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January 28, 2015

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

Regarding:	Notice of Exempt Modification – Addition of 3 radio heads previously approved
Property Address:	281 Wood House Road, Fairfield, CT (the "Property")
Applicant:	AT&T Mobility ("AT&T")

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 171 foot Monopole ("tower") location on the Property. AT&T's facility consists of nine (9) wireless telecommunications antenna at 150 feet. The tower is controlled by Crown Castle, LLC. The Council approved the previous application on June 20th 2011 reference number EM-CING-051-110527. This application (attached) granted AT&T the use of 6 radio heads at this location. The approval expired one year from the issue date. During that time AT&T made the changes to the site per the approval but only installed three (3) of the six (6) radio heads that they received approval. AT&T would now like to install the additional three (3) radio heads that were originally approved under EM-CING-051-110527.

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

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

1. The planned modifications will not result in an increase in the height of the existing structure. AT&T's additional, previously approved 3 radio heads will be installed at 150 foot level of the 171 foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety

16 Esquire Road, Billerica, MA 01862 Mobile 617-639-4908 Email: Dcooper@empiretelecomm.com

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standard. An RF emissions calculation (attached) for AT&T's modified facility was provided in the application which led to the June 20th 2011 Decision.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached Structural analysis completed by Crown Castle, LLC. dated April 21, 2011).

For the foregoing reasons AT&T respectfully requests that the proposed addition of 3 radio heads previously approved be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

David P. Cooper
Director of Site Acquisition
Empire Telecom

CC: Michael C. Tetreau, First Selectman, Town of Fairfield
Joe Devonshuk, Planning Director, Town of Fairfield
Crown Castle, LLC

16 Esquire Road, Billerica, MA 01862 Mobile 617-639-4908 Email: Dcooper@empiretelecomm.com

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

CT2105

June 20, 2011

Douglas L. Culp, Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-051-110527** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 281 Wood House Road, Fairfield, Connecticut

Dear Mr. Culp:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated May 27, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Kenneth A. Flatto, First Selectman, Town of Fairfield
Joseph E. Devonshuk, Town Planner, Town of Fairfield
Crown Castle USA, Inc.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

June 6, 2011

The Honorable Kenneth A. Flatto
First Selectman
Town of Fairfield
Town Hall
725 Old Post Road
Fairfield, CT 06430

RE: **EM-CING-051-110527** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 281 Wood House Road, Fairfield, Connecticut.

Dear First Selectman Flatto:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by June 20, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts per JAB

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Joseph E. Devonshuk, Town Planner, Town of Fairfield

EM-CING-051-110527

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 463-5511
Fax: (860) 513-7190

Douglas L. Culp
Real Estate Consultant

HAND DELIVERED

May 27, 2011

Ms. Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: New Cingular Wireless PCS, LLC notice of intent to modify an existing tele-communications facility located at 281 Wood House Fairfield, CT (owner Crown Castle)

Dear Ms. Roberts:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System ("UMTS") and/or Long Term Evolution ("LTE") capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC ("AT&T") plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

UMTS technology offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile ("GSM") communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the Internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will be unaffected.

2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than some enlarged equipment pads as may be noted in the attachments.

3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.

4. Radio frequency power density may increase due to use of one or more GSM channel for UMTS transmissions. Moreover, LTE will utilize additional radio frequencies newly-licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (860) 463-5511 with questions concerning this matter. Thank you for your consideration.

Sincerely,

Douglas E. Culp
Real Estate Consultant

Attachments

NEW CINGULAR WIRELESS PCS, LLC
Equipment Modification

281 Wood House Road Fairfield, CT
Site Number CT2105
Exempt Mod

Tower Owner/Manager: Crown Castle

Equipment configuration: Monopole

Current and/or approved:
Six PowerWave antennas @ 150 ft
Twelve PowerWave TMA's @ 150 ft
Twelve runs 1 1/4 inch coax to 150 ft
Equipment Shelter

Planned Modifications:
Retain existing PowerWave Antenna's, TMA's at 150 ft
Retain all Coax Cabling
Install three PowerWave P65-16 antennas or equivalent @ 150 ft
Install six remote radio heads and surge arrestor @ 150 ft
Install one fiber and two DC power cables to 150 ft

Power Density:

Worst-case calculations for existing wireless operations at the site, using standard parameters for other carriers, indicate a radio frequency electromagnetic radiation power density, measured at ground level beside the Tower, of 51.3% of the standard adopted by the FCC. As depicted in the second table below, the total radio frequency electromagnetic radiation power density following proposed modifications would be approximately 52.5% of the standard.

Existing

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
							37.69
Other Users							0.80
AT&T UMTS	150	1900 Band	1	500	0.0080	1.0000	2.72
AT&T UMTS	150	800 Band	2	500	0.0160	0.5867	8.06
AT&T GSM	150	800Band	10	296	0.0473	0.5867	2.05
AT&T UMTS	150	1900 Band	3	427	0.0205	1.0000	
Total							**51.3%**

* Data for other users are from Siting Council records.

Proposed

Company	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Other Users							37.69
AT&T UMTS	150	800 Band	1	500	0.0080	0.5867	1.36
AT&T UMTS	150	1900 Band	2	500	0.0160	1.0000	1.60
AT&T GSM	150	880 - 894	10	296	0.0473	0.5867	8.06
AT&T GSM	150	1900 Band	3	427	0.0205	1.0000	2.05
AT&T LTE	150	740 - 746	1	500	0.0080	0.4933	1.62
Total							**52.4%**

* Data for other users are from Siting Council records.

Structural information:

The attached structural analysis demonstrates that the monopole and foundation have adequate structural capacity to accommodate the proposed modifications. (Crown Castle. dated 4-21-11).

WIRELESS COMMUNICATIONS FACILITY

CT2105

FAIRFIELD WOODHOUSE

281 WOOD HOUSE ROAD

FAIRFIELD, CT 06824

SITE DIRECTIONS

FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT

TO: 281 WOOD HOUSE ROAD, FAIRFIELD, CT 06430

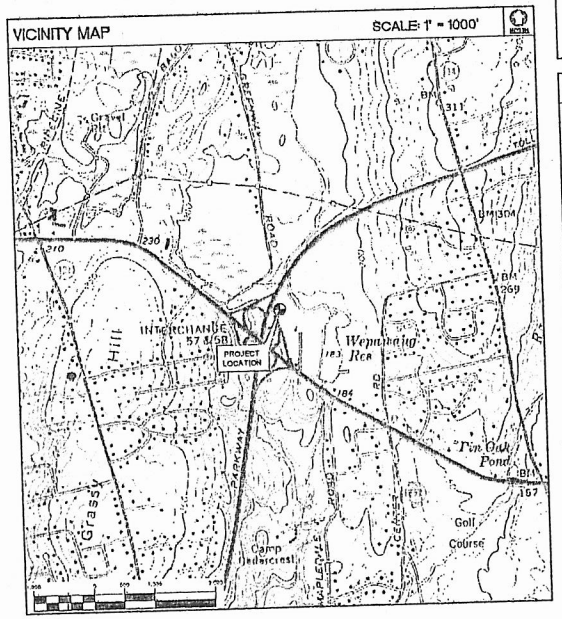
1. Depart Enterprise Dr toward Capitol Blvd	0.3 mi.
2. Turn left onto Capitol Blvd	0.3 mi.
3. Turn left onto West St	9.7 mi.
4. Take ramp left for I-91 South	37.7 mi.
5. At exit 17, take ramp right for SR-15 South / Wilbur Cross Pkwy toward E. Main St	<0.1 mi.
6. At exit 44, take ramp right toward Fairfield / Redding	0.7 mi.
7. Turn left onto Congress St, and then immediately turn right onto SR-58 / Black Rock Tpke	0.2 mi.
8. Turn left onto Tanglewood Rd	0.4 mi.
9. Turn left onto Towne House Rd	0.1 mi.
10. Turn right onto Wood House Rd	
11. Arrive at 281 Wood House Rd, Fairfield, CT 06824-1823 on the left	

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2005 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT, 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.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK GENERALLY CONSISTS OF THE INSTALLATION OF ONE (1) LTE ANTENNA PER SECTOR FOR A TOTAL OF (3) LTE ANTENNAS TO THE EXISTING AT&T ANTENNA ARRAY, AN LTE BASEBAND EQUIPMENT UNIT (RBS) WILL BE INSTALLED WITHIN THE EXISTING AT&T EQUIPMENT SHELTER.
2. ADDITIONALLY, (2) REMOTE RADIO UNITS (RRUs) PER SECTOR WILL BE INSTALLED. SURGE ARRESTORS WILL BE INSTALLED AT BOTH AT&T RBU AND EQUIPMENT LOCATIONS. REFER TO THESE ACCOMPANYING DRAWINGS FOR FURTHER INFORMATION.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT2105
AT&T SITE NAME:	FAIRFIELD WOODHOUSE
SITE ADDRESS:	281 WOOD HOUSE ROAD FAIRFIELD, CT 06824
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°-11'-45.3" N LONGITUDE: 73°-16'-52.6" W GROUND ELEVATION: ±328' AMSL

SHEET INDEX

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E-2	ELECTRICAL DETAILS	1

REV.	DATE	DRAWN BY	CHK'D BY	
1	02/24/11	RJG	CFC	CONSTRUCTION
0	3/1/11	DEB	CFC	CONSTRUCTION - SUBMIT TO SITE

DESIGNED BY: CFC
DRAWN BY: DEB
CHK'D BY: CFC

PROFESSIONAL ENGINEER SEAL

(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
SITE NUMBER: CT2105
SITE NAME: FAIRFIELD WOODHOUSE
281 WOOD HOUSE ROAD
FAIRFIELD, CT 06824

DATE: 3/1/11
SCALE: AS NOTED
JOB NO. 11021.C011

TITLE SHEET

T-1

Sheet No. 1 of 6

STRUCTURAL SPECIFICATIONS

DESIGN BASIS

GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT 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).
   - 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 & 2009 AMENDMENT.
   - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-95 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

GENERAL NOTES

1. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
2. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST THE PRE MANUFACTURED EQUIPMENT BUILDING SHOP DRAWINGS.
3. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
4. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. ALL RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED OFF SITE AND BE LEGALLY DISPOSED, AT NO ADDITIONAL COST.
4. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE EQUIPMENT AND TOWER AREAS.
5. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
6. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
7. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.
8. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

EARTHWORK NOTES

1. COMPACTED GRAVEL FILL SHALL BE FURNISHED AND PLACED AS A FOUNDATION FOR STRUCTURES, WHERE SHOWN ON THE CONTRACT DRAWINGS OR DIRECTED BY THE ENGINEER.
2. CRUSHED STONE FILL SHALL BE PLACED IN 12" MAX. LIFTS AND CONSOLIDATED USING A HAND OPERATED VIBRATORY PLATE COMPACTOR WITH A MINIMUM OF 2 PASSSES OF COMPACTOR PER LIFT.
3. COMPACTED GRAVEL FILL TO BE WELL GRADED BANK RUN GRAVEL MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
1 ½"	100
No. 4	40-70
No. 100	5-20
No. 200	4-8

4. CRUSHED STONE TO BE UNIFORMLY GRADED, CLEAN, HARD PROCESS AGGREGATE MEETING THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE DESIGNATION	% PASSING
1"	100
¾"	90-100
½"	0-15
⅜"	0-5

5. SELECT BACKFILL FOR FOUNDATION WALLS SHALL BE FREE OF ORGANIC MATERIAL, TOPSOIL, DEBRIS AND BOULDERS LARGER THAN 6".
6. GRAVEL AND GRANULAR FILL SHALL BE INSTALLED IN 8" MAX. LIFTS. COMPACTED TO 95% MIN. AT MAX. DRY DENSITY.
7. NON WOVEN GEOTEXTILE FOR SEPARATION PURPOSES SHALL BE MIRAFI 140N, OR ENGINEER APPROVED EQUAL.

FOUNDATION CONSTRUCTION NOTES

1. ALL FOOTINGS SHALL BE PLACED ON SUITABLE, COMPACTED SOIL HAVING ADEQUATE BEARING CAPACITY AND FREE OF ORGANIC CONTENT, CLAY, OR OTHER UNSUITABLE MATERIAL. ADDITIONAL EXCAVATION MAY BE REQUIRED BELOW FOOTING ELEVATIONS INDICATED IF UNSUITABLE MATERIAL IS ENCOUNTERED.
2. SUBGRADE PREPARATION: IF UNSUITABLE SOIL IS ENCOUNTERED, REMOVE ALL UNSUITABLE MATERIALS FROM BELOW PROPOSED STRUCTURE FOUNDATIONS AND COMPACT EXPOSED SOIL SURFACES. PLACE AND COMPACT APPROVED GRAVEL FILL. PLACEMENT OF ALL COMPACTED FILL MUST BE UNDER SUPERVISION OF AN APPROVED TESTING LABORATORY. FILL SHALL BE COMPACTED IN LAYERS NOT TO EXCEED 10" BEFORE COMPACTION, DETERMINE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D1557-70 AND MAKE ONE (1) FIELD DENSITY TEST IN ACCORDANCE WITH ASTM D2167-66 FOR EACH 50 CUBIC YARDS OF COMPACTED FILL. BUT NOT LESS THAN ONE (1) PER LAYER, TO INSURE COMPACTION TO 95% OF MAX. DRY DENSITY.
3. ALL SOIL SURROUNDING AND UNDER ALL FOOTINGS SHALL BE KEPT REASONABLY DRY AND PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION.
4. WHERE GROUNDWATER IS ENCOUNTERED, DEWATERING SHALL BE ACCOMPLISHED CONTINUOUSLY AND COMPLETELY DURING FOUNDATION CONSTRUCTION. PROVIDE CRUSHED STONE AS REQUIRED TO STABILIZE FOOTING SUBGRADE.
5. ALL FOOTINGS ARE TO REST ON FIRM SOIL, REGARDLESS OF ELEVATIONS SHOWN ON THE DRAWINGS, BUT IN NO CASE MAY FOOTING ELEVATIONS BE HIGHER THAN INDICATED ON THE FOUNDATION PLAN, UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER.

CONCRETE CONSTRUCTION NOTES

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE FOLLOWING STANDARDS:

   ACI 211 – STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL AND HEAVYWEIGHT CONCRETE.

   ACI 301 – SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.

   ACI 302 – GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION

   ACI 304 – RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.

   ACI 306.1 STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING

   ACI 318 – BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.

2. CONCRETE SHALL DEVELOP COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:

   SLABS ON GRADE 4,000 PSI
   ALL OTHER CONCRETE 3,000 PSI

   - PORTLAND CEMENT: ASTM C150, TYPE II, (540 LBS/CUBIC YARD)
   - AGGREGATE: ASTM C33, No. 67, TYPICAL
   - WATER: POTABLE WITH MAXIMUM WATER CEMENT RATIO OF .55
   - SLUMP: 3" TO 4"
   - ADMIXTURES: USE AIR ENTRAINING AGGENT CONFORMING TO ASTM C260 WITH 4 TO 6% TOTAL AIR. USE WATER REDUCING AGENT CONFORMING TO ASTM C494, TYPE A, IN ALL CONCRETE. CALCIUM CHLORIDE MAY NOT BE USED TO ACCELERATE THE CONCRETE SETTING TIME.

3. REINFORCING STEEL SHALL BE 60,000 PSI YIELD STRENGTH.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM- A-185.
5. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, MUST FOLLOW THE LATEST ACI CODE AND LATEST ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
6. CONCRETE COVER OVER REINFORCING SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE SHOWN:

   BOTTOM OF FOOTINGS 3 INCHES

   SURFACES NOT EXPOSED TO EARTH OR WEATHER 1-1/2 INCHES

7. NO STEEL WIRE, METAL FORM TIES, OR ANY OTHER METAL SHALL REMAIN WITHIN THE REQUIRED COVER OF ANY CONCRETE SURFACE.
8. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. SPLICES SHALL BE WELL STAGGERED. ADDITIONAL BARS AND SPECIAL BENDING DETAILS ARE REQUIRED AT INTERSECTING WALLS AND AT JOINTS; SUCH DETAILS SHALL COMPLY WITH ACI 318 RECOMMENDATIONS UNLESS OTHERWISE SHOWN.
9. NO TACK WELDING OF REINFORCING WILL BE PERMITTED.
10. NO CALCIUM CHLORIDE OR ADMIXTURES CONTAINING MORE THAN 1% CHLORIDE BY WEIGHT OF ADMIXTURE SHALL BE USED IN THE CONCRETE.
11. UNLESS OTHERWISE NOTED, ALL LAP SPLICES SHALL BE 48 BAR DIAMETERS.
12. SLAB ON GRADE FINISHES:

    EXTERIOR SLAB: NON-SLIP BROOM FINISH
    INTERIOR SLAB: STEEL TROWEL FINISH

GENERAL NOTES (REFERENCE)

CONTRACTOR TO REFER TO THE GENERAL NOTES ON SHEET T-1 FOR ADDITIONAL INFORMATION.

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CHK'D BY:	CFD

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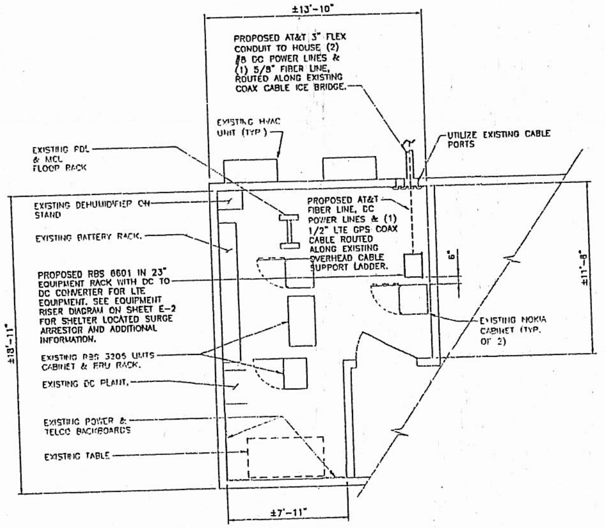
WOODHOUSE
291 WOODHOUSE ROAD
FAIRFIELD, CT 06824

DATE: 3/1/11
SCALE: AS NOTED
JOB NO. 11021.C011

NOTES AND SPECIFICATIONS

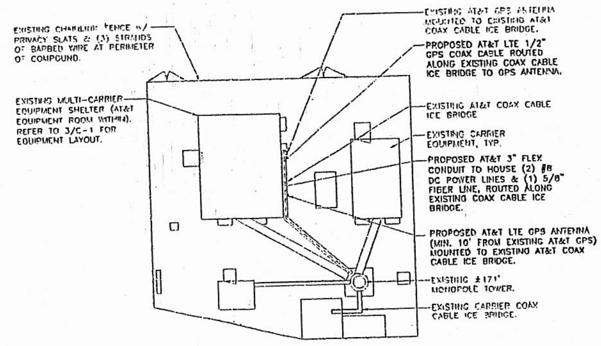
N-1



3 / C-1 **EQUIPMENT SHELTER PLAN**
SCALE: 1/4" = 1'-0"

TRUE NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 4 ft.



1 / C-1 **COMPOUND PLAN**
SCALE: 1" = 15'

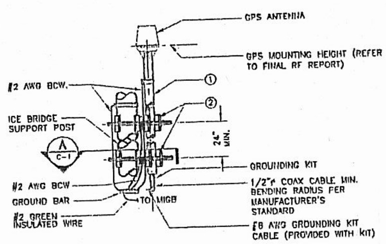
TRUE NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 16 ft.

REFER TO FINAL AT&T RF ENGINEER'S RF RADIO PLAN PRIOR TO INSTALLATION OF ANTENNAS AND COAX

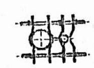
BILL OF MATERIALS

ITEM	DESCRIPTION	QUANTITY
1	2-1/2"⌀ SCH. 40 x 8'-0" LG. MAX SS OR GALV. PIPE	1
2	UNIVERSAL CLAMP SET.	2



GPS ANTENNA MOUNTING BRACKET

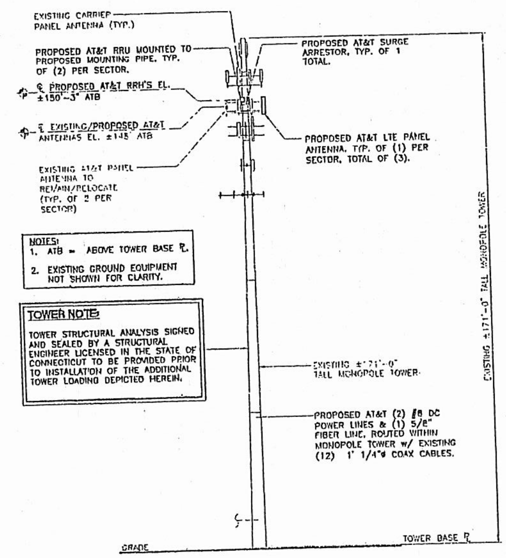
4 / C-1 **GPS GROUNDING/MOUNTING BRACKET DETAILS**
NOT TO SCALE



A / C-1 **SECTION**
NOT TO SCALE

NOTES:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT AND COORDINATED WITH AT&T CONSTRUCTION MANAGER.
2. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 2-1/2" DIAMETER, SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MINIMUM OF 24 INCHES) USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA MOUNT.
3. ATTACH TO ICE BRIDGE POST NEAREST ANTENNA CABLE PORT AT EQUIPMENT.
4. PRIOR TO INSTALLATION CONTRACTOR SHALL TEST GPS LOCATION WITH HAND HELD AND MOVE GPS ANTENNA TO OTHER ICE BRIDGE POSTS AS REQUIRED TO ACHIEVE ADEQUATE SIGNAL. FAILURE TO ACHIEVE ADEQUATE SIGNAL WITH A HAND HELD GPS SHALL BE REPORTED TO CONSTRUCTION MANAGER AND ENGINEER TO DETERMINE ALTERNATE INSTALLATION LOCATION FOR GPS ANTENNA.



NOTES:
1. ATB = ABOVE TOWER BASE ℄.
2. EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

TOWER NOTE:
TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE ADDITIONAL TOWER LOADING DEPICTED HEREIN.

2 / C-1 **TOWER ELEVATION**
SCALE: 1" = 20'

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

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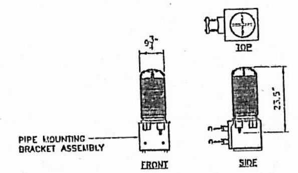
PLANS AND ELEVATION

C-1

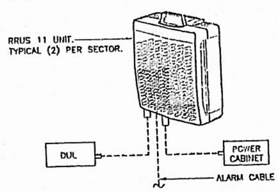
Sheet No. 3 of 6



SURGE ARRESTOR				
SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
TOWER	MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-18-8F	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUs.	20 LBS. (WITHOUT MOUNT)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL RRU SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

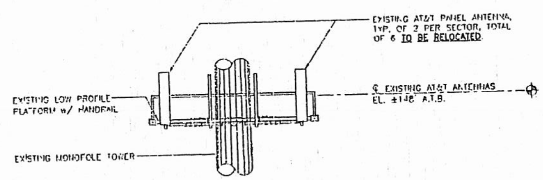
9 / C-2 SURGE ARRESTOR DETAIL
NOT TO SCALE



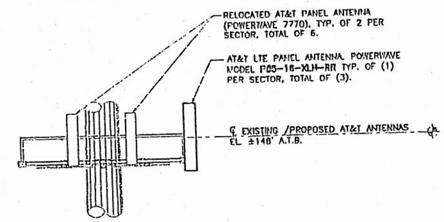
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERRICSON MODEL: RRUS 11	17.8"L x 17.3"W x 7.2"D	BAND 4: 44 LBS. BAND 12: 50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. SIDE: 0" MIN.

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

8 / C-2 RRU DETAIL
NOT TO SCALE



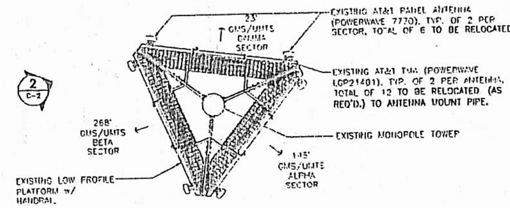
2 / C-2 EXISTING ANTENNA SECTOR ELEVATION
SCALE: 3/16" = 1'-0"



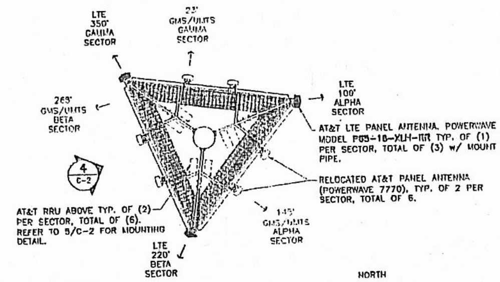
NOTE:
PROVIDE ADDITIONAL ANTENNA MOUNT PIPE AS REQUIRED TO ACCOMMODATE PROPOSED LTE ANTENNA

4 / C-2 PROPOSED ANTENNA SECTOR ELEVATION
SCALE: 3/16" = 1'-0"

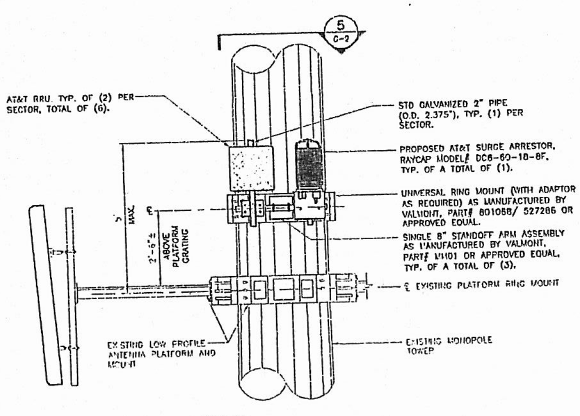
REFER TO FINAL AT&T RF ENGINEER'S RF RADIO PLAN PRIOR TO INSTALLATION OF ANTENNAS AND COAX



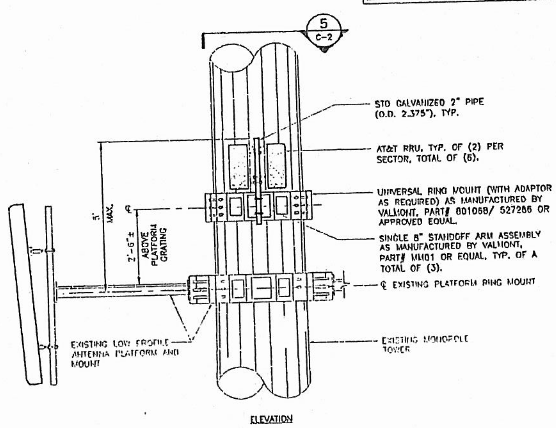
1 / C-2 EXISTING ANTENNA PLAN
SCALE: 3/16" = 1'-0"



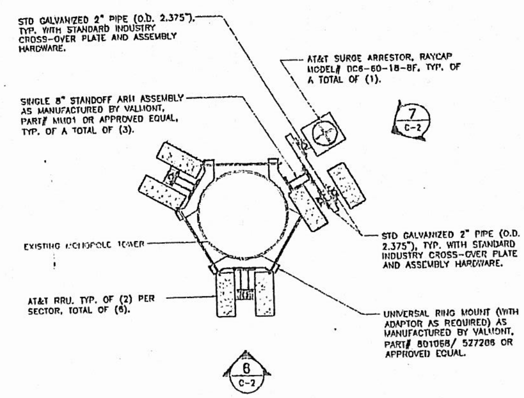
3 / C-2 PROPOSED ANTENNA PLAN
SCALE: 3/16" = 1'-0"



7 / C-2 RRU AND SURGE ARRESTOR MOUNTING DETAIL
SCALE: 1/2" = 1'-0"



6 / C-2 RRU MOUNTING DETAIL
SCALE: 1/2" = 1'-0"



5 / C-2 RRU AND SURGE ARRESTOR MOUNTING PLAN
SCALE: 1/2" = 1'-0"

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CHK'D BY:	CFO

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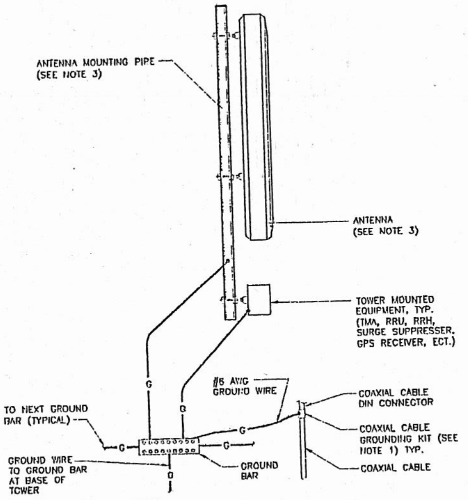
LTE SYSTEM EQUIPMENT PLANS AND DETAILS

C-2

Sheet No. 4 of 8

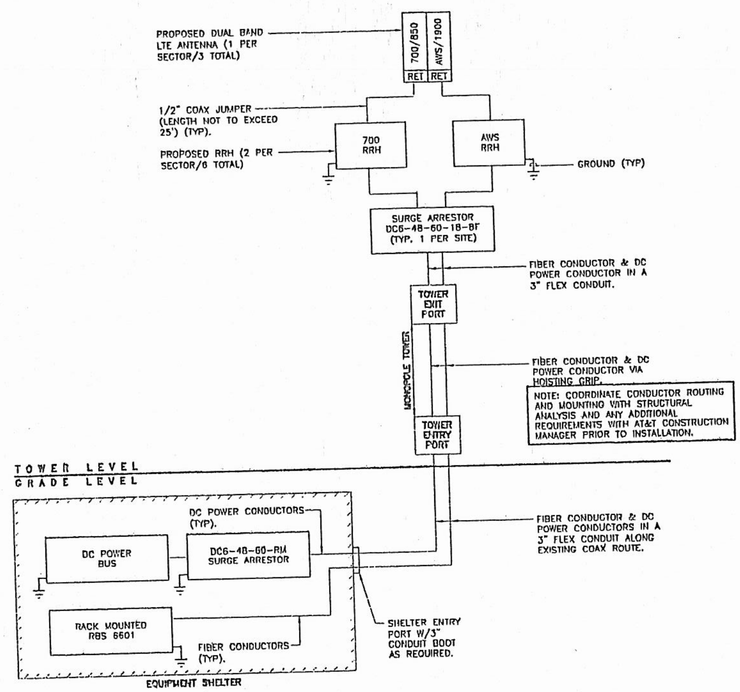


NOTES:

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

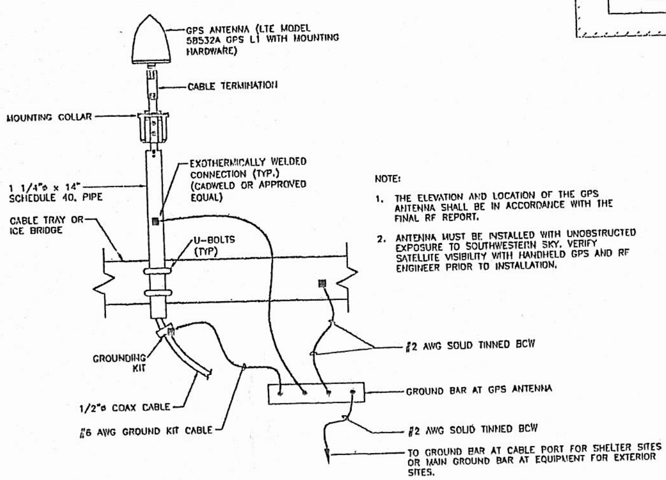


NOTES:

1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURERS RECOMMENDATIONS.

2/E-1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE



NOTE:

1. THE ELEVATION AND LOCATION OF THE GPS ANTENNA SHALL BE IN ACCORDANCE WITH THE FINAL RF REPORT.
2. ANTENNA MUST BE INSTALLED WITH UNOBSTRUCTED EXPOSURE TO SOUTHWESTERN SKY. VERIFY SATELLITE VISIBILITY WITH HANDHELD GPS AND RF ENGINEER PRIOR TO INSTALLATION.

3/E-1 GPS MOUNTED TO CABLE TRAY / ICE BRIDGE

NOT TO SCALE

ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION.
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16980).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

   TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

   THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

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DRAWN BY:	T.O
CHK'D BY:	CKD

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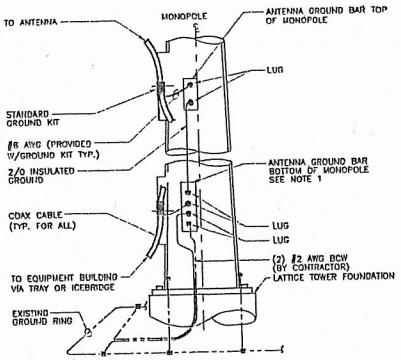
ELECTRICAL DETAILS AND NOTES

E-1

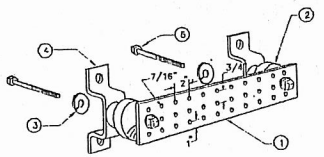
Sheet No. 5 of 6



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.

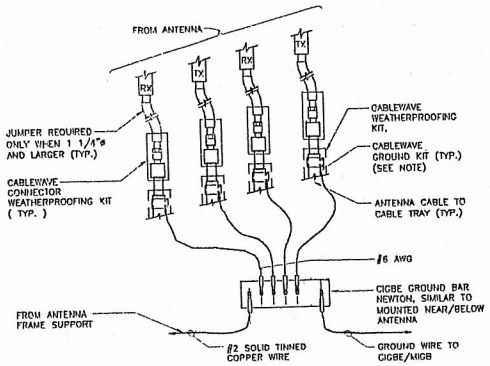
1 / E-2 ANTENNA CABLE GROUNDING - MONOPOLE
NOT TO SCALE



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-8056.
5. STAINLESS STEEL SECURITY SCREWS.

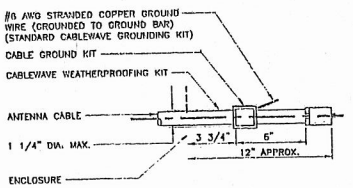
2 / E-2 GROUND BAR DETAIL
NOT TO SCALE



NOTE:

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

3 / E-2 CONNECTION OF GROUND WIRES TO GROUND BAR
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-2 ANTENNA CABLE GROUNDING DETAIL
NOT TO SCALE

DESIGNED BY:	CKD
DRAWN BY:	TJD
CHK'D BY:	CKD

REV.	DATE	DRAWN BY/CHK'D BY:
1	10/24/11	TJD / CKD
0	3/1/11	DFS / CKD

CONSTRUCTION
CONSTRUCTION - SUBJECT TO REVIEW

PROFESSIONAL ENGINEER SEAL

at&t

(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
SITE NUMBER: CT2105
SITE NAME: FAIRFIELD
WOODHOUSE
314 WOODHOUSE ROAD
FAIRFIELD, CT 06824

DATE: 3/1/11
SCALE: AS NOTED
JOB NO. 11021.0011

ELECTRICAL DETAILS

E-2

Sheet No. 6 of 6

CT2105

October 24, 2013

Veronica Harris
Crown Castle
1200 McArthur Blvd
Mahwah, NJ 07430
(201) 236-9094

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

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	N/A
	Carrier Site Name:	Fairfield, CT
Crown Castle Designation:	**Crown Castle BU Number:**	806355
	Crown Castle Site Name:	BRG 126 943086
	Crown Castle JDE Job Number:	246094
	Crown Castle Work Order Number:	659640
	Crown Castle Application Number:	200500 Rev. 2
Engineering Firm Designation:	**B+T Group Project Number:**	80964.001.01
Site Data:	**281 WOODHOUSE ROAD, FAIRFIELD, Fairfield County, CT** **Latitude *41° 11' 45.3"*, Longitude *-73° 16' 52.9"*** **171 Foot - Monopole Tower**	

Dear Ms. Harris,

B+T Group is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 588417, in accordance with application 200500, revision 2.

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

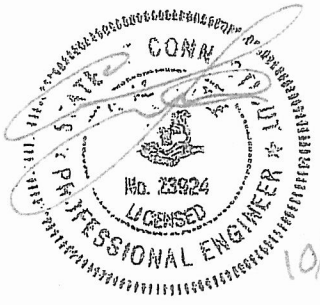
LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code based upon a wind speed of 85 mph fastest mile.

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

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

Respectfully submitted by:
B+T Engineering, Inc.



10/24/13

Venu Ambati
Project Engineer

Chad E. Tuttle, P.E.
President

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 171 ft. Monopole tower designed by Engineered Endeavors, Inc. in May of 1998. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E&F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
155.0	159.0	3	Alcatel Lucent	RRH2X40-AWS	1	1-5/8	--
	158.0	3	Antel	BXA-171063/12CF			
		1	Rfs Celwave	DB-T1-6Z-8AB-0Z			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
166.0	167.0	3	Ems Wireless	DR90-14-00DPL2	6	1-5/8	4
	166.0	1	--	Pipe Mount [PM 601-3]			
155.0	160.0	1	Gps	GPS_A	1 12	1/2 1-5/8	1
	158.0	3	Andrew	LNX-6514DS-T4M			
		6	Decibel	DB844G65ZAXY			
		1	Rfs Celwave	FD9R6004/2C-3L			
		3	Rymsa Wireless	MG D3-800TV			
		5	Rfs Celwave	FD9R6004/2C-3L			
	155.0	1	--	Platform Mount [LP 602-1]			
		1	**Rfs Celwave**	**FD9R6004/2C-3L**	--	--	**3**
146.0	149.0	1	Raycap	DC6-48-60-18-8F	1 2 12	5/8 3/8 1-5/8	1
	148.0	3	Ericsson	RRUS-11			
		6	Powerwave	7770.00			
		12	Powerwave	LGP2140X			
		3	Powerwave	P65-16-XLH-RR			
	146.0	1	--	Platform Mount [LP 602-1]			
138.0	140.0	3	Ericsson	ERICSSON AIR 21 B2A B4P	1	1 5/8	2
		3	Ericsson	ERICSSON AIR 21 B4A B2P			
		3	Ericsson	KRY 112 144/1			
	138.0	1	--	Platform Mount [LP 602-1]	--	--	1
128.0	128.0	1	Andrew	VHLP800-11	12	1-5/8	1
		3	Kathrein	840 10054			
		1	--	Side Arm Mount [SO 101-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
118.0	118.0	1	--	Side Arm Mount [SO 301-1]	--	--	4
		2	--	Side Arm Mount [SO 702-1]			
		1	--	T-Arm Mount [TA 602-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) **Equipment To Be Removed**
4) Abounded Equipment Considered In This Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
160	160	12	Allgon	ALP 9212	--	--
148	148	12	Allgon	ALP 11011	--	--
138	138	6	Celwave	APN 199015	--	--
128	128	12	Allgon	ALP 9212	--	--
118	118	12	Allgon	ALP 9212	--	--

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	Verizon Wireless Co-Locate Revision:2	200500	CCI Sites
Tower Manufacturer Drawings	EEI, Inc., Job N0:3761	653293	CCI Sites
Previous Analysis	Crown; Project # 546208	3363325	CCI Sites
Tower Foundation Drawings	EEI, Inc., Project No:3761	1098364	CCI Sites
Geotech Reports	Clarence Welti Assoc., Inc. Date:05/15/1998	1099974	CCI Sites
Antenna Configuration	Crown CAD Package	Date:10/11/2013	CCI Sites

3.1) Analysis Method

TnxTower (version 6.1.3.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Mount areas and weights are assumed based on photographs provided.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	171 - 156.5	Pole	TP10.75x10.75x0.365	1	-0.731	333.349	14.5	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-0.731	625.462	8.5	Pass
L3	156 - 132.669	Pole	TP24.79x19.5x0.188	3	-6.828	735.449	73.8	Pass
L4	132.669 - 87.0859	Pole	TP34.63x23.584x0.375	4	-15.256	2052.540	91.9	Pass
L5	87.0859 - 43	Pole	TP43.75x32.796x0.438	5	-26.279	3029.762	94.6	Pass
L6	43 - 0	Pole	TP52.5x41.531x0.5	6	-36.993	3955.811	87.9	Pass
							Summary	
						Pole (L5)	94.6	Pass
						RATING =	**94.6**	**Pass**

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	79.0	Pass
1	Base Plate	Base	95.6	Pass
1	Base Foundation	Base	91.6	Pass
1	Flange Bolts & Plate	156	28.2	Pass

Structure Rating (max from all components) =	95.6%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Capacities up to 100% are considered acceptable based on analysis methods used.

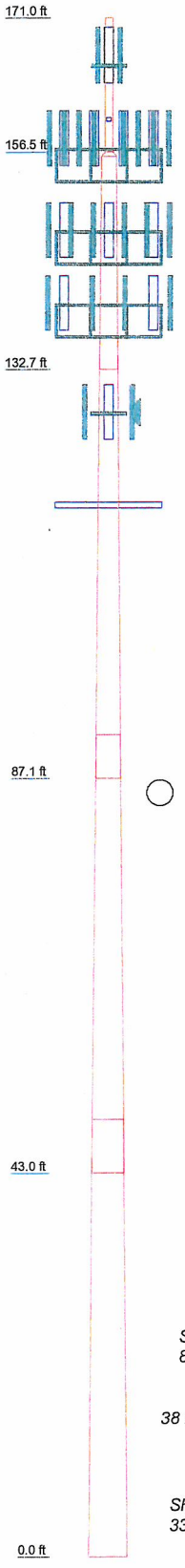
4.1) Recommendations

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

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	14.500	1	0.365		10.750	10.750	A53-B-35	0.6
2	0.500	18	0.365		10.750	19.500		0.0
3	23.331	18	0.188	3.667	19.500	24.790		1.0
4	49.250	18	0.375	4.833	23.584	34.630		5.7
5	48.919	18	0.438	6.000	32.796	43.750	A572-65	8.7
6	49.000	18	0.500		41.531	52.500		12.3
								28.4



DESIGNED APPURTENANCE LOADING

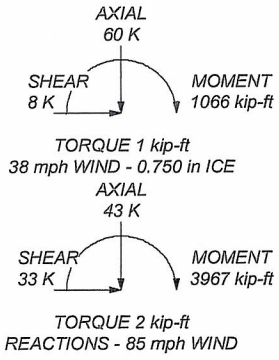
TYPE	ELEVATION	TYPE	ELEVATION
DR90-14-00DPL2 (AB)	166	RRUS-11 (E)	146
DR90-14-00DPL2 (AB)	166	DC6-48-60-18-8F (E)	146
DR90-14-00DPL2 (AB)	166	6' x 2" Mount Pipe (E)	146
Pipe Mount [PM 601-3] (AB)	166	6' x 2" Mount Pipe (E)	146
(2) DB844G65ZAXY w/ Mount Pipe (E)	155	6' x 2" Mount Pipe (E)	146
DB844G65ZAXY w/ Mount Pipe (E)	155	Platform Mount [LP 602-1] (E)	146
(3) DB844G65ZAXY w/ Mount Pipe (E)	155	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (R)	138
LNX-6514DS-T4M w/ Mount Pipe (E)	155		
LNX-6514DS-T4M w/ Mount Pipe (E)	155	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (R)	138
LNX-6514DS-T4M w/ Mount Pipe (E)	155		
MG D3-800TV w/ Mount Pipe (E)	155	ERICSSON AIR 21 B2A B4P w/ Mount Pipe (R)	138
MG D3-800TV w/ Mount Pipe (E)	155		
MG D3-800TV w/ Mount Pipe (E)	155	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (R)	138
GPS_A (E)	155	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (R)	138
(2) FD9R6004/2C-3L (E)	155		
FD9R6004/2C-3L (E)	155	ERICSSON AIR 21 B4A B2P w/ Mount Pipe (R)	138
(2) FD9R6004/2C-3L (E)	155		
FD9R6004/2C-3L (E)	155	KRY 112 144/1 (R)	138
BXA-171063/12CF w/ Mount Pipe (P)	155	KRY 112 144/1 (R)	138
BXA-171063/12CF w/ Mount Pipe (P)	155	KRY 112 144/1 (R)	138
BXA-171063/12CF w/ Mount Pipe (P)	155	6' x 2" Mount Pipe (E)	138
RRH2X40-AWS w/ Mount Pipe (P)	155	6' x 2" Mount Pipe (E)	138
RRH2X40-AWS w/ Mount Pipe (P)	155	6' x 2" Mount Pipe (E)	138
RRH2X40-AWS w/ Mount Pipe (P)	155	Platform Mount [LP 602-1] (E)	138
DB-T1-6Z-8AB-0Z (P)	155	840 10054 w/ Mount Pipe (E)	128
Platform Mount [LP 602-1] (E)	155	840 10054 w/ Mount Pipe (E)	128
P65-16-XLH-RR w/ Mount Pipe (E)	146	840 10054 w/ Mount Pipe (E)	128
P65-16-XLH-RR w/ Mount Pipe (E)	146	6' x 2" Mount Pipe (E)	128
P65-16-XLH-RR w/ Mount Pipe (E)	146	Side Arm Mount [SO 101-3] (E)	128
(2) 7770.00 w/ Mount Pipe (E)	146	VHLP800-11 (E)	128
(2) 7770.00 w/ Mount Pipe (E)	146	Side Arm Mount [SO 301-1] (AB)	118
(2) 7770.00 w/ Mount Pipe (E)	146	Side Arm Mount [SO 702-1] (AB)	118
(4) LGP2140X (E)	146	Side Arm Mount [SO 702-1] (AB)	118
(4) LGP2140X (E)	146	(3) 6' x 2" Mount Pipe (AB)	118
(4) LGP2140X (E)	146	6' x 2" Mount Pipe (AB)	118
RRUS-11 (E)	146	T-Arm Mount [TA 602-1] (AB)	118
RRUS-11 (E)	146		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	63 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield 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 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 94.6%



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

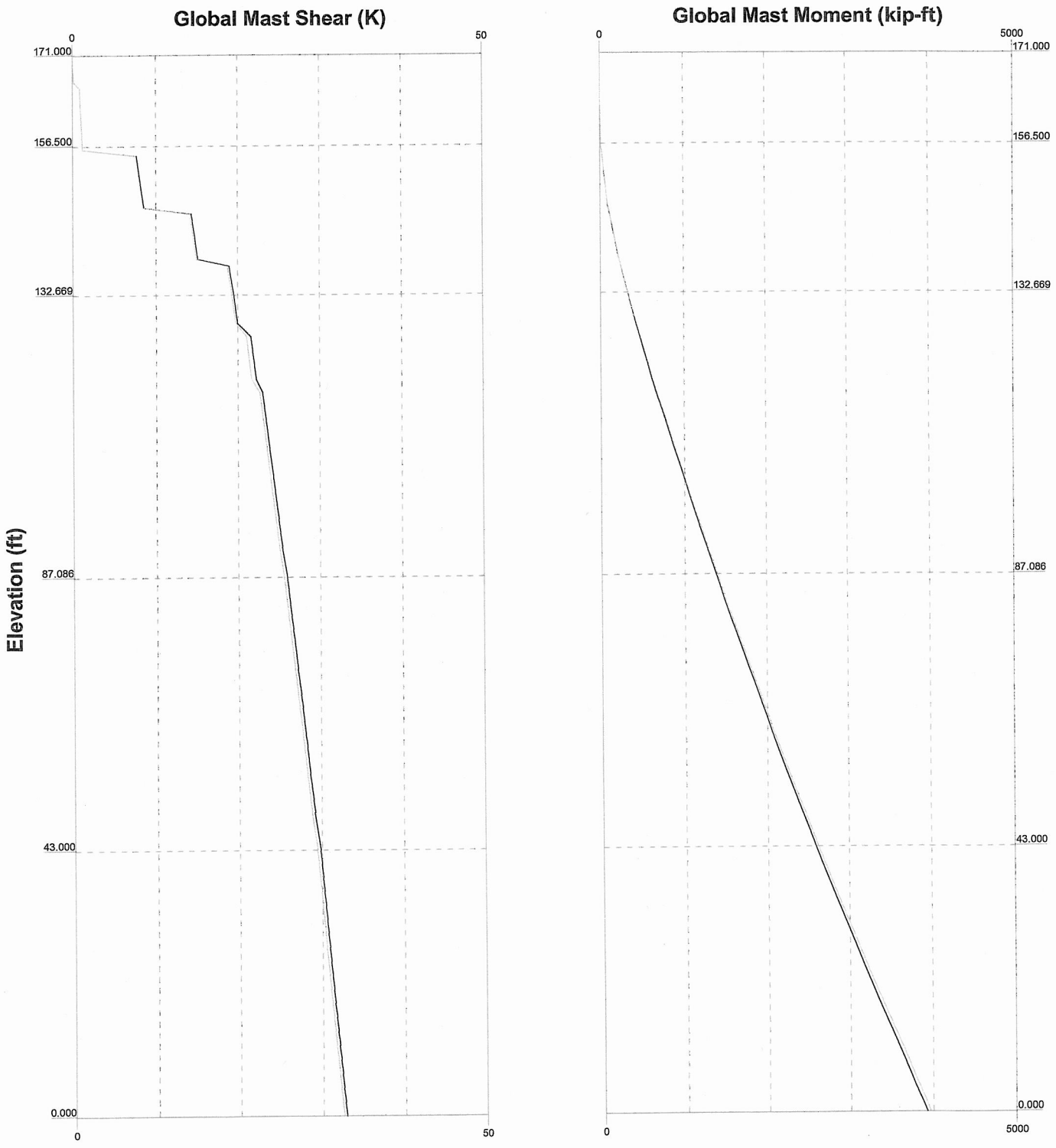
Job: 80964.001.01 - BRG 126943086, CT (BU# 80635		
Project:		
Client: Crown Castle	Drawn by: VenuAmbati	App'd:
Code: TIA/EIA-222-F	Date: 10/24/13	Scale: NTS
Path:		Dwg No. E-1

TIA/EIA-222-F - 85 mph/38 mph 0.750 in Ice

Vx Vz

Maximum Values

Mx Mz



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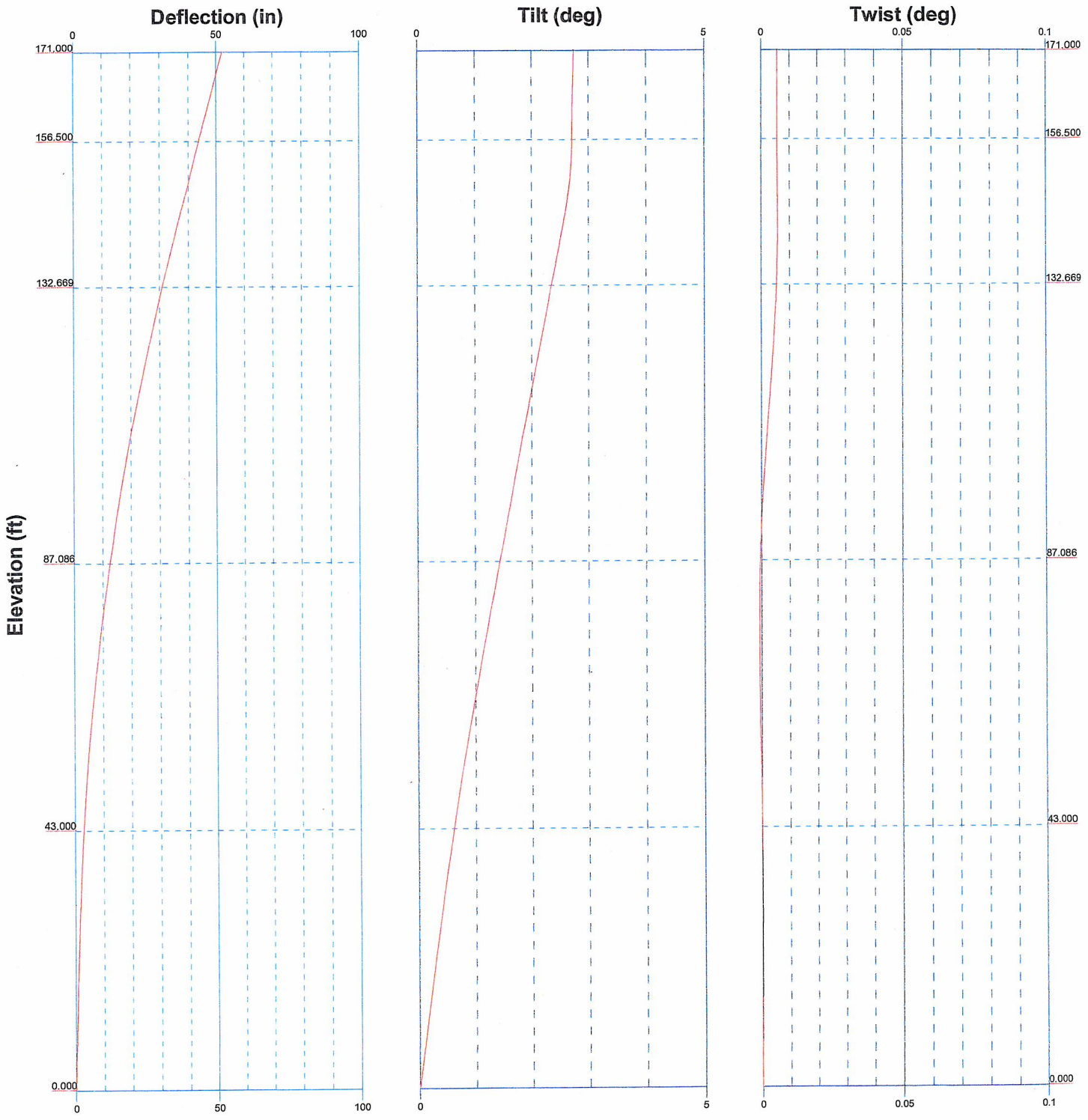
Job: 80964.001.01 - BRG 126943086, CT (BU# 80635			
Project:			
Client: Crown Castle	Drawn by: VenuAmbati	App'd:	
Code: TIA/EIA-222-F	Date: 10/24/13	Scale: NTS	
Path:		Dwg No. E-4	

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

Maximum Values



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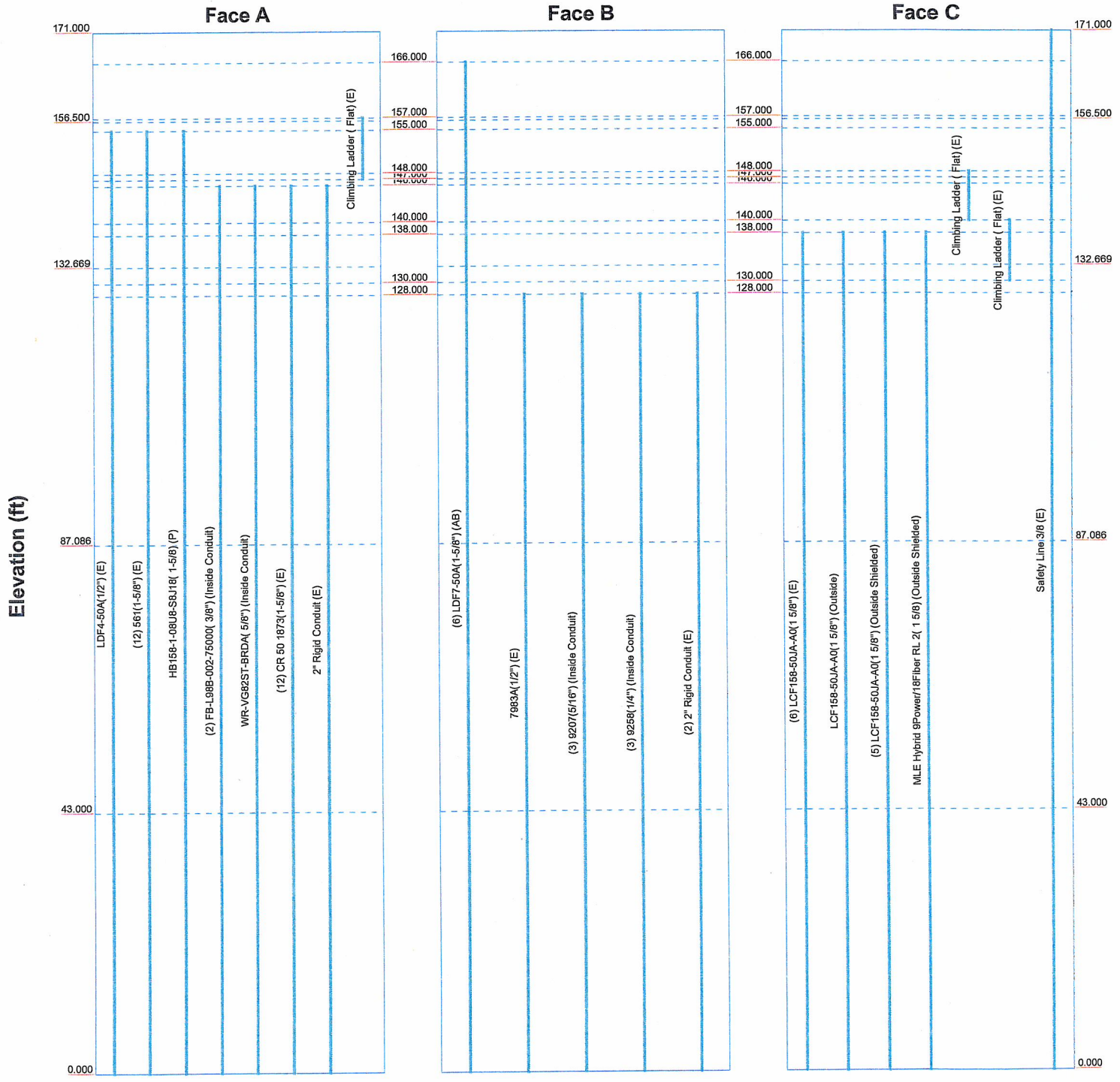
Phone: (918) 587-4630
FAX: (918) 295-0265

Job:	***80964.001.01 - BRG 126943086, CT (BU# 80635***		
Project:			
Client: Crown Castle		Drawn by: VenuAmbati	App'd:
Code: TIA/EIA-222-F		Date: 10/24/13	Scale: NTS
Path:			Dwg No. E-5

Feed Line Distribution Chart
0' - 171'

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



B+T Group
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Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 80964.001.01 - BRG 126943086, CT (BU# 80635			
Project:			
Client: Crown Castle	Drawn by: VenuAmbati	App'd:	
Code: TIA/EIA-222-F	Date: 10/24/13	Scale: NTS	
Path:		Dwg No. E-7	

tnxTower	Job	Page
	80964.001.01 - BRG 126943086, CT (BU# 806355)	1 of 19
B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Project	Date 16:04:08 10/24/13
	Client Crown Castle	Designed by VenuAmbati

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	171.000-156.500	14.500	0.000	Round	10.750	10.750	0.365		A53-B-35 (35 ksi)
L2	156.500-156.000	0.500	0.000	18	10.750	19.500	0.365	1.460	A572-65 (65 ksi)
L3	156.000-132.669	23.331	3.667	18	19.500	24.790	0.188	0.750	A572-65 (65 ksi)
L4	132.669-87.086	49.250	4.833	18	23.584	34.630	0.375	1.500	A572-65 (65 ksi)
L5	87.086-43.000	48.919	6.000	18	32.796	43.750	0.438	1.750	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L6	43.000-0.000	49.000		18	41.531	52.500	0.500	2.000	(65 ksi) A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	10.750	11.908	160.659	3.676	5.375	29.890	320.880	5.951	0.000	0
	10.750	11.908	160.659	3.676	5.375	29.890	320.880	5.951	0.000	0
L2	10.916	12.031	163.929	3.687	5.461	30.018	328.074	6.017	1.250	3.424
	19.801	22.168	1025.469	6.793	9.906	103.520	2052.288	11.086	2.790	7.643
L3	19.801	11.493	541.578	6.856	9.906	54.672	1083.869	5.748	3.102	16.544
	25.172	14.642	1119.653	8.734	12.593	88.908	2240.779	7.322	4.033	21.51
L4	24.783	27.624	1879.852	8.239	11.980	156.910	3762.178	13.815	3.491	9.309
	35.164	40.772	6044.321	12.161	17.592	343.583	12096.596	20.390	5.435	14.493
L5	34.401	44.934	5944.077	11.487	16.660	356.780	11895.976	22.471	5.002	11.433
	44.425	60.145	14254.835	15.376	22.225	641.387	28528.426	30.078	6.930	15.84
L6	43.536	65.117	13850.506	14.566	21.098	656.485	27719.236	32.565	6.430	12.859
	53.310	82.524	28191.904	18.460	26.670	1057.064	56420.904	41.270	8.360	16.72

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
L1 171.000-156.500				1	1	1		
L2 156.500-156.000				1	1	1		
L3 156.000-132.669				1	1	1		
L4 132.669-87.086				1	1	1		
L5 87.086-43.000				1	1	1		
L6 43.000-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
////										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1-5/8") (AB)	B	No	Inside Pole	166.000 - 0.000	0.000	0	6	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
////										
LDF4-50A(1/2") (E)	A	No	Inside Pole	155.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
561(1-5/8") (E)	A	No	Inside Pole	155.000 - 0.000	0.000	0	12	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
HB158-1-08U8-S8J18(1-5/8) (P)	A	No	CaAa (Out Of Face)	155.000 - 0.000	0.000	0	1	No Ice	0.198	0.001
								1/2" Ice	0.298	0.003
								1" Ice	0.398	0.005
								2" Ice	0.598	0.011
								4" Ice	0.998	0.031
////										
FB-L98B-002-75000(3/8") (Inside Conduit)	A	No	Inside Pole	146.000 - 0.000	0.000	0	2	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
WR-VG82ST-BRDA(5/8") (Inside Conduit)	A	No	Inside Pole	146.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
CR 50 1873(1-5/8") (E)	A	No	Inside Pole	146.000 - 0.000	0.000	0	12	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
2" Rigid Conduit (E)	A	No	Inside Pole	146.000 - 0.000	0.000	0	1	No Ice	0.000	0.003
								1/2" Ice	0.000	0.003
								1" Ice	0.000	0.003
								2" Ice	0.000	0.003
								4" Ice	0.000	0.003
////										
LCF158-50JA-A0(1 5/8") (E)	C	No	Inside Pole	138.000 - 0.000	0.000	0	6	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
LCF158-50JA-A0(1 5/8") (Outside)	C	No	CaAa (Out Of Face)	138.000 - 0.000	0.000	0	1	No Ice	0.198	0.000
								1/2" Ice	0.298	0.002
								1" Ice	0.398	0.004
								2" Ice	0.598	0.010
								4" Ice	0.998	0.029
LCF158-50JA-A0(1 5/8") (Outside Shielded)	C	No	CaAa (Out Of Face)	138.000 - 0.000	0.000	0	5	No Ice	0.000	0.000
								1/2" Ice	0.000	0.002
								1" Ice	0.000	0.004
								2" Ice	0.000	0.010
								4" Ice	0.000	0.029

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight klf
MLE Hybrid 9Power/18Fiber RL 2(1 5/8) (Outside Shielded)	C	No	CaAa (Out Of Face)	138.000 - 0.000	0.000	0	1	No Ice	0.000	0.001
								1/2" Ice	0.000	0.002
								1" Ice	0.000	0.004
								2" Ice	0.000	0.010
								4" Ice	0.000	0.029
////										
7983A(1/2") (E)	B	No	Inside Pole	128.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
9207(5/16") (Inside Conduit)	B	No	Inside Pole	128.000 - 0.000	0.000	0	3	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
9258(1/4") (Inside Conduit)	B	No	Inside Pole	128.000 - 0.000	0.000	0	3	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
2" Rigid Conduit (E)	B	No	Inside Pole	128.000 - 0.000	0.000	0	2	No Ice	0.000	0.003
								1/2" Ice	0.000	0.003
								1" Ice	0.000	0.003
								2" Ice	0.000	0.003
								4" Ice	0.000	0.003
////										
Climbing Ladder (Flat) (E)	A	No	CaAa (Out Of Face)	157.000 - 147.000	36.000	0	1	No Ice	0.584	0.005
								1/2" Ice	1.030	0.007
								1" Ice	1.476	0.010
								2" Ice	2.368	0.020
								4" Ice	4.151	0.049
Climbing Ladder (Flat) (E)	C	No	CaAa (Out Of Face)	148.000 - 140.000	36.000	0	1	No Ice	0.584	0.005
								1/2" Ice	1.030	0.007
								1" Ice	1.476	0.010
								2" Ice	2.368	0.020
								4" Ice	4.151	0.049
Climbing Ladder (Flat) (E)	C	No	CaAa (Out Of Face)	140.000 - 130.000	36.000	0	1	No Ice	0.584	0.005
								1/2" Ice	1.030	0.007
								1" Ice	1.476	0.010
								2" Ice	2.368	0.020
								4" Ice	4.151	0.049
////										
Safety Line 3/8 (E)	C	No	CaAa (Out Of Face)	171.000 - 0.000	0.000	0	1	No Ice	0.037	0.000
								1/2" Ice	0.137	0.001
								1" Ice	0.238	0.001
								2" Ice	0.437	0.002
								4" Ice	0.838	0.004
////										

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	171.000-156.500	A	0.000	0.000	0.000	0.292	0.002
		B	0.000	0.000	0.000	0.000	0.047
		C	0.000	0.000	0.000	0.544	0.003

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L2	156.500-156.000	A	0.000	0.000	0.000	0.292	0.002
		B	0.000	0.000	0.000	0.000	0.002
		C	0.000	0.000	0.000	0.019	0.000
L3	156.000-132.669	A	0.000	0.000	0.000	9.681	0.613
		B	0.000	0.000	0.000	0.000	0.115
		C	0.000	0.000	0.000	10.890	0.090
L4	132.669-87.086	A	0.000	0.000	0.000	9.025	1.406
		B	0.000	0.000	0.000	0.000	0.535
		C	0.000	0.000	0.000	12.295	0.115
L5	87.086-43.000	A	0.000	0.000	0.000	8.729	1.359
		B	0.000	0.000	0.000	0.000	0.551
		C	0.000	0.000	0.000	10.382	0.099
L6	43.000-0.000	A	0.000	0.000	0.000	8.514	1.326
		B	0.000	0.000	0.000	0.000	0.538
		C	0.000	0.000	0.000	10.127	0.097

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	171.000-156.500	A	0.909	0.000	0.000	0.000	0.697	0.005
		B		0.000	0.000	0.000	0.000	0.047
		C		0.000	0.000	0.000	3.180	0.017
L2	156.500-156.000	A	0.904	0.000	0.000	0.000	0.695	0.005
		B		0.000	0.000	0.000	0.000	0.002
		C		0.000	0.000	0.000	0.109	0.001
L3	156.000-132.669	A	0.895	0.000	0.000	0.000	20.859	0.728
		B		0.000	0.000	0.000	0.000	0.115
		C		0.000	0.000	0.000	28.252	0.303
L4	132.669-87.086	A	0.866	0.000	0.000	0.000	17.184	1.551
		B		0.000	0.000	0.000	0.000	0.535
		C		0.000	0.000	0.000	30.742	1.173
L5	87.086-43.000	A	0.813	0.000	0.000	0.000	16.361	1.495
		B		0.000	0.000	0.000	0.000	0.551
		C		0.000	0.000	0.000	25.645	1.070
L6	43.000-0.000	A	0.750	0.000	0.000	0.000	15.506	1.448
		B		0.000	0.000	0.000	0.000	0.538
		C		0.000	0.000	0.000	24.111	0.975

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	171.000-156.500	-0.046	-0.002	-0.194	0.063
L2	156.500-156.000	-0.033	-0.568	-0.118	-0.802
L3	156.000-132.669	-0.428	-0.158	-0.735	-0.154
L4	132.669-87.086	-0.288	-0.083	-0.577	-0.047
L5	87.086-43.000	-0.270	-0.106	-0.564	-0.090
L6	43.000-0.000	-0.276	-0.109	-0.575	-0.095

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DR90-14-00DPL2 (AB)	A	From Leg	1.000 0.000 1.000	0.000	166.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.356 4.775 5.202 6.084 7.951	1.974 2.312 2.658 3.371 4.888	0.018 0.040 0.067 0.136 0.335
DR90-14-00DPL2 (AB)	B	From Leg	1.000 0.000 1.000	0.000	166.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.356 4.775 5.202 6.084 7.951	1.974 2.312 2.658 3.371 4.888	0.018 0.040 0.067 0.136 0.335
DR90-14-00DPL2 (AB)	C	From Leg	1.000 0.000 1.000	0.000	166.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.356 4.775 5.202 6.084 7.951	1.974 2.312 2.658 3.371 4.888	0.018 0.040 0.067 0.136 0.335
Pipe Mount [PM 601-3] (AB)	C	None		0.000	166.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.390 5.480 6.570 8.750 13.110	4.390 5.480 6.570 8.750 13.110	0.195 0.237 0.280 0.365 0.534
////									
(2) DB844G65ZAXY w/ Mount Pipe (E)	A	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.904 5.346 5.797 6.731 8.735	4.921 5.596 6.284 7.712 10.833	0.034 0.080 0.132 0.257 0.617
DB844G65ZAXY w/ Mount Pipe (E)	B	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.904 5.346 5.797 6.731 8.735	4.921 5.596 6.284 7.712 10.833	0.034 0.080 0.132 0.257 0.617
(3) DB844G65ZAXY w/ Mount Pipe (E)	C	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.904 5.346 5.797 6.731 8.735	4.921 5.596 6.284 7.712 10.833	0.034 0.080 0.132 0.257 0.617
LNX-6514DS-T4M w/ Mount Pipe (E)	A	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.568 9.220 9.838 11.104 13.754	7.004 8.185 9.081 10.904 14.926	0.058 0.127 0.203 0.384 0.889
LNX-6514DS-T4M w/ Mount Pipe (E)	B	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.568 9.220 9.838 11.104 13.754	7.004 8.185 9.081 10.904 14.926	0.058 0.127 0.203 0.384 0.889
LNX-6514DS-T4M w/ Mount Pipe (E)	C	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.568 9.220 9.838 11.104 13.754	7.004 8.185 9.081 10.904 14.926	0.058 0.127 0.203 0.384 0.889
MG D3-800TV w/ Mount	A	From Leg	4.000	0.000	155.000	No Ice	3.570	3.418	0.037

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.000			1/2" Ice	3.979	4.119	0.071
(E)			3.000			1" Ice	4.387	4.784	0.111
						2" Ice	5.325	6.164	0.210
						4" Ice	7.341	9.175	0.520
MG D3-800TV w/ Mount	B	From Leg	4.000	0.000	155.000	No Ice	3.570	3.418	0.037
Pipe			0.000			1/2" Ice	3.979	4.119	0.071
(E)			3.000			1" Ice	4.387	4.784	0.111
						2" Ice	5.325	6.164	0.210
						4" Ice	7.341	9.175	0.520
MG D3-800TV w/ Mount	C	From Leg	4.000	0.000	155.000	No Ice	3.570	3.418	0.037
Pipe			0.000			1/2" Ice	3.979	4.119	0.071
(E)			3.000			1" Ice	4.387	4.784	0.111
						2" Ice	5.325	6.164	0.210
						4" Ice	7.341	9.175	0.520
GPS_A	A	From Leg	4.000	0.000	155.000	No Ice	0.297	0.297	0.001
(E)			0.000			1/2" Ice	0.374	0.374	0.005
			5.000			1" Ice	0.459	0.459	0.010
						2" Ice	0.655	0.655	0.025
						4" Ice	1.151	1.151	0.079
(2) FD9R6004/2C-3L	A	From Leg	4.000	0.000	155.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			0.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
FD9R6004/2C-3L	B	From Leg	4.000	0.000	155.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			0.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	C	From Leg	4.000	0.000	155.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			0.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
FD9R6004/2C-3L	C	From Leg	4.000	0.000	155.000	No Ice	0.367	0.085	0.003
(E)			0.000			1/2" Ice	0.451	0.136	0.005
			3.000			1" Ice	0.543	0.196	0.009
						2" Ice	0.755	0.343	0.020
						4" Ice	1.281	0.740	0.063
BXA-171063/12CF w/ Mount	A	From Leg	4.000	0.000	155.000	No Ice	5.029	5.289	0.041
Pipe			0.000			1/2" Ice	5.583	6.459	0.087
(P)			3.000			1" Ice	6.103	7.348	0.140
						2" Ice	7.166	9.148	0.273
						4" Ice	9.438	12.947	0.677
BXA-171063/12CF w/ Mount	B	From Leg	4.000	0.000	155.000	No Ice	5.029	5.289	0.041
Pipe			0.000			1/2" Ice	5.583	6.459	0.087
(P)			3.000			1" Ice	6.103	7.348	0.140
						2" Ice	7.166	9.148	0.273
						4" Ice	9.438	12.947	0.677
BXA-171063/12CF w/ Mount	C	From Leg	4.000	0.000	155.000	No Ice	5.029	5.289	0.041
Pipe			0.000			1/2" Ice	5.583	6.459	0.087
(P)			3.000			1" Ice	6.103	7.348	0.140
						2" Ice	7.166	9.148	0.273
						4" Ice	9.438	12.947	0.677
RRH2X40-AWS w/ Mount	A	From Leg	4.000	0.000	155.000	No Ice	3.180	2.287	0.056
Pipe			0.000			1/2" Ice	3.501	2.725	0.084
(P)			4.000			1" Ice	3.834	3.181	0.116

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	4.535	4.147	0.196
						4" Ice	6.125	6.474	0.437
RRH2X40-AWS w/ Mount Pipe (P)	B	From Leg	4.000 0.000 4.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.180 3.501 3.834 4.535 6.125	2.287 2.725 3.181 4.147 6.474	0.056 0.084 0.116 0.196 0.437
RRH2X40-AWS w/ Mount Pipe (P)	C	From Leg	4.000 0.000 4.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.180 3.501 3.834 4.535 6.125	2.287 2.725 3.181 4.147 6.474	0.056 0.084 0.116 0.196 0.437
DB-T1-6Z-8AB-0Z (P)	B	From Leg	4.000 0.000 3.000	0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	5.600 5.915 6.240 6.914 8.365	2.333 2.558 2.791 3.284 4.373	0.044 0.080 0.120 0.213 0.455
Platform Mount [LP 602-1] (E)	C	None		0.000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.030 38.710 45.390 58.750 85.470	32.030 38.710 45.390 58.750 85.470	1.343 1.800 2.257 3.170 4.998
////									
P65-16-XLH-RR w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.290 9.910 11.176 13.829	6.362 7.538 8.427 10.239 14.099	0.079 0.144 0.218 0.393 0.886
P65-16-XLH-RR w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.290 9.910 11.176 13.829	6.362 7.538 8.427 10.239 14.099	0.079 0.144 0.218 0.393 0.886
P65-16-XLH-RR w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.637 9.290 9.910 11.176 13.829	6.362 7.538 8.427 10.239 14.099	0.079 0.144 0.218 0.393 0.886
(2) 7770.00 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.103 0.157 0.287 0.665
(2) 7770.00 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.103 0.157 0.287 0.665
(2) 7770.00 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.119 6.626 7.128 8.164 10.360	4.254 5.014 5.711 7.155 10.412	0.055 0.103 0.157 0.287 0.665
(4) LGP2140X (E)	A	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.260 1.416 1.581 1.936	0.378 0.493 0.617 0.890	0.014 0.021 0.030 0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	2.750	1.541	0.135
(4) LGP2140X (E)	B	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.260 1.416 1.581 1.936 2.750	0.378 0.493 0.617 0.890 1.541	0.014 0.021 0.030 0.055 0.135
(4) LGP2140X (E)	C	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.260 1.416 1.581 1.936 2.750	0.378 0.493 0.617 0.890 1.541	0.014 0.021 0.030 0.055 0.135
RRUS-11 (E)	A	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.424 4.708 5.001 5.613 6.940	1.186 1.351 1.526 1.900 2.753	0.055 0.081 0.110 0.179 0.368
RRUS-11 (E)	B	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.424 4.708 5.001 5.613 6.940	1.186 1.351 1.526 1.900 2.753	0.055 0.081 0.110 0.179 0.368
RRUS-11 (E)	C	From Leg	4.000 0.000 2.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.424 4.708 5.001 5.613 6.940	1.186 1.351 1.526 1.900 2.753	0.055 0.081 0.110 0.179 0.368
DC6-48-60-18-8F (E)	A	From Leg	4.000 0.000 3.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.567 2.798 3.038 3.543 4.658	4.317 4.596 4.885 5.488 6.797	0.019 0.050 0.085 0.167 0.383
6' x 2" Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
Platform Mount [LP 602-1] (E)	C	None		0.000	146.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.030 38.710 45.390 58.750 85.470	32.030 38.710 45.390 58.750 85.470	1.343 1.800 2.257 3.170 4.998
//// ERICSSON AIR 21 B2A B4P w/ Mount Pipe (R)	A	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.825 7.347 7.863 8.926 11.175	5.642 6.480 7.257 8.864 12.293	0.112 0.169 0.233 0.383 0.807

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (R)	B	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.825 7.347 7.863 8.926 11.175	5.642 6.480 7.257 8.864 12.293	0.112 0.169 0.233 0.383 0.807
ERICSSON AIR 21 B2A B4P w/ Mount Pipe (R)	C	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.825 7.347 7.863 8.926 11.175	5.642 6.480 7.257 8.864 12.293	0.112 0.169 0.233 0.383 0.807
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (R)	A	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.825 7.347 7.863 8.926 11.175	5.642 6.480 7.257 8.864 12.293	0.112 0.169 0.233 0.383 0.807
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (R)	B	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.825 7.347 7.863 8.926 11.175	5.642 6.480 7.257 8.864 12.293	0.112 0.169 0.233 0.383 0.807
ERICSSON AIR 21 B4A B2P w/ Mount Pipe (R)	C	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.825 7.347 7.863 8.926 11.175	5.642 6.480 7.257 8.864 12.293	0.112 0.169 0.233 0.383 0.807
KRY 112 144/1 (R)	A	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.011 0.014 0.019 0.032 0.082
KRY 112 144/1 (R)	B	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.011 0.014 0.019 0.032 0.082
KRY 112 144/1 (R)	C	From Leg	4.000 0.000 2.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.408 0.497 0.594 0.815 1.359	0.204 0.273 0.351 0.533 0.999	0.011 0.014 0.019 0.032 0.082
6' x 2" Mount Pipe (E)	A	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E)	B	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (E)	C	From Leg	4.000 0.000 0.000	0.000	138.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
Platform Mount [LP 602-1] (E)	C	None		0.000	138.000	No Ice 1/2" Ice	32.030 38.710	32.030 38.710	1.343 1.800

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	45.390	45.390	2.257
						2" Ice	58.750	58.750	3.170
						4" Ice	85.470	85.470	4.998
////									
840 10054 w/ Mount Pipe (E)	A	From Leg	2.000 0.000 0.000	0.000	128.000	No Ice	5.413	2.385	0.051
						1/2" Ice	5.833	2.917	0.088
						1" Ice	6.263	3.466	0.129
						2" Ice	7.156	4.614	0.230
						4" Ice	9.093	7.316	0.533
840 10054 w/ Mount Pipe (E)	B	From Leg	2.000 0.000 0.000	0.000	128.000	No Ice	5.413	2.385	0.051
						1/2" Ice	5.833	2.917	0.088
						1" Ice	6.263	3.466	0.129
						2" Ice	7.156	4.614	0.230
						4" Ice	9.093	7.316	0.533
840 10054 w/ Mount Pipe (E)	C	From Leg	2.000 0.000 0.000	0.000	128.000	No Ice	5.413	2.385	0.051
						1/2" Ice	5.833	2.917	0.088
						1" Ice	6.263	3.466	0.129
						2" Ice	7.156	4.614	0.230
						4" Ice	9.093	7.316	0.533
6' x 2" Mount Pipe (E)	B	From Leg	2.000 0.000 0.000	0.000	128.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
Side Arm Mount [SO 101-3] (E)	C	None		0.000	128.000	No Ice	7.500	7.500	0.252
						1/2" Ice	8.900	8.900	0.333
						1" Ice	10.300	10.300	0.414
						2" Ice	13.100	13.100	0.576
						4" Ice	18.700	18.700	0.900
////									
T-Arm Mount [TA 602-1] (AB)	A	From Leg	2.000 0.000 0.000	0.000	118.000	No Ice	7.280	3.020	0.258
						1/2" Ice	9.520	4.200	0.330
						1" Ice	11.760	5.380	0.402
						2" Ice	16.240	7.740	0.546
						4" Ice	25.200	12.460	0.834
Side Arm Mount [SO 301-1] (AB)	B	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice	1.000	0.900	0.023
						1/2" Ice	1.390	1.420	0.033
						1" Ice	1.780	1.940	0.042
						2" Ice	2.560	2.980	0.061
						4" Ice	4.120	5.060	0.100
Side Arm Mount [SO 702-1] (AB)	B	From Leg	2.000 0.000 0.000	0.000	118.000	No Ice	1.000	1.430	0.027
						1/2" Ice	1.000	2.050	0.038
						1" Ice	1.000	2.670	0.049
						2" Ice	1.000	3.910	0.071
						4" Ice	1.000	6.390	0.115
Side Arm Mount [SO 702-1] (AB)	C	From Leg	2.000 0.000 0.000	0.000	118.000	No Ice	1.000	1.430	0.027
						1/2" Ice	1.000	2.050	0.038
						1" Ice	1.000	2.670	0.049
						2" Ice	1.000	3.910	0.071
						4" Ice	1.000	6.390	0.115
(3) 6' x 2" Mount Pipe (AB)	A	From Leg	4.000 0.000 0.000	0.000	118.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033
						1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
6' x 2" Mount Pipe (AB)	C	From Leg	4.000 0.000	0.000	118.000	No Ice	1.425	1.425	0.022
						1/2" Ice	1.925	1.925	0.033

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
						4" Ice	4.702	4.702	0.231
////									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
VHLP800-11 (E)	B	Paraboloid w/o Radome	From Leg	2.000 0.000 0.000	-36.000		128.000	2.917	No Ice	6.681	0.022
									1/2" Ice	7.069	0.058
									1" Ice	7.456	0.094
									2" Ice	8.230	0.167
									4" Ice	9.779	0.312
////											

Load Combinations

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

Comb. No.	Description
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	171 - 156.5	Pole	Max Tension	36	0.000	-0.000	-0.000
			Max. Compression	14	-1.304	0.010	-0.001
			Max. Mx	11	-0.731	10.926	0.003
			Max. My	2	-0.733	0.007	10.916
			Max. Vy	11	-1.219	10.926	0.003
			Max. Vx	2	-1.218	0.007	10.916
			Max. Torque	20			-0.003
L2	156.5 - 156	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-1.350	0.010	0.002
			Max. Mx	11	-0.760	11.545	0.005
			Max. My	2	-0.762	0.008	11.535
			Max. Vy	11	-1.258	11.545	0.005
			Max. Vx	2	-1.257	0.008	11.535
			Max. Torque	21			-0.003
L3	156 - 132.669	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-16.502	0.884	0.186
			Max. Mx	11	-6.828	260.726	1.227
			Max. My	2	-6.878	1.320	257.628
			Max. Vy	11	-19.066	260.726	1.227
			Max. Vx	2	-18.892	1.320	257.628
			Max. Torque	3			1.828
L4	132.669 - 87.0859	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-27.955	1.828	1.164
			Max. Mx	11	-15.256	1271.037	2.800
			Max. My	2	-15.305	1.821	1253.800
			Max. Vy	11	-25.361	1271.037	2.800
			Max. Vx	8	25.046	0.875	-1252.149
			Max. Torque	3			1.850
L5	87.0859 - 43	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-41.054	3.241	0.655
			Max. Mx	11	-26.279	2444.135	2.972
			Max. My	2	-26.303	1.827	2413.072
			Max. Vy	11	-29.185	2444.135	2.972
			Max. Vx	8	28.873	3.944	-2411.593
			Max. Torque	3			1.604
L6	43 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-60.393	5.084	-0.007
			Max. Mx	11	-43.064	3966.977	3.118
			Max. My	2	-43.065	1.811	3920.446
			Max. Vy	11	-32.884	3966.977	3.118
			Max. Vx	8	32.583	7.411	-3919.166
			Max. Torque	3			1.715

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	24	60.393	8.404	0.002
	Max. H_x	11	43.091	32.849	0.002
	Max. H_z	2	43.091	-0.004	32.543
	Max. M_x	2	3920.446	-0.004	32.543
	Max. M_z	5	3944.182	-32.683	-0.055
	Max. Torsion	3	1.715	-16.264	28.206
	Min. Vert	1	43.091	0.000	0.000
	Min. H_x	5	43.091	-32.683	-0.055
	Min. H_z	8	43.091	0.067	-32.549
	Min. M_x	8	-3919.166	0.067	-32.549
	Min. M_z	11	-3966.977	32.849	0.002
	Min. Torsion	10	-1.617	28.486	-16.196

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	43.091	0.000	0.000	-0.983	0.416	0.000
Dead+Wind 0 deg - No Ice	43.091	0.004	-32.543	-3920.446	1.811	-1.334
Dead+Wind 30 deg - No Ice	43.091	16.264	-28.206	-3397.423	-1960.058	-1.715
Dead+Wind 60 deg - No Ice	43.091	28.253	-16.288	-1961.232	-3408.042	-1.589
Dead+Wind 90 deg - No Ice	43.091	32.683	0.055	8.091	-3944.182	-1.230
Dead+Wind 120 deg - No Ice	43.091	28.284	16.372	1973.522	-3413.874	-0.615
Dead+Wind 150 deg - No Ice	43.091	16.395	28.226	3399.832	-1980.644	0.539
Dead+Wind 180 deg - No Ice	43.091	-0.067	32.549	3919.166	7.411	1.198
Dead+Wind 210 deg - No Ice	43.091	-16.639	28.148	3387.678	2010.662	1.474
Dead+Wind 240 deg - No Ice	43.091	-28.486	16.196	1946.990	3439.662	1.617
Dead+Wind 270 deg - No Ice	43.091	-32.849	-0.002	-3.118	3966.977	0.840
Dead+Wind 300 deg - No Ice	43.091	-28.553	-16.210	-1954.097	3450.334	-0.345
Dead+Wind 330 deg - No Ice	43.091	-16.706	-28.175	-3395.054	2022.616	-1.306
Dead+Ice+Temp	60.393	-0.000	-0.004	0.007	5.084	-0.000
Dead+Wind 0 deg+Ice+Temp	60.393	-0.001	-8.362	-1053.218	5.885	-0.449
Dead+Wind 30 deg+Ice+Temp	60.393	4.166	-7.246	-912.410	-519.716	-0.538
Dead+Wind 60 deg+Ice+Temp	60.393	7.235	-4.183	-526.439	-907.199	-0.473
Dead+Wind 90 deg+Ice+Temp	60.393	8.368	0.013	2.351	-1050.525	-0.321
Dead+Wind 120 deg+Ice+Temp	60.393	7.243	4.204	530.198	-908.840	-0.098
Dead+Wind 150 deg+Ice+Temp	60.393	4.197	7.252	913.741	-524.867	0.233
Dead+Wind 180 deg+Ice+Temp	60.393	-0.013	8.363	1053.381	6.453	0.425
Dead+Wind 210 deg+Ice+Temp	60.393	-4.247	7.233	910.709	541.228	0.488
Dead+Wind 240 deg+Ice+Temp	60.393	-7.285	4.163	523.738	924.510	0.475
Dead+Wind 270 deg+Ice+Temp	60.393	-8.404	-0.002	-0.803	1065.884	0.229
Dead+Wind 300 deg+Ice+Temp	60.393	-7.301	-4.169	-525.455	927.225	-0.116
Dead+Wind 330 deg+Ice+Temp	60.393	-4.264	-7.241	-912.245	544.466	-0.401
Dead+Wind 0 deg - Service	43.091	0.001	-11.283	-1363.889	0.919	-0.465
Dead+Wind 30 deg - Service	43.091	5.639	-9.779	-1182.031	-681.261	-0.603
Dead+Wind 60 deg - Service	43.091	9.795	-5.647	-682.653	-1184.761	-0.563

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 90 deg - Service	43.091	11.331	0.019	2.117	-1371.200	-0.436
Dead+Wind 120 deg - Service	43.091	9.806	5.676	685.549	-1186.807	-0.216
Dead+Wind 150 deg - Service	43.091	5.684	9.786	1181.512	-688.416	0.193
Dead+Wind 180 deg - Service	43.091	-0.023	11.285	1362.067	2.854	0.427
Dead+Wind 210 deg - Service	43.091	-5.769	9.759	1177.292	699.391	0.523
Dead+Wind 240 deg - Service	43.091	-9.876	5.615	676.347	1196.320	0.567
Dead+Wind 270 deg - Service	43.091	-11.389	-0.001	-1.774	1379.703	0.291
Dead+Wind 300 deg - Service	43.091	-9.899	-5.620	-680.207	1200.043	-0.125
Dead+Wind 330 deg - Service	43.091	-5.791	-9.768	-1181.250	703.553	-0.461

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-43.091	0.000	0.000	43.091	0.000	0.000%
2	0.004	-43.091	-32.543	-0.004	43.091	32.543	0.000%
3	16.264	-43.091	-28.206	-16.264	43.091	28.206	0.000%
4	28.253	-43.091	-16.288	-28.253	43.091	16.288	0.000%
5	32.683	-43.091	0.055	-32.683	43.091	-0.055	0.000%
6	28.284	-43.091	16.372	-28.284	43.091	-16.372	0.000%
7	16.395	-43.091	28.226	-16.395	43.091	-28.226	0.000%
8	-0.067	-43.091	32.549	0.067	43.091	-32.549	0.000%
9	-16.639	-43.091	28.148	16.639	43.091	-28.148	0.000%
10	-28.486	-43.091	16.196	28.486	43.091	-16.196	0.000%
11	-32.849	-43.091	-0.002	32.849	43.091	0.002	0.000%
12	-28.553	-43.091	-16.210	28.553	43.091	16.210	0.000%
13	-16.706	-43.091	-28.175	16.706	43.091	28.175	0.000%
14	0.000	-60.393	0.000	0.000	60.393	0.004	0.007%
15	-0.001	-60.393	-8.362	0.001	60.393	8.362	0.000%
16	4.166	-60.393	-7.246	-4.166	60.393	7.246	0.000%
17	7.235	-60.393	-4.183	-7.235	60.393	4.183	0.000%
18	8.368	-60.393	0.013	-8.368	60.393	-0.013	0.000%
19	7.243	-60.393	4.204	-7.243	60.393	-4.204	0.000%
20	4.197	-60.393	7.252	-4.197	60.393	-7.252	0.000%
21	-0.013	-60.393	8.363	0.013	60.393	-8.363	0.000%
22	-4.247	-60.393	7.233	4.247	60.393	-7.233	0.000%
23	-7.285	-60.393	4.163	7.285	60.393	-4.163	0.000%
24	-8.404	-60.393	-0.002	8.404	60.393	0.002	0.000%
25	-7.301	-60.393	-4.169	7.301	60.393	4.169	0.000%
26	-4.264	-60.393	-7.241	4.264	60.393	7.241	0.000%
27	0.001	-43.091	-11.283	-0.001	43.091	11.283	0.000%
28	5.639	-43.091	-9.779	-5.639	43.091	9.779	0.000%
29	9.795	-43.091	-5.647	-9.795	43.091	5.647	0.000%
30	11.331	-43.091	0.019	-11.331	43.091	-0.019	0.000%
31	9.806	-43.091	5.676	-9.806	43.091	-5.676	0.000%
32	5.684	-43.091	9.786	-5.684	43.091	-9.786	0.000%
33	-0.023	-43.091	11.285	0.023	43.091	-11.285	0.000%
34	-5.769	-43.091	9.759	5.769	43.091	-9.759	0.000%
35	-9.876	-43.091	5.615	9.876	43.091	-5.615	0.000%
36	-11.389	-43.091	-0.001	11.389	43.091	0.001	0.000%
37	-9.899	-43.091	-5.620	9.899	43.091	5.620	0.000%
38	-5.791	-43.091	-9.768	5.791	43.091	9.768	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00018820
3	Yes	6	0.00000001	0.00011436
4	Yes	6	0.00000001	0.00012473
5	Yes	5	0.00000001	0.00005796
6	Yes	6	0.00000001	0.00012072
7	Yes	6	0.00000001	0.00011721
8	Yes	5	0.00000001	0.00017905
9	Yes	6	0.00000001	0.00012575
10	Yes	6	0.00000001	0.00011578
11	Yes	5	0.00000001	0.00007252
12	Yes	6	0.00000001	0.00011888
13	Yes	6	0.00000001	0.00012552
14	Yes	4	0.00000001	0.00002832
15	Yes	5	0.00000001	0.00036297
16	Yes	5	0.00000001	0.00074250
17	Yes	5	0.00000001	0.00079416
18	Yes	5	0.00000001	0.00035064
19	Yes	5	0.00000001	0.00077843
20	Yes	5	0.00000001	0.00075690
21	Yes	5	0.00000001	0.00036104
22	Yes	5	0.00000001	0.00082025
23	Yes	5	0.00000001	0.00076257
24	Yes	5	0.00000001	0.00035541
25	Yes	5	0.00000001	0.00078572
26	Yes	5	0.00000001	0.00082878
27	Yes	4	0.00000001	0.00086828
28	Yes	5	0.00000001	0.00027870
29	Yes	5	0.00000001	0.00032033
30	Yes	4	0.00000001	0.00037595
31	Yes	5	0.00000001	0.00030454
32	Yes	5	0.00000001	0.00029043
33	Yes	4	0.00000001	0.00083606
34	Yes	5	0.00000001	0.00032692
35	Yes	5	0.00000001	0.00028417
36	Yes	4	0.00000001	0.00033174
37	Yes	5	0.00000001	0.00029984
38	Yes	5	0.00000001	0.00032987

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	171 - 156.5	52.084	37	2.747	0.008
L2	156.5 - 156	43.773	37	2.712	0.008
L3	156 - 132.669	43.489	37	2.711	0.008
L4	136.336 - 87.0859	32.762	36	2.428	0.003
L5	91.9193 - 43	13.976	36	1.533	0.001
L6	49 - 0	3.755	36	0.717	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.000	DR90-14-00DPL2	37	49.206	2.732	0.009	31546
155.000	(2) DB844G65ZAXY w/ Mount Pipe	37	42.923	2.709	0.009	8579
146.000	P65-16-XLH-RR w/ Mount Pipe	36	37.905	2.614	0.007	4472
138.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	36	33.624	2.462	0.004	3169
128.000	VHLP800-11	36	28.613	2.256	0.002	2930
118.000	T-Arm Mount [TA 602-1]	36	24.012	2.054	0.002	2898

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	171 - 156.5	149.083	11	7.856	0.025
L2	156.5 - 156	125.370	11	7.760	0.025
L3	156 - 132.669	124.560	11	7.758	0.025
L4	136.336 - 87.0859	93.914	11	6.955	0.010
L5	91.9193 - 43	40.123	11	4.399	0.004
L6	49 - 0	10.790	11	2.059	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
166.000	DR90-14-00DPL2	11	140.873	7.815	0.025	11827
155.000	(2) DB844G65ZAXY w/ Mount Pipe	11	122.942	7.752	0.025	3170
146.000	P65-16-XLH-RR w/ Mount Pipe	11	108.611	7.483	0.020	1625
138.000	ERICSSON AIR 21 B2A B4P w/ Mount Pipe	11	96.378	7.053	0.013	1144
128.000	VHLP800-11	11	82.048	6.468	0.007	1052
118.000	T-Arm Mount [TA 602-1]	11	68.881	5.890	0.005	1035

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	171 - 156.5 (1)	TP10.75x10.75x0.365	14.500	0.000	0.0	21.000	11.908	-0.731	250.074	0.003

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	0.500	0.000	0.0	39.000	12.031	-0.731	469.214	0.002
L3	156 - 132.669 (3)	TP24.79x19.5x0.188	23.331	0.000	0.0	39.000	14.147	-6.828	551.725	0.012
L4	132.669 - 87.0859 (4)	TP34.63x23.584x0.375	49.250	0.000	0.0	39.000	39.482	-15.256	1539.790	0.010
L5	87.0859 - 43 (5)	TP43.75x32.796x0.438	48.919	0.000	0.0	39.000	58.279	-26.279	2272.890	0.012
L6	43 - 0 (6)	TP52.5x41.531x0.5	49.000	0.000	0.0	39.000	76.092	-36.993	2967.600	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	171 - 156.5 (1)	TP10.75x10.75x0.365	10.927	4.387	23.100	0.190	0.000	0.000	23.100	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	10.926	4.368	39.000	0.112	0.000	0.000	39.000	0.000
L3	156 - 132.669 (3)	TP24.79x19.5x0.188	261.103	37.759	39.000	0.968	0.000	0.000	39.000	0.000
L4	132.669 - 87.0859 (4)	TP34.63x23.584x0.375	1271.042	47.358	39.000	1.214	0.000	0.000	39.000	0.000
L5	87.0859 - 43 (5)	TP43.75x32.796x0.438	2444.133	48.719	39.000	1.249	0.000	0.000	39.000	0.000
L6	43 - 0 (6)	TP52.5x41.531x0.5	3384.142	45.223	39.000	1.160	0.000	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	171 - 156.5 (1)	TP10.75x10.75x0.365	1.219	0.102	14.000	0.015	0.001	0.000	14.000	0.000
L2	156.5 - 156 (2)	TP19.5x10.75x0.365	1.258	0.105	26.000	0.004	0.002	0.000	26.000	0.000
L3	156 - 132.669 (3)	TP24.79x19.5x0.188	19.075	1.348	26.000	0.104	0.098	0.007	26.000	0.000
L4	132.669 - 87.0859 (4)	TP34.63x23.584x0.375	25.361	0.642	26.000	0.049	0.767	0.014	26.000	0.001
L5	87.0859 - 43 (5)	TP43.75x32.796x0.438	29.185	0.501	26.000	0.039	0.799	0.008	26.000	0.000
L6	43 - 0 (6)	TP52.5x41.531x0.5	31.728	0.417	26.000	0.032	0.826	0.005	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	171 - 156.5 (1)	0.003	0.190	0.000	0.015	0.000	0.193 ✓	1.333	H1-3+VT ✓

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L2	156.5 - 156 (2)	0.002	0.112	0.000	0.004	0.000	0.114 ✓	1.333	H1-3+VT ✓
L3	156 - 132.669 (3)	0.012	0.968	0.000	0.104	0.000	0.983 ✓	1.333	H1-3+VT ✓
L4	132.669 - 87.0859 (4)	0.010	1.214	0.000	0.049	0.001	1.225 ✓	1.333	H1-3+VT ✓
L5	87.0859 - 43 (5)	0.012	1.249	0.000	0.039	0.000	1.261 ✓	1.333	H1-3+VT ✓
L6	43 - 0 (6)	0.012	1.160	0.000	0.032	0.000	1.172 ✓	1.333	H1-3+VT ✓

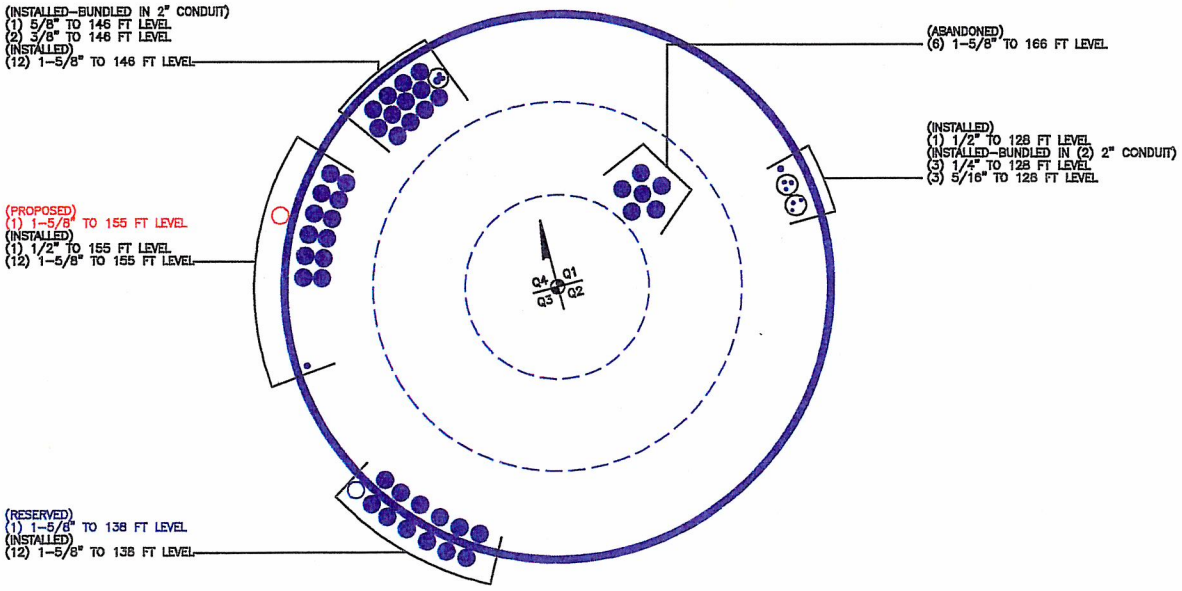
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	171 - 156.5	Pole	TP10.75x10.75x0.365	1	-0.731	333.349	14.5	Pass
L2	156.5 - 156	Pole	TP19.5x10.75x0.365	2	-0.731	625.462	8.5	Pass
L3	156 - 132.669	Pole	TP24.79x19.5x0.188	3	-6.828	735.449	73.8	Pass
L4	132.669 - 87.0859	Pole	TP34.63x23.584x0.375	4	-15.256	2052.540	91.9	Pass
L5	87.0859 - 43	Pole	TP43.75x32.796x0.438	5	-26.279	3029.762	94.6	Pass
L6	43 - 0	Pole	TP52.5x41.531x0.5	6	-36.993	3955.811	87.9	Pass
							Summary	
						Pole (L5)	94.6	Pass
						RATING =	**94.6**	**Pass**

Program Version 6.1.3.1 - 7/25/2013

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 806355 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

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

TIA Rev F

Site Data

BU#: *806355*
Site Name: *BRG 126 943086,CT*
App #: *200500 Revision # 2*

Pole Manufacturer:	*Other*

Reactions		
Moment:	3967	ft-kips
Axial:	43	kips
Shear:	33	kips

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

Anchor Rod Data		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	61	in

Plate Data		
Diam:	67	in
Thick:	2.25	in
Grade:	60	ksi
Single-Rod B-eff:	8.33	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	52.5	in
Thick:	0.5	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

Maximum Rod Tension:	153.9 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	79.0% Pass	Fty*ASIF

Base Plate Results

	Flexural Check	
Base Plate Stress:	57.3 ksi	Rigid
Allowable Plate Stress:	60.0 ksi	Service ASD
Base Plate Stress Ratio:	95.6% Pass	0.75*Fy*ASIF
		Y.L. Length: 31.06

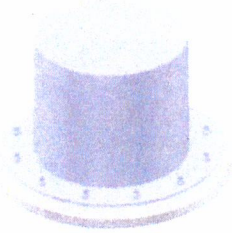
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

PROJECT **806355 - BRG 126 943086,CT**

SUBJECT **Foundation Analysis**

DATE **10/24/13** PAGE 1 OF 1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Monopole Pad & Pier Foundation Analysis

Rev. Type: F

Design Loads:

	Input unfactored loads	
Shear:	33.0	kips
Moment:	3,967.0	ft-kips
Tower Height:	171.0	ft
Tower Weight:	43.0	kips

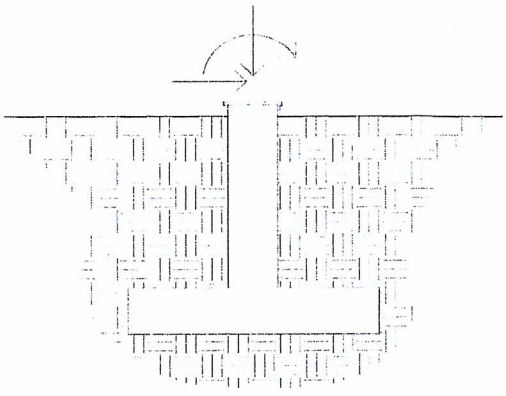
Pad & Pier Dimensions / Properties:

Pole Diameter at Base:	52.50	in
Bearing Depth:	9.0	ft
Pad Width:	22.0	ft
Neglected Depth:	4.0	ft
Thickness:	3.0	ft
Pier Diameter:	7.0	ft
Pier Height Above Grade:	1.0	ft
BP Dist. Above Pier:	4.0	in
Clear Cover:	3.0	in
Pier Rebar Size:	8	
Pier Rebar Quanity:	46	
Pad Rebar Size:	8	
Pad Rebar Quanity:	36	
Pier Tie Size:	4	
Tie Quanity:	7	
Rebar Yield Strength:	60000	psi
Concrete Strength:	4000	psi
Concrete Unit Weight:	0.15	kcf

22.0 FT

22.0 FT

Elevation Overview



Soil Data:

	Allowable Values	
Soil Unit Weight:	0.125	kcf
Ult. Bearing Capacity:	24.000	ksf
Angle of Friction:	36.000	deg
Cohesion:	0.000	ksf
Passive Pressure:	0.000	ksf
Base Friction:	0.600	

** Notes:

Summary of Results

Req'd Pier Diam.	OK
Overturning	76.6%
Shear Capacity	10.4%
Bearing	33.0%
Pad Shear - 1-way	89.8%
Pad Shear - 2-way	5.8%
Pad Moment Capacity	38.1%
Pier Moment Capacity	91.6%

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *806355*
Site Name: *BRG 126 943086,CT*
App #: *200500 Revision # 2*

Pole Manufacturer:	Other

Bolt Data			
Qty:	15		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	75	<-- Disregard	Bolt Fty: 44.00
N/A:	55	<-- Disregard	
Circle (in.):	25.75		

Plate Data		
Diam:	28.5	in
Thick, t:	1	in
Grade (Fy):	60	ksi
Strength, Fu:	75	ksi
Single-Rod B-eff:	2.27	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	10.75	in
Thick:	0.365	in
Grade:	35	ksi
# of Sides:	18	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	11.545	ft-kips
Axial:	0.762	kips
Shear:	1.258	kips
Elevation:	156	feet

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

Flange Bolt Results

		Non-Rigid
		Service, ASD
Bolt Tension Capacity, **B**:	46.07 kips	Fty*ASIF
Max Bolt directly applied T:	1.38 Kips	
Min. PL "tc" for **B** cap. **w/o** Pry:	3.785 in	
Min PL "treq" for actual **T w/ Pry:**	0.531 in	
Min PL "t1" for actual **T w/o Pry:**	0.656 in	
T allowable with Prying:	4.91 kips	α'>1 case
Prying Force, Q:	0.00 kips	
Total Bolt Tension=T+Q:	1.38 kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	3.0% Pass	

Exterior Flange Plate Results Flexural Check

		Non-Rigid
		Service ASD
Compression Side Plate Stress:	9.0 ksi	0.75*Fy*ASIF
Allowable Plate Stress:	60.0 ksi	Comp. Y.L. Length:
Compression Plate Stress Ratio:	15.0% Pass	23.40
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	28.2% Pass	

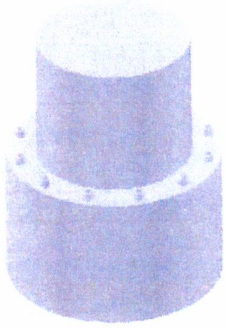
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev F

Site Data

BU#: *806355*
Site Name: *BRG 126 943086,CT*
App #: *200500 Revision # 2*

Pole Manufacturer:	Other

Bolt Data			
Qty:	15		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	75	<-- Disregard	Bolt Fty: 44.00
N/A:	55	<-- Disregard	
Circle (in.):	25.75		

Plate Data		
Diam:	28.5	in
Thick, t:	1.5	in
Grade (Fy):	60	ksi
Strength, Fu:	75	ksi
Single-Rod B-eff:	4.13	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	19.5	in
Thick:	0.365	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Reactions		
Moment:	11.545	ft-kips
Axial:	0.762	kips
Shear:	1.258	kips
Elevation:	156	feet

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

Flange Bolt Results | Rigid

Bolt Tension Capacity, B:	46.07 kips	Service, ASD
Max Bolt directly applied T:	1.38 Kips	Fty*ASIF
Min. PL "tc" for B cap. w/o Prv:	1.721 in	
Min PL "treq" for actual T w/ Prv:	0.226 in	
Min PL "t1" for actual T w/o Prv:	0.298 in	
T allowable with Prying:	39.61 kips	0≤α'≤1 case
Prying Force, Q:	0.00 kips	
Total Bolt Tension=T+Q:	1.38 kips	
Prying Bolt Stress Ratio=(T+Q)/(B):	3.0% Pass	

Exterior Flange Plate Results Flexural Check | Rigid

Compression Side Plate Stress:	1.6 ksi	Service ASD
Allowable Plate Stress:	60.0 ksi	0.75*Fy*ASIF
Compression Plate Stress Ratio:	2.7% Pass	Comp. Y.L. Length: 16.82
No Prying		
Tension Side Stress Ratio, (treq/t)^2:	2.3% Pass	

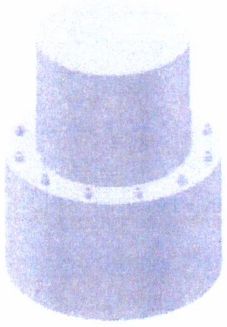
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check: n/a



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes