

Em-T-mobile - 058-100513



THOMAS J. REGAN
Direct Dial: (860) 509-6522
tregan@brownrudnick.com

RECEIVED
MAY 17 2010

CityPlace I
185 Asylum
Street
Hartford
Connecticut
06103
tel 860.509.6500
fax 860.509.6501

CONNECTICUT
SITING COUNCIL

Via E-Mail & First Class Mail

May 14, 2010

ORIGINAL

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: T-Mobile, Inc. – Notice of Exempt Modification


Dear Mr. Caruso:

On behalf of T-Mobile, Inc., enclosed for filing please find the Certification of Service in connection with the "Notice of Exempt Modification" regarding a site located at 200 Colt Highway in Farmington. The Notice of Exempt Modification for this site was filed with the Connecticut Siting Council on May 13, 2010.

If you have any questions, please feel free to contact me.

Very truly yours,

BROWN RUDNICK LLP

By: 
Thomas J. Regan

Enclosures

cc/encl: Chairman Michael Clark

40273246 v1 - HERZJA - 025064/0016


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Certificate of Service

This is to certify that on this 13th day of May, 2010, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Town of Farmington
Chairman Michael Clark
Town Hall
1 Monteith Drive
Farmington, CT 06032

By



Thomas J. Regan

40273136 v1 - 025064/0016

Via Hand Delivery

May 13, 2010

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

ORIGINAL

RECEIVED
MAY 13 2010
CONNECTICUT
SITING COUNCIL

RE: T-Mobile, Inc. – Notice of Exempt Modification

Dear Mr. Caruso:

On behalf of T-Mobile, Inc., enclosed for filing you will find an original and 5 copies of a "Notice of Exempt Modification" regarding a site located at 200 Colt Highway in Farmington. The \$625.00 filing fee is also enclosed.

I would appreciate it if you could please date stamp the copy of this transmittal letter and return it to the courier delivering this package.

If you have any questions, please feel free to contact me (860.509.6522 / tregan@brownrudnick.com).

Very truly yours,

BROWN RUDNICK LLP

By: 
Thomas J. Regan

Enclosures

cc/encl: Chairman Michael Clark

40271200 v1 - REGANTJ - 025064/0016

In re:

T-Mobile USA, Inc. Notice to Make an Exempt Modification to an Existing Facility, 200 Colt Highway, Farmington, Connecticut. : EXEMPT MODIFICATION No. : May 13, 2010

ORIGINAL

RECEIVED MAY 13 2010

NOTICE OF EXEMPT MODIFICATION CONNECTICUT SITING COUNCIL

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), T-Mobile USA, Inc.

("T-Mobile") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Farmington of T-Mobile's intent to make an exempt modification to the existing WVIT guyed wire tower (the "Tower") located at 200 Colt Highway in Farmington, Connecticut. According to Conn. Agencies Regs. § 16-50j-2a(q) a "tower" is defined as "a structure ... that has a height greater than its diameter and that is high relative to its surroundings...". Since the existing guyed lattice structure has a height greater than its diameter and is high relative to its surroundings, it therefore meets the definition of a tower. Furthermore, Pursuant to Conn. Gen. Stat. § 16-50i(a)(6) telecommunications towers are Facilities and therefore under Council jurisdiction.

T-Mobile is submitting this Notice of Exempt Modification in order to upgrade its equipment at this site as part of a state-wide upgrade, implementing its Universal Mobile Telecommunications System ("UMTS") in Connecticut. UMTS is a third-generation ("3G") technology that utilizes a code division multiple access ("CDMA") base to allow for fast and large data transfers. To accomplish this upgrade, T-Mobile must modify its antenna and equipment configurations at many of its existing sites.

Once the UMTS upgrade is complete, T-Mobile will operate on a more unified communication system, allowing international wireless telephones to function world-wide. Furthermore, UMTS will enhance GPS navigation capabilities and provide emergency

responders with more advanced tracking capabilities. The proposed UMTS technology is compatible with the existing second-generation (“2G”) Global System for Mobile Communication (“GSM”) currently on the Tower and the proposed upgrade is expected to enhance the existing 2G system. In order to accomplish the upgrade at this site, T-Mobile plans to add UMTS technology and install associated equipment at the base of the Tower.

Under the Council’s regulations (Conn. Agencies Regs. § 16-50j-72(b)), T-Mobile’s plans do not constitute a modification subject to the Council’s review because T-Mobile will not change the height of the Tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

The Tower is a 120-foot guyed tower located at 200 Colt Highway in Farmington, Connecticut (latitude 41.70087, longitude -72.8321). The Tower is owned by Outlet Broadcasting Inc. Currently, T-Mobile has 3 antennas and 6 Tower Mounted Amplifiers (“TMA”) located on the Tower with a centerline of 112 feet. A site plan with Tower specifications is attached.

