QC Development
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September 23, 2016

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T)
265 Benham Street, Hamden, CT 06514 – AT&T SITE # CT2040
N 41-22-12.70
W 72-55-53.45

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 54-foot level of the existing 91-foot Rooftop Guyed Tower at 265 Benham Street, Hamden, CT. The tower is owned by Verizon and the property is owned by the Apostles of the Sacred Heart. AT&T now intends to remove three (3) KMW antennas and replace them with three (3) CCI antennas. These antennas would be installed at the 54-foot level of the tower. AT&T also intends to remove three (3) existing Ericsson RRUS-11 radio heads and install three (3) Ericsson RRUS-32 B2.

This facility was approved by the Hamden Planning and Zoning Commission on August 22, 2000. There were no conditions that could feasibly be violated by this modification, including, total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Curt B. Leng, Mayor of the Town of Hamden, as well as the property owner and the

tower owner.

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

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

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

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

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

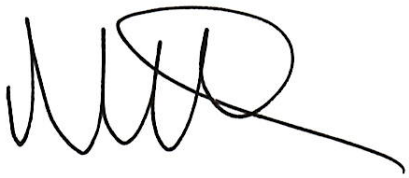
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

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

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Honorable Curt B. Leng - as elected official (via e-mail)
Apostles of the Sacred Heart - as property owner
Verizon - as tower owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
49Other Carriers*							64.31%
AT&T GSM	2	982	54.5	0.3003	880	0.5867	5.12%
AT&T GSM	2	1355	54.5	0.4143	1900	1.0000	4.14%
AT&T UMTS	1	491	54.5	0.0751	880	0.5867	1.28%
AT&T UMTS	4	813	54.5	0.4972	1900	1.0000	4.97%
AT&T LTE	1	1313	54.5	0.2007	734	0.4893	4.10%
Site Total							83.93%

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

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

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							64.31%
AT&T GSM	2	982	54.5	0.3003	880	0.5867	5.12%
AT&T UMTS	1	491	54.5	0.0751	880	0.5867	1.28%
AT&T UMTS	4	813	54.5	0.4972	1900	1.0000	4.97%
AT&T LTE	1	1313	54.5	0.2007	734	0.4893	4.10%
AT&T LTE	1	2421	54.5	0.3701	1900	1.0000	3.70%
Site Total							83.49%

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

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

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

WIRELESS COMMUNICATIONS FACILITY
CT2040 - LTE BWE
HAMDEN - BENHAM STREET
265 BENHAM STREET
HAMDEN, CT 06514

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA–222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD–OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS–BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE 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.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB–CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1–800–922–4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

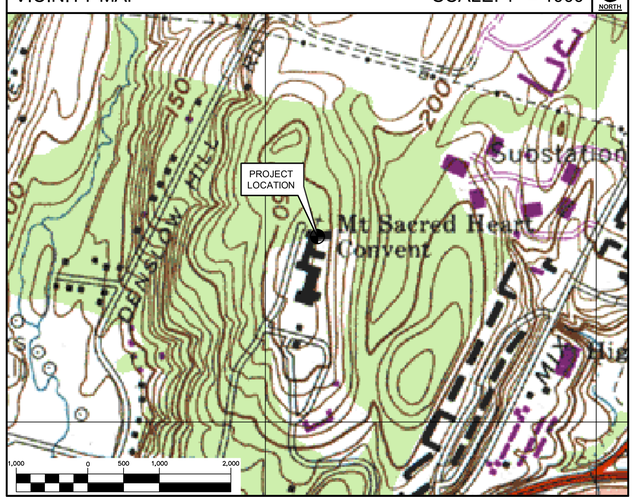
SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT
TO: 265 BENHAM STREET, HAMDEN, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.31 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI
3.	TURN LEFT ONTO WEST ST	0.30 MI
4.	TURN LEFT TO MERGE ONTO I–91 S TOWARD NEW HAVEN	9.59 MI
5.	TAKE EXIT 17 FOR CT–15 S/W CROSS PKWY	14.67 MI
6.	TAKE THE CT–10 EXIT, EXIT 60 TOWARD HAMDEN/NEW HAVEN	0.22 MI
7.	TURN RIGHT ONTO DIXWELL AVE/CT–10	0.26 MI
8.	TURN RIGHT ONTO BENHAM STREET	

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
   A. REMOVE AND REPLACE (3) EXISTING POS. 2 ANTENNA'S FOR PROPOSED HEXPORT ANTENNA'S, (1) PER SECTOR.
   B. REMOVE AND REPLACE (3) EXISTING RRU–11'S FOR (3) NEW RRUS–32 B2'S

PROJECT INFORMATION

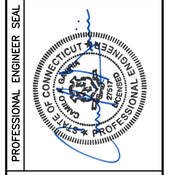
AT&T SITE NUMBER:	CT2040
AT&T SITE NAME:	HAMDEN – BENHAM STREET
SITE ADDRESS:	265 BENHAM STREET HAMDEN, CT 06514
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°–22'–12.69" N LONGITUDE: 72°–55'–53.52" W GROUND ELEVATION: ±264' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	0
N–1	NOTES AND SPECIFICATIONS	0
C–1	PLANS AND ELEVATION	0
C–2	LTE BWE EQUIPMENT DETAILS	0
C–3	LTE BWE EQUIPMENT DETAILS	0
E–1	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	08/22/16	KAWJR	CAG	CONSTRUCTION DOCUMENTS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL



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AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
HAMDEN – BENHAM STREET
CT2040 – LTE BWE
265 BENHAM STREET
HAMDEN, CT 06514

DATE: 08/11/16
SCALE: AS NOTED
JOB NO. 16034.07

TITLE SHEET

T–1

Sheet No. 1 of 6

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2003 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 85 MPH (FASTEST MILE), EQUIVALENT TO 105 MPH (3 SECOND GUST)
- BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
- BASIC WIND SPEED (OTHER STRUCTURE): 105 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMMENDMENT.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON CL&P OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

PAINTING SCHEDULE:

1. ANTENNA PANELS:
   A. SHERWIN WILLIAMS POLANE-B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
2. COAXIAL CABLES:
   A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
8. FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
9. GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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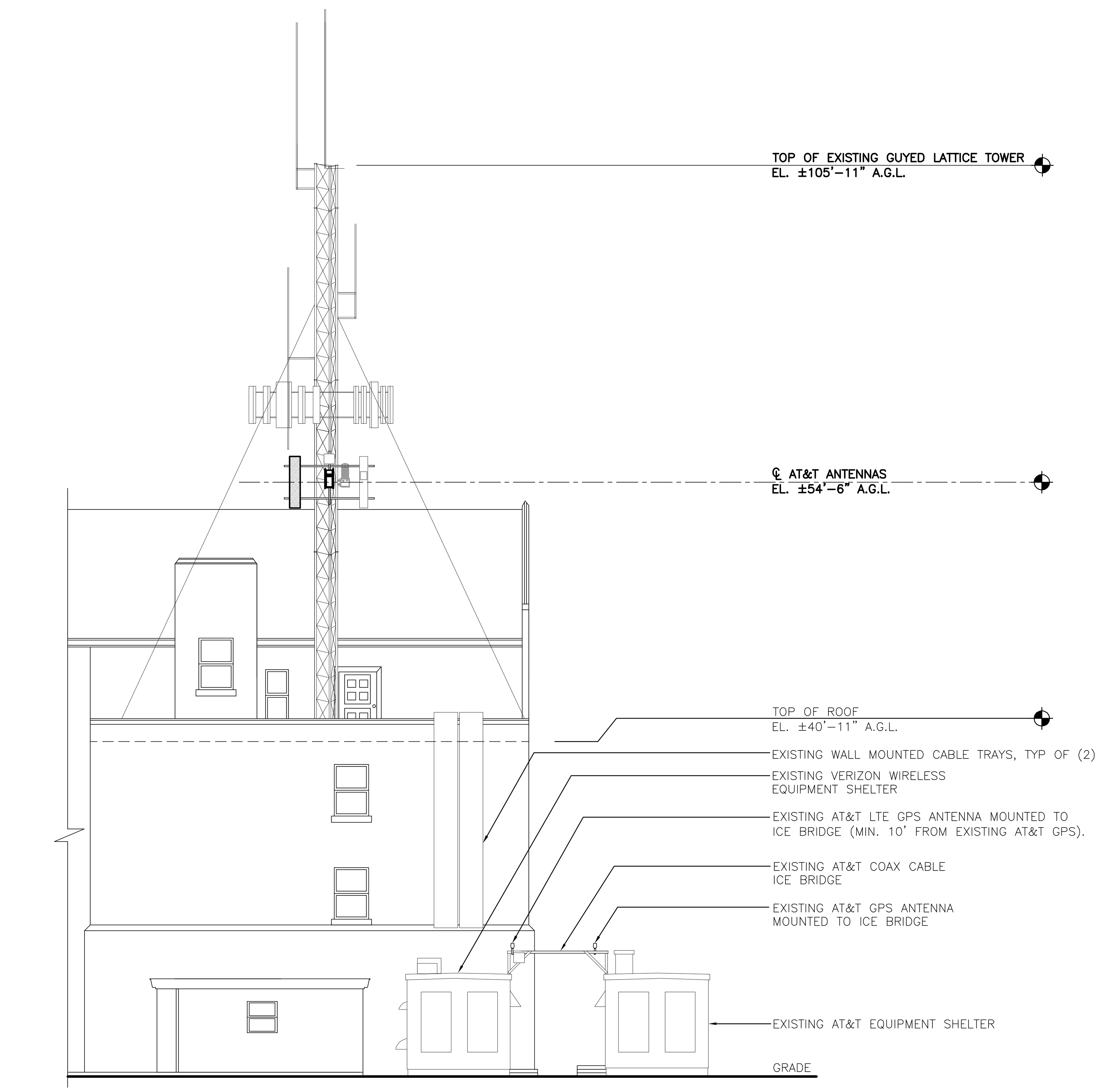
NOTES & SPECIFICATIONS

N-1



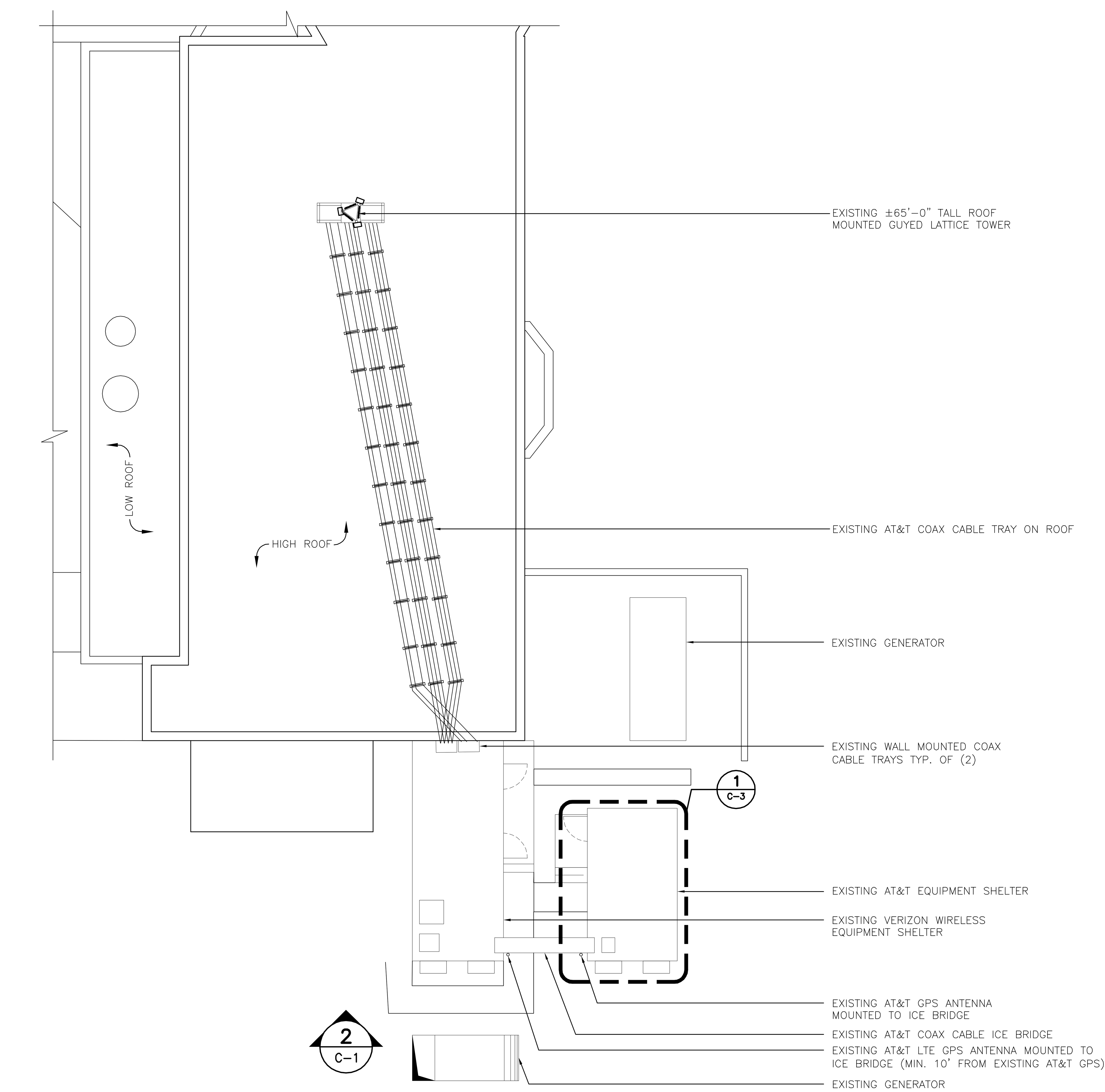
2 C–1 **NORTHEAST ELEVATION**

SCALE: 1" = 10'–0"

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.



1 C–1 **COMPOUND PLAN**

SCALE: 1" = 10'–0"

APPROX. NORTH

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

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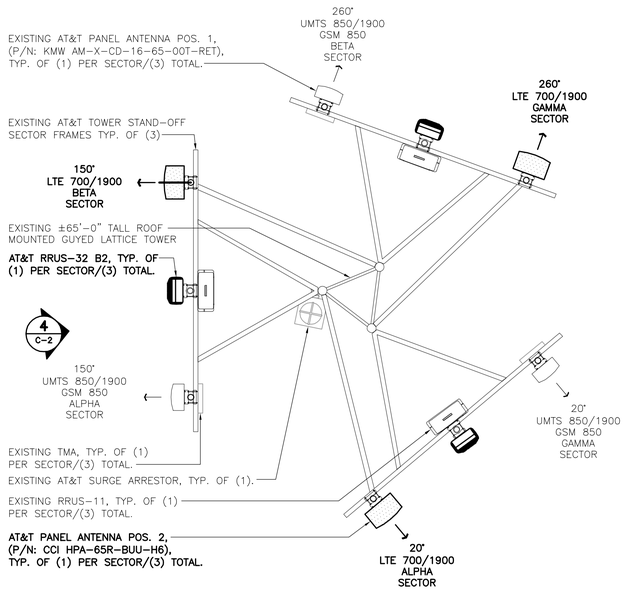
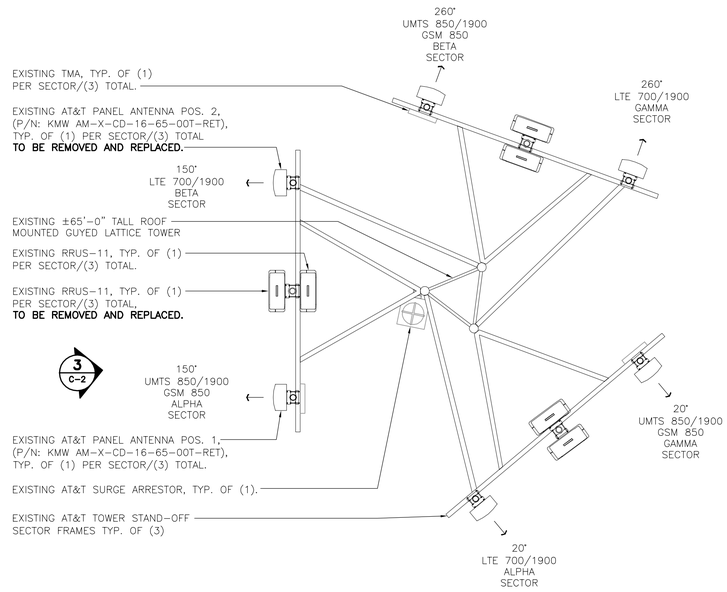
PLANS & ELEVATION

C–1

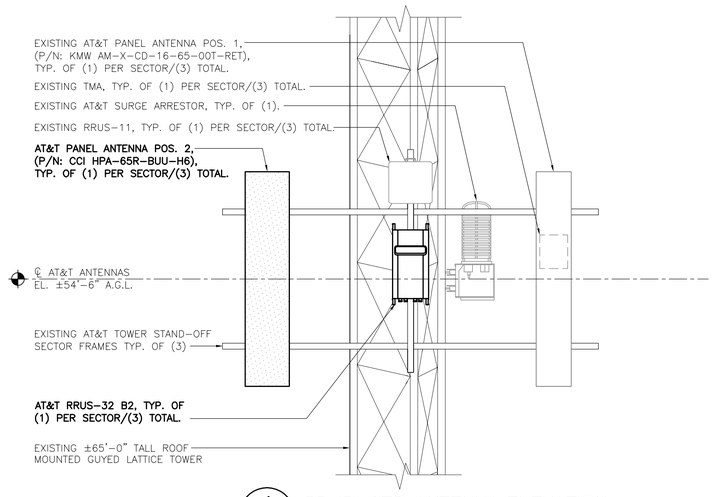
Sheet No. 3 of 6



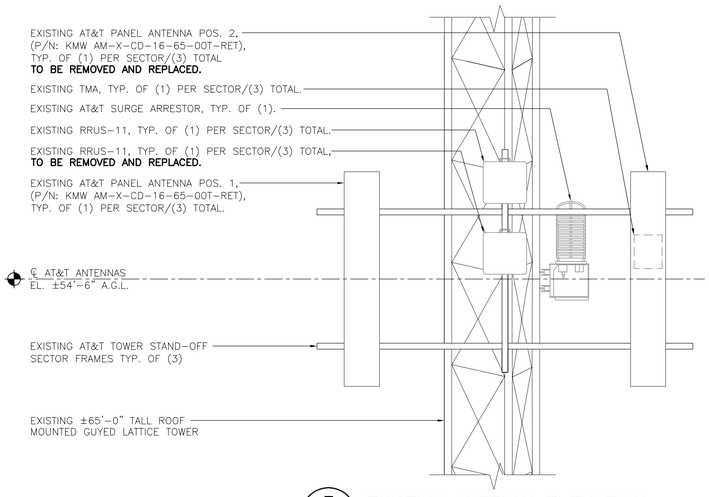
2 C-2 **PROPOSED ANTENNA PLAN**
SCALE: 3/8" = 1'-0"
NORTH



1 C-2 **EXISTING ANTENNA PLAN**
SCALE: 3/8" = 1'-0"
NORTH



4 C-2 **PROPOSED ANTENNA ELEVATION**
SCALE: 1/2" = 1'-0"



3 C-2 **EXISTING ANTENNA ELEVATION**
SCALE: 1/2" = 1'-0"

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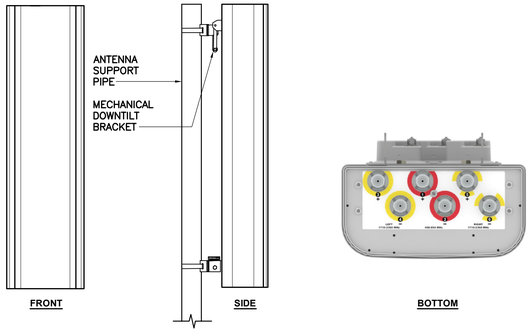
LTE BWE
EQUIPMENT
DETAILS

C-2

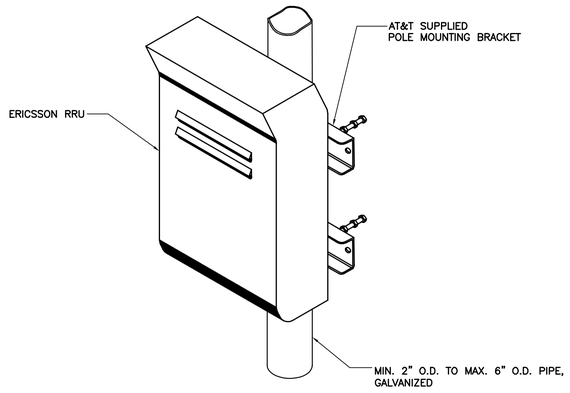
Sheet No. 4 of 6



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: HPA-65R-BUU-H6	72.3"L x 14.4"W x 7.3"D	42.9 LBS.

3 / C-3 PROPOSED ANTENNA DETAIL

SCALE: 1/2" = 1'-0"



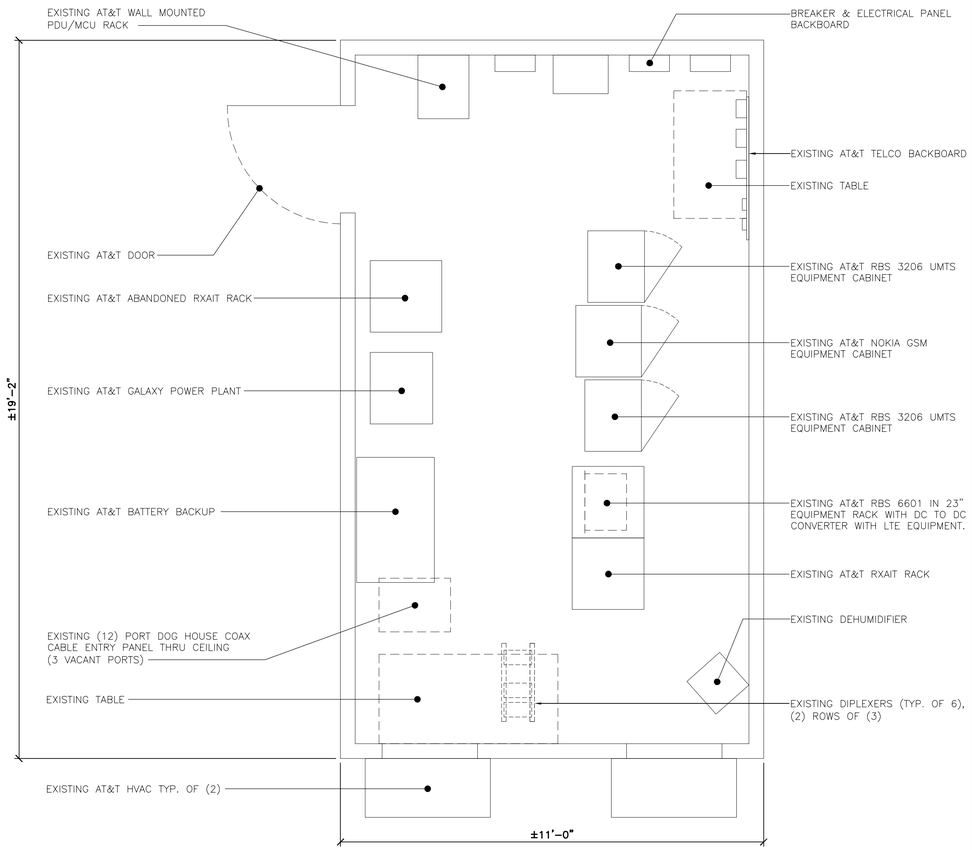
ISOMETRIC VIEW

NOTES:

1. AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

2 / C-3 TYPICAL RRUS MOUNTING DETAILS

SCALE: NTS



1 / C-3 EQUIPMENT BUILDING FLOOR PLAN

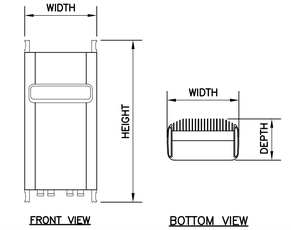
SCALE: 1/4" = 1'-0"

APPROX. NORTH

GRAPHIC SCALE

4 0 2 4 8 16

(IN FEET)
1 inch = 4 ft.



FRONT VIEW BOTTOM VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 32	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

4 / C-3 ERICSSON RRUS 32 B2 DETAIL

SCALE: 1" = 1'-0"

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LTE BWE EQUIPMENT DETAILS

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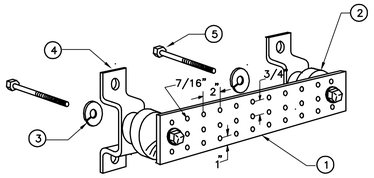
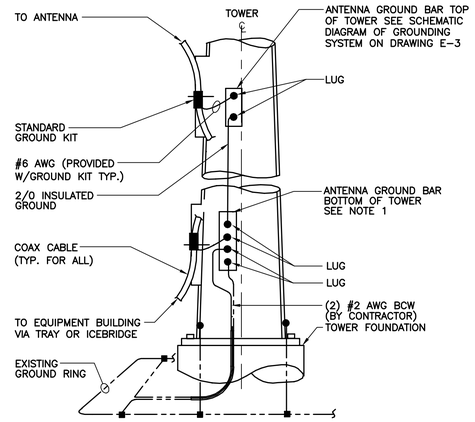


LEGEND

1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. 4. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

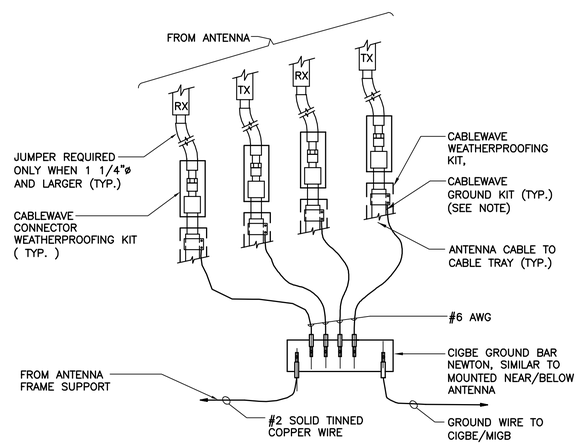
3 E-1 **GROUND BAR DETAIL**
NOT TO SCALE



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

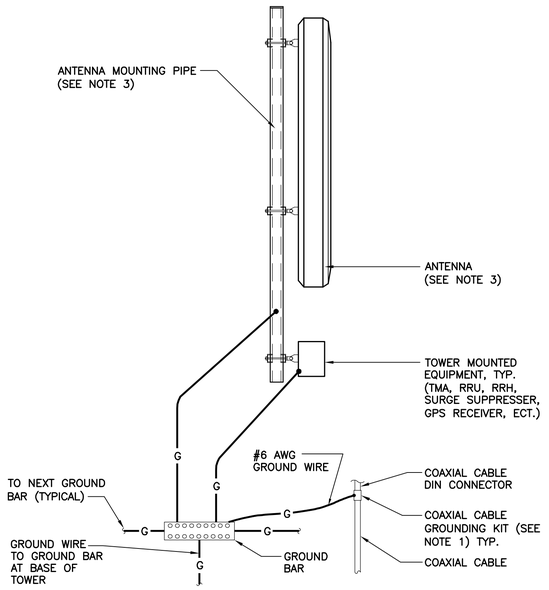
2 E-1 **ANTENNA CABLE GROUNDING - TOWER**
NOT TO SCALE



NOTE:

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

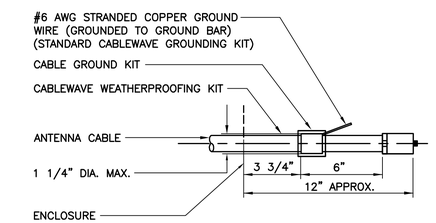
5 E-1 **CONNECTION OF GROUND WIRES TO GROUND BAR**
NOT TO SCALE



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 E-1 **TYPICAL ANTENNA GROUNDING DETAIL**
NOT TO SCALE



NOTE:

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

4 E-1 **ANTENNA CABLE GROUNDING DETAIL**
NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-1

Sheet No. 6 of 6

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Structural Analysis Report

65' Existing Roof Top Mounted
NUDD Guyed Lattice Tower

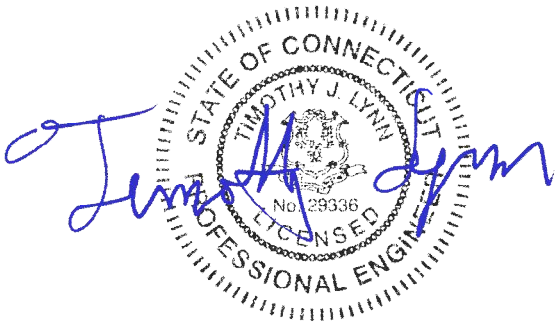
Proposed AT&T Mobility
Antenna Upgrade

AT&T Site Ref: CT2040

265 Benham Street
Hamden, CT

CENTEK Project No. 16034.07

Date: September 6, 2016



Prepared for:

AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06405

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna upgrade proposed by AT&T Mobility on the existing lattice tower located in Hamden, Connecticut.

The host tower is a 65-ft, four-section, three legged guyed lattice tower originally designed and manufactured by Fred A Nudd Corporation. The tower type, geometry and structure member sizes were taken from a previous structural analysis report prepared by Centek Engineering project no. 15001.035 dated June 4, 2015.

Antenna and appurtenance inventory were taken from the aforementioned Centek structural analysis report and a Verizon RF data sheet.

The tower is made up of four (4) vertical sections consisting of A36 MOD-50 solid steel legs. Diagonal and horizontal bracing consists of A36 solid round and steel angle construction. The vertical tower legs are connected together with bolted flanges while bracing is connected by fully welded connections. The width of the tower face is 2'-6".

AT&T Mobility proposes the removal of three (3) panel antennas and three (3) remote radio heads and the installation of three (3) panel antennas and three (3) remote radio heads mounted on the existing T-Frames. Refer to the Antenna and Appurtenance Summary below for a detailed description of the proposed antenna and appurtenance configuration.

Antenna and Appurtenance Summary

The existing and proposed loads considered in the analysis consist of the following:

- MUNICIPAL (Existing):
  Antennas: One (1) 17-ft Omni-directional whip antenna mounted on a 2-ft side arm with an elevation of 91-ft above grade (64-ft above tower base).
  Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- MUNICIPAL (Existing):
  Antennas: One (1) 20-ft dipole antenna mounted on a 3-ft side arm with an elevation of 91-ft above grade (64-ft above tower base).
  Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- MUNICIPAL (Existing):
  Antennas: One (1) 8-ft Omni-directional whip antenna mounted on a 2-ft side arm with an elevation of 82-ft above grade (55-ft above tower base).
  Cable: One (1) 7/8" dia. coax cable.
- MUNICIPAL (Existing):
  Antennas: One (1) 21-ft dipole antenna mounted on a 3-ft side arm with an elevation of 70-ft above grade (43-ft above tower base).
  Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.

- VERIZON (Existing to Remain):
  Antennas: Four (4) Andrew DB844G65ZAXY, three (3) Andrew HBXX-6517DS panel antennas, two (2) Andrew LNX-6514DS panel antennas, two (2) RFS APL866513 panel antennas, two (2) SBNHH-1D65B panel antennas, one (1) SBNHH-1D45B panel antenna, and one (1) JMA X7C-FR0-640 panel antenna mounted to existing boom gates with a RAD center elevation of 65-ft above existing grade (38-ft above tower base).
  Appurtenances: Three (3) Alcatel-Lucent RRH2x60-AWS remote radio heads, three (3) Alcatel-Lucent RRH2x60-PCS remote radio heads and three (3) Alcatel-Lucent RRH2x60-700 remote radio heads mounted to existing T-frames with a RAD center elevation of 66-ft above existing grade (39-ft above tower base).
  Misc Equipment: Two (2) RFS DB-T1-6Z-8AB-0Z main distribution box leg mounted with a RAD center elevation of 63.5-ft above existing grade (36.5-ft above tower base).
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables and two (2) 1-5/8" ∅ fiber line running on the face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remain):
  Antennas: Three (3) KMW AMX-CD-16-65-00T-RET panel antennas mounted on (3) tower stand-off sector frames with a RAD center elevation of 55-ft above existing grade (28-ft above tower base).
  Appurtenances: Three (3) CCI DTMABP7819VG12A TMA's and three (3) Ericsson RRUS-11 mounted on (3) tower stand-off sector frames with a RAD center elevation of 55-ft above existing grade (28-ft above tower base).
  Misc. Equipment: One (1) Raycap DC6-48-60-18-8F surge arrestor leg mounted with an elevation of elevation of 56-ft above exiting grade (29-ft above tower base).
  Coax Cables: Twelve (12) 1-5/8" ∅ coax cables and six (6) RET cables, one (1) fiber cable and two (2) dc control cables running on a face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remove):
  Antennas: Three (3) KMW AMX-CD-16-65-00T-RET panel antennas mounted on (3) tower stand-off sector frames with a RAD center elevation of 55-ft above existing grade (28-ft above tower base).
  Appurtenances: Three (3) Ericsson RRUS-11 mounted on (3) tower stand-off sector frames with a RAD center elevation of 55-ft above existing grade (28-ft above tower base).
- **AT&T (Proposed):**
  Antennas: Three (3) CCI HPA-65R-BUU-H6 panel antennas mounted on (3) tower stand-off sector frames with a RAD center elevation of 55-ft above existing grade (28-ft above tower base).
  Appurtenances: Three (3) Ericsson RRUS-32 B2 remote radio heads mounted on (3) tower stand-off sector frames with a RAD center elevation of 55-ft above existing grade (28-ft above tower base).

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower shaft, and the model assumes that the shaft members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (fastest mile) with no ice and a 75% reduction of wind force with ½ inch accumulative ice to determine stresses in members as per guidelines of TIA/EIA-222-F-96 entitled "Structural Standards for Steel Antenna Towers and Antenna Supporting Structures", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Allowable Stress Design (ASD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix K of the CSBC[1] and the wind speed data available in the TIA/EIA-222-F-96 Standard. The higher of the two wind speeds is utilized in preparation of the tower analysis.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA/EIA-222-F, gravity loads of the tower structure and its components, and the application of ½" radial ice on the tower structure and its components.

Basic Wind Speed:	New Haven; v = 85 mph (fastest mile)	*[Section 16 of TIA/EIA-222-F-96]*
	Hamden; v = 105 mph (3 second gust) equivalent to v = 85 mph (fastest mile)	*[Appendix K of the 2005 CT Building Code Supplement]*
	TIA/EIA-222-F and Appendix-K wind speeds are equal.	
Load Cases:	Load Case 1; 85 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 2; 74 mph wind speed w/ ½" radial ice plus gravity load – used in calculation of tower stresses. The 74 mph wind speed velocity represents 75% of the wind pressure generated by the 85 mph wind speed.	*[Section 2.3.16 of TIA/EIA-222-F-96]*
	Load Case 3; Seismic – not checked	*[Section 1614.5 of State Bldg. Code 2005] does not control in the design of this structure type*

[1] The 2005 Connecticut State Building Code as amended by the 2009 CT State Supplement. (CSBC)

Tower Capacity

Tower stresses were calculated utilizing the structural analysis software tnxTower. Allowable stresses were determined based on Table 5 of the TIA/EIA code with a 1/3 increase per Section 3.1.1.1 of the same code.

- Calculated stresses were found to be within allowable limits. In Load Case 2, per tnxTower "Section Capacity Table", this tower was found to be at **98.9%** of its total capacity.

Tower Section	Elevation (AGL)	Stress Ratio (percentage of capacity)	Result
Leg (T4)	27'-0"-47'-0"	74.3%	**PASS**
Diagonal (T3)	47'-0"-67'-0"	98.9%	**PASS**
Guy B (T4)	27'-0"-47'-0"	49.1%	**PASS**

Existing Guy Anchors and Tower Base

Guy forces are transferred to the existing building structure via six (6) 9/16" and three (3) 3/4" ∅ galvanized steel guy wires with turnbuckles. All guy anchorage posts are positively attached to the existing building structure and consist of 6"x6"x1/4" tube steel with 1/2" thick guy connection plates with three 5/8" ∅ A325-N bolts in double shear. Connections to the existing building were originally designed by Natcomm for Verizon Wireless on October 02, 2000, reference project no. 985094.

The guyed tower base is pin connected to a 1-3/4" thick x 24" square base plate welded to an existing W8 steel dunnage frame. Frame loads are then transferred down onto the existing concrete roof structure via four (4) 6"x6"x1/4" tube steel posts with 1-1/4" thick x 12in square base plates.

Review of the anchor and tower base connections consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The worst case tower base and guy anchor reactions developed from the governing Load Case 2 were used in the verification of the anchorage:

Tower Guy Reactions			
Vector	**Guy A**	**Guy B**	**Guy C**
Horizontal (In Plane of GW)	15.2 kips	14.8 kips	14.9 kips
Horizontal (Out of Plane of GW)	0.3 kips	0.3 kips	0.3 kips
Vertical	17.6 kips	24.1 kips	22.8 kips
Resultant Force at end of Guy Wire	23.2 kips	28.3 kips	27.2 kips

Tower Base Reactions	
Vector	**Proposed Reaction**
Horizontal Shear	1.0 kips
Axial Compression	51.0 kips

- The guy anchor bolts were found to be within allowable limits.

Location	Design Limit	Load	Stress Ratio (percentage of capacity)	Result
Guy Anchor B	Shear	28.3 kips	73.0%	**PASS**

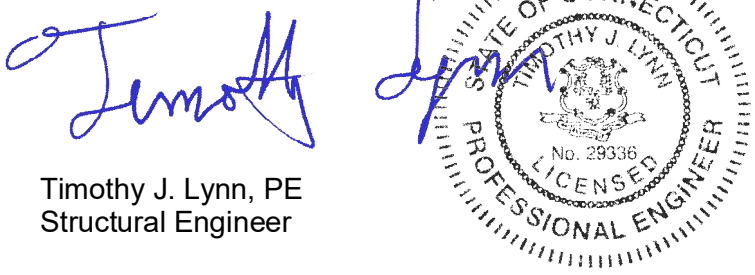
Conclusion

This analysis shows that the subject tower **is adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by AT&T Mobility. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

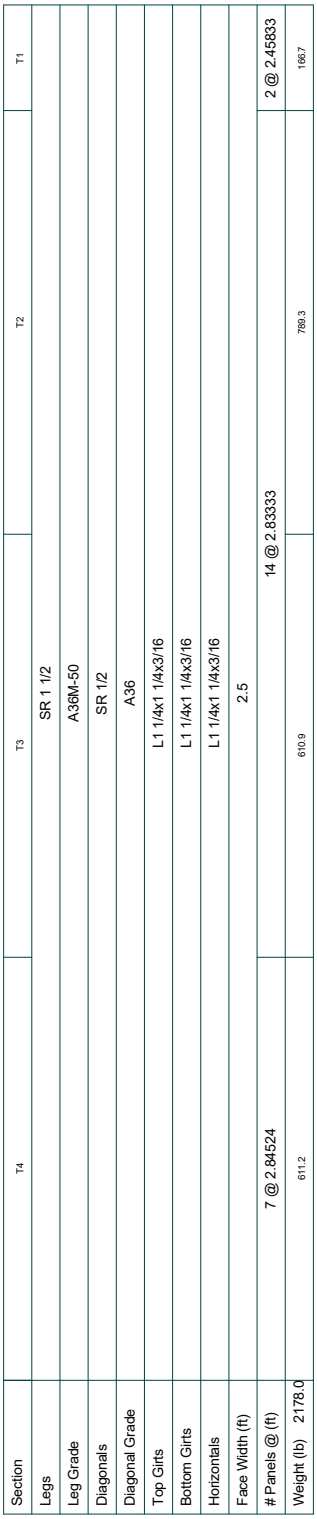
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

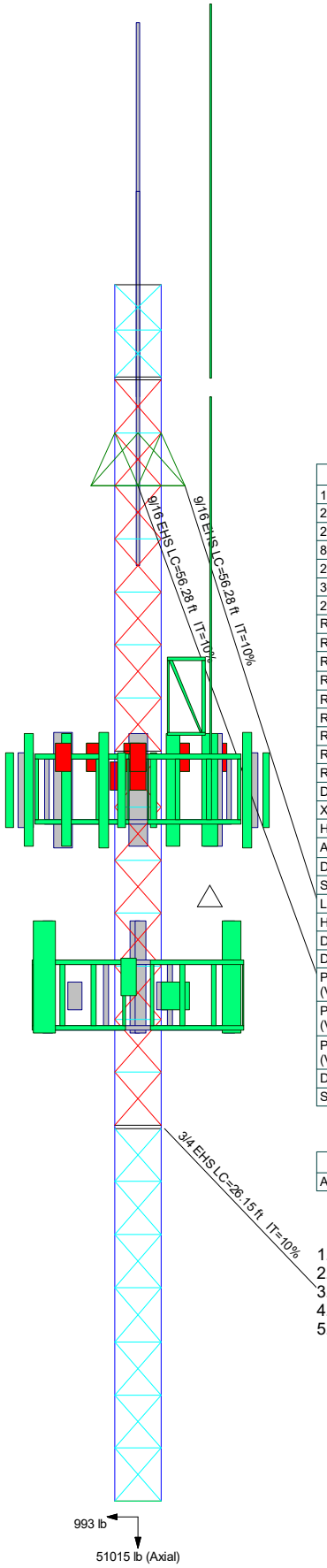
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

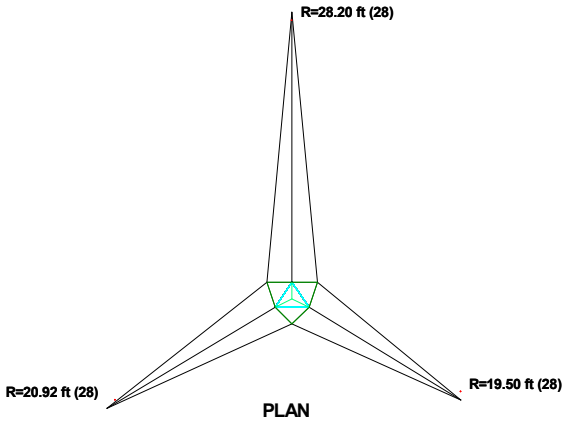
TnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, TnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

TnxTower Features:

- TnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 9th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- TnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.







DESIGNED APPURTENANCE LOADING

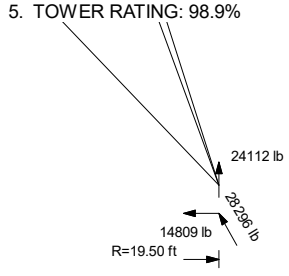
TYPE	ELEVATION	TYPE	ELEVATION
17' x 2" Dia Omni (Municipal)	91	LNX-6514DS-VTM (Verizon - Existing)	65
2-ft Stand Off (Municipal)	91	APL866513-42T0 (Verizon - Existing)	65
20' 4-Bay Dipole (Municipal)	91	SBNHH-1D45B (Verizon - Existing)	65
8' x 3" Dia Omni (Municipal)	82	HBXX-6517DS (Verizon - Existing)	65
2-ft Stand Off (Municipal)	82	DB844G65ZAXY (Verizon - Existing)	65
3' Side arm mount (Municipal)	70	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	55
20' 4-Bay Dipole (Municipal)	70	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	55
RRH2x60-AWS (Verizon - Existing)	66	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	55
RRH2x60-AWS (Verizon - Existing)	66	AM-X-CD-16-65-00T-RET(72") (ATI - Existing)	55
RRH2x60-AWS (Verizon - Existing)	66	HPA-65R-BUU-H6 (ATI - Proposed)	55
RRH2x60-PCS (Verizon - Existing)	66	HPA-65R-BUU-H6 (ATI - Proposed)	55
RRH2x60-PCS (Verizon - Existing)	66	HPA-65R-BUU-H6 (ATI - Proposed)	55
RRH2x60-PCS (Verizon - Existing)	66	RRUS-32 (ATI - Proposed)	54
RRH2x60-07-U (Verizon - Existing)	66	RRUS-32 (ATI - Proposed)	54
RRH2x60-07-U (Verizon - Existing)	66	Pirod 10' PCS Frame (1) (ATI - Existing)	54
RRH2x60-07-U (Verizon - Existing)	66	Pirod 10' PCS Frame (1) (ATI - Existing)	54
DB-T1-6Z-8AB-0Z (Verizon - Existing)	65	Pirod 10' PCS Frame (1) (ATI - Existing)	54
X7C-FR0-640-V (Verizon - Existing)	65	DTMABP7819VG12A TMA (ATI - Existing)	54
HBXX-6517DS (Verizon - Existing)	65	DTMABP7819VG12A TMA (ATI - Existing)	54
APL866513-42T0 (Verizon - Existing)	65	DTMABP7819VG12A TMA (ATI - Existing)	54
DB844G65ZAXY (Verizon - Existing)	65	RRUS-11 (ATI - Existing)	54
SBNHH-1D65B (Verizon - Existing)	65	RRUS-11 (ATI - Existing)	54
LNX-6514DS-VTM (Verizon - Existing)	65	RRUS-11 (ATI - Existing)	54
HBXX-6517DS (Verizon - Existing)	65	RRUS-32 (ATI - Proposed)	54
DB844G65ZAXY (Verizon - Existing)	65		
DB-T1-6Z-8AB-0Z (Verizon - Existing)	65		
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	65		
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	65		
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	65		
DB844G65ZAXY (Verizon - Existing)	65		
SBNHH-1D65B (Verizon - Existing)	65		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-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: 98.9%

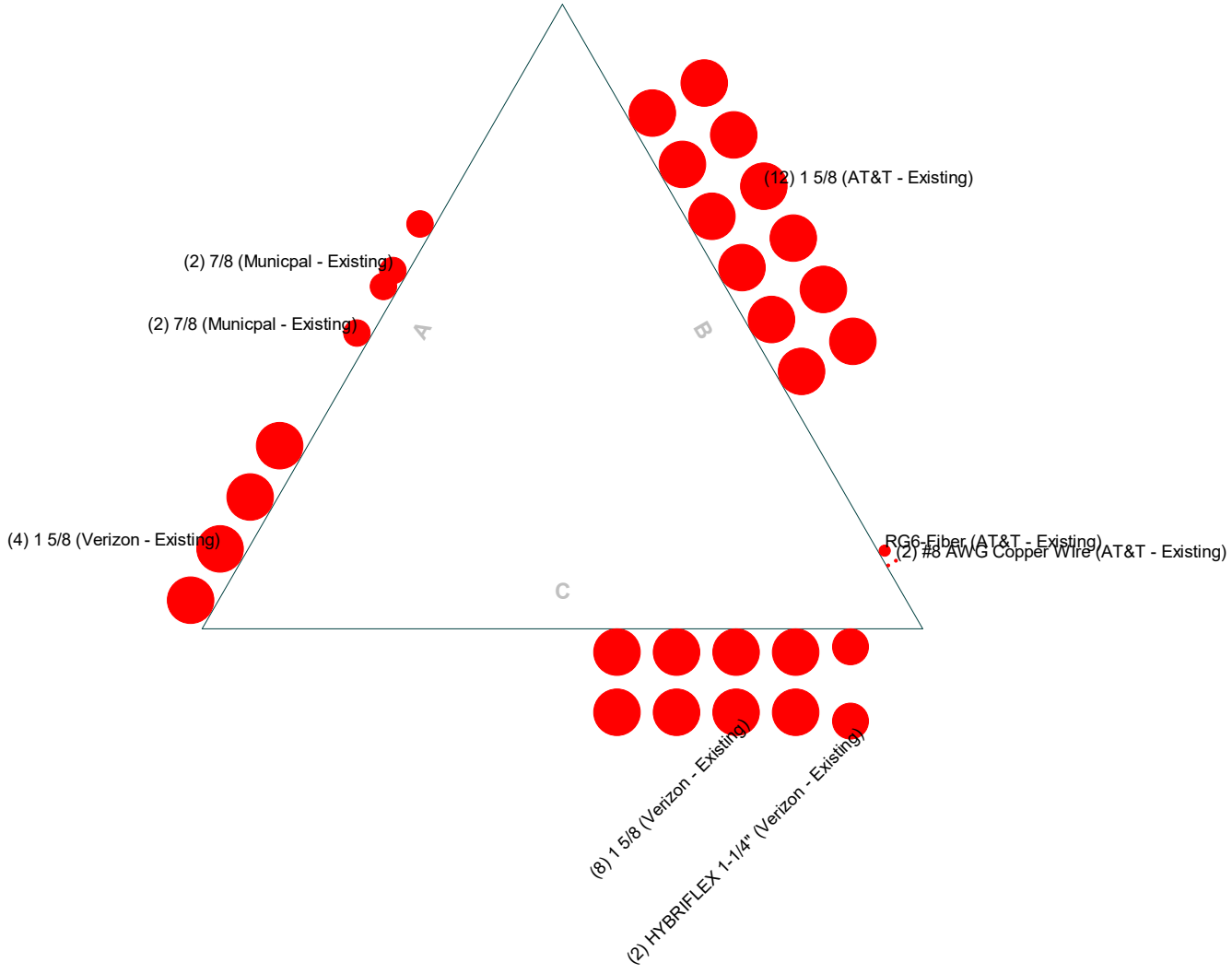


Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: ***16034.07 - CT2040***			
Project: ***65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT***			
Client: AT&T Mobility	Drawn by: TJL	App'd:	
Code: TIA/EIA-222-F	Date: 09/06/16	Scale: NTS	
Path: J:\Jobs\1603400.WI\07_Hamden - Benham St CT2040\04_Structural\Backup Documentation\ER\100_NUDD_Guyed_Twr_Hamden_CT_.er		Dwg No. E-1	

Feed Line Plan

Round Flat App In Face App Out Face



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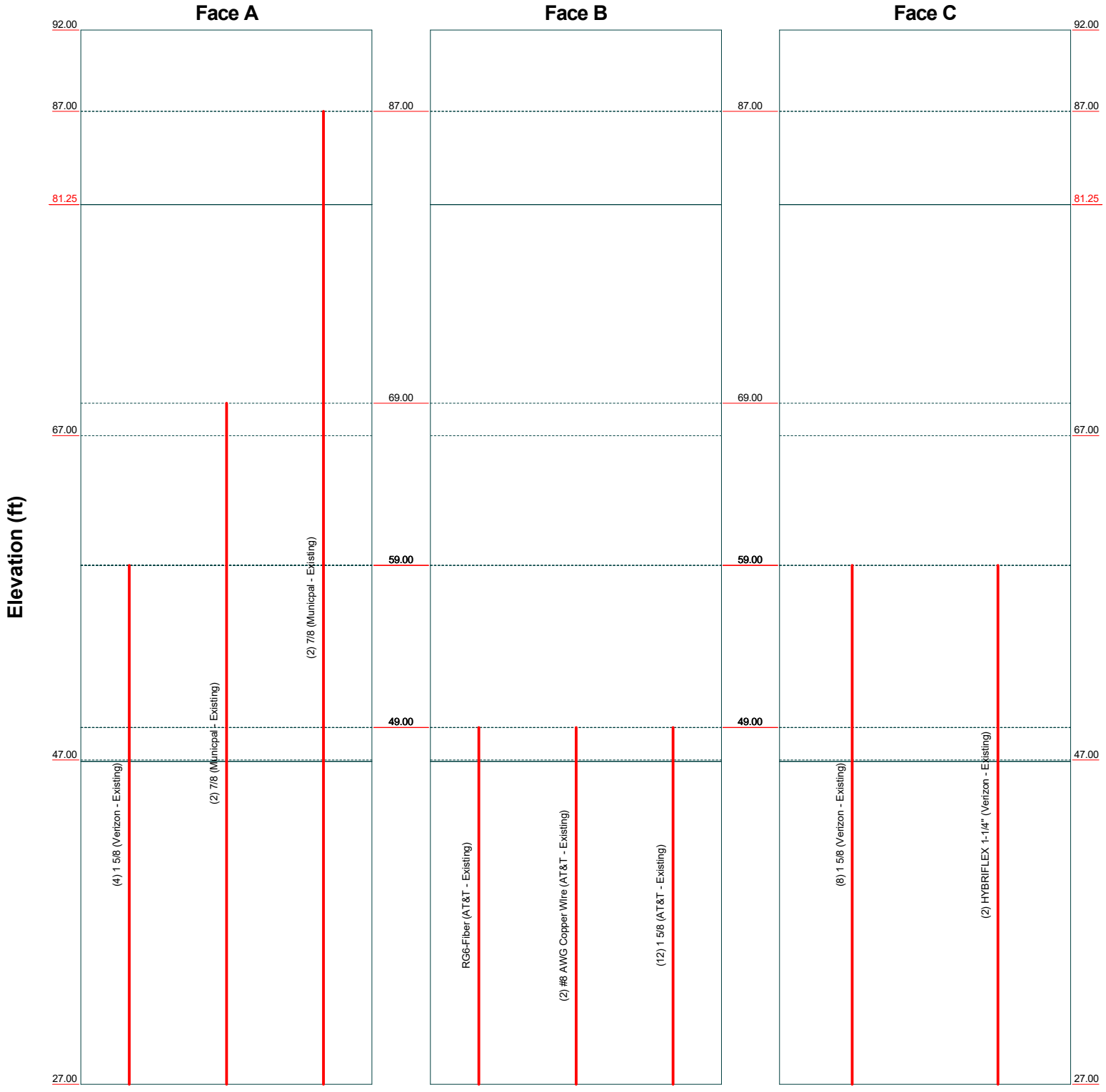
Feed Line Distribution Chart
27' - 92'

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



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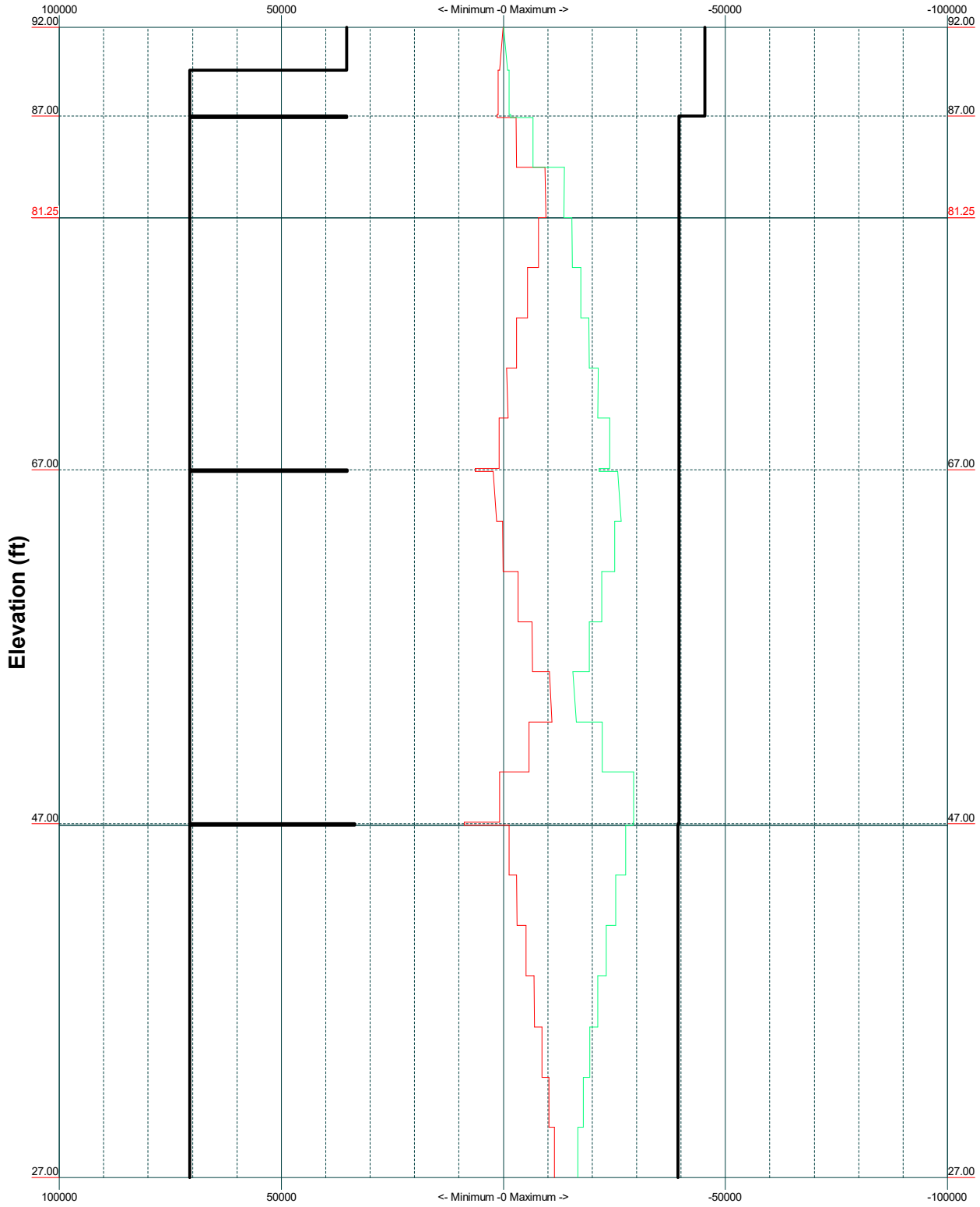
Path: J:\Jobs\16034\00.WI\07_Hamden - Benham St CT2040\04_Structural\Backup Documentation\ER\100_NUDD_Guyed_Twr_Hamden_CT_.er		Dwg No. E-7

TIA/EIA-222-F - 85 mph/74 mph 0.500 in Ice

Leg Capacity ——— **Leg Compression (lb)**



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Job: ***16034.07 - CT2040***		
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Client: AT&T Mobility	Drawn by: TJL	App'd:
Code: TIA/EIA-222-F	Date: 09/06/16	Scale: NTS
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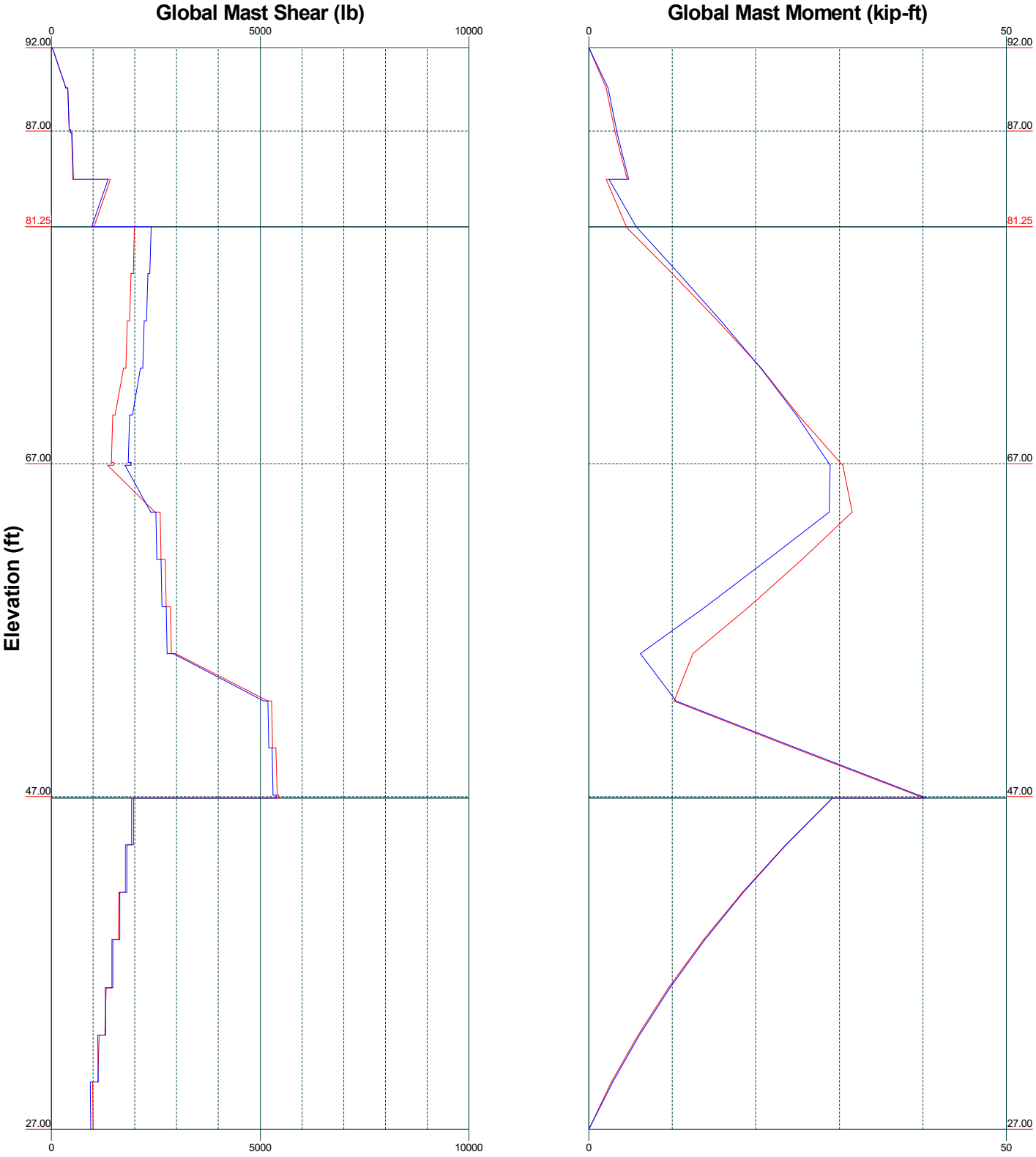
TIA/EIA-222-F - 85 mph/74 mph 0.500 in Ice

Vx Vz

Maximum Values

Mx Mz



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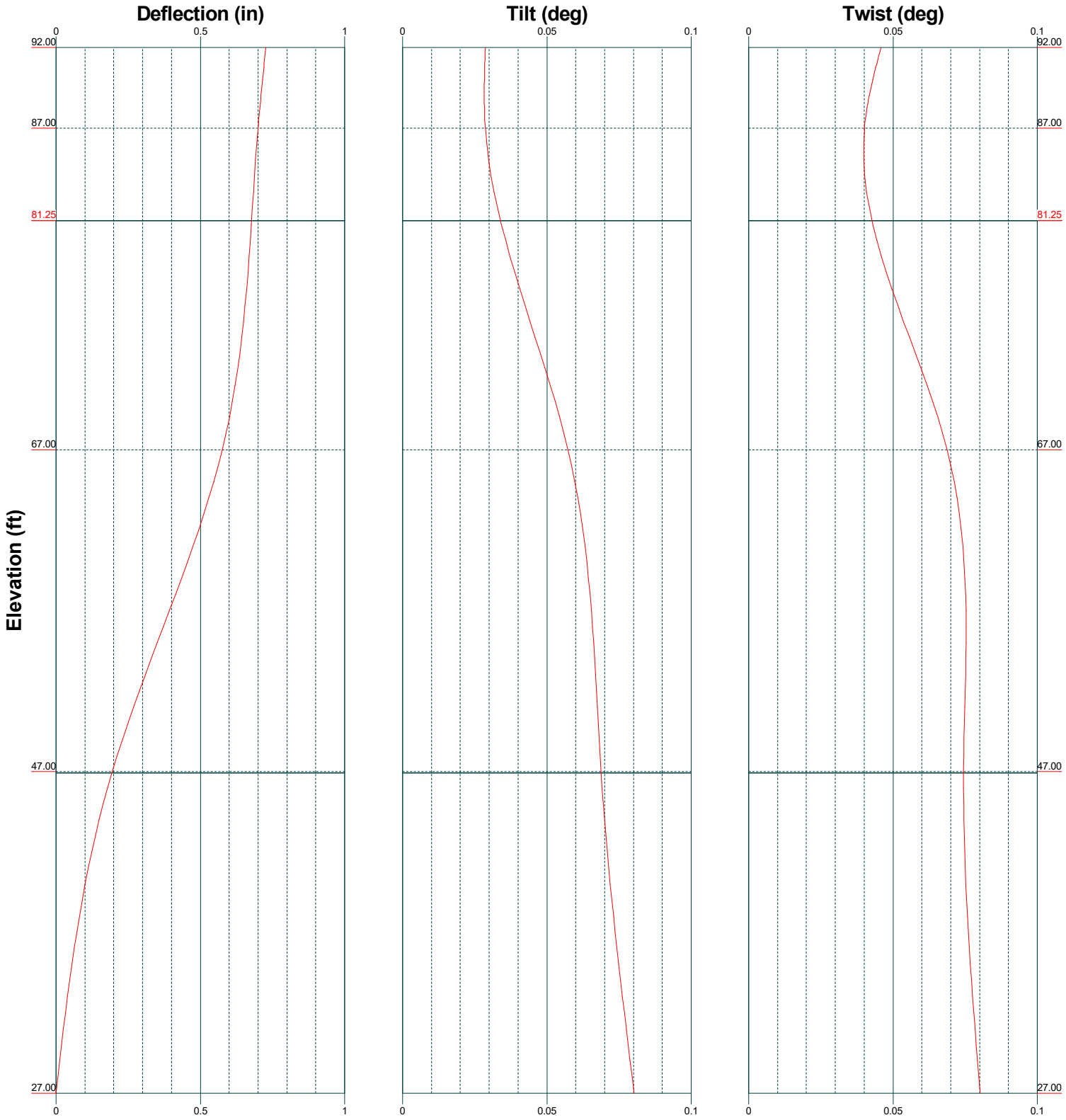
Job: ***16034.07 - CT2040***		
Project: ***65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT***		
Client: AT&T Mobility	Drawn by: TJL	App'd:
Code: TIA/EIA-222-F	Date: 09/06/16	Scale: NTS
Path: J:\Jobs\1603400.WIP\07_Hamden - Benham St CT2040\04_Structural\Backup Documentation\ER\100_NUDD_Guyed_Twr_Hamden_CT_.eri		Dwg No. E-4

TIA/EIA-222-F - Service - 50 mph

Maximum Values



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Code: TIA/EIA-222-F	Date: 09/06/16	Scale: NTS
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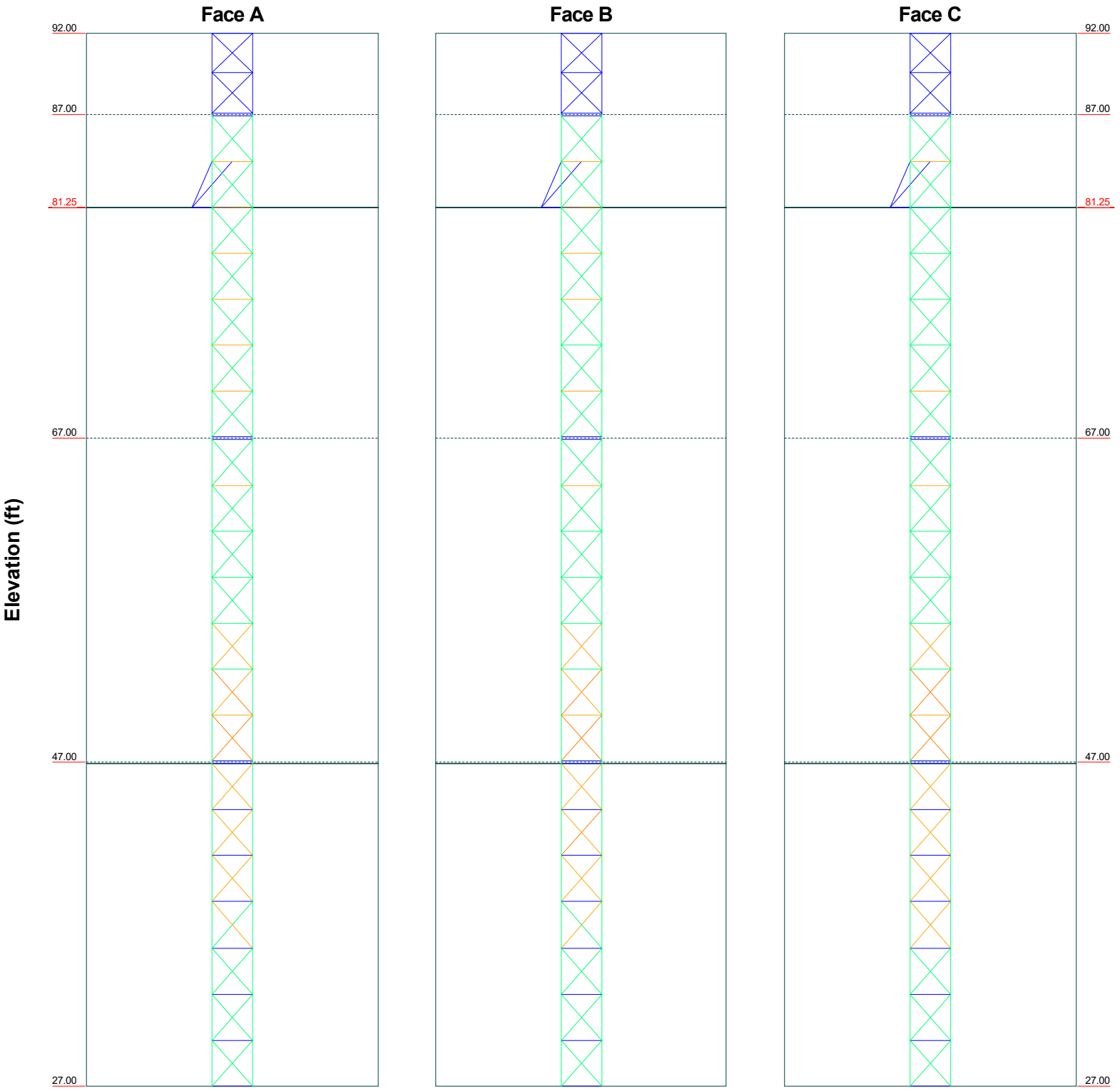
Stress Distribution Chart
27' - 92'

> 100% | 90%-100% | 75%-90% | 50%-75% | < 50% Overstress



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Code: TIA/EIA-222-F	Date: 09/06/16	Scale: NTS
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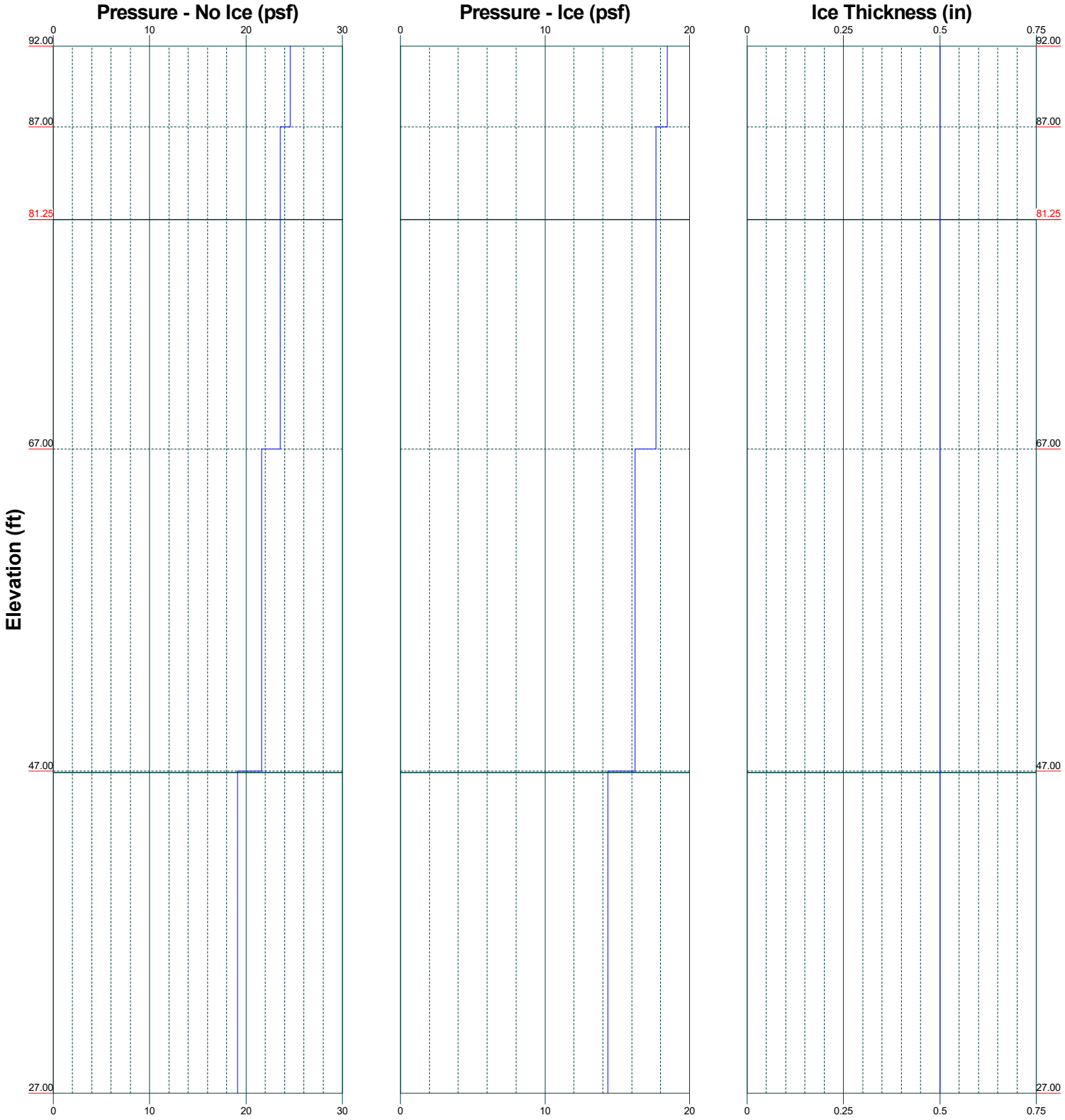
Wind Pressures and Ice Thickness

TIA/EIA-222-F - 85 mph/74 mph 0.500 in Ice



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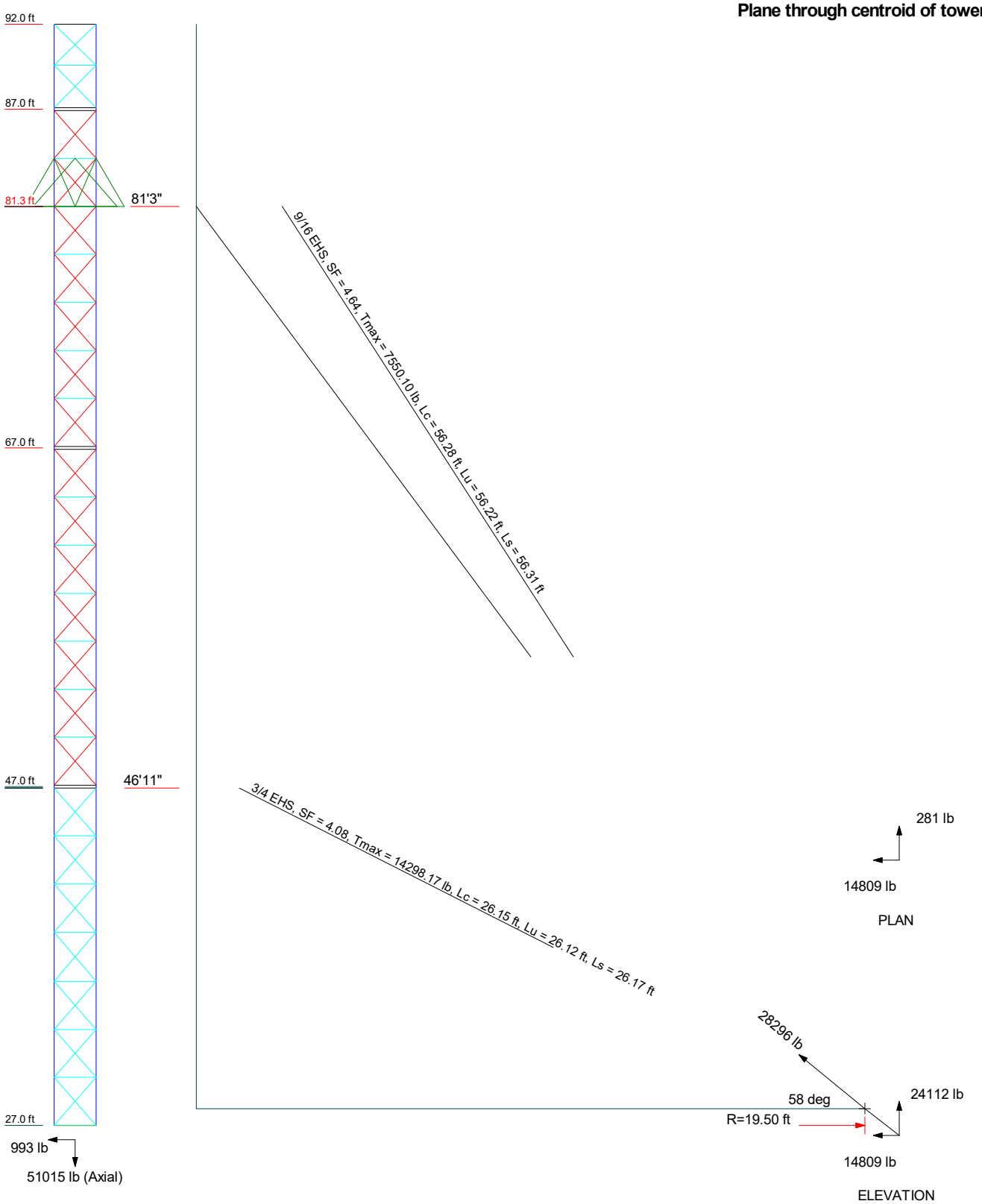
Guy Tensions and Tower Reactions

TIA/EIA-222-F - 85 mph/74 mph 0.500 in Ice

Maximum Values

Anchor 'B'@19.5 ft Azimuth 120 deg Elev 28 ft

Plane through centroid of tower



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: ***16034.07 - CT2040***		
	Project: ***65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT***		
	Client: AT&T Mobility	Drawn by: TJL	App'd:
	Code: TIA/EIA-222-F	Date: 09/06/16	Scale: NTS
	Path: J:\Jobs\1603400.WIP\07_Hamden - Benham St CT2040\04_Structural\Backup Documentation\ER\100_NUDD_Guyed_Twr_Hamden_CT_.eri		Dwg No. E-6

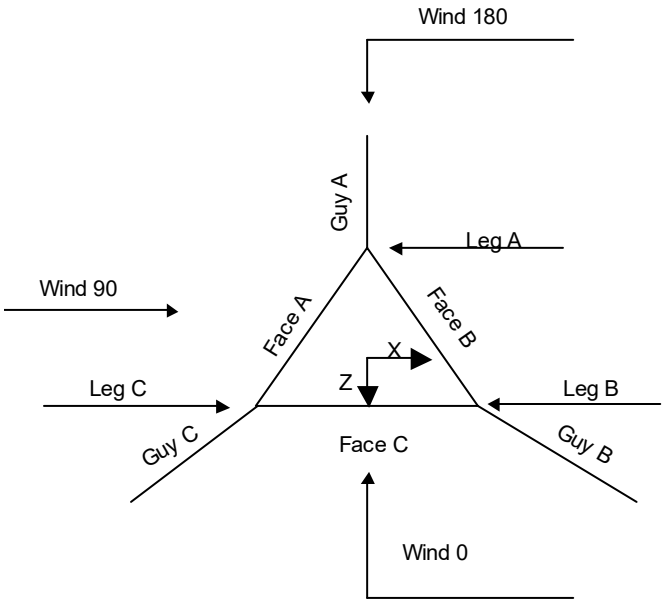
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 92.00 ft above the ground line.
The base of the tower is set at an elevation of 27.00 ft above the ground line.
The face width of the tower is 2.50 ft at the top and 2.50 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

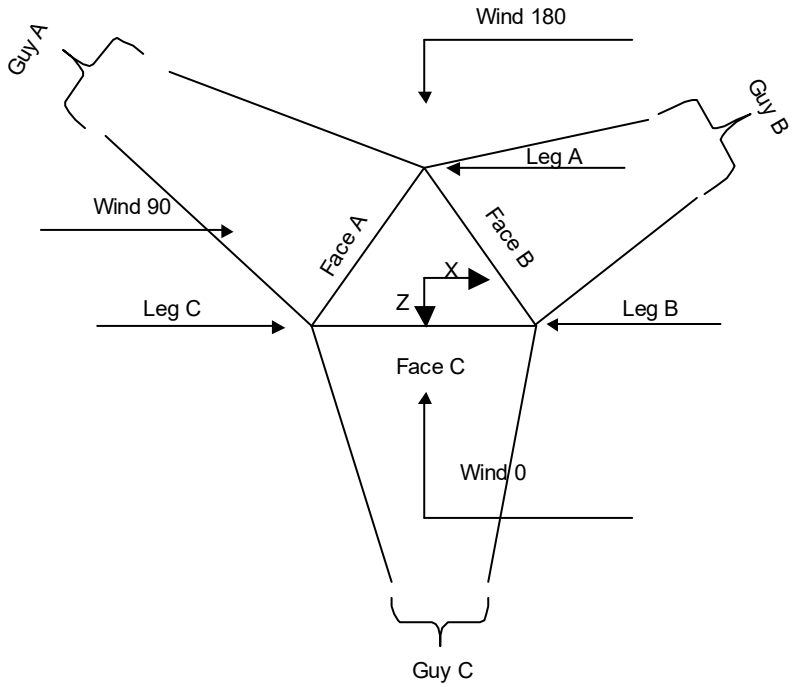
Tower is located in New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.500 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
Tension only take-up is 0.031 in.
Pressures are calculated at each section.
Safety factor used in guy design is 2.
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	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
√ Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
√ SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	92.00-87.00			2.50	1	5.00
T2	87.00-67.00			2.50	1	20.00
T3	67.00-47.00			2.50	1	20.00
T4	47.00-27.00			2.50	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	92.00-87.00	2.46	X Brace	No	Yes	0.000	1.000

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
T2	87.00-67.00	2.83	TX Brace	No	Yes	1.000	1.000
T3	67.00-47.00	2.83	TX Brace	No	Yes	1.000	1.000
T4	47.00-27.00	2.85	X Brace	No	Yes	1.000	0.000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 92.00-87.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T2 87.00-67.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T3 67.00-47.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T4 47.00-27.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	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 92.00-87.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 87.00-67.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T3 67.00-47.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T4 47.00-27.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	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 92.00-87.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 87.00-67.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T3 67.00-47.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T4 47.00-27.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 92.00-87.00	0.00	0.000	A36 (36 ksi)	1	1	1.1	36.000	36.000	36.000
T2 87.00-67.00	0.00	0.000	A36 (36 ksi)	1	1	1.1	36.000	36.000	36.000
T3 67.00-47.00	0.00	0.000	A36 (36 ksi)	1	1	1.1	36.000	36.000	36.000
T4 47.00-27.00	0.00	0.000	A36 (36 ksi)	1	1	1.1	36.000	36.000	36.000

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
92.00-87.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
87.00-67.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
67.00-47.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
47.00-27.00				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	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 92.00-87.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 87.00-67.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 67.00-47.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 47.00-27.00	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	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 92.00-87.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 87.00-67.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 67.00-47.00	Flange	0.875 A325N	1	0.000 A325N	0	0.500 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 47.00-27.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
81.25	EHS	A	9/16	3500.00	10%	21000	0.671	59.60	28.20	0.0000	28.00	100%
		B	9/16	3500.00	10%	21000	0.671	56.24	19.50	0.0000	28.00	100%
		C	9/16	3500.00	10%	21000	0.671	56.71	20.92	0.0000	28.00	100%
46.9167	EHS	A	3/4	5830.00	10%	19000	1.155	32.74	28.20	0.0000	28.00	100%
		B	3/4	5830.00	10%	19000	1.155	26.13	19.50	0.0000	28.00	100%
		C	3/4	5830.00	10%	19000	1.155	27.13	20.92	0.0000	28.00	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
81.25	Torque Arm	5.00	45.0000	Dog Ear	A36 (36 ksi)	Single Angle	L2x2x5/16 L3x3x1/4
46.9167	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
81.25	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Single Angle	
46.92	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Single Angle	

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
81.25	39.99	37.73	38.05		0.34 1.0 sec/pulse	0.30 0.9 sec/pulse	0.31 1.0 sec/pulse	
46.9167	37.81	30.18	31.33		0.11 0.6 sec/pulse	0.07 0.4 sec/pulse	0.07 0.5 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
81.25	Yes	Yes	1	1	1	1	1	1
46.9167	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
81.25	0.000 A325N	0	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75
46.9167	0.000 A325N	0	0.000	1	0.625 A325N	0	0.000	0.75	0.625 A325N	0	0.000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
81.25	A	54.63	21	16	0.500
	B	54.63	21	16	0.500
	C	54.63	21	16	0.500
46.9167	A	37.46	19	14	0.500
	B	37.46	19	14	0.500
	C	37.46	19	14	0.500

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		lb	lb	lb	kip-ft	kip-ft	kip-ft
81.25	A	63.2217	3535.70 3500.00	-147.44	3160.57	-1578.04	-4.56	4.16	-7.90
	A	63.2217	3535.70 3500.00	147.44	3160.57	-1578.04	-4.56	-4.16	7.90
	B	71.1026	3535.70 3500.00	1055.49	3347.10	428.96	9.66	3.05	0.00
	B	71.1026	3535.70 3500.00	899.24	3347.10	699.60	-4.83	-3.05	-8.37
	C	69.7581	3535.70 3500.00	-967.99	3319.61	737.80	-4.79	3.24	8.30
	C	69.7581	3535.70 3500.00	-1122.95	3319.61	469.41	9.58	-3.24	0.00
			Sum:	**-136.21**	19654.57	**-820.32**	**0.50**	0.00	**-0.07**
46.9167	A	35.2599	5851.83 5830.00	0.00	3390.76	-4769.35	-4.89	0.00	0.00
	B	46.3325	5851.83 5830.00	3492.66	4240.16	2016.49	3.06	0.00	-5.30
	C	44.1644	5851.83 5830.00	-3628.59	4085.14	2094.97	2.95	-0.00	5.11
			Sum:	**-135.93**	11716.06	**-657.89**	**1.11**	0.00	**-0.19**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom lb	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		lb	lb	lb	kip-ft	kip-ft	kip-ft
81.25	A	63.2217	4885.70 4815.47	-203.30	4369.71	-2175.85	-6.31	5.73	-10.92
	A	63.2217	4885.70 4815.47	203.30	4369.71	-2175.85	-6.31	-5.73	10.92
	B	71.1026	4882.79 4812.56	1454.48	4623.50	591.12	13.35	4.20	0.00
	B	71.1026	4882.79 4812.56	1239.16	4623.50	964.06	-6.67	-4.20	-11.56
	C	69.7581	4883.17 4812.94	-1334.00	4586.06	1016.77	-6.62	4.47	11.47
	C	69.7581	4883.17 4812.94	-1547.55	4586.06	646.90	13.24	-4.47	0.00
			Sum:	**-187.91**	27158.55	**-1132.86**	**0.68**	0.00	**-0.09**
46.9167	A	35.2599	7939.17 7902.91	0.00	4604.11	-6467.82	-6.65	0.00	0.00
	B	46.3325	7937.17 7900.91	4735.30	5753.37	2733.93	4.15	0.00	-7.19
	C	44.1644	7937.49 7901.23	-4919.78	5543.59	2840.44	4.00	-0.00	6.93
			Sum:	**-184.48**	15901.07	**-893.45**	**1.51**	0.00	**-0.26**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	kip-ft	kip-ft	kip-ft
81.25	A	63.2217	3535.70 3500.00	-147.44	3160.57	-1578.04	-4.56	4.16	-7.90
	A	63.2217	3535.70 3500.00	147.44	3160.57	-1578.04	-4.56	-4.16	7.90
	B	71.1026	3535.70 3500.00	1055.49	3347.10	428.96	9.66	3.05	0.00
	B	71.1026	3535.70 3500.00	899.24	3347.10	699.60	-4.83	-3.05	-8.37
	C	69.7581	3535.70 3500.00	-967.99	3319.61	737.80	-4.79	3.24	8.30
	C	69.7581	3535.70 3500.00	-1122.95	3319.61	469.41	9.58	-3.24	0.00
			Sum:	**-136.21**	19654.57	**-820.32**	**0.50**	0.00	**-0.07**
46.9167	A	35.2599	5851.83 5830.00	0.00	3390.76	-4769.35	-4.89	0.00	0.00
	B	46.3325	5851.83 5830.00	3492.66	4240.16	2016.49	3.06	0.00	-5.30
	C	44.1644	5851.83 5830.00	-3628.59	4085.14	2094.97	2.95	-0.00	5.11
			Sum:	**-135.93**	11716.06	**-657.89**	**1.11**	0.00	**-0.19**

Guy-Tensioning Information

Guy Elevation		H	V	Temperature At Time Of Tensioning: 0 F Initial Tension	0 F Intercept	20 F Initial Tension	20 F Intercept	40 F Initial Tension	40 F Intercept	60 F Initial Tension	60 F Intercept	80 F Initial Tension	80 F Intercept	100 F Initial Tension	100 F Intercept	120 F Initial Tension	120 F Intercept
ft		ft	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft	lb	ft
81.25	A	26.87	53.25	3823	0.31	3715	0.32	3608	0.33	3500	0.34	3393	0.35	3285	0.36	3178	0.37
	B	18.23	53.25	3667	0.29	3611	0.29	3556	0.30	3500	0.30	3444	0.31	3389	0.31	3333	0.32
	C	19.64	53.25	3691	0.29	3627	0.30	3563	0.30	3500	0.31	3437	0.31	3373	0.32	3310	0.32
46.9167	A	26.76	18.92	7488	0.08	6935	0.09	6382	0.10	5830	0.11	5278	0.12	4728	0.13	4178	0.15
	B	18.06	18.92	7017	0.06	6621	0.06	6225	0.06	5830	0.07	5435	0.07	5040	0.08	4645	0.08
	C	19.48	18.92	7111	0.06	6684	0.06	6257	0.07	5830	0.07	5403	0.08	4977	0.09	4551	0.09

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 plf
1 5/8 (Verizon - Existing)	A	Yes	Ar (CfAe)	59.00 - 27.00	0.000	-0.35	4	4	0.500	1.980		1.04
1 5/8 (Verizon - Existing)	C	Yes	Ar (CfAe)	59.00 - 27.00	0.000	-0.2	8	4	0.500	1.980		1.04
7/8 (Municpal - Existing)	A	Yes	Ar (CfAe)	69.00 - 27.00	0.000	0	2	2	1.110	1.110		0.54
7/8 (Municpal -	A	Yes	Ar (CfAe)	87.00 - 27.00	0.000	0.1	2	2	1.110	1.110		0.54

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 plf
Existing) RG6-Fiber (AT&T - Existing)	B	Yes	Ar (CfAe)	49.00 - 27.00	0.000	0.38	1	1	0.500	0.500		1.00
#8 AWG Copper WIre (AT&T - Existing)	B	Yes	Ar (CfAe)	49.00 - 27.00	0.000	0.4	2	1	0.250	0.129		0.05
1 5/8 (AT&T - Existing)	B	Yes	Ar (CfAe)	49.00 - 27.00	0.000	-0.1	12	6	0.500	1.980		1.04
HYBRIFLEX 1-1/4" (Verizon - Existing)	C	Yes	Ar (CfAe)	59.00 - 27.00	0.000	-0.4	2	1	1.540	1.540		1.30

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 lb
T1	92.00-87.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	87.00-67.00	A	4.070	0.000	0.000	0.000	23.76
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	67.00-47.00	A	15.320	0.000	0.000	0.000	93.12
		B	2.085	0.000	0.000	0.000	27.16
		C	9.460	0.000	0.000	0.000	131.04
T4	47.00-27.00	A	20.600	0.000	0.000	0.000	126.40
		B	20.848	0.000	0.000	0.000	271.60
		C	15.767	0.000	0.000	0.000	218.40

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 lb
T1	92.00-87.00	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	87.00-67.00	A	0.500	7.737	0.000	0.000	0.000	67.03
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	67.00-47.00	A	0.500	17.047	7.440	0.000	0.000	250.34
		B		0.935	2.067	0.000	0.000	65.01
		C		5.520	7.440	0.000	0.000	302.60
T4	47.00-27.00	A	0.500	19.033	12.400	0.000	0.000	335.98
		B		9.348	20.667	0.000	0.000	650.11
		C		9.200	12.400	0.000	0.000	504.34

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	92.00-87.00	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	87.00-67.00	A	0.179	1.281	0.170	0.322
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	67.00-47.00	A	0.675	4.055	0.638	1.020
		B	0.092	0.497	0.087	0.125
		C	0.417	2.146	0.394	0.540
T4	47.00-27.00	A	0.910	5.215	0.858	1.310
		B	0.921	4.979	0.869	1.251
		C	0.697	3.583	0.657	0.900

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	92.00-87.00	0.000	0.000	0.000	0.000
T2	87.00-67.00	-0.780	-0.821	-0.652	-0.687
T3	67.00-47.00	-1.363	1.358	-0.905	0.294
T4	47.00-27.00	0.548	0.354	0.504	0.004

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 lb
DB844G65ZAXY	A	From Leg	3.00	0.0000	65.00	No Ice	4.67	3.73	16.00
(Verizon - Existing)			6.00			1/2" Ice	5.05	4.10	48.76
			0.00						
SBNHH-1D65B	A	From Leg	3.00	0.0000	65.00	No Ice	8.33	5.34	42.00
(Verizon - Existing)			4.00			1/2" Ice	8.88	5.79	92.05
			0.00						
LNX-6514DS-VTM	A	From Leg	3.00	0.0000	65.00	No Ice	8.41	5.41	39.00
(Verizon - Existing)			0.00			1/2" Ice	8.96	5.86	89.51
			0.00						
HBXX-6517DS	A	From Leg	3.00	0.0000	65.00	No Ice	8.74	5.24	50.00
(Verizon - Existing)			-4.00			1/2" Ice	9.31	5.71	100.49
			0.00						
DB844G65ZAXY	A	From Leg	3.00	0.0000	65.00	No Ice	4.67	3.73	16.00
(Verizon - Existing)			-6.00			1/2" Ice	5.05	4.10	48.76
			0.00						
APL866513-42T0	B	From Leg	3.00	0.0000	65.00	No Ice	4.29	3.73	16.00

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 lb
(Verizon - Existing)			6.00 0.00			1/2" Ice	4.67	4.10	47.29
SBNHH-1D45B	B	From Leg	3.00	0.0000	65.00	No Ice	12.60	5.28	65.00
(Verizon - Existing)			4.00 0.00			1/2" Ice	13.19	5.74	130.59
X7C-FR0-640-V	B	From Leg	3.00	0.0000	65.00	No Ice	13.16	6.51	45.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	13.75	6.97	118.91
HBXX-6517DS	B	From Leg	3.00	0.0000	65.00	No Ice	8.74	5.24	50.00
(Verizon - Existing)			-4.00 0.00			1/2" Ice	9.31	5.71	100.49
APL866513-42T0	B	From Leg	3.00	0.0000	65.00	No Ice	4.29	3.73	16.00
(Verizon - Existing)			-6.00 0.00			1/2" Ice	4.67	4.10	47.29
DB844G65ZAXY	C	From Leg	3.00	0.0000	65.00	No Ice	4.67	3.73	16.00
(Verizon - Existing)			6.00 0.00			1/2" Ice	5.05	4.10	48.76
SBNHH-1D65B	C	From Leg	3.00	0.0000	65.00	No Ice	8.33	5.34	42.00
(Verizon - Existing)			4.00 0.00			1/2" Ice	8.88	5.79	92.05
LNX-6514DS-VTM	C	From Leg	3.00	0.0000	65.00	No Ice	8.41	5.41	39.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	8.96	5.86	89.51
HBXX-6517DS	C	From Leg	3.00	0.0000	65.00	No Ice	8.74	5.24	50.00
(Verizon - Existing)			-4.00 0.00			1/2" Ice	9.31	5.71	100.49
DB844G65ZAXY	C	From Leg	3.00	0.0000	65.00	No Ice	4.67	3.73	16.00
(Verizon - Existing)			-6.00 0.00			1/2" Ice	5.05	4.10	48.76
DB-T1-6Z-8AB-0Z	C	From Face	0.50	0.0000	65.00	No Ice	5.60	2.33	44.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	5.92	2.56	80.13
DB-T1-6Z-8AB-0Z	A	From Face	0.50	0.0000	65.00	No Ice	0.00	2.33	44.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	2.56	80.13
RRH2x60-AWS	A	From Face	2.00	0.0000	66.00	No Ice	0.00	2.07	55.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	2.35	78.25
RRH2x60-AWS	B	From Face	2.00	0.0000	66.00	No Ice	0.00	2.07	55.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	2.35	78.25
RRH2x60-AWS	C	From Face	2.00	0.0000	66.00	No Ice	0.00	2.07	55.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	2.35	78.25
RRH2x60-PCS	A	From Face	2.00	0.0000	66.00	No Ice	0.00	1.55	55.00
(Verizon - Existing)			4.00 0.00			1/2" Ice	0.00	1.74	72.75
RRH2x60-PCS	B	From Face	2.00	0.0000	66.00	No Ice	0.00	1.55	55.00
(Verizon - Existing)			4.00 0.00			1/2" Ice	0.00	1.74	72.75
RRH2x60-PCS	C	From Face	2.00	0.0000	66.00	No Ice	0.00	1.55	55.00
(Verizon - Existing)			4.00 0.00			1/2" Ice	0.00	1.74	72.75
RRH2x60-07-U	A	From Face	2.00	0.0000	66.00	No Ice	0.00	1.63	50.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	1.83	68.08
RRH2x60-07-U	B	From Face	2.00	0.0000	66.00	No Ice	0.00	1.63	50.00

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 lb
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	1.83	68.08
RRH2x60-07-U	C	From Face	2.00	0.0000	66.00	No Ice	0.00	1.63	50.00
(Verizon - Existing)			0.00 0.00			1/2" Ice	0.00	1.83	68.08
Pirod 12' T-Frame Sector Mount (1)	A	From Leg	2.00 0.00	0.0000	65.00	No Ice 1/2" Ice	11.00 13.00	11.00 13.00	465.00 600.00
(Verizon - Existing)			0.00						
Pirod 12' T-Frame Sector Mount (1)	B	From Leg	2.00 0.00	0.0000	65.00	No Ice 1/2" Ice	11.00 13.00	11.00 13.00	465.00 600.00
(Verizon - Existing)			0.00						
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	2.00 0.00	0.0000	65.00	No Ice 1/2" Ice	11.00 13.00	11.00 13.00	465.00 600.00
(Verizon - Existing)			0.00						
DC6-48-60-18-8F Surge Arrestor	C	From Face	0.50 0.50	0.0000	55.00	No Ice 1/2" Ice	2.23 2.45	2.23 2.45	20.00 39.36
(AT&T - Existing)			0.00						
AM-X-CD-16-65-00T-RET(72")	A	From Face	2.00 -5.00	0.0000	55.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	50.00 96.50
(AT&T - Existing)			0.00						
AM-X-CD-16-65-00T-RET(72")	B	From Face	2.00 -5.00	0.0000	55.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	50.00 96.50
(AT&T - Existing)			0.00						
AM-X-CD-16-65-00T-RET(72")	C	From Face	2.00 -5.00	0.0000	55.00	No Ice 1/2" Ice	8.26 8.81	4.64 5.09	50.00 96.50
(AT&T - Existing)			0.00						
HPA-65R-BUU-H6	A	From Face	2.00 5.00	0.0000	55.00	No Ice 1/2" Ice	10.36 10.93	6.45 6.91	51.00 113.99
(AT&T - Proposed)			0.00						
HPA-65R-BUU-H6	B	From Face	2.00 5.00	0.0000	55.00	No Ice 1/2" Ice	10.36 10.93	6.45 6.91	51.00 113.99
(AT&T - Proposed)			0.00						
HPA-65R-BUU-H6	C	From Face	2.00 5.00	0.0000	55.00	No Ice 1/2" Ice	10.36 10.93	6.45 6.91	51.00 113.99
(AT&T - Proposed)			0.00						
DTMABP7819VG12A TMA	A	From Face	2.00 5.00	0.0000	54.00	No Ice 1/2" Ice	0.00 0.00	0.58 0.70	20.00 29.77
(AT&T - Existing)			0.00						
DTMABP7819VG12A TMA	B	From Face	2.00 5.00	0.0000	54.00	No Ice 1/2" Ice	0.00 0.00	0.58 0.70	20.00 29.77
(AT&T - Existing)			0.00						
DTMABP7819VG12A TMA	C	From Face	2.00 5.00	0.0000	54.00	No Ice 1/2" Ice	0.00 0.00	0.58 0.70	20.00 29.77
(AT&T - Existing)			0.00						
RRUS-11	A	From Face	2.00 -2.00	0.0000	54.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	50.00 69.57
(AT&T - Existing)			0.00						
RRUS-11	B	From Face	2.00 -2.00	0.0000	54.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	50.00 69.57
(AT&T - Existing)			0.00						
RRUS-11	C	From Face	2.00 -2.00	0.0000	54.00	No Ice 1/2" Ice	2.99 3.23	1.25 1.41	50.00 69.57
(AT&T - Existing)			0.00						
RRUS-32	A	From Face	2.00 2.00	0.0000	54.00	No Ice 1/2" Ice	0.00 0.00	2.76 3.02	77.00 104.93
(AT&T - Proposed)			0.00						
RRUS-32	B	From Face	2.00	0.0000	54.00	No Ice	0.00	2.76	77.00

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 lb
(AT&T - Proposed)			2.00 0.00			1/2" Ice	0.00	3.02	104.93
RRUS-32	C	From Face	2.00	0.0000	54.00	No Ice	0.00	2.76	77.00
(AT&T - Proposed)			2.00 0.00			1/2" Ice	0.00	3.02	104.93
Pirod 10' PCS Frame (1)	A	From Leg	2.25	0.0000	54.00	No Ice	9.00	9.00	250.00
(AT&T - Existing)			0.00 0.00			1/2" Ice	13.20	13.20	350.00
Pirod 10' PCS Frame (1)	B	From Leg	2.25	0.0000	54.00	No Ice	9.00	9.00	250.00
(AT&T - Existing)			0.00 0.00			1/2" Ice	13.20	13.20	350.00
Pirod 10' PCS Frame (1)	C	From Leg	2.25	0.0000	54.00	No Ice	9.00	9.00	250.00
(AT&T - Existing)			0.00 0.00			1/2" Ice	13.20	13.20	350.00
17' x 2" Dia Omni	A	From Leg	3.00	0.0000	91.00	No Ice	3.40	3.40	42.00
(Municipal)			0.00 5.00			1/2" Ice	5.13	5.13	68.19
2-ft Stand Off	A	From Leg	1.50	0.0000	91.00	No Ice	1.07	1.07	20.00
(Municipal)			0.00 0.00			1/2" Ice	1.62	1.62	28.00
20' 4-Bay Dipole	B	From Leg	3.00	0.0000	91.00	No Ice	4.00	4.00	55.00
(Municipal)			0.00 6.00			1/2" Ice	6.00	6.00	100.00
3' Side arm mount	B	From Leg	1.50	0.0000	70.00	No Ice	2.00	2.00	70.00
(Municipal)			0.00 0.00			1/2" Ice	2.60	2.60	82.00
20' 4-Bay Dipole	B	From Leg	3.00	0.0000	70.00	No Ice	4.00	4.00	55.00
(Municipal)			0.00 6.00			1/2" Ice	6.00	6.00	100.00
8' x 3" Dia Omni	A	From Leg	3.00	0.0000	82.00	No Ice	2.40	2.40	25.00
(Municipal)			0.00 5.00			1/2" Ice	3.19	3.19	42.51
2-ft Stand Off	A	From Leg	1.50	0.0000	82.00	No Ice	1.07	1.07	20.00
(Municipal)			0.00 0.00			1/2" Ice	1.62	1.62	28.00

Tower Pressures - No Ice

$G_H = 1.195$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 92.00-87.00	89.50	1.33	25	13.125	A	0.781	1.834	1.250	47.79	0.000	0.000
					B	0.781	1.834		47.79	0.000	0.000
					C	0.781	1.834		47.79	0.000	0.000
T2 87.00-67.00	77.00	1.274	24	52.500	A	1.914	11.095	5.000	38.44	0.000	0.000
					B	2.083	7.204		53.84	0.000	0.000
					C	2.083	7.204		53.84	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T3 67.00-47.00	57.00	1.169	22	52.500	A	1.445	21.849	5.000	21.46	0.000	0.000
					B	1.996	9.197		44.67	0.000	0.000
					C	1.689	16.247		27.88	0.000	0.000
T4 47.00-27.00	37.00	1.033	19	52.500	A	1.225	26.899	5.000	17.78	0.000	0.000
					B	1.215	27.136		17.64	0.000	0.000
					C	1.426	22.279		21.09	0.000	0.000

Tower Pressure - With Ice

$G_H = 1.195$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 92.00-87.00	89.50	1.33	18	0.500	13.542	A	0.781	4.461	2.083	39.74	0.000	0.000
						B	0.781	4.461		39.74	0.000	0.000
						C	0.781	4.461		39.74	0.000	0.000
T2 87.00-67.00	77.00	1.274	18	0.500	54.167	A	1.761	23.068	8.333	33.56	0.000	0.000
						B	2.083	16.613		44.57	0.000	0.000
						C	2.083	16.613		44.57	0.000	0.000
T3 67.00-47.00	57.00	1.169	16	0.500	54.167	A	8.503	29.605	8.333	21.87	0.000	0.000
						B	4.025	17.050		39.54	0.000	0.000
						C	8.983	19.987		28.77	0.000	0.000
T4 47.00-27.00	37.00	1.033	14	0.500	54.167	A	13.174	30.447	8.333	19.10	0.000	0.000
						B	21.499	20.996		19.61	0.000	0.000
						C	13.583	22.245		23.26	0.000	0.000

Tower Pressure - Service

$G_H = 1.195$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 92.00-87.00	89.50	1.33	9	13.125	A	0.781	1.834	1.250	47.79	0.000	0.000
					B	0.781	1.834		47.79	0.000	0.000
					C	0.781	1.834		47.79	0.000	0.000
T2 87.00-67.00	77.00	1.274	8	52.500	A	1.914	11.095	5.000	38.44	0.000	0.000
					B	2.083	7.204		53.84	0.000	0.000
					C	2.083	7.204		53.84	0.000	0.000
T3 67.00-47.00	57.00	1.169	7	52.500	A	1.445	21.849	5.000	21.46	0.000	0.000
					B	1.996	9.197		44.67	0.000	0.000
					C	1.689	16.247		27.88	0.000	0.000
T4 47.00-27.00	37.00	1.033	7	52.500	A	1.225	26.899	5.000	17.78	0.000	0.000
					B	1.215	27.136		17.64	0.000	0.000
					C	1.426	22.279		21.09	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	1	1	1.864	142.32	28.46	C
92.00-87.00			B	0.199	2.598	0.59	1	1	1.864			
			C	0.199	2.598	0.59	1	1	1.864			
T2	23.76	610.89	A	0.248	2.444	0.601	1	1	8.585	590.64	29.53	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	1	1	6.305			
			C	0.177	2.675	0.586	1	1	6.305			
T3	251.32	610.89	A	0.444	1.984	0.67	1	1	16.092	824.68	41.23	A
67.00-47.00			B	0.213	2.552	0.593	1	1	7.452			
			C	0.342	2.191	0.63	1	1	11.917			
T4	616.40	611.16	A	0.536	1.858	0.716	1	1	20.494	876.64	43.83	B
47.00-27.00			B	0.54	1.853	0.719	1	1	20.718			
			C	0.452	1.971	0.674	1	1	16.442			
Sum Weight:	891.48	2178.04								2434.28		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	0.825	1	1.727	131.88	26.38	C
92.00-87.00			B	0.199	2.598	0.59	0.825	1	1.727			
			C	0.199	2.598	0.59	0.825	1	1.727			
T2	23.76	610.89	A	0.248	2.444	0.601	0.825	1	8.250	567.60	28.38	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	0.825	1	5.940			
			C	0.177	2.675	0.586	0.825	1	5.940			
T3	251.32	610.89	A	0.444	1.984	0.67	0.825	1	15.840	811.72	40.59	A
67.00-47.00			B	0.213	2.552	0.593	0.825	1	7.103			
			C	0.342	2.191	0.63	0.825	1	11.622			
T4	616.40	611.16	A	0.536	1.858	0.716	0.825	1	20.280	867.65	43.38	B
47.00-27.00			B	0.54	1.853	0.719	0.825	1	20.505			
			C	0.452	1.971	0.674	0.825	1	16.193			
Sum Weight:	891.48	2178.04								2378.85		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	0.8	1	1.708	130.39	26.08	C
92.00-87.00			B	0.199	2.598	0.59	0.8	1	1.708			
			C	0.199	2.598	0.59	0.8	1	1.708			
T2	23.76	610.89	A	0.248	2.444	0.601	0.8	1	8.202	564.31	28.22	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	0.8	1	5.888			
			C	0.177	2.675	0.586	0.8	1	5.888			
T3	251.32	610.89	A	0.444	1.984	0.67	0.8	1	15.803	809.87	40.49	A
67.00-47.00			B	0.213	2.552	0.593	0.8	1	7.053			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
			C	0.342	2.191	0.63	0.8	1	11.579			
T4	616.40	611.16	A	0.536	1.858	0.716	0.8	1	20.249	866.36	43.32	B
47.00-27.00			B	0.54	1.853	0.719	0.8	1	20.475			
			C	0.452	1.971	0.674	0.8	1	16.157			
Sum Weight:	891.48	2178.04								2370.93		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	0.85	1	1.747	133.37	26.67	C
92.00-87.00			B	0.199	2.598	0.59	0.85	1	1.747			
			C	0.199	2.598	0.59	0.85	1	1.747			
T2	23.76	610.89	A	0.248	2.444	0.601	0.85	1	8.298	570.89	28.54	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	0.85	1	5.992			
			C	0.177	2.675	0.586	0.85	1	5.992			
T3	251.32	610.89	A	0.444	1.984	0.67	0.85	1	15.876	813.57	40.68	A
67.00-47.00			B	0.213	2.552	0.593	0.85	1	7.153			
			C	0.342	2.191	0.63	0.85	1	11.664			
T4	616.40	611.16	A	0.536	1.858	0.716	0.85	1	20.311	868.93	43.45	B
47.00-27.00			B	0.54	1.853	0.719	0.85	1	20.535			
			C	0.452	1.971	0.674	0.85	1	16.228			
Sum Weight:	891.48	2178.04								2386.77		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	241.15	A	0.387	2.09	0.646	1	1	3.665	168.82	33.76	C
92.00-87.00			B	0.387	2.09	0.646	1	1	3.665			
			C	0.387	2.09	0.646	1	1	3.665			
T2	67.03	862.38	A	0.458	1.96	0.677	1	1	17.382	719.21	35.96	A
87.00-67.00		TA 263.09	B	0.345	2.183	0.631	1	1	12.562			
			C	0.345	2.183	0.631	1	1	12.562			
T3	617.95	862.38	A	0.704	1.776	0.822	1	1	32.851	1130.41	56.52	A
67.00-47.00			B	0.389	2.086	0.647	1	1	15.060			
			C	0.535	1.859	0.716	1	1	23.291			
T4	1490.42	862.88	A	0.805	1.82	0.901	1	1	40.598	1265.17	63.26	A
47.00-27.00			B	0.785	1.805	0.884	1	1	40.058			
			C	0.661	1.779	0.793	1	1	31.226			
Sum Weight:	2175.41	3091.88								3283.61		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	241.15	A	0.387	2.09	0.646	0.825	1	3.529	162.52	32.50	C
92.00-87.00			B	0.387	2.09	0.646	0.825	1	3.529			
			C	0.387	2.09	0.646	0.825	1	3.529			
T2	67.03	862.38	A	0.458	1.96	0.677	0.825	1	17.074	706.46	35.32	A
87.00-67.00		TA 263.09	B	0.345	2.183	0.631	0.825	1	12.197			
			C	0.345	2.183	0.631	0.825	1	12.197			
T3	617.95	862.38	A	0.704	1.776	0.822	0.825	1	31.363	1079.20	53.96	A
67.00-47.00			B	0.389	2.086	0.647	0.825	1	14.356			
			C	0.535	1.859	0.716	0.825	1	21.719			
T4	1490.42	862.88	A	0.805	1.82	0.901	0.825	1	38.293	1193.33	59.67	A
47.00-27.00			B	0.785	1.805	0.884	0.825	1	36.296			
			C	0.661	1.779	0.793	0.825	1	28.849			
Sum Weight:	2175.41	3091.88								3141.51		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	241.15	A	0.387	2.09	0.646	0.8	1	3.509	161.63	32.33	C
92.00-87.00			B	0.387	2.09	0.646	0.8	1	3.509			
			C	0.387	2.09	0.646	0.8	1	3.509			
T2	67.03	862.38	A	0.458	1.96	0.677	0.8	1	17.030	704.63	35.23	A
87.00-67.00		TA 263.09	B	0.345	2.183	0.631	0.8	1	12.145			
			C	0.345	2.183	0.631	0.8	1	12.145			
T3	617.95	862.38	A	0.704	1.776	0.822	0.8	1	31.150	1071.89	53.59	A
67.00-47.00			B	0.389	2.086	0.647	0.8	1	14.255			
			C	0.535	1.859	0.716	0.8	1	21.495			
T4	1490.42	862.88	A	0.805	1.82	0.901	0.8	1	37.964	1183.06	59.15	A
47.00-27.00			B	0.785	1.805	0.884	0.8	1	35.758			
			C	0.661	1.779	0.793	0.8	1	28.510			
Sum Weight:	2175.41	3091.88								3121.21		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	241.15	A	0.387	2.09	0.646	0.85	1	3.548	163.42	32.68	C
92.00-87.00			B	0.387	2.09	0.646	0.85	1	3.548			
			C	0.387	2.09	0.646	0.85	1	3.548			
T2	67.03	862.38	A	0.458	1.96	0.677	0.85	1	17.118	708.28	35.41	A
87.00-67.00		TA 263.09	B	0.345	2.183	0.631	0.85	1	12.249			
			C	0.345	2.183	0.631	0.85	1	12.249			
T3	617.95	862.38	A	0.704	1.776	0.822	0.85	1	31.575	1086.52	54.33	A
67.00-47.00			B	0.389	2.086	0.647	0.85	1	14.456			
			C	0.535	1.859	0.716	0.85	1	21.944			
T4	1490.42	862.88	A	0.805	1.82	0.901	0.85	1	38.622	1203.59	60.18	A
47.00-27.00			B	0.785	1.805	0.884	0.85	1	36.833			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
Sum Weight:	2175.41	3091.88	C	0.661	1.779	0.793	0.85	1	29.189	3161.81		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	1	1	1.864	49.24	9.85	C
92.00-87.00			B	0.199	2.598	0.59	1	1	1.864			
			C	0.199	2.598	0.59	1	1	1.864			
T2	23.76	610.89	A	0.248	2.444	0.601	1	1	8.585	204.37	10.22	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	1	1	6.305			
			C	0.177	2.675	0.586	1	1	6.305			
T3	251.32	610.89	A	0.444	1.984	0.67	1	1	16.092	285.36	14.27	A
67.00-47.00			B	0.213	2.552	0.593	1	1	7.452			
			C	0.342	2.191	0.63	1	1	11.917			
T4	616.40	611.16	A	0.536	1.858	0.716	1	1	20.494	303.34	15.17	B
47.00-27.00			B	0.54	1.853	0.719	1	1	20.718			
			C	0.452	1.971	0.674	1	1	16.442			
Sum Weight:	891.48	2178.04								842.31		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	0.825	1	1.727	45.63	9.13	C
92.00-87.00			B	0.199	2.598	0.59	0.825	1	1.727			
			C	0.199	2.598	0.59	0.825	1	1.727			
T2	23.76	610.89	A	0.248	2.444	0.601	0.825	1	8.250	196.40	9.82	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	0.825	1	5.940			
			C	0.177	2.675	0.586	0.825	1	5.940			
T3	251.32	610.89	A	0.444	1.984	0.67	0.825	1	15.840	280.87	14.04	A
67.00-47.00			B	0.213	2.552	0.593	0.825	1	7.103			
			C	0.342	2.191	0.63	0.825	1	11.622			
T4	616.40	611.16	A	0.536	1.858	0.716	0.825	1	20.280	300.22	15.01	B
47.00-27.00			B	0.54	1.853	0.719	0.825	1	20.505			
			C	0.452	1.971	0.674	0.825	1	16.193			
Sum Weight:	891.48	2178.04								823.13		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	0.8	1	1.708	45.12	9.02	C
92.00-87.00			B	0.199	2.598	0.59	0.8	1	1.708			
			C	0.199	2.598	0.59	0.8	1	1.708			
T2	23.76	610.89	A	0.248	2.444	0.601	0.8	1	8.202	195.26	9.76	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	0.8	1	5.888			
			C	0.177	2.675	0.586	0.8	1	5.888			
T3	251.32	610.89	A	0.444	1.984	0.67	0.8	1	15.803	280.23	14.01	A
67.00-47.00			B	0.213	2.552	0.593	0.8	1	7.053			
			C	0.342	2.191	0.63	0.8	1	11.579			
T4	616.40	611.16	A	0.536	1.858	0.716	0.8	1	20.249	299.78	14.99	B
47.00-27.00			B	0.54	1.853	0.719	0.8	1	20.475			
			C	0.452	1.971	0.674	0.8	1	16.157			
Sum Weight:	891.48	2178.04								820.39		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft^2	F lb	w plf	Ctrl. Face
T1	0.00	166.66	A	0.199	2.598	0.59	0.85	1	1.747	46.15	9.23	C
92.00-87.00			B	0.199	2.598	0.59	0.85	1	1.747			
			C	0.199	2.598	0.59	0.85	1	1.747			
T2	23.76	610.89	A	0.248	2.444	0.601	0.85	1	8.298	197.54	9.88	A
87.00-67.00		TA 178.44	B	0.177	2.675	0.586	0.85	1	5.992			
			C	0.177	2.675	0.586	0.85	1	5.992			
T3	251.32	610.89	A	0.444	1.984	0.67	0.85	1	15.876	281.51	14.08	A
67.00-47.00			B	0.213	2.552	0.593	0.85	1	7.153			
			C	0.342	2.191	0.63	0.85	1	11.664			
T4	616.40	611.16	A	0.536	1.858	0.716	0.85	1	20.311	300.67	15.03	B
47.00-27.00			B	0.54	1.853	0.719	0.85	1	20.535			
			C	0.452	1.971	0.674	0.85	1	16.228			
Sum Weight:	891.48	2178.04								825.87		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Leg Weight	1289.84			
Bracing Weight	888.20			
Total Member Self-Weight	2178.04			
Guy Weight	330.87			
Total Weight	7682.38			
Wind 0 deg - No Ice		-56.84	-9123.33	0.73
Wind 30 deg - No Ice		4477.70	-7831.47	0.78
Wind 45 deg - No Ice		6356.24	-6371.78	0.72
Wind 60 deg - No Ice		7798.72	-4480.77	0.62
Wind 90 deg - No Ice		9053.84	56.84	0.30
Wind 120 deg - No Ice		7910.42	4610.88	-0.11

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques kip-ft
Wind 135 deg - No Ice		6436.62	6452.16	-0.31
Wind 150 deg - No Ice		4576.14	7888.30	-0.48
Wind 180 deg - No Ice		56.84	9059.98	-0.73
Wind 210 deg - No Ice		-4477.70	7831.47	-0.78
Wind 225 deg - No Ice		-6356.24	6371.78	-0.72
Wind 240 deg - No Ice		-7853.58	4512.44	-0.62
Wind 270 deg - No Ice		-9053.84	-56.84	-0.30
Wind 300 deg - No Ice		-7855.55	-4579.21	0.11
Wind 315 deg - No Ice		-6436.62	-6452.16	0.31
Wind 330 deg - No Ice		-4576.14	-7888.30	0.48
Member Ice	913.84			
Guy Ice	289.63			
Total Weight Ice	12491.36			
Wind 0 deg - Ice		-41.22	-9137.25	0.90
Wind 30 deg - Ice		4462.06	-7787.00	0.81
Wind 45 deg - Ice		6317.29	-6331.39	0.68
Wind 60 deg - Ice		7734.58	-4451.73	0.50
Wind 90 deg - Ice		8995.52	41.22	0.05
Wind 120 deg - Ice		7916.44	4604.32	-0.41
Wind 135 deg - Ice		6375.59	6389.68	-0.60
Wind 150 deg - Ice		4533.46	7828.22	-0.76
Wind 180 deg - Ice		41.22	8974.86	-0.90
Wind 210 deg - Ice		-4462.06	7787.00	-0.81
Wind 225 deg - Ice		-6317.29	6331.39	-0.68
Wind 240 deg - Ice		-7875.22	4532.93	-0.50
Wind 270 deg - Ice		-8995.52	-41.22	-0.05
Wind 300 deg - Ice		-7775.80	-4523.12	0.41
Wind 315 deg - Ice		-6375.59	-6389.68	0.60
Wind 330 deg - Ice		-4533.46	-7828.22	0.76
Total Weight	7682.38			
Wind 0 deg - Service		-19.67	-3156.86	0.25
Wind 30 deg - Service		1549.38	-2709.85	0.27
Wind 45 deg - Service		2199.39	-2204.77	0.25
Wind 60 deg - Service		2698.52	-1550.44	0.21
Wind 90 deg - Service		3132.82	19.67	0.10
Wind 120 deg - Service		2737.17	1595.46	-0.04
Wind 135 deg - Service		2227.20	2232.58	-0.11
Wind 150 deg - Service		1583.44	2729.52	-0.17
Wind 180 deg - Service		19.67	3134.94	-0.25
Wind 210 deg - Service		-1549.38	2709.85	-0.27
Wind 225 deg - Service		-2199.39	2204.77	-0.25
Wind 240 deg - Service		-2717.50	1561.40	-0.21
Wind 270 deg - Service		-3132.82	-19.67	-0.10
Wind 300 deg - Service		-2718.18	-1584.50	0.04
Wind 315 deg - Service		-2227.20	-2232.58	0.11
Wind 330 deg - Service		-1583.44	-2729.52	0.17

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 30 deg - No Ice+Guy

Comb. No.	Description
4	Dead+Wind 45 deg - No Ice+Guy
5	Dead+Wind 60 deg - No Ice+Guy
6	Dead+Wind 90 deg - No Ice+Guy
7	Dead+Wind 120 deg - No Ice+Guy
8	Dead+Wind 135 deg - No Ice+Guy
9	Dead+Wind 150 deg - No Ice+Guy
10	Dead+Wind 180 deg - No Ice+Guy
11	Dead+Wind 210 deg - No Ice+Guy
12	Dead+Wind 225 deg - No Ice+Guy
13	Dead+Wind 240 deg - No Ice+Guy
14	Dead+Wind 270 deg - No Ice+Guy
15	Dead+Wind 300 deg - No Ice+Guy
16	Dead+Wind 315 deg - No Ice+Guy
17	Dead+Wind 330 deg - No Ice+Guy
18	Dead+Ice+Temp+Guy
19	Dead+Wind 0 deg+Ice+Temp+Guy
20	Dead+Wind 30 deg+Ice+Temp+Guy
21	Dead+Wind 45 deg+Ice+Temp+Guy
22	Dead+Wind 60 deg+Ice+Temp+Guy
23	Dead+Wind 90 deg+Ice+Temp+Guy
24	Dead+Wind 120 deg+Ice+Temp+Guy
25	Dead+Wind 135 deg+Ice+Temp+Guy
26	Dead+Wind 150 deg+Ice+Temp+Guy
27	Dead+Wind 180 deg+Ice+Temp+Guy
28	Dead+Wind 210 deg+Ice+Temp+Guy
29	Dead+Wind 225 deg+Ice+Temp+Guy
30	Dead+Wind 240 deg+Ice+Temp+Guy
31	Dead+Wind 270 deg+Ice+Temp+Guy
32	Dead+Wind 300 deg+Ice+Temp+Guy
33	Dead+Wind 315 deg+Ice+Temp+Guy
34	Dead+Wind 330 deg+Ice+Temp+Guy
35	Dead+Wind 0 deg - Service+Guy
36	Dead+Wind 30 deg - Service+Guy
37	Dead+Wind 45 deg - Service+Guy
38	Dead+Wind 60 deg - Service+Guy
39	Dead+Wind 90 deg - Service+Guy
40	Dead+Wind 120 deg - Service+Guy
41	Dead+Wind 135 deg - Service+Guy
42	Dead+Wind 150 deg - Service+Guy
43	Dead+Wind 180 deg - Service+Guy
44	Dead+Wind 210 deg - Service+Guy
45	Dead+Wind 225 deg - Service+Guy
46	Dead+Wind 240 deg - Service+Guy
47	Dead+Wind 270 deg - Service+Guy
48	Dead+Wind 300 deg - Service+Guy
49	Dead+Wind 315 deg - Service+Guy
50	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	92 - 87	Leg	Max Tension	22	1419.74	-0.03	0.01
			Max. Compression	24	-1641.15	0.01	0.01
			Max. Mx	32	-537.62	-0.10	0.03
			Max. My	34	417.46	-0.01	-0.11
			Max. Vy	30	-729.16	-0.01	0.01
			Max. Vx	19	-852.33	-0.01	-0.01

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Diagonal	Max Tension	34	407.26	0.00	0.00
			Max. Compression	34	-493.60	0.00	0.00
			Max. Mx	22	158.32	-0.00	-0.00
			Max. My	9	-430.67	-0.00	-0.00
			Max. Vy	22	-1.08	-0.00	-0.00
			Max. Vx	9	0.12	-0.00	-0.00
		Horizontal	Max Tension	30	73.37	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	27	55.04	-0.00	0.00
			Max. Vy	27	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Top Girt	Max Tension	30	17.86	0.00	0.00
			Max. Compression	32	-28.62	0.00	0.00
			Max. Mx	27	4.25	-0.00	0.00
			Max. Vy	27	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	24	-397.48	0.00	0.00
			Max. Mx	27	-373.10	-0.00	0.00
			Max. Vy	27	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T2	87 - 67	Leg	Max Tension	13	6368.88	0.19	-0.10
			Max. Compression	10	-23938.71	0.01	-0.24
			Max. Mx	6	-18735.70	-0.23	-0.02
			Max. My	10	-21551.25	0.01	-0.24
			Max. Vy	30	-729.45	0.05	-0.03
			Max. Vx	19	-852.70	0.00	0.06
		Diagonal	Max Tension	7	3887.42	0.00	0.00
		Horizontal	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-4655.58	0.00	0.00
			Max. Mx	27	-3269.52	-0.00	0.00
			Max. My	19	-3544.63	0.00	-0.00
			Max. Vy	27	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	32	-1709.18	0.00	0.00
			Max. Mx	27	-1645.32	-0.00	0.00
			Max. Vy	27	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-2254.89	0.00	0.00
			Max. Mx	28	-1436.67	-0.00	0.00
			Max. My	19	-1905.22	0.00	-0.00
			Max. Vy	28	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Guy A	Bottom Tension	27	6349.72		
			Top Tension	27	6419.66		
			Top Cable Vert	27	5766.29		
			Top Cable Norm	27	2821.68		
			Top Cable Tan	27	6.58		
			Bot Cable Vert	27	-5623.87		
			Bot Cable Norm	27	2948.05		
			Bot Cable Tan	27	8.23		
		Guy B	Bottom Tension	32	7480.40		
			Top Tension	32	7550.10		
			Top Cable Vert	32	7163.83		
			Top Cable Norm	32	2383.99		
			Top Cable Tan	32	9.83		
			Bot Cable Vert	32	-7041.29		
			Bot Cable Norm	32	2525.18		
			Bot Cable Tan	32	12.01		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Guy C	Bottom Tension	22	7183.78		
			Top Tension	22	7253.54		
			Top Cable Vert	22	6829.04		
			Top Cable Norm	22	2445.01		
			Top Cable Tan	22	6.08		
			Bot Cable Vert	22	-6702.92		
			Bot Cable Norm	22	2584.05		
			Bot Cable Tan	22	14.19		
		Torque Arm Top	Max Tension	34	7626.03	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	34	5836.47	-0.01	0.00
			Max. My	19	3173.46	0.00	-0.00
			Max. Vy	34	7.81	0.00	0.00
			Max. Vx	19	0.03	0.00	0.00
		Torque Arm Bottom	Max Tension	13	42.64	0.00	0.00
			Max. Compression	32	-5509.05	0.00	0.00
			Max. Mx	34	-409.78	-0.01	0.00
			Max. My	19	-4163.86	0.00	-0.00
			Max. Vy	34	10.13	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
T3	67 - 47	Leg	Max Tension	15	8826.71	-0.24	-0.14
			Max. Compression	19	-29320.69	-0.00	-0.04
			Max. Mx	6	-23528.73	0.54	-0.03
			Max. My	2	-18999.79	0.01	-0.54
			Max. Vy	32	-3534.84	0.05	0.03
			Max. Vx	27	3802.51	-0.00	-0.05
		Diagonal	Max Tension	14	5592.29	0.00	0.00
		Horizontal	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-4415.52	0.00	0.00
			Max. Mx	29	-2929.67	-0.00	0.00
			Max. My	20	-3201.11	0.00	0.00
			Max. Vy	29	3.72	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-2063.84	0.00	0.00
			Max. Mx	28	-1542.94	-0.00	0.00
			Max. My	19	-1853.86	0.00	-0.00
			Max. Vy	18	3.72	0.00	0.00
			Max. Vx	19	0.00	0.00	0.00
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-1203.83	0.00	0.00
			Max. Mx	18	-856.01	-0.00	0.00
			Max. My	20	-798.13	0.00	0.00
			Max. Vy	18	3.72	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T4	47 - 27	Leg	Max Tension	15	8825.64	0.05	0.03
			Max. Compression	19	-29236.39	0.00	0.14
			Max. Mx	31	5924.09	0.35	0.13
			Max. My	27	1543.20	-0.00	-0.37
			Max. Vy	32	-3535.76	0.35	0.20
			Max. Vx	27	3802.95	-0.00	-0.37
		Diagonal	Max Tension	34	424.43	0.00	0.00
			Max. Compression	34	-1457.18	0.00	0.00
			Max. Mx	34	-1446.29	-0.00	0.00
			Max. My	32	-530.17	-0.00	-0.01
			Max. Vy	34	1.31	-0.00	0.00
			Max. Vx	32	7.66	-0.00	-0.01
		Horizontal	Max Tension	27	1210.72	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	29	721.90	-0.00	0.00
			Max. My	20	758.89	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	29	3.72	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Top Girt	Max Tension	19	3714.65	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	18	2397.32	-0.00	0.00
			Max. My	20	2290.98	0.00	0.00
			Max. Vy	18	3.72	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Bottom Girt	Max Tension	27	38.11	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	29	31.71	-0.00	0.00
			Max. Vy	29	3.72	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	27	11524.02		
			Top Tension	27	11560.22		
			Top Cable Vert	27	6701.56		
			Top Cable Norm	27	9419.55		
			Top Cable Tan	27	0.94		
			Bot Cable Vert	27	-6611.97		
			Bot Cable Norm	27	9438.49		
			Bot Cable Tan	27	0.94		
		Guy B	Bottom Tension	32	14262.02		
			Top Tension	32	14298.17		
			Top Cable Vert	32	10355.67		
			Top Cable Norm	32	9858.90		
			Top Cable Tan	32	2.43		
			Bot Cable Vert	32	-10277.16		
			Bot Cable Norm	32	9888.63		
			Bot Cable Tan	32	2.43		
		Guy C	Bottom Tension	22	13593.04		
			Top Tension	22	13629.21		
			Top Cable Vert	22	9511.99		
			Top Cable Norm	22	9761.02		
			Top Cable Tan	22	0.46		
			Bot Cable Vert	22	-9431.55		
			Bot Cable Norm	22	9788.60		
			Bot Cable Tan	22	0.46		
		Base Beam	Max Tension	5	1147.85	-19.04	0.01
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	-17014.67	-24.55	-0.00
			Max. My	6	-13230.47	-19.09	-0.24
			Max. Vy	19	-17014.67	-24.55	-0.00
			Max. Vx	6	-166.51	-19.09	-0.24

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 20.92 ft Elev 28 ft Azimuth 240 deg	Max. Vert	13	-1805.40	-510.47	304.08
	Max. H_x	13	-1805.40	-510.47	304.08
	Max. H_z	22	-22774.98	-12898.52	7447.75
	Min. Vert	22	-22774.98	-12898.52	7447.75
	Min. H_x	22	-22774.98	-12898.52	7447.75
	Min. H_z	13	-1805.40	-510.47	304.08

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy B @ 19.5 ft Elev 28 ft Azimuth 120 deg	Max. Vert	7	-2118.96	572.65	333.08
	Max. H_x	32	-24111.82	12815.65	7420.03
	Max. H_z	32	-24111.82	12815.65	7420.03
	Min. Vert	32	-24111.82	12815.65	7420.03
	Min. H_x	7	-2118.96	572.65	333.08
	Min. H_z	7	-2118.96	572.65	333.08
Guy A @ 28.2 ft Elev 28 ft Azimuth 0 deg	Max. Vert	2	-921.44	2.71	-470.42
	Max. H_x	31	-9313.77	265.13	-7879.24
	Max. H_z	2	-921.44	2.71	-470.42
	Min. Vert	27	-17570.49	-14.78	-15163.47
	Min. H_x	23	-9675.63	-262.89	-8164.28
	Min. H_z	27	-17570.49	-14.78	-15163.47
Mast	Max. Vert	19	51014.55	-24.16	-942.44
	Max. H_x	6	39684.72	974.10	-24.52
	Max. H_z	10	38832.52	18.72	688.22
	Max. M_x	1	0.00	-2.18	-43.15
	Max. M_z	1	0.00	-2.18	-43.15
	Max. Torsion	1	0.00	-2.18	-43.15
	Min. Vert	43	38553.66	4.82	204.06
	Min. H_x	14	39930.17	-990.90	-68.16
	Min. H_z	19	51014.55	-24.16	-942.44
	Min. M_x	1	0.00	-2.18	-43.15
	Min. M_z	1	0.00	-2.18	-43.15
	Min. Torsion	1	0.00	-2.18	-43.15

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	38598.78	2.18	43.15	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	43044.48	34.43	905.72	0.00	0.00	0.00
Dead+Wind 30 deg - No Ice+Guy	40762.45	-450.35	770.97	0.00	0.00	0.00
Dead+Wind 45 deg - No Ice+Guy	39893.71	-655.36	614.45	0.00	0.00	0.00
Dead+Wind 60 deg - No Ice+Guy	39594.05	-821.40	424.06	0.00	0.00	0.00
Dead+Wind 90 deg - No Ice+Guy	39684.72	-974.10	24.52	0.00	0.00	0.00
Dead+Wind 120 deg - No Ice+Guy	40217.23	-831.26	-328.77	0.00	0.00	0.00
Dead+Wind 135 deg - No Ice+Guy	39661.27	-690.07	-482.95	0.00	0.00	0.00
Dead+Wind 150 deg - No Ice+Guy	39117.34	-509.68	-606.11	0.00	0.00	0.00
Dead+Wind 180 deg - No Ice+Guy	38832.52	-18.72	-688.22	0.00	0.00	0.00
Dead+Wind 210 deg - No Ice+Guy	39122.95	481.97	-585.35	0.00	0.00	0.00
Dead+Wind 225 deg - No Ice+Guy	39762.14	671.25	-452.88	0.00	0.00	0.00

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 240 deg - No Ice+Guy	40438.98	827.66	-292.94	0.00	0.00	0.00
Dead+Wind 270 deg - No Ice+Guy	39930.17	990.90	68.16	0.00	0.00	0.00
Dead+Wind 300 deg - No Ice+Guy	39665.47	857.72	469.92	0.00	0.00	0.00
Dead+Wind 315 deg - No Ice+Guy	40092.41	704.02	664.39	0.00	0.00	0.00
Dead+Wind 330 deg - No Ice+Guy	41146.75	508.69	807.70	0.00	0.00	0.00
Dead+Ice+Temp+Guy	45884.82	-13.24	15.82	0.00	0.00	0.00
Dead+Wind 0 deg+Ice+Temp+Guy	51014.55	24.16	942.44	0.00	0.00	0.00
Dead+Wind 30 deg+Ice+Temp+Guy	49649.74	-392.79	789.20	0.00	0.00	0.00
Dead+Wind 45 deg+Ice+Temp+Guy	48971.88	-580.21	602.76	0.00	0.00	0.00
Dead+Wind 60 deg+Ice+Temp+Guy	48540.17	-741.12	395.27	0.00	0.00	0.00
Dead+Wind 90 deg+Ice+Temp+Guy	48455.62	-917.43	-3.38	0.00	0.00	0.00
Dead+Wind 120 deg+Ice+Temp+Guy	48308.28	-829.31	-309.41	0.00	0.00	0.00
Dead+Wind 135 deg+Ice+Temp+Guy	48022.74	-704.00	-431.65	0.00	0.00	0.00
Dead+Wind 150 deg+Ice+Temp+Guy	47685.61	-502.33	-501.93	0.00	0.00	0.00
Dead+Wind 180 deg+Ice+Temp+Guy	47348.46	-28.01	-564.45	0.00	0.00	0.00
Dead+Wind 210 deg+Ice+Temp+Guy	47718.35	461.38	-483.75	0.00	0.00	0.00
Dead+Wind 225 deg+Ice+Temp+Guy	48114.96	680.48	-408.33	0.00	0.00	0.00
Dead+Wind 240 deg+Ice+Temp+Guy	48445.36	827.44	-284.23	0.00	0.00	0.00
Dead+Wind 270 deg+Ice+Temp+Guy	48704.16	933.61	32.93	0.00	0.00	0.00
Dead+Wind 300 deg+Ice+Temp+Guy	48773.09	765.35	449.05	0.00	0.00	0.00
Dead+Wind 315 deg+Ice+Temp+Guy	49248.36	610.54	661.12	0.00	0.00	0.00
Dead+Wind 330 deg+Ice+Temp+Guy	49943.54	432.42	837.12	0.00	0.00	0.00
Dead+Wind 0 deg - Service+Guy	38707.47	10.73	292.27	0.00	0.00	0.00
Dead+Wind 30 deg - Service+Guy	38708.85	-151.82	255.46	0.00	0.00	0.00
Dead+Wind 45 deg - Service+Guy	38703.41	-219.80	215.04	0.00	0.00	0.00
Dead+Wind 60 deg - Service+Guy	38692.80	-272.46	162.85	0.00	0.00	0.00
Dead+Wind 90 deg - Service+Guy	38656.67	-319.93	38.02	0.00	0.00	0.00
Dead+Wind 120 deg - Service+Guy	38611.84	-281.89	-86.08	0.00	0.00	0.00
Dead+Wind 135 deg - Service+Guy	38590.66	-230.67	-136.09	0.00	0.00	0.00
Dead+Wind 150 deg - Service+Guy	38573.43	-165.22	-174.48	0.00	0.00	0.00
Dead+Wind 180 deg - Service+Guy	38553.66	-4.82	-204.06	0.00	0.00	0.00

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead+Wind 210 deg - Service+Guy	38558.06	157.57	-167.16	0.00	0.00	0.00
Dead+Wind 225 deg - Service+Guy	38569.11	225.45	-125.72	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	38585.17	279.76	-73.30	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	38627.39	325.58	52.63	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	38668.37	285.97	175.40	0.00	0.00	0.00
Dead+Wind 315 deg - Service+Guy	38683.41	236.54	225.23	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	38694.52	171.04	262.63	0.00	0.00	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-7682.32	-0.00	-2.42	7682.68	-6.02	0.085%
2	-58.91	-7677.06	-9641.42	58.96	7676.96	9642.19	0.006%
3	4747.36	-7670.57	-8280.19	-4747.16	7670.53	8281.01	0.007%
4	6742.24	-7666.80	-6738.84	-6741.93	7666.79	6739.16	0.004%
5	8276.08	-7667.72	-4740.73	-8274.65	7667.70	4738.43	0.022%
6	9610.77	-7685.14	58.56	-9610.36	7685.04	-59.37	0.007%
7	8390.82	-7701.74	4874.99	-8391.39	7701.70	-4875.37	0.005%
8	6826.40	-7701.78	6823.50	-6826.89	7701.75	-6823.58	0.004%
9	4849.87	-7696.89	8340.63	-4844.56	7696.84	-8338.94	0.045%
10	58.91	-7687.58	9578.07	-59.06	7687.56	-9573.86	0.034%
11	-4747.36	-7694.07	8280.19	4744.79	7694.05	-8279.65	0.021%
12	-6742.24	-7697.84	6738.84	6742.89	7697.80	-6739.07	0.006%
13	-8330.84	-7697.04	4772.35	8331.43	7697.00	-4772.74	0.006%
14	-9610.77	-7679.50	-58.56	9611.29	7679.45	57.72	0.008%
15	-8335.96	-7662.90	-4843.32	8335.59	7662.91	4842.68	0.006%
16	-6826.40	-7662.87	-6823.50	6825.38	7662.77	6823.78	0.009%
17	-4849.87	-7667.75	-8340.63	4849.70	7667.71	8341.60	0.008%
18	0.00	-12491.24	-0.00	-0.64	12491.24	-3.24	0.026%
19	-45.21	-12478.25	-10188.00	45.59	12478.08	10188.39	0.004%
20	5008.35	-12466.90	-8697.23	-5008.58	12466.85	8697.31	0.002%
21	7098.70	-12460.51	-7076.04	-7098.94	12460.47	7076.44	0.003%
22	8700.45	-12462.95	-4979.14	-8700.22	12462.92	4979.85	0.005%
23	10121.87	-12497.03	44.58	-10121.66	12497.01	-44.18	0.003%
24	8888.22	-12529.44	5139.75	-8887.57	12529.41	-5139.10	0.006%
25	7164.34	-12530.07	7142.57	-7163.75	12530.05	-7142.28	0.004%
26	5087.63	-12521.37	8745.39	-5087.55	12521.36	-8745.43	0.001%
27	45.21	-12504.23	10025.61	-45.48	12504.21	-10023.70	0.012%
28	-5008.35	-12515.58	8697.23	5008.29	12515.56	-8697.27	0.000%
29	-7098.70	-12521.97	7076.04	7098.09	12521.95	-7075.70	0.004%
30	-8841.09	-12519.53	5060.34	8840.42	12519.50	-5059.66	0.006%
31	-10121.87	-12485.45	-44.58	10122.09	12485.42	44.99	0.003%
32	-8747.59	-12453.04	-5058.55	8747.07	12452.98	5059.44	0.006%
33	-7164.34	-12452.41	-7142.57	7165.12	12452.40	7143.09	0.006%
34	-5087.63	-12461.11	-8745.39	5088.05	12461.06	8745.36	0.003%
35	-20.38	-7680.50	-3336.13	20.02	7680.50	3330.72	0.065%
36	1642.68	-7678.26	-2865.12	-1640.05	7678.25	2860.53	0.063%
37	2332.94	-7676.95	-2331.78	-2329.27	7676.95	2327.54	0.067%
38	2863.70	-7677.27	-1640.39	-2859.13	7677.26	1636.82	0.069%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
39	3325.53	-7683.30	20.26	-3320.10	7683.29	-21.58	0.067%
40	2903.40	-7689.04	1686.85	-2899.26	7689.03	-1686.04	0.050%
41	2362.08	-7689.05	2361.07	-2359.15	7689.05	-2359.90	0.038%
42	1678.16	-7687.36	2886.03	-1676.29	7687.36	-2884.72	0.027%
43	20.38	-7684.14	3314.21	-20.65	7684.14	-3312.85	0.017%
44	-1642.68	-7686.39	2865.12	1640.39	7686.38	-2863.87	0.031%
45	-2332.94	-7687.69	2331.78	2329.55	7687.69	-2330.65	0.043%
46	-2882.68	-7687.37	1651.35	2877.83	7687.37	-1650.62	0.059%
47	-3325.53	-7681.35	-20.26	3318.90	7681.34	18.49	0.082%
48	-2884.41	-7675.60	-1675.89	2878.52	7675.60	1671.81	0.086%
49	-2362.08	-7675.59	-2361.07	2357.10	7675.59	2356.39	0.082%
50	-1678.16	-7677.28	-2886.03	1674.31	7677.28	2881.08	0.075%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00057514
2	Yes	25	0.00097219	0.00066032
3	Yes	36	0.00091422	0.00033720
4	Yes	46	0.00091150	0.00029799
5	Yes	8	0.00000001	0.00039722
6	Yes	50	0.00098331	0.00046474
7	Yes	33	0.00000001	0.00039782
8	Yes	40	0.00000001	0.00024986
9	Yes	8	0.00000001	0.00047452
10	Yes	6	0.00000001	0.00049572
11	Yes	9	0.00000001	0.00024473
12	Yes	37	0.00094815	0.00035901
13	Yes	32	0.00083914	0.00041262
14	Yes	39	0.00096079	0.00035178
15	Yes	47	0.00089497	0.00041846
16	Yes	46	0.00096424	0.00041133
17	Yes	33	0.00094795	0.00038483
18	Yes	5	0.00000001	0.00017461
19	Yes	25	0.00099451	0.00093158
20	Yes	32	0.00095582	0.00047685
21	Yes	33	0.00084724	0.00042204
22	Yes	38	0.00093684	0.00032640
23	Yes	42	0.00097788	0.00030514
24	Yes	34	0.00092795	0.00032378
25	Yes	38	0.00089241	0.00027620
26	Yes	48	0.00000001	0.00022491
27	Yes	8	0.00000001	0.00024239
28	Yes	49	0.00000001	0.00021372
29	Yes	38	0.00091532	0.00028166
30	Yes	33	0.00088033	0.00032971
31	Yes	40	0.00098687	0.00037978
32	Yes	36	0.00098920	0.00049000
33	Yes	31	0.00095426	0.00066071
34	Yes	31	0.00093114	0.00033473
35	Yes	5	0.00000001	0.00033013
36	Yes	5	0.00000001	0.00037550
37	Yes	5	0.00000001	0.00040350
38	Yes	5	0.00000001	0.00041651
39	Yes	5	0.00000001	0.00037528

40	Yes	5	0.00000001	0.00025659
41	Yes	5	0.00000001	0.00018841
42	Yes	5	0.00000001	0.00014922
43	Yes	5	0.00000001	0.00014288
44	Yes	5	0.00000001	0.00022154
45	Yes	5	0.00000001	0.00028811
46	Yes	5	0.00000001	0.00035747
47	Yes	5	0.00000001	0.00045597
48	Yes	5	0.00000001	0.00044348
49	Yes	5	0.00000001	0.00040534
50	Yes	5	0.00000001	0.00036153

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	92 - 87	0.727	48	0.0270	0.0441
T2	87 - 67	0.700	48	0.0264	0.0403
T3	67 - 47	0.576	49	0.0593	0.0711
T4	47 - 27	0.195	50	0.0699	0.0745

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	°	°	*ft*
91.00	17' x 2" Dia Omni	48	0.721	0.0267	0.0428	24817
82.00	8' x 3" Dia Omni	48	0.680	0.0307	0.0427	58598
81.25	Guy	48	0.677	0.0317	0.0436	89294
70.00	3' Side arm mount	49	0.611	0.0539	0.0659	11165
66.00	RRH2x60-AWS	49	0.562	0.0607	0.0725	10466
65.00	DB844G65ZAXY	49	0.547	0.0620	0.0738	11118
55.00	DC6-48-60-18-8F Surge Arrestor	49	0.351	0.0683	0.0770	84134
54.00	DTMABP7819VG12A TMA	49	0.329	0.0685	0.0767	54535
46.92	Guy	50	0.194	0.0700	0.0744	13156

Maximum Tower Deflections - Design Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		°	°
T1	92 - 87	2.394	19	0.1283	0.2321
T2	87 - 67	2.257	19	0.1250	0.2123
T3	67 - 47	1.701	19	0.1993	0.2294
T4	47 - 27	0.582	2	0.2083	0.2320

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
91.00	17' x 2" Dia Omni	19	2.365	0.1271	0.2276	10446
82.00	8' x 3" Dia Omni	19	2.142	0.1352	0.2052	39661
81.25	Guy	19	2.126	0.1378	0.2052	83044
70.00	3' Side arm mount	19	1.824	0.1883	0.2195	3944
66.00	RRH2x60-AWS	19	1.653	0.2021	0.2318	3669
65.00	DB844G65ZAXY	19	1.603	0.2046	0.2339	3867
55.00	DC6-48-60-18-8F Surge Arrestor	2	1.017	0.2119	0.2399	22957
54.00	DTMABP7819VG12A TMA	2	0.959	0.2115	0.2391	14259
46.92	Guy	2	0.578	0.2082	0.2320	4458

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	92	Leg	A325N	0.875	1	819.93	26457.80	0.031 ✔	1.333	Bolt Tension
T2	87	Leg	A325N	0.875	1	1419.09	26443.20	0.054 ✔	1.333	Bolt Tension
T3	67	Leg	A325N	0.875	1	6368.48	26428.20	0.241 ✔	1.333	Bolt Tension
T4	47	Leg	A325N	0.875	1	8825.64	25086.80	0.352 ✔	1.333	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T lb	Allowable T_a lb	Required S.F.	Actual S.F.
T2	81.25 (A) (244)	9/16 EHS	3500.00	35000.04	6419.66	17500.00	2.000	5.452 ✔
	81.25 (A) (245)	9/16 EHS	3500.00	35000.04	6094.96	17500.00	2.000	5.742 ✔
	81.25 (B) (238)	9/16 EHS	3500.00	35000.04	7287.33	17500.00	2.000	4.803 ✔
	81.25 (B) (239)	9/16 EHS	3500.00	35000.04	7550.10	17500.00	2.000	4.636 ✔
	81.25 (C) (232)	9/16 EHS	3500.00	35000.04	7186.78	17500.00	2.000	4.870 ✔
	81.25 (C) (233)	9/16 EHS	3500.00	35000.04	7253.54	17500.00	2.000	4.825 ✔
T4	46.92 (A) (252)	3/4 EHS	5830.00	58299.91	11560.20	29150.00	2.000	5.043 ✔
	46.92 (B) (251)	3/4 EHS	5830.00	58299.91	14298.20	29150.00	2.000	4.077 ✔
	46.92 (C) (250)	3/4 EHS	5830.00	58299.91	13629.20	29150.00	2.000	4.278 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	Mast Stability Index	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	1 1/2	5.00	2.46	78.7 K=1.00	1.00	19.278	1.767	-1641.15	34066.30	0.048 ✓
T2	87 - 67	1 1/2	20.00	2.83	90.7 K=1.00	1.00	16.794	1.767	-23938.70	29677.70	0.807 ✓
T3	67 - 47	1 1/2	20.00	2.83	90.7 K=1.00	1.00	16.794	1.767	-29320.70	29677.70	0.988 ✓
T4	47 - 27	1 1/2	20.00	2.85	91.0 K=1.00	1.00	16.712	1.767	-29236.40	29531.90	0.990 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	1/2	3.51	1.67	143.9 K=0.90	7.212	0.196	-493.60	1416.10	0.349 ✓
T4	47 - 27	1/2	3.79	1.80	155.4 K=0.90	6.181	0.196	-1457.18	1213.54	1.201 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	87 - 67	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-3871.00	4551.90	0.850* ✓
T3	67 - 47	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-3506.94	4551.90	0.770* ✓

* DL controls

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-28.62	4551.90	0.006 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	87 - 67	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-1668.88	4551.90	0.367* ✔
T3	67 - 47	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-1800.04	4551.90	0.395* ✔

* DL controls

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-359.41	4551.90	0.079* ✔
T2	87 - 67	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-1808.45	4551.90	0.397* ✔
T3	67 - 47	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	10.498	0.434	-980.44	4551.90	0.215* ✔

* DL controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	87 - 67 (236)	L3x3x1/4	2.50	2.44	84.7 K=1.71	14.823	1.440	-5157.42	21345.70	0.242 ✔
T2	87 - 67 (237)	L3x3x1/4	2.50	2.44	84.7 K=1.71	14.823	1.440	-4507.36	21345.70	0.211 ✔
T2	87 - 67 (242)	L3x3x1/4	2.50	2.44	84.7 K=1.71	14.823	1.440	-5509.05	21345.70	0.258 ✔
T2	87 - 67 (243)	L3x3x1/4	2.50	2.44	84.7 K=1.71	14.823	1.440	-5444.40	21345.70	0.255 ✔
T2	87 - 67 (248)	L3x3x1/4	2.50	2.44	84.7 K=1.71	14.823	1.440	-5436.15	21345.70	0.255 ✔
T2	87 - 67 (249)	L3x3x1/4	2.50	2.44	84.7 K=1.71	14.823	1.440	-4666.13	21345.70	0.219 ✔

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	1 1/2	5.00	2.46	78.7	30.000	1.767	1419.74	53014.40	0.027 ✔
T2	87 - 67	1 1/2	20.00	2.83	90.7	30.000	1.767	6368.88	53014.40	0.120 ✔
T3	67 - 47	1 1/2	20.00	2.83	90.7	30.000	1.767	8826.71	53014.40	0.166 ✔
T4	47 - 27	1 1/2	20.00	2.85	91.0	30.000	1.767	8825.64	53014.40	0.166 ✔

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	1/2	3.51	1.67	159.9	21.600	0.196	407.26	4241.15	0.096 ✔
T2	87 - 67	1/2	3.78	3.59	344.6	21.600	0.196	3102.64	4241.15	0.732* ✔
T3	67 - 47	1/2	3.78	3.59	344.6	21.600	0.196	5592.29	4241.15	1.319 ✔
T4	47 - 27	1/2	3.79	1.80	172.7	21.600	0.196	424.43	4241.15	0.100 ✔

* DL controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	21.600	0.434	73.37	9365.63	0.008 ✔
T4	47 - 27	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	21.600	0.434	976.07	9365.63	0.104* ✔

* DL controls

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	92 - 87	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	21.600	0.434	17.86	9365.63	0.002

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T4	47 - 27	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	21.600	0.434	3714.65	9365.63	0.397 ✔

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T4	47 - 27	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	21.600	0.434	36.28	9365.63	0.004* ✔

* DL controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	87 - 67 (234)	L2x2x5/16	3.78	3.68	73.6	21.600	1.150	7237.20	24840.00	0.291 ✔
T2	87 - 67 (235)	L2x2x5/16	3.78	3.68	73.6	21.600	1.150	6406.39	24840.00	0.258 ✔
T2	87 - 67 (240)	L2x2x5/16	3.78	3.68	73.6	21.600	1.150	7626.03	24840.00	0.307 ✔
T2	87 - 67 (241)	L2x2x5/16	3.78	3.68	73.6	21.600	1.150	7094.98	24840.00	0.286 ✔
T2	87 - 67 (246)	L2x2x5/16	3.78	3.68	73.6	21.600	1.150	7397.48	24840.00	0.298 ✔
T2	87 - 67 (247)	L2x2x5/16	3.78	3.68	73.6	21.600	1.150	6134.57	24840.00	0.247 ✔

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	87 - 67 (236)	L3x3x1/4	2.50	2.44	31.5	21.600	1.440	42.64	31104.00	0.001 ✔
T2	87 - 67 (237)	L3x3x1/4	2.50	2.44	31.5	21.600	1.440	32.42	31104.00	0.001 ✔
T2	87 - 67 (248)	L3x3x1/4	2.50	2.44	31.5	21.600	1.440	11.60	31104.00	0.000 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	92 - 87	Leg	1 1/2	2	-1641.15	45410.38	3.6	Pass
T2	87 - 67	Leg	1 1/2	27	-23938.70	39560.37	60.5	Pass
T3	67 - 47	Leg	1 1/2	96	-29320.70	39560.37	74.1	Pass
T4	47 - 27	Leg	1 1/2	165	-29236.40	39366.02	74.3	Pass
T1	92 - 87	Diagonal	1/2	13	-493.60	1887.66	26.1	Pass
T2	87 - 67	Diagonal	1/2	92	3102.64	4241.15	73.2	Pass
T3	67 - 47	Diagonal	1/2	104	5592.29	5653.45	98.9	Pass
T4	47 - 27	Diagonal	1/2	219	-1457.18	1617.65	90.1	Pass
T1	92 - 87	Horizontal	L1 1/4x1 1/4x3/16	17	73.37	12484.38	0.6	Pass
T2	87 - 67	Horizontal	L1 1/4x1 1/4x3/16	85	-3871.00	4551.90	85.0	Pass
T3	67 - 47	Horizontal	L1 1/4x1 1/4x3/16	109	-3506.94	4551.90	77.0	Pass
T4	47 - 27	Horizontal	L1 1/4x1 1/4x3/16	180	976.07	9365.63	10.4	Pass
T1	92 - 87	Top Girt	L1 1/4x1 1/4x3/16	6	-28.62	6067.68	0.5	Pass
T2	87 - 67	Top Girt	L1 1/4x1 1/4x3/16	30	-1668.88	4551.90	36.7	Pass
T3	67 - 47	Top Girt	L1 1/4x1 1/4x3/16	99	-1800.04	4551.90	39.5	Pass
T4	47 - 27	Top Girt	L1 1/4x1 1/4x3/16	166	3714.65	12484.38	29.8	Pass
T1	92 - 87	Bottom Girt	L1 1/4x1 1/4x3/16	9	-359.41	4551.90	7.9	Pass
T2	87 - 67	Bottom Girt	L1 1/4x1 1/4x3/16	31	-1808.45	4551.90	39.7	Pass
T3	67 - 47	Bottom Girt	L1 1/4x1 1/4x3/16	100	-980.44	4551.90	21.5	Pass
T4	47 - 27	Bottom Girt	L1 1/4x1 1/4x3/16	171	36.28	9365.63	0.4	Pass
T2	87 - 67	Guy A@81.25	9/16	244	6419.66	17500.00	36.7	Pass
T4	47 - 27	Guy A@46.9167	3/4	252	11560.20	29150.00	39.7	Pass
T2	87 - 67	Guy B@81.25	9/16	239	7550.10	17500.00	43.1	Pass
T4	47 - 27	Guy B@46.9167	3/4	251	14298.20	29150.00	49.1	Pass
T2	87 - 67	Guy C@81.25	9/16	233	7253.54	17500.00	41.4	Pass
T4	47 - 27	Guy C@46.9167	3/4	250	13629.20	29150.00	46.8	Pass
T2	87 - 67	Torque Arm Top@81.25	L2x2x5/16	240	7626.03	33111.72	23.0	Pass
T2	87 - 67	Torque Arm Bottom@81.25	L3x3x1/4	242	-5509.05	28453.82	19.4	Pass

	Summary	
Leg (T4)	74.3	Pass
Diagonal (T3)	98.9	Pass
Horizontal (T2)	85.0	Pass
Top Girt (T3)	39.5	Pass
Bottom Girt (T2)	39.7	Pass
Guy A (T4)	39.7	Pass
Guy B (T4)	49.1	Pass
Guy C (T4)	46.8	Pass
Torque Arm Top (T2)	23.0	Pass
Torque Arm Bottom (T2)	19.4	Pass
Bolt Checks	26.4	Pass
RATING =	**98.9**	**Pass**

tnxTower	Job	Page
	16034.07 - CT2040	37 of 37
Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Project 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	Date 09:25:07 09/06/16
	Client AT&T Mobility	Designed by TJL

Program Version 7.0.5.1 - 2/1/2016 File:J:/Jobs/1003400.WI/07_Hamden - Benham St CT2040/04_Structural/Backup Documentation/ERI 100 NUDD Guyed_Twr_Hamden_CT_.eri

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	GUY ANCHOR ANALYSIS
Location:	65-ft Guyed Lattice Tower Hamden, CT
Rev. 0: 9/06/16	Prepared by: Staff. Checked by: C.F.C. Job No. 16034.07

Guy Anchor Connection Bolts Capacity Check:

Input Data:

Guy Anchor Reactions:

NOTE: Analysis considers a single 5/8" dia thru bolt at anchor rod connection to anchor plate as critical failure point. (Existing anchor steel connection to existing structure considered adequate by inspection).

Guy Anchor B @ 19.5ft:

Horz Force (H) = $Fh := 14.8 \cdot kips$ (Input From tnxTower)

Vertical Force (V)= $Fv := 24.1 \cdot kips$ (Input From tnxTower)

Resultant Force (R) = $Fr := 28.3 kips$ (Input From tnxTower)

Guy Anchor B Connection Bolt Data:

Use ASTM A325 Steel

Bolt Ultimate Strength = $F_u := 120 \cdot ksi$ (ASD 9th Ed)

Bolt Yield Strength= $F_y := 92 \cdot ksi$ (User Input)

Diameter of Bolt = $D := 0.625 \cdot in$ (User Input)

Calculated Bolt Properties:

Gross Area of Bolt = $A_g := \frac{\pi}{4} \cdot D^2 = 0.307 \cdot in^2$

Number of Shear Planes = $N_{sp} := 6$ (3 Bolts in Double Shear Considered)

Check Anchor Connection Bolt Shear Force:

Maximum Shear Stress in 1 Bolt = $f_v := \frac{Fr}{(A_g \cdot N_{sp})}$ $f_v = 15.37 \cdot ksi$

Bolt Allowable Shear Stress:

$F_v := 21.0 ksi$ Ref Table I-D, pg 4-5 ASD 9th Ed)

Note: (Allowable shear stress may be increased by 1.333 under transient loading per Section A5.2, ASD 9th Ed)

Condition1 = $Condition1 := if\left(\frac{f_v}{F_v} \le 1.00, "OK", "Overstressed"\right)$

$\frac{f_v}{F_v} = 0.73$

Condition1 = "OK"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CTV2040	DATE:	5/13/2016	RF DESIGN ENG:	Md Mateen	RF PERF ENG:	Folarin Ayo
ISSUE:	BWE 1900	Approved? (Y/N):	Yes	RF DESIGN PHONE:	8602586382	RF PERF PHONE:	
REVISION:	Preliminary	RF MANAGER:	Cameron Syme	RF DESIGN EMAIL:	MM093Q@ATT.COM	RF PERF EMAIL:	fa6860@att.com
INITIATIVE / PROJECT:	LTE BWE 1900 A3-A4 & E w/ Bronze Standard Configuration.					TRIDENT:	
						GSM FREQUENCY:	850
						UMTS FREQUENCY:	850,1900
						LTE FREQUENCY:	700,1900
						I-PLAN JOB # 1:	NER-RCTB-16-00581
						I-PLAN JOB # 2:	
						I-PLAN JOB # 3:	
						I-PLAN JOB # 4:	

RFDS PROGRAM TYPE:	2017 LTE Multi Carrier
RFDS TECHNOLOGY:	1xBBU RRH Add
State:	Preliminary
Status:	Approved
RFDS ID:	1206307
Version	1.00
Created By:	om636a
Date Created:	5/6/2016
Date Updated:	5/18/2016
Updated By:	mm093q
Product Group || Sub Group #1:	LTE Multi Carrier || LTE BWE
Product Group || Sub Group #2:	
Product Group || Sub Group #3:	
Product Group || Sub Group #4:	

Section 2 - LOCATION INFORMATION

USID:	61171	FA LOCATION CODE:	10035317	LOCATION NAME:	HAMDEN BENHAM ST	ORACLE PRJT # 1:	
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	
ADDRESS:	265 BENHAM STREET	CITY:	HAMDEN	STATE:	CT	ORACLE PRJT # 3:	
ZIP CODE:	06514	COUNTY:	NEW HAVEN	MSA / RSA:		ORACLE PRJT # 4:	
LATITUDE (D-M-S):	41d 22m 12.66996s	LONGITUDE (D-M-S):	-72d -55m -53.29596s	LAT (DEC. DEG.):	41.3701861	SEARCH RING NAME:	
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	UPDATED 8/11 2040 – SACRED HEART RT.15 NO/SO TO RTE 10 (EXIT 60) HMDN. END OF EXIT GO SOUTH (RIGHT). 3RD RIGHT ONTO BENHAM ST. GO TO 2ND LIGHT (1/2 MI.) AND TURN RIGHT AT LIGHT (CHERRY HILL ON LEFT). FOLLOW YELLOW STRIPED ROAD TO END THEN GO LEFT INTO STUDENT PARKING AREA AND GO TO END. COME OUT SAME WAY. DEMARC LOCATED INSIDE SHELTER CID'S: GSM: ET47-HCGS238880 ET122-HCGS238881 UMTS: 2ND CARRIER ON FIBER 3RD CARRIER UMTS: PP1-HCGS759378 PP2-HCGS759379 PP3-HCGS759280 PP4-HCGS759381					SEARCH RING ID:	
						BTA:	
						LONG (DEC. DEG.):	-72.9314711
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	

PACE JOB #1:	MRCTB018797
PACE JOB #2:	
PACE JOB #3:	
PACE JOB #4:	
CASPR INITIATIVE #1:	
CASPR INITIATIVE #2:	
CASPR INITIATIVE #3:	
CASPR INITIATIVE #4:	

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:			
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:					

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	Yes	GROUND ELEVATION (ft):		STRUCTURE TYPE:	GUYED	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):		FCC ASR NUMBER:	NR	MARKET LOCATION 850 MHz Band:	On-Air
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):	94.00			MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO_MIAMI				
SECTOR B	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO_MIAMI				
SECTOR C	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO_MIAMI				
SECTOR D	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO				
SECTOR E	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO				
SECTOR F	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO				
OMNI								

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A E-911	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO_MIAMI				
SECTOR B	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO_MIAMI				
SECTOR C	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO_MIAMI				
SECTOR D	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO				
SECTOR E	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO				
SECTOR F	HAMDEN EMERGENCY COMMUNICATION CENTER	1347		INTRADO				
OMNI								

Section 6 - RBS GENERAL INFORMATION - existing

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	LTE 1ST RBS
RBS ID:	99924	99925	210605	250429	257806	379815	366897
CTS COMMON ID:	049D2040	318D2040	CTV2040	CTU2040	CTU6040	CTV6040	CTL02040
BTA/TID:	049G	049P	318U	318V	318V	318W	318L
4-DIGIT SITE ID:	2040	2040	2040	2040	6040	6040	2040
COW OR TOY?:	No	No	No	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	BTS-CONVENTIONAL	BTS-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:						INTERNAL	
ORIGINATING CO:	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR
CELLULAR NETWORK:	GOLD	GOLD	GOLD	GOLD	GOLD	GOLD	GOLD
OPS DISTRICT:	SOUTH	CT SOUTH-EAST	CT SOUTH-EAST	CT SOUTH-EAST	CT-South	CT SOUTH-EAST	CT-South
RF DISTRICT:	SOUTH	NPO Triage	Bridgeport	Bridgeport	Bridgeport	NPO Triage	NPO Triage
OPS ZONE:	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS
RF ZONE:	BCT05 - NEW HAVEN	Hotseat	BBP07	BBP07	BBP07	Hotseat	Hotseat
BASE STATION TYPE:	BASE	BASE	BASE	OVERLAY	OVERLAY	OVERLAY	BASE
EQUIPMENT NAME:	HAMDEN BENHAM ST	HAMDEN BENHAM ST	HAMDEN BENHAM ST	HAMDEN - SACRED HEART	HAMDEN - SACRED HEART	HAMDEN 265 BENHAM STREET	HAMDEN BENHAM ST
DISASTER PRIORITY:	0	0	0	0	0	3	3

Section 6 - RBS GENERAL INFORMATION - final

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	LTE 1ST RBS
RBS ID:	99924	99925	210605	250429	257806	379815	366897
CTS COMMON ID:	049D2040	318D2040	CTV2040	CTU2040	CTU6040	CTV6040	CTL02040
BTA/TID:	049G	049P	318U	318V	318V	318W	318L
4-DIGIT SITE ID:	2040	2040	2040	2040	6040	6040	2040
COW OR TOY?:	No	No	No	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	BTS-CONVENTIONAL	BTS-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL
ORIGINATING CO:	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR	CINGULAR
CELLULAR NETWORK:	GOLD	GOLD	GOLD	GOLD	GOLD	GOLD	GOLD
OPS DISTRICT:	CT-South	CT-South	CT-South	CT-South	CT-South	CT-South	CT-South
RF DISTRICT:	NPO Triage	NPO Triage	Bridgeport	Bridgeport	Bridgeport	NPO Triage	NPO Triage
OPS ZONE:	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS	NE_CT_S_NHVN_SW_CS
RF ZONE:	Hotseat	Hotseat	BBP07	BBP07	BBP07	Hotseat	Hotseat
BASE STATION TYPE:	BASE	BASE	BASE	OVERLAY	OVERLAY	OVERLAY	BASE
EQUIPMENT NAME:	HAMDEN BENHAM ST	HAMDEN BENHAM ST	HAMDEN BENHAM ST	HAMDEN - SACRED HEART	HAMDEN - SACRED HEART	HAMDEN 265 BENHAM STREET	HAMDEN BENHAM ST
DISASTER PRIORITY:	0	0	0	0	0	3	3

Section 7 - RBS SPECIFIC INFORMATION - existing

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	LTE 1ST RBS
MSC:							
BSC/RNC/MME POOL ID:	BRPTCTBSC07	BRPTCTBSC07	BRPTCT04CRBR07	BRPTCT04CRBR07	BRPTCT04CRBR07	BRPTCT04CRBR07	FF01
LAC:	05016	05016	05988	05988	05988	05988	
RAC:							
EQUIPMENT VENDOR:	NOKIA	NOKIA	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE:	ULTRASITE	ULTRASITE	3206 INDOOR	3206 INDOOR	3206 INDOOR	3206 INDOOR	6601 INDOOR MU
BASEBAND CONFIGURATION:							
LOCATION:							
CABINET LOCATION:							
MARKET STATE CODE:							CT
AGPS:	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NODE B NUMBER:							2040
PARENT NAME:	BRPTCTBSC07	BRPTCTBSC07	BRPTCT04CRBR07	BRPTCT04CRBR07	BRPTCT04CRBR07	BRPTCT04CRBR07	FF01

Section 7 - RBS SPECIFIC INFORMATION - final

	GSM 1ST RBS	GSM 2ND RBS	UMTS 1ST RBS	UMTS 2ND RBS	UMTS 3RD RBS	UMTS 4TH RBS	LTE 1ST RBS
MSC:							
BSC/RNC/MME POOL ID:	BRPTCTBSC07	BRPTCTBSC07	BRPTCT04CRBR07	BRPTCT04CRBR07	BRPTCT04CRBR07	BRPTCT04CRBR07	FF01
LAC:	05016	05016	05988	05988	05988	05988	
RAC:							
EQUIPMENT VENDOR:	NOKIA	NOKIA	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE:	ULTRASITE	ULTRASITE	3206 INDOOR	3206 INDOOR	3206 INDOOR	3206 INDOOR	6601 INDOOR MU
BASEBAND CONFIGURATION:							
LOCATION:							
CABINET LOCATION:							
MARKET STATE CODE:							CT
AGPS:	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NODE B NUMBER:					0		2040
PARENT NAME:	BRIDGEPORT BSC 07	BRIDGEPORT BSC 07	BRIDGEPORT RNC07 ERICSSON 3820	BRIDGEPORT RNC07 ERICSSON 3820	BRIDGEPORT RNC07 ERICSSON 3820	BRIDGEPORT RNC07 ERICSSON 3820	

Section 8 - RBS INDIVIDUAL INFORMATION - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
RBS ID:	99924	99925	210605	250429	379815	257806		366897	366897
CELL ID/BCF:	049D2040	049D2040	CTV2040	CTV2040	CTV6040	CTV6040		CTL02040	CTL02040
CTS COMMON ID:	049D2040	318D2040	CTV2040	CTU2040	CTV6040	CTU6040		CTL02040	CTL02040

Section 8 - RBS INDIVIDUAL INFORMATION - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
RBS ID:	99924		210605	250429	379815	257806	257806	366897	366897
CELL ID/BCF:	049D2040		CTV2040	CTV2040	CTV6040	CTV6040	CTV6040	CTL02040	CTL02040
CTS COMMON ID:	049D2040		CTV2040	CTU2040	CTV6040	CTU6040	CTU6040	CTL02040	CTL02040

Section 9 - SOFT SECTOR ID - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
USEID (excluding Hard Sector)	61171.850.25G.1	61171.1900.25G.1	61171.850.3G.1	61171.1900.3G.1	61171.850.3G.2	61171.1900.3G.2		61171.700.4G.1	61171.1900.4G.1
SECTOR A SOFT SECTOR ID	318G20401	318P20401	CTV20401	CTU20407	CTV6040A	CTU60407		CTL02040_7A_1	CTL02040_9A_1
SECTOR_B	318G20402	318P20402	CTV20402	CTU20408	CTV6040B	CTU60408		CTL02040_7B_1	CTL02040_9B_1
SECTOR_C	318G20403	318P20403	CTV20403	CTU20409	CTV6040C	CTU60409		CTL02040_7C_1	CTL02040_9C_1
SECTOR_D						CTU60404			
SECTOR_E						CTU60405			
SECTOR_F						CTU60406			
OMNI									

Section 9 - SOFT SECTOR ID - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
USEID (excluding Hard Sector)	61171.850.25G.1		61171.850.3G.1	61171.1900.3G.1	61171.850.3G.2	61171.1900.3G.2	61171.1900.3G.3	61171.700.4G.1	61171.1900.4G.1
SECTOR A SOFT SECTOR ID	318G20401		CTV20401	CTU20407	CTV6040A	CTU60407	CTU60404	CTL02040_7A_1	CTL02040_9A_1
SECTOR_B	318G20402		CTV20402	CTU20408	CTV6040B	CTU60408	CTU60405	CTL02040_7B_1	CTL02040_9B_1
SECTOR_C	318G20403		CTV20403	CTU20409	CTV6040C	CTU60409	CTU60406	CTL02040_7C_1	CTL02040_9C_1
SECTOR_D									
SECTOR_E									
SECTOR_F									
OMNI									

Section 9 - Cell Number - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
USEID (excluding Hard Sector)	61171.850.25G.1	61171.1900.25G.1	61171.850.3G.1	61171.1900.3G.1	61171.850.3G.2	61171.1900.3G.2		61171.700.4G.1	61171.1900.4G.1
SECTOR A CELL NUMBER								15	8
SECTOR_B								16	9
SECTOR_C								17	10
SECTOR_D									
SECTOR_E									
SECTOR_F									
OMNI									

Section 9 - Cell Number - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
USEID (excluding Hard Sector)	61171.850.25G.1		61171.850.3G.1	61171.1900.3G.1	61171.850.3G.2	61171.1900.3G.2	61171.1900.3G.3	61171.700.4G.1	61171.1900.4G.1
SECTOR A CELL NUMBER						0	0	15	8
SECTOR B						0	0	16	9
SECTOR C						0	0	17	10
SECTOR D									
SECTOR E									
SECTOR F									
OMNI									

Section 10 - CID/SAC - existing

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
SECTOR A CID/SAC	20401	20401	20401	20407	60401	60407			
SECTOR B	20402	20402	20402	20408	60402	60408			
SECTOR C	20403	20403	20403	20409	60403	60409			
SECTOR D						60404			
SECTOR E						60405			
SECTOR F						60406			
OMNI									

Section 10 - CID/SAC - final

	GSM 1ST 850	GSM 1ST 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 1900	LTE 1ST 700	LTE 1ST 1900
SECTOR A CID/SAC	20401		20401	20407	60401	60407	60404		
SECTOR B	20402		20402	20408	60402	60408	60405		
SECTOR C	20403		20403	20409	60403	60409	60406		
SECTOR D									
SECTOR E									
SECTOR F									
OMNI									

Section 11 - CURRENT RADIO COUNTS existing

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE
SECTOR A RADIO COUNTS																						
SECTOR B																						
SECTOR C																						
SECTOR D																						
SECTOR E																						
SECTOR F																						
OMNI																						
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE
SECTOR A RADIO COUNTS																						
SECTOR B																						
SECTOR C																						
SECTOR D																						
SECTOR E																						
SECTOR F																						
OMNI																						

Section 12 - CURRENT T1 COUNTS existing

	GSM 1ST Cabinet	GSM 2ND Cabinet	UMTS 1ST Cabinet	UMTS 2ND Cabinet	UMTS 3RD Cabinet	UMTS 4TH Cabinet	UMTS 5TH Cabinet	UMTS 6TH Cabinet	LTE 1ST Cabinet	LTE 2ND Cabinet	LTE 3RD Cabinet	LTE 4TH Cabinet
# T1s												
LINK PROFILE												
RF COMBINING												
FIBER or ETHERNET?												
Tx Board Model												
Tx Board QTY												
RAX/ECU Board Model												
RAX/ECU Board QTY												
BBU Board Model												
BBU Board QTY												
RRU - location												
FIBER JUMPER												
DC CABLE												
DC/Fiber Dem. Box												
Bundled Fiber Cable												
Bundled DC Cable												

Section 13 - NEW/PROPOSED RADIO COUNTS

	GSM 1ST 850	GSM 1ST 1900	GSM 2ND 850	GSM 2ND 1900	UMTS 1ST 850	UMTS 1ST 1900	UMTS 2ND 850	UMTS 2ND 1900	UMTS 3RD 850	UMTS 3RD 1900	UMTS 4TH 850	UMTS 4TH 1900	UMTS 5TH 850	UMTS 5TH 1900	UMTS 6TH 850	UMTS 6TH 1900	LTE 1ST 700	LTE 1ST 850	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 1ST FUTURE		
SECTOR A RADIO COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								
																	LTE 2ND 700	LTE 2ND 850	LTE 2ND 1900	LTE 2ND AWS	LTE 2ND WCS	LTE 2ND FUTURE		
SECTOR A RADIO COUNTS																								
SECTOR B																								
SECTOR C																								
SECTOR D																								
SECTOR E																								
SECTOR F																								
OMNI																								

Section 14 - NEW/PROPOSED T1 COUNTS

	GSM 1ST Cabinet	GSM 2ND Cabinet	UMTS 1ST Cabinet	UMTS 2ND Cabinet	UMTS 3RD Cabinet	UMTS 4TH Cabinet	UMTS 5TH Cabinet	UMTS 6TH Cabinet	LTE 1ST Cabinet	LTE 2ND Cabinet	LTE 3RD Cabinet	LTE 4TH Cabinet
# T1s												
LINK PROFILE												
RF COMBINING												
FIBER or ETHERNET?												
Tx Board Model												
Tx Board QTY												
RAX/ECU Board Model												
RAX/ECU Board QTY												
BBU Board Model												
BBU Board QTY												
RRU - location												
FIBER JUMPER												
DC CABLE												
DC/Fiber Dem. Box												
Bundled Fiber Cable												
Bundled DC Cable												

Section 15A - CURRENT SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	AM-X-CD-16-65-00T-RET					
ANTENNA VENDOR	KMW	KMW					
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X11.8X5.9					
ANTENNA WEIGHT	48.5	48.5					
AZIMUTH	150	20					
MAGNETIC DECLINATION	-14 °	-14 °					
RADIATION CENTER (feet)	55	55					
ANTENNA TIP HEIGHT	58	58					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET					
SURGE ARRESTOR (QTY/MODEL)		1 DC/ Fiber Squid					
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	1 Kathrein / 860-10006	LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819V G12A Twin PCS						
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-11					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61171.A.850.3G.1	CTV20401			UMTS 850	00T-RET_850MHz_0	16.1		2	NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
	PORT 2		61171.A.850.3G.2	CTV6040A			UMTS 850	00T-RET_850MHz_0	16.1		2	NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
	PORT 3		61171.A.1900.3G.1	CTU20407			UMTS 1900	00T-RET_1920MHz_	17.29		2	NONE	Andrew 1-5/8 (1900)	154.04									
	PORT 4		61171.A.1900.3G.2	CTU60407			UMTS 1900	00T-RET_1920MHz_	17.29		2	NONE	Andrew 1-5/8 (1900)	154.04									
	PORT 5		61171.A.850.25G.1	318G20401			GSM 850	00T-RET_850MHz_0	16.1		2	NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
ANTENNA POSITION 2	PORT 1		61171.A.700.4G.1	CTL02040_7A_1			LTE 700	00T-RET_725MHz_0	16.1		0	TOP	FIBER	0									
	PORT 3		61171.A.1900.4G.1	CTL02040_9A_1			LTE 1900	00T-RET_1920MHz_	17.29		2	TOP	FIBER	0									

Section 15B - CURRENT SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	AM-X-CD-16-65-00T-RET					
ANTENNA VENDOR	KMW	KMW					
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X11.8X5.9					
ANTENNA WEIGHT	48.5	48.5					
AZIMUTH	260	150					
MAGNETIC DECLINATION	-14 °	-14 °					
RADIATION CENTER (feet)	55	55					
ANTENNA TIP HEIGHT	58	58					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819VG12A						
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-11					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61171.B.850.3G.1	CTV20402			UMTS 850	00T-RET_850MHz_0	16.1			NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
	PORT 2		61171.B.850.3G.2	CTV6040B			UMTS 850	00T-RET_850MHz_0	16.1			NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
	PORT 3		61171.B.1900.3G.1	CTU20408			UMTS 1900	00T-RET_1920MHz_	17.29			NONE	Andrew 1-5/8 (1900)	154.04									
	PORT 4		61171.B.1900.3G.2	CTU60408			UMTS 1900	00T-RET_1920MHz_	17.29			NONE	Andrew 1-5/8 (1900)	154.04									
	PORT 5		61171.B.850.25G.1	318G20401			GSM 850	00T-RET_850MHz_0	16.1			NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
ANTENNA POSITION 2	PORT 1		61171.B.700.4G.1	CTL02040_7B_1			LTE 700	00T-RET_725MHz_0	16.1		0	TOP	FIBER	0									
	PORT 3		61171.B.1900.4G.1	CTL02040_9B_1			LTE 1900	00T-RET_1920MHz_	17.29		2	TOP	FIBER	0									

Section 15C - CURRENT SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	AM-X-CD-16-65-00T-RET					
ANTENNA VENDOR	KMW	KMW					
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X11.8X5.9					
ANTENNA WEIGHT	48.5	48.5					
AZIMUTH	20	260					
MAGNETIC DECLINATION	-14 °	-14 °					
RADIATION CENTER (feet)	55	55					
ANTENNA TIP HEIGHT	58	58					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819VG12A						
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-11					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1		61171.C.850.3G.1	CTV20403			UMTS 850	00T-RET_850MHz_0	16.1			NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
	PORT 2		61171.C.850.3G.2	CTV6040C			UMTS 850	00T-RET_850MHz_0	16.1			NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
	PORT 3		61171.C.1900.3G.1	CTU20409			UMTS 1900	00T-RET_1920MHz_	17.29			NONE	Andrew 1-5/8 (1900)	154.04									
	PORT 4		61171.C.1900.3G.2	CTU60409			UMTS 1900	00T-RET_1920MHz_	17.29			NONE	Andrew 1-5/8 (1900)	154.04									
	PORT 5		61171.C.850.25G.1	318G20401			GSM 850	00T-RET_850MHz_0	16.1			NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850						
ANTENNA POSITION 2	PORT 1		61171.C.700.4G.1	CTL02040_7C_1			LTE 700	00T-RET_725MHz_0	16.1		0	TOP	FIBER	0									
	PORT 3		61171.C.1900.4G.1	CTL02040_9C_1			LTE 1900	00T-RET_1920MHz_	17.29		2	TOP	FIBER	0									

Section 16A - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6					
ANTENNA VENDOR		CCI Products					
ANTENNA SIZE (H x W x D)		72X14.8X9					
ANTENNA WEIGHT		51					
AZIMUTH		20					
MAGNETIC DECLINATION		-14 °					
RADIATION CENTER (feet)		55					
ANTENNA TIP HEIGHT		58					
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	A3-A4 & E, Replace the						
Local Market Note 2							
Local Market Note 3	Config - 1 DUS + XMU						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3		61171.A.1900.4G.1	CTL02040_9A_1	CTL02040_9A_1		LTE 1900	H6_1920MHz_02DT	17.29	20	2	TOP	FIBER	0									

Section 16B - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6					
ANTENNA VENDOR		CCI Products					
ANTENNA SIZE (H x W x D)		72X14.8X9					
ANTENNA WEIGHT		51					
AZIMUTH		150					
MAGNETIC DECLINATION		-14 °					
RADIATION CENTER (feet)		55					
ANTENNA TIP HEIGHT		58					
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE BWE 1900 A3-A4 & E, Replace the existing LTE Antenna with a Hex port 6' on all sectors , and repalce LTE 1900 RRUS-11 with RRUS-32 B2 // DUL to DUS upgrade, Add XMU.						
Local Market Note 2	[illegible]						
Local Market Note 3	DUS-1 - 7A:7B:7C:X1P1:X1P2:_ XMU-1 - P1A:P2A:P1C:P2C:P1B:P2B:_:_:_:_:_:_:_:_:D1E:D1D						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3		61171.B.1900.4G.1	CTL02040_9B_1	CTL02040_9B_1		LTE 1900	H6_1920MHz_02DT	17.29	150	2	TOP	FIBER	0									

Section 16C - NEW/PROPOSED SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6					
ANTENNA VENDOR		CCI Products					
ANTENNA SIZE (H x W x D)		72X14.8X9					
ANTENNA WEIGHT		51					
AZIMUTH		260					
MAGNETIC DECLINATION		-14 °					
RADIATION CENTER (feet)		55					
ANTENNA TIP HEIGHT		58					
MECHANICAL DOWNTILT		0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE BWE 1900 A3-A4 & E, Replace the existing LTE Antenna with a Hex port 6' on all sectors , and repalce LTE 1900 RRUS-11 with RRUS-32 B2 // DUL to DUS upgrade, Add XMU.						
Local Market Note 2	[illegible]						
Local Market Note 3	DUS-1 - 7A:7B:7C:X1P1:X1P2:_ XMU-1 - P1A:P2A:P1C:P2C:P1B:P2B:_:_:_:_:_:_:_:_:D1E:D1D						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 2	PORT 3		61171.C.1900.4G.1	CTL02040_9C_1	CTL02040_9C_1		LTE 1900	H6_1920MHz_02DT	17.29	260	2	TOP	FIBER	0									

Section 17A - FINAL SECTOR/CELL INFORMATION - SECTOR A (OR OMNI)

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	HPA-65R-BUU-H6					
ANTENNA VENDOR	KMW	CCI Products					
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X14.8X9					
ANTENNA WEIGHT	48.5	51					
AZIMUTH	150	20					
MAGNETIC DECLINATION	-14 °	-14 °					
RADIATION CENTER (feet)	55	55					
ANTENNA TIP HEIGHT	58	58					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET					
SURGE ARRESTOR (QTY/MODEL)		1 DC/ Fiber Squid					
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)	1 Kathrein / 860-10006	LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819V G12A Twin PCS						
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE BWE 1900 A3-A4 & E, Replace the existing LTE Antenna with a Hex port 6' on all sectors , and repalce LTE 1900 RRUS-11 with RRUS-32 B2 // DUL to DUS upgrade, Add XMU.						
Local Market Note 2							
Local Market Note 3	DUS-1 - 7A:7B:7C:X1P1:X1P2:_ XMU-1 - P1A:P2A:P1C:P2C:P1B:P2B:_:_:_:_:_:_:_:D1E:D1D						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	61171.A.850.3G.1	61171.A.850.3G.1	CTV20401	CTV20401		UMTS 850	00T-RET_850MHz_0	16.1	150	2	NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850			529.66		1	
	PORT 2	61171.A.850.3G.2	61171.A.850.3G.2	CTV20401	CTV6040A		UMTS 850	00T-RET_850MHz_0	16.1	150	2	NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850			529.66		1	
	PORT 3	61171.A.1900.3G.1	61171.A.1900.3G.1	CTU20407	CTU20407		UMTS 1900	00T-RET_1920MHz_	17.29	150	2	NONE	Andrew 1-5/8 (1900)	154.04						638.26		2	
	PORT 4	G.2, 61171.A.1900.3G.2	61171.A.1900.3G.2	CTU60407	CTU60407		UMTS 1900	00T-RET_1920MHz_	17.29	150	2	NONE	Andrew 1-5/8 (1900)	154.04						638.26		2	
	PORT 5	61171.A.850.25G.1	61171.A.850.25G.1	318G20401	318G20401		GSM 850	00T-RET_850MHz_0	16.1	150	2	NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850					1	
ANTENNA POSITION 2	PORT 1	61171.A.700.4G.1	61171.A.700.4G.1	CTL02040_7A_1	CTL02040_7A_1		LTE 700	H6_725MHz_05DT	16.1	20	0	TOP	FIBER	0						1475.7065		3	
	PORT 3	61171.A.1900.4G.1	61171.A.1900.4G.1	CTL02040_9A_1	CTL02040_9A_1		LTE 1900	H6_1920MHz_02DT	17.29	20	2	TOP	FIBER	0						2421.029		3	

Section 17B - FINAL SECTOR/CELL INFORMATION - SECTOR B

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	HPA-65R-BUU-H6					
ANTENNA VENDOR	KMW	CCI Products					
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X14.8X9					
ANTENNA WEIGHT	48.5	51					
AZIMUTH	260	150					
MAGNETIC DECLINATION	-14 °	-14 °					
RADIATION CENTER (feet)	55	55					
ANTENNA TIP HEIGHT	58	58					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819VG12A						
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE BWE 1900 A3-A4 & E, Replace the existing LTE Antenna with a Hex port 6' on all sectors , and repalce LTE 1900 RRUS-11 with RRUS-32 B2 // DUL to DUS upgrade, Add XMU.						
Local Market Note 2							
Local Market Note 3	DUS-1 - 7A:7B:7C:X1P1:X1P2:_ XMU-1 - P1A:P2A:P1C:P2C:P1B:P2B:_:_:_:_:_:_:_:D1E:D1D						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	61171.B.850.3G.1	61171.B.850.3G.1	CTV20402	CTV20402		UMTS 850	00T-RET_850MHz_0	16.1	260		NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850			529.66		9	
	PORT 2	61171.B.850.3G.2	61171.B.850.3G.2	CTV20402	CTV6040B		UMTS 850	00T-RET_850MHz_0	16.1	260		NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850			529.66		9	
	PORT 3	61171.B.1900.3G.1	61171.B.1900.3G.1	CTU20408	CTU20408		UMTS 1900	00T-RET_1920MHz_	17.29	260		NONE	Andrew 1-5/8 (1900)	154.04						638.26		10	
	PORT 4	G.2, 61171.B.1900.3G.2	61171.B.1900.3G.2	CTU60408	CTU60408		UMTS 1900	00T-RET_1920MHz_	17.29	260		NONE	Andrew 1-5/8 (1900)	154.04						638.26		10	
	PORT 5	61171.B.850.25G.1	61171.B.850.25G.1	318G20402	318G20402		GSM 850	00T-RET_850MHz_0	16.1	260		NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850					9	
ANTENNA POSITION 2	PORT 1	61171.B.700.4G.1	61171.B.700.4G.1	CTL02040_7B_1	CTL02040_7B_1		LTE 700	H6_725MHz_05DT	16.1	150	0	TOP	FIBER	0						1475.7065		11	
	PORT 3	61171.B.1900.4G.1	61171.B.1900.4G.1	CTL02040_9B_1	CTL02040_9B_1		LTE 1900	H6_1920MHz_02DT	17.29	150	2	TOP	FIBER	0						2421.029		11	

Section 17C - FINAL SECTOR/CELL INFORMATION - SECTOR C

ANTENNA COMMON FIELDS	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	AM-X-CD-16-65-00T-RET	HPA-65R-BUU-H6					
ANTENNA VENDOR	KMW	CCI Products					
ANTENNA SIZE (H x W x D)	72X11.8X5.9	72X14.8X9					
ANTENNA WEIGHT	48.5	51					
AZIMUTH	20	260					
MAGNETIC DECLINATION	-14 °	-14 °					
RADIATION CENTER (feet)	55	55					
ANTENNA TIP HEIGHT	58	58					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	2						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In RET	Built-In RET					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)	2 CM1007-DBPXBC-003						
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)		LTE RRH					
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	1 DTMABP7819VG12A						
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 RRUS-11					
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 RRUS-32 B2					
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	LTE BWE 1900 A3-A4 & E, Replace the existing LTE Antenna with a Hex port 6' on all sectors , and repalce LTE 1900 RRUS-11 with RRUS-32 B2 // DUL to DUS upgrade, Add XMU.						
Local Market Note 2							
Local Market Note 3	DUS-1 - 7A:7B:7C:X1P1:X1P2:_ XMU-1 - P1A:P2A:P1C:P2C:P1B:P2B:_:_:_:_:_:_:_:D1E:D1D						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	61171.C.850.3G.1	61171.C.850.3G.1	CTV20403	CTV20403		UMTS 850	00T-RET_850MHz_0	16.1	20		NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850			529.66		17	
	PORT 2	61171.C.850.3G.2	61171.C.850.3G.2	CTV20403	CTV6040C		UMTS 850	00T-RET_850MHz_0	16.1	20		NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850			529.66		17	
	PORT 3	61171.C.1900.3G.1	61171.C.1900.3G.1	CTU20409	CTU20409		UMTS 1900	00T-RET_1920MHz_	17.29	20		NONE	Andrew 1-5/8 (1900)	154.04						638.26		18	
	PORT 4	G.2, 61171.C.1900.3G.2	61171.C.1900.3G.2	CTU60409	CTU60409		UMTS 1900	00T-RET_1920MHz_	17.29	20		NONE	Andrew 1-5/8 (1900)	154.04						638.26		18	
	PORT 5	61171.C.850.25G.1	61171.C.850.25G.1	318G20403	318G20403		GSM 850	00T-RET_850MHz_0	16.1	20		NONE	Andrew 1-5/8 (850)	154.04	850 Rxait	1	LLC 850					17	
ANTENNA POSITION 2	PORT 1	61171.C.700.4G.1	61171.C.700.4G.1	CTL02040_7C_1	CTL02040_7C_1		LTE 700	H6_725MHz_05DT	16.1	260	0	TOP	FIBER	0						1475.7065		19	
	PORT 3	61171.C.1900.4G.1	61171.C.1900.4G.1	CTL02040_9C_1	CTL02040_9C_1		LTE 1900	H6_1920MHz_02DT	17.29	260	2	TOP	FIBER	0						2421.029		19	

TOWN OF HAMDEN

CONNECTICUT

August 24, 2000

New Haven Register
40 Sargent Drive
New Haven, CT. 06511
Attn: Judy

FAX# 865-8360
Bill: 287-2592

RE: LEGAL NOTICE TO APPEAR IN THE NEW HAVEN REGISTER ON TUESDAY, AUGUST 29, 2000.

DP71964 – Special Meetings and Public Hearings were held on Tuesday, August 22, 2000 starting at 7:30 p.m. of the **Zoning Section**, and the **Planning Section**, and the **Planning & Zoning Commission**. All meetings were held in the Council Chambers, Memorial Town Hall and the following actions were taken:

1. Site Plan/WS 00-1267. 2582 Whitney Ave. B-1. Restaurant expansion from 61 to 108 seats. Whitney & Hawthorne LLC., Property Owner. ZaRus Grille, Applicant. **APPROVED WITH CONDITIONS.**

2. Site Plan/WS 00-1272. 720 Sherman Ave. M-1. Expansion of existing manufacturing/office. Amphenol Corporation , Property Owner. Paul Pizzo, Applicant. **APPROVED WITH CONDITIONS.**

3. Site Plan 00-1276. 2039 Dixwell Ave. CDD-1. Laundromat/Dry Cleaners. Rosalie Lambert Family Trust, Owner. **APPROVED WITH CONDITIONS.**

4. Site Plan 00-1257. 265 Benham St. R-3. Telecommunication Antenna. Sandy Carter, Applicant. **APPROVED WITH CONDITIONS.**

5. Resubdivision 00-1201. High Ridge Rd. R-2. 2 lots. Leslie Corey, Property Owner. Leslie Corey, Applicant. **APPROVED WITH CONDITIONS.**

6. Resubdivision/WS/FP 00-1202. Chatterton Way. Lot #1. R-2. Natalie Wheatley, Property Owner and Applicant. **APPROVED WITH CONDITIONS.**

MINUTES: THE ZONING SECTION, Planning & Zoning Commission, Town of Hamden, held a Special Meeting on Tuesday, August 22, 2000 in the Council Chambers, Memorial Town Hall, immediately following the Planning and Zoning Commission meeting. The following issues were discussed:

Connolly Parkway frontage. Mr. Thompson said he has not seen that letter. Mr. O'Brien said the bond is $3,350. The RWA submitted a letter today asking that their inspectors continue to be granted access to the site. Mr. Ingengro said he believes the items the Town Engineer is asking for were completed a year ago, and he feels the sidewalk was revisited with the prior Town Planner and they were not required to replace the sidewalk, but to repair it. The previous applicant posted the bond. Mr. O'Brien asked the property owner if he would be willing to replace 100' of sidewalk. Mr. Lambert, the property owner, said they did 100' of sidewalk when Auto Tune filed their application. If the engineering detail is not on file Mr. Lambert is willing to submit it.

Mr. Crocco said Mr. Savarese's conditions should be made part of the motion. Mr. Crocco said the applicant will provide the information requested by Mr. Savarese. The sidewalk must be inspected and there is already a bond.

Mr. McDonagh made a motion to approve Site Plan 00-1276 subject to the following conditions:

Prior to the issuance of a Zoning Permit, the applicant must:

1. **Submit an easement from 27 Connolly Parkway for the common driveway:**
2. **Submit landscaping details for approval of the Town Planner;**
3. **Post a bond in an amount estimated by the applicant and approved by the Town Planner;**
4. **Submit drainage information from previous application.**
5. **The sidewalk must be inspected and repaired or replaced as necessary.**

Mr. Sims seconded the motion. The vote was unanimous, in favor.

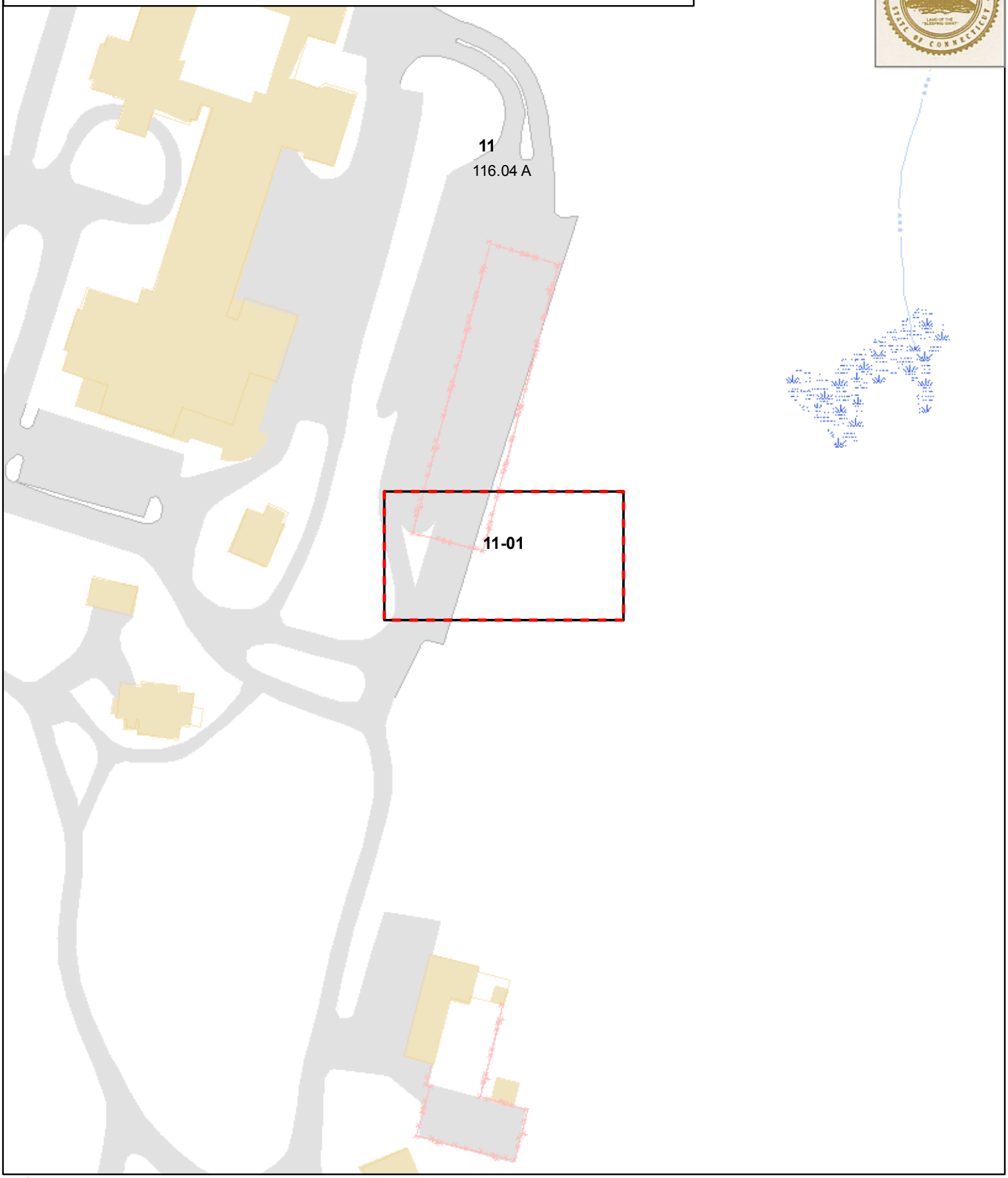
Mr. Thompson said they are making no substantial changes to the site and the landscaping is existing.

4. Site Plan 00-1257
   265 Benham Street, R-3 Zone
   Telecommunication Antenna
   Sandy Carter, Agent
   Verizon Cellular, Applicant

Mr. O'Brien said the Town Police and Fire Departments entered into agreement between Verizon Telecommunications and the Sisters at Sacred Heart Academy, and if the Town Police and Fire antennas are going to be on the tower, the tower is not subject to zoning. This Commission approved an 8-24, which went to the Council and was approved and then signed by the Mayor.

Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 2526-011-01-0000 Address: 191 BENHAM ST



N

Approximate Scale: **1 inch = 100 feet**

0 50 100 150 200 Feet

Map Produced: January 2016