633 – Seymour East**

EBI Consulting was directed to analyze the proposed AT&T facility located at **6 Progress Avenue, Seymour, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **6 Progress Avenue, Seymour, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **Kathrein 800-10121, Quintel QS66512-3 and the KMW AM-X-CD-16-00T-RET** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **160 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

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AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121
Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd
Height (AGL):	100 feet	Height (AGL):	100 feet	Height (AGL):	100 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	3,309.26	ERP (W):	3,309.26	ERP (W):	3,309.26
Antenna A1 MPE%	**0.70**	Antenna B1 MPE%	**0.70**	Antenna C1 MPE%	**0.70**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Quintel QS66512-3	Make / Model:	Quintel QS66512-3	Make / Model:	Quintel QS66512-3
Gain:	15.5 dBd	Gain:	15.5 dBd	Gain:	15.5 dBd
Height (AGL):	160 feet	Height (AGL):	160 feet	Height (AGL):	160 feet
Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	4,307.06	ERP (W):	4,307.06	ERP (W):	4,307.06
Antenna A2 MPE%	**0.65**	Antenna B2 MPE%	**0.65**	Antenna C2 MPE%	**0.65**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	13.35 / 15.25 dBd	Gain:	13.35 / 15.25 dBd	Gain:	13.35 / 15.25 dBd
Height (AGL):	160 feet	Height (AGL):	160 feet	Height (AGL):	160 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,614.85	ERP (W):	6,614.85	ERP (W):	6,614.85
Antenna A3 MPE%	**1.45**	Antenna B3 MPE%	**1.45**	Antenna C3 MPE%	**1.45**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**2.80 %**
Mike Gardella	0.06 %
Town	0.33 %
Verizon Wireless	2.41 %
T-Mobile	0.28 %
Sprint	0.56 %
Site Total MPE %:	**6.44 %**

AT&T Sector 1 Total:	2.80 %
AT&T Sector 2 Total:	2.80 %
AT&T Sector 3 Total:	2.80 %
Site Total:	6.44 %

AT&T _ Max Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	160	1.27	850	567	0.22 %
AT&T 1900 MHz (PCS) UMTS	2	816.81	160	2.48	1900	1000	0.25 %
AT&T 850 MHz GSM	2	418.91	160	1.27	850	567	0.22 %
AT&T 2300 MHz (WCS) LTE	2	2153.53	160	6.53	2300	1000	0.65 %
AT&T 700 MHz) LTE	2	1297.63	160	3.93	700	467	0.84 %
AT&T 1900 MHz (PCS) LTE	2	2009.79	160	6.09	1900	1000	0.61 %
						Total:	2.80 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	2.80 %
Sector 2:	2.80 %
Sector 3 :	2.80 %
AT&T Maximum Total (per sector):	2.80 %
Site Total:	6.44 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.44%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803