T-Mobile plans to remove its 3 existing antennas and replace the existing antennas with 3 UMTS quad pole antennas. T-Mobile also plans to remove its 6 existing TMA to be replaced with 4 Twin TMA. The proposed antennas and TMA will have the same centerline as the existing antennas – 112 feet. To confirm the Tower can support these changes, T-Mobile commissioned Armor Tower to perform a structural analysis of the Tower (attached). According to the structural assessment, dated January 7, 2010, the Tower is “... adequate ... to support the proposed antenna loading” (Page 1, Structural Analysis).

In addition, T-Mobile plans to locate 2, 1-5/8 inch coax cables along the existing ice bridge. T-Mobile proposes to install its UMTS equipment cabinet, battery back-up cabinet and

Remote Radio Unit on the exterior face of the existing building located adjacent to the Tower.

Hence, no increase in the boundaries of the site is necessary.

Therefore, excluding brief, minor, construction-related noise during the addition of the antennas and the installation of the equipment cabinet, T-Mobile's changes to the Tower will not increase noise levels at the site.

The proposed antennas and TMA will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the Tower will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). The worst-case, cumulative, power density analysis measured at the base of the Tower indicates that T-Mobile's antennas will emit 9.61% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be well below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, T-Mobile's proposed plan to remove and replace antennas and TMA and add equipment at this site does not constitute a modification subject to the Council's jurisdiction because T-Mobile will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

T-Mobile USA, Inc.

By:  _____

Thomas J. Regan
Brown Rudnick LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Email - tregan@brownrudnick.com
Phone - 860.509.6522 /Fax - 860.509.6501

Certificate of Service

This is to certify that on this 13th day of May, 2010, the foregoing Notice of Exempt

Modification was sent, via first class mail, to the following:

Town of Farmington
Chairman Michael Clark
Town Hall
1 Monteith Drive
Farmington, CT 06032

By: _____
Thomas J. Regan

40273136 v1 - 025064/0016

PROJECT DESCRIPTION:

T-MOBILE IS PROPOSING TO INSTALL TELECOMMUNICATIONS EQUIPMENT AT THIS EXISTING SITE THAT CONSISTS OF:

- EQUIPMENT CABINETS: (P) (1) UMTS ERICSSON 3518 CABINET ATTACHED TO (E) BUILDING WALL
(E) (1) NORTEL S12000 CABINET TO REMAIN
- ANTENNAS: (P) (3) QUAD POLE APX16DWV-16DWVS-E-A20 PANEL ANTENNAS TO REPLACE
(E) (3) DUAL POLE RR90-17-00DP ANTENNAS
- TMA's: (P) (3) TWIN PCS AND (1) TWIN AWS TMA's TO BE ADDED
(E) (6) TMA's TO BE REMOVED
- COAX: (P) (2) 1-5/8" COAX CABLES TO BE ADDED
(P) (1) OIL CABLE TO BE ADDED (GAMMA SECTOR)
(E) (6) 1-1/4" COAX CABLES TO REMAIN
- RRU: (P) (1) RRU TO BE ADDED (GAMMA SECTOR)

FARMINGTON / I-84 X37_1

200 COLT HIGHWAY
FARMINGTON, CT 06032

SITE NUMBER: CT11134A

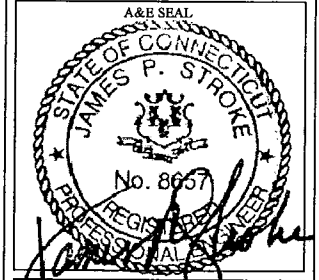
SITE TYPE: GUYED TOWER

TRANSCEND WIRELESS, LLC
10 INDUSTRIAL AVE
MAHWAH, NJ 07430
OFFICE: (201) 684-0055
FAX: (201) 684-0066

FOR

**OMNIPONT COMMUNICATIONS, INC.
DBA T-MOBILE USA, INC**
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

ATLANTIS GROUP
15 Cypress St., Suite 300
Newton Center, MA 02459
Office: 617-965-0789
Fax: 617-663-6032



APPROVAL

LANDLORD _____
LEASING _____
R.F. _____
ZONING _____
CONSTRUCTION _____
A/E _____

DRAWN BY: GC
CHECKED BY: S.M.

SUBMITTALS

A	04/22/09	ISSUED FOR REVIEW
0	03/17/10	REVISED PER COMMENTS
1	05/10/10	REVISED PER COMMENTS

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE COMMUNICATIONS, INC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

CT11134A
FARMINGTON /
I-84 X37_1
200 COLT HIGHWAY
FARMINGTON, CT 06032

SHEET TITLE:
TITLE SHEET

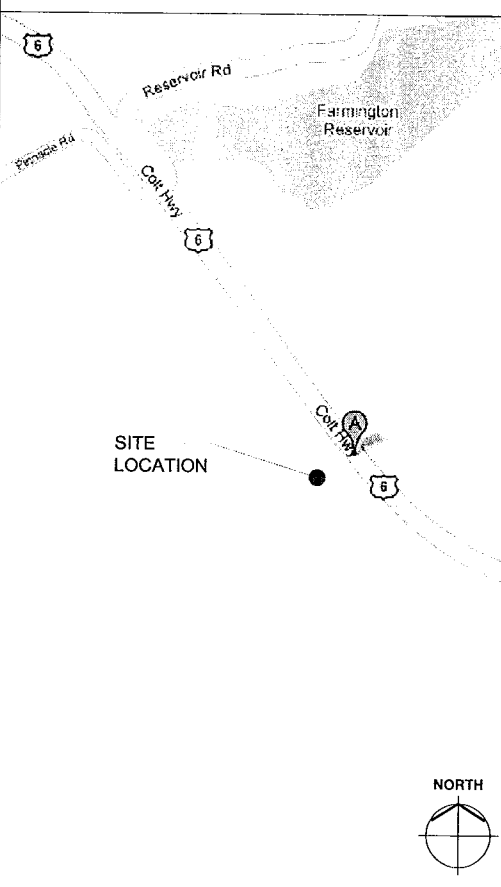
SHEET NUMBER:
01

GENERAL NOTES

- THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
- THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
- THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE PROJECT OWNER'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
- THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
- THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL OBTAIN AUTHORIZATION FROM THE PROJECT OWNER'S REPRESENTATIVE TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
- THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
- THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
- THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
- THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
- ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY:
CALL BEFORE YOU DIG (CT): 1-800-922-4455
- COORDINATE NEW ANTENNA, ANTENNA SUPPORT FRAME AND COAXIAL CABLE INSTALLATION WITH STRUCTURAL ANALYSIS REPORT BY OTHERS. NO WORK SHALL BE PERFORMED ON THE GUYED TOWER UNTIL ANY AND ALL MODIFICATION REQUIREMENTS STIPULATED IN THE STRUCTURAL ANALYSIS REPORT HAVE BEEN MET.
- A STRUCTURAL ANALYSIS WAS NOT PART OF THE SCOPE OF WORK FOR THIS A&E DRAWING PACKAGE. CONTACT THE PROJECT OWNER'S REPRESENTATIVE FOR ALL INFORMATION CONCERNING THE STRUCTURAL ANALYSIS PERFORMED FOR THIS SITE. ATLANTIS GROUP INC. IS NOT RESPONSIBLE FOR STRUCTURAL INTEGRITY OF THE BUILDING DUE TO THE ADDITION AND/OR MODIFICATIONS.

VICINITY MAP

SCALE: 1"= 1500'



SITE DIRECTIONS

- FROM BLOOMFIELD OFFICE:
- HEAD NORTH ON GRIFFIN RD S TOWARD HARTMAN RD 0.4 MI
 - TURN RIGHT AT BLUE HILLS AVE/BLUE HILLS AVE EXT/CT-187 CONTINUE TO FOLLOW BLUE HILLS AVE/CT-187 2.0 MI
 - TURN LEFT AT CT-305/OLD WINDSOR RD CONTINUE TO FOLLOW CT-305 2.3 MI
 - MERGE ONTO I-91 S VIA THE RAMP TO HARTFORD 5.5 MI
 - TAKE EXIT 32A-32B TO MERGE ONTO I-84 W/US-6 W TOWARD WATERBURY 8.7 MI
 - TAKE EXIT 38 FOR US-6 TOWARD BRISTOL 0.4 MI
 - SLIGHT RIGHT AT US-6 DESTINATION WILL BE ON THE LEFT 1.8 MI
- 200 COLT HWY CT 06032

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
01	TITLE SHEET	1
02	PLANS, DETAILS AND NOTES	1
03	ELEVATION	1
04	EQUIPMENT AND ANTENNA DETAILS	1
05	ELECTRICAL AND GROUNDING NOTES, RISERS AND DETAILS	1

DO NOT SCALE DRAWINGS

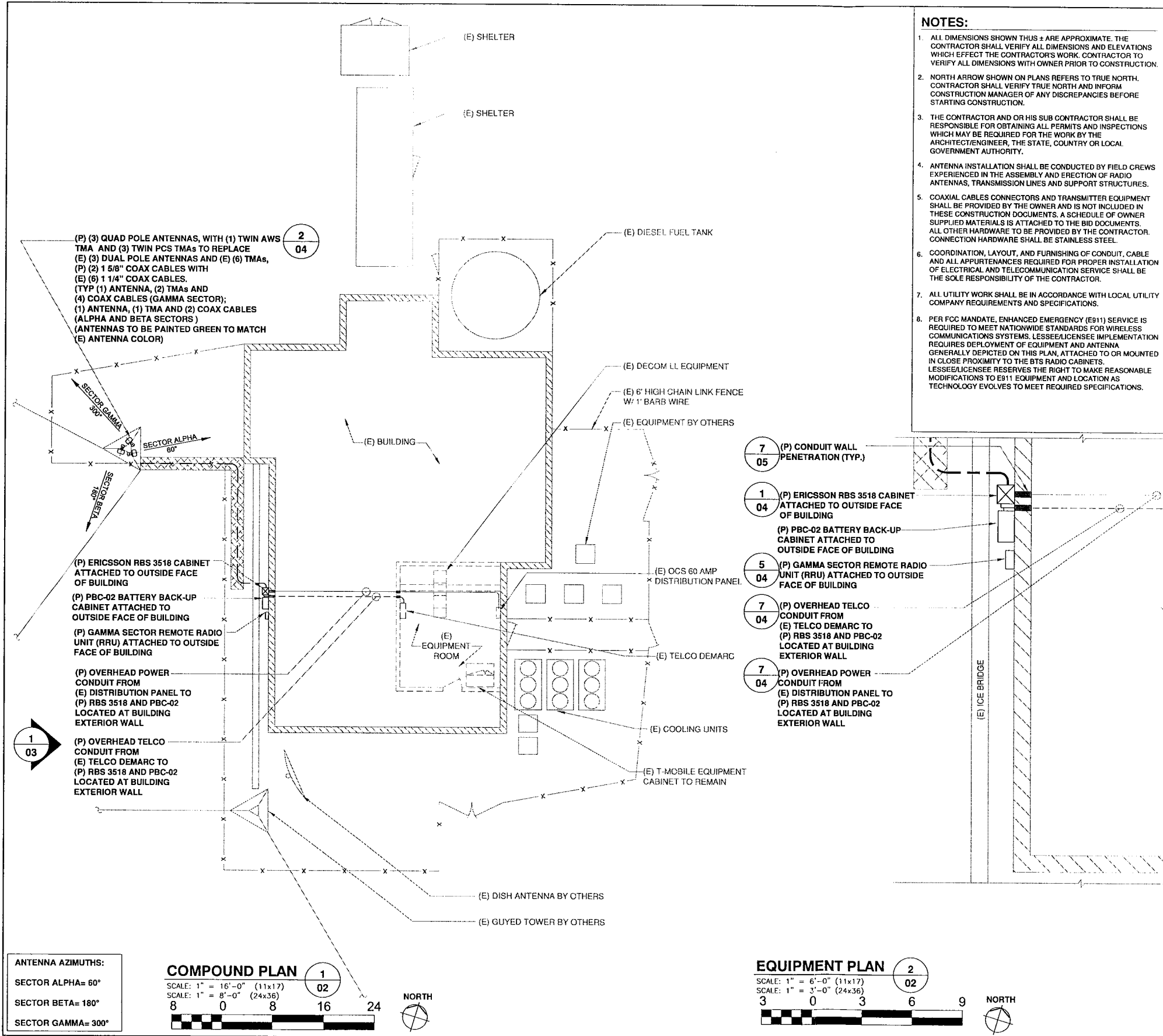
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT SUMMARY

SITE NUMBER: CT11134A
SITE NAME: FARMINGTON / I-84 X37_1
SITE ADDRESS: 200 COLT HIGHWAY FARMINGTON, CT 06032
ASSESSOR'S PARCEL NO: MAP: 141 / LOT: 7B
SITE TYPE: GUYED TOWER
STRUCTURE OWNER: OUTLET BROADCASTING INC.
PROPERTY OWNER: OUTLET BROADCASTING INC. P.O. BOX 4900 SCOTSDALE, AZ 85261
APPLICANT, LESSEE/LICENSEE, PROJECT OWNER: T-MOBILE COMMUNICATIONS, INC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 (860) 692-7100
A/E: ATLANTIS GROUP INC. 15 CYPRESS STREET, SUITE 300 NEWTON CENTRE, MA 02459 (617) 965-0789
PROJECT MANAGER: LISA L'N NIEDERMEIER TRANSCEND WIRELESS, LLC 10 INDUSTRIAL AVE MAHWAH, NJ 07430 (203) 276-6669
ZONING REPRESENTATIVE: BROWN RUDNICK LLP THOMAS J REGAN CITYPLACE I, 38TH FLOOR 185 ASYLUM STREET HARTFORD, CT 06103-3402 (860) 569-6500
POWER PROVIDER: CONNECTICUT LIGHT & POWER OR NORTHEAST UTILITIES (860) 947-2000
TELCO PROVIDER: AT&T/SBC/SNET (203) 630-5808
CALL BEFORE YOU DIG: (800) 922-4455

CODE REFERENCES

- CONNECTICUT STATE BUILDING CODE
2003 INTERNATIONAL BUILDING CODE
2003 INTERNATIONAL PLUMBING CODE
2003 INTERNATIONAL MECHANICAL CODE
2003 INTERNATIONAL EXISTING BUILDING CODE
2005 CONNECTICUT SUPPLEMENT
2005 NATIONAL ELECTRICAL CODE
- CONNECTICUT STATE FIRE SAFETY CODE
2003 INTERNATIONAL FIRE CODE



NOTES:

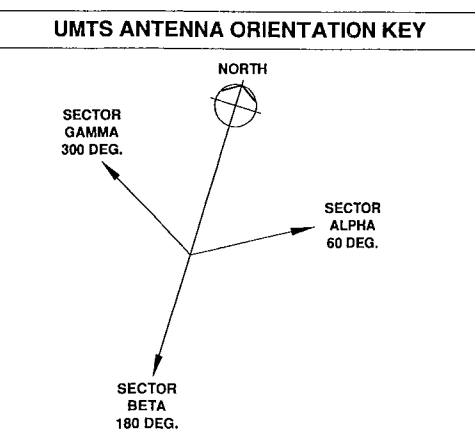
- ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTOR'S WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH OWNER PRIOR TO CONSTRUCTION.
- NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
- THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTRY OR LOCAL GOVERNMENT AUTHORITY.
- ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
- COAXIAL CABLES CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS. ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
- COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS FOR WIRELESS COMMUNICATIONS SYSTEMS. LESSEE/LICENSEE IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNA GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. LESSEE/LICENSEE RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

ABREVIATIONS

ADJ	ADJUSTABLE	UB	UTILITY BOX
AGL	ABOVE GROUND LEVEL	UON	UNLESS OTHERWISE NOTED
AMSL	ABOVE MEAN SEA LEVEL	WWF	WELDED WIRE FABRIC
APPROX	APPROXIMATE	W	WITH
ASPH.	ASPHALT	NIC	NOT IN CONTRACT
BLDG.	BUILDING	EQUIP	EQUIPMENT
CAB	CABINET	(E)	EXISTING
CLG	CEILING	EXT	EXTERIOR
CONC	CONCRETE	FF	FINISHED FLOOR
CONT.	CONTINUOUS	GA	GAUGE
CJ	CONCRETE JOINT	GALV	GALVANIZED
DIA	DIAMETER	GC	GENERAL CONTRACTOR
DWG	DRAWING	GRND	GROUND
EGB	EQUIPMENT GROUND BAR	LG	LONG
EA	EACH	MAX	MAXIMUM
ELEC	ELECTRIC	MECH	MECHANICAL
EL	ELEVATION	MFR	MANUFACTURER
EQ	EQUAL	MOB	MASTER GROUND BAR
NTS	NOT TO SCALE	MH	MANHOLE
OC	ON CENTER	MIN	MINIMUM
OHW	OVERHEAD WIRE	MTL	METAL
OPP	OPPOSITE	NIC	NOT IN CONTRACT
SF	SQUARE FOOT	BTS	BASE TRANSMISSION STATION
SHT	SHEET	PCS	PERSONAL COMMUNICATIONS SERVICE
SIM	SIMILAR	A-1	ANTENNA MARK 1
SS	STAINLESS STEEL	CL	CENTERLINE
STL	STEEL	PL	PLATE
TOC	TOP OF CONCRETE	&	AND
TOM	TOP OF MASONRY	@	AT
TYP	TYPICAL	GPS	GLOBAL POSITIONING SYSTEM
VIF	VERIFY IN FIELD		

SYMBOLS AND MATERIALS

	NEW ANTENNA		GROUT OR PLASTER
	EXISTING ANTENNA		(E) BRICK
	ASPHALT		(E) MASONRY
	NEW ACCESS EASEMENT		CONCRETE
	CONCRETE		EARTH
	ELECTRIC BOX		GRAVEL
	LIGHT POLE		PLYWOOD
	FND. MONUMENT		SAND
	SPOT ELEVATION		WOOD CONT.
	SET POINT		WOOD BLOCKING
	REVISION		STEEL
	GRID REFERENCE		CENTER LINE
	REVISION REFERENCE		PROPERTY LINE
	ELEVATION		STEPPED FOOTING
	SECTIONS & DETAILS		MATCH LINE
			WORK POINT
			UNDERGROUND POWER LINE
			UNDERGROUND TELCO LINE
			OVERHEAD UTILITY LINE
			GROUND WIRE
			COAXIAL CABLE
			CHAIN LINE FENCE



TRANSCEND WIRELESS, LLC
 10 INDUSTRIAL AVE.
 MAHWAH, NJ 07430
 OFFICE: (201) 684-8655
 FAX: (201) 684-0066

FOR
OMNIPPOINT COMMUNICATIONS, INC. DBA T-MOBILE USA, INC.
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
 FAX: (860) 692-7159

ATLANTIS GROUP
 15 Cypress St., Suite 300
 Newton Center, MA 02459
 Office: 617-965-0789
 Fax: 617-965-6032

JAMES P. STROKE
 No. 8657
 REGISTERED PROFESSIONAL ENGINEER

APPROVALS

LANDLORD: _____
 LEASING: _____
 R.F.: _____
 ZONING: _____
 CONSTRUCTION: _____
 A/E: _____

DRAWN BY: GC
 CHECKED BY: S.M.

SUBMITTALS

A	04/22/09	ISSUED FOR REVIEW
0	03/17/10	REVISED PER COMMENTS
1	05/10/10	REVISED PER COMMENTS

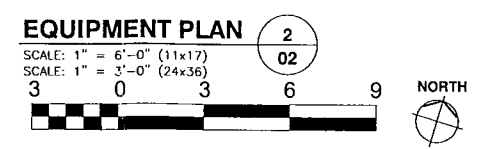
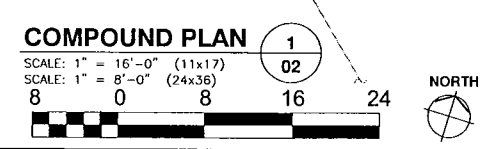
THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE COMMUNICATIONS, INC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

CT11134A FARMINGTON / I-84 X37_1
 200 COLT HIGHWAY
 FARMINGTON, CT 06032

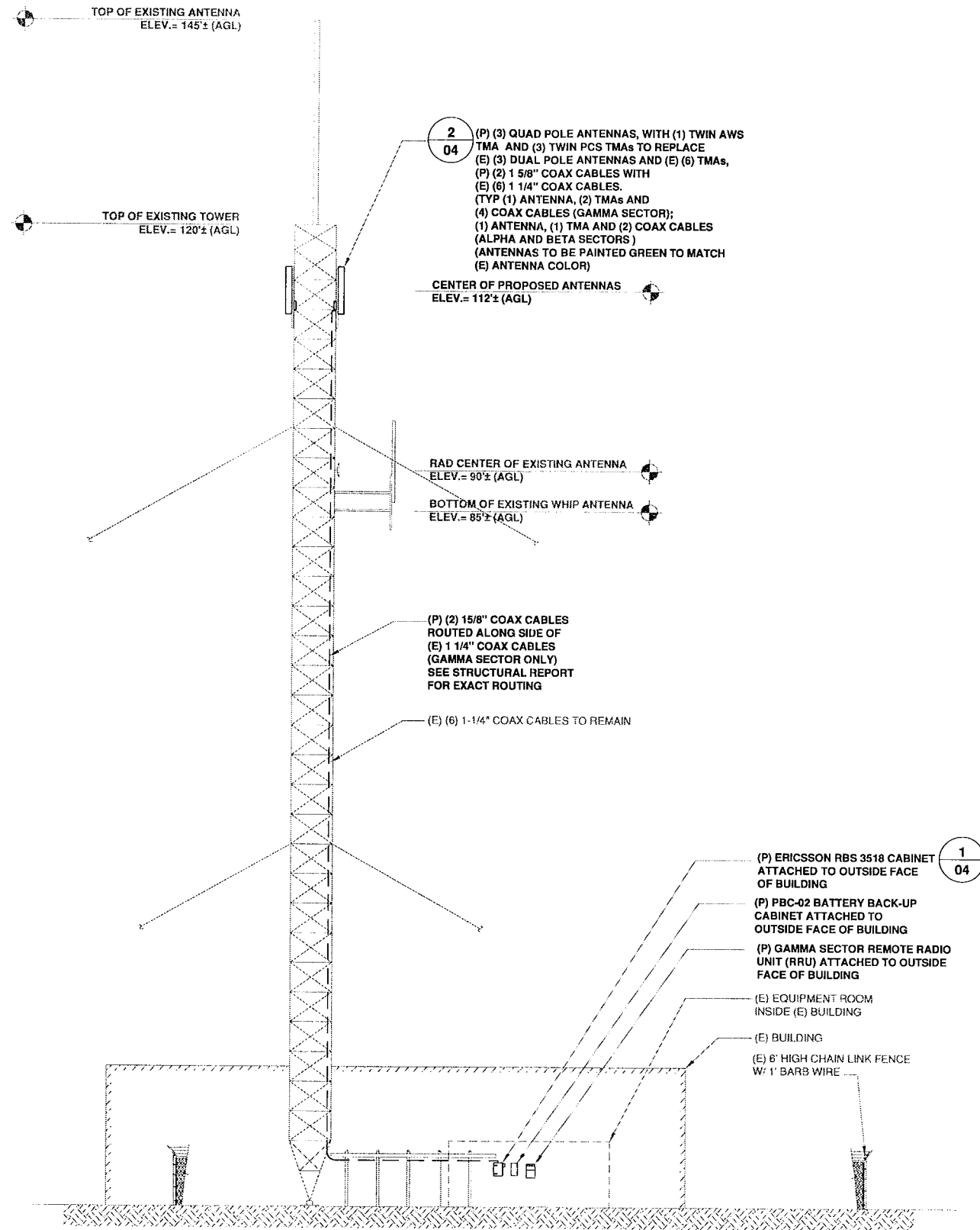
SHEET TITLE:
PLANS, DETAILS AND NOTES

SHEET NUMBER:
02

ANTENNA AZIMUTHS:
 SECTOR ALPHA= 60°
 SECTOR BETA= 180°
 SECTOR GAMMA= 300°



NOTE: A STRUCTURAL ANALYSIS HAS BEEN COMPLETED BY AMOR TOWER, DATED 01/07/10. ALL ADDITIONS OR MODIFICATIONS TO THE GUYED TOWER SHALL BE MADE IN ACCORDANCE THIS ANALYSIS.



WEST ELEVATION VIEW 1
03

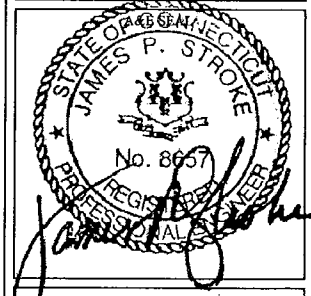
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SCALE: 1" = 5'-0" (24x36)

TRANSCEND WIRELESS, LLC
 10 INDUSTRIAL AVE
 MAHWAIL, NJ 07430
 OFFICE: (201) 484-9005
 FAX: (201) 484-0666

FOR

OMNIPOINT COMMUNICATIONS, INC. DBA T-MOBILE USA, INC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
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 FAX: (860) 692-7159

ATLANTIS GROUP
 15 Cypress St., Suite 300
 Newton Center, MA 02459
 Office: 617-965-0789
 Fax: 617-563-6032



APPROVALS

LANDLORD _____

LEASING _____

R.F. _____

ZONING _____

CONSTRUCTION _____

A/E _____

DRAWN BY: GC

CHECKED BY: S.M.

SUBMITTALS

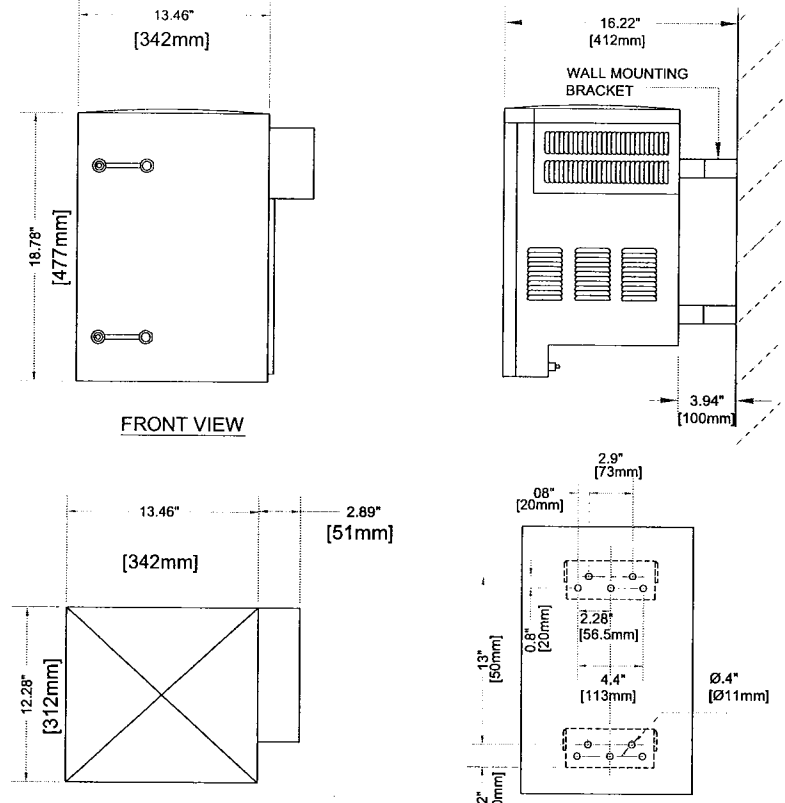
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CT11134A
 FARMINGTON /
 I-84 X37_1
 200 COLT HIGHWAY
 FARMINGTON, CT 06032

SHEET TITLE:
ELEVATION

SHEET NUMBER:
03



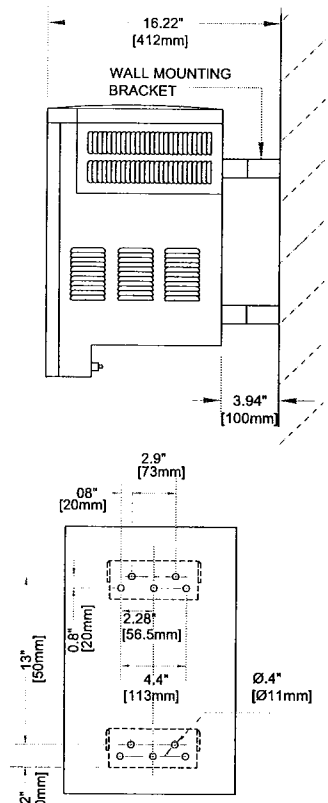
FRONT VIEW

PLAN VIEW

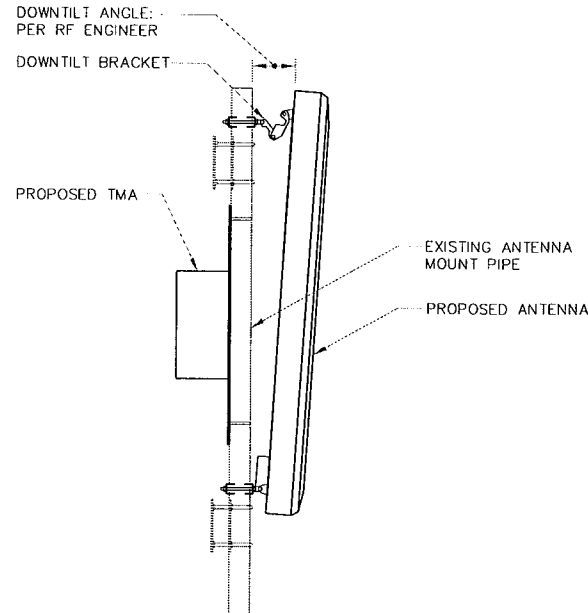
ERICSSON RBS 3518 EQUIPMENT DETAIL

N.T.S.

1
04



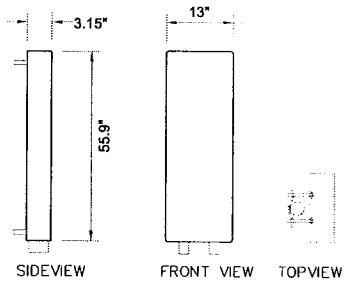
DRILL MEASUREMENTS FOR WALL-MOUNTED CABINET



MOUNTING ASSEMBLY (ALL ANTENNAS)

N.T.S.

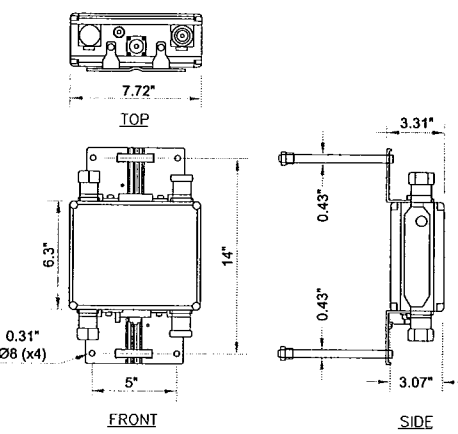
2
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QUAD POLE ANTENNA DETAIL

N.T.S.

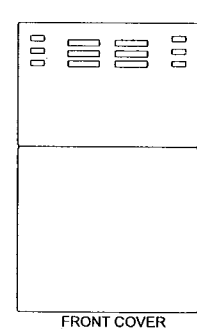
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TWIN TMA DETAIL

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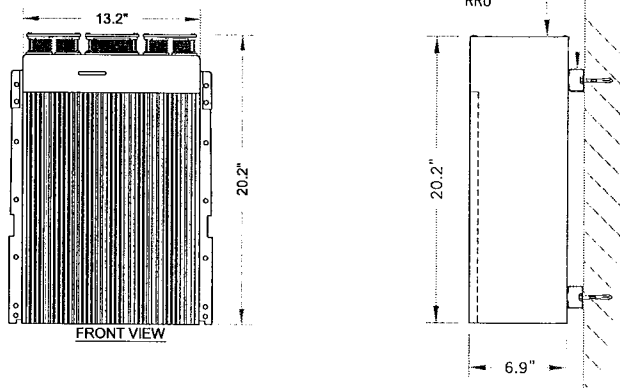
4
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RRU 22 XX40 DETAIL

N.T.S.

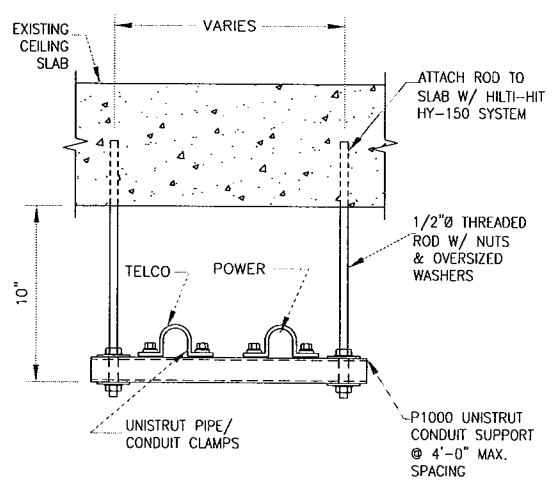
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RRU MOUNTING DETAIL

N.T.S.

6
04



CONDUIT ATTACHED TO CEILING DETAIL

N.T.S.

7
04

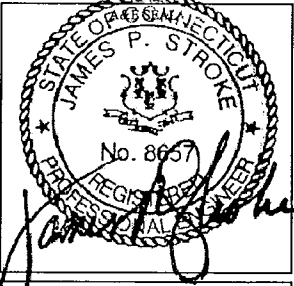
- STRUCTURAL NOTES**
- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, ANS/AISC/E, EIA/TIA-222-F STRUCTURAL STANDARDS FOR STEEL ANTENNA SUPPORTING STRUCTURES.
 - CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER.
 - DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
 - STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A572 GRADE 50 STRUCTURAL STEEL UNLESS OTHERWISE INDICATED.
 - STEEL PIPE SHALL CONFORM TO ASTM A500 COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE A, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL ACTUAL OUTSIDE DIAMETER IS LARGER.
 - STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL 5/8" DIA UNLESS OTHERWISE NOTED.
 - ALL STEEL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS". UNLESS OTHERWISE NOTED.
 - ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE". UNLESS OTHERWISE NOTED.
 - FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH THE REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 95 PERCENT ZINC BY WEIGHT, ZIRP BY DUCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOWED TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
 - CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DII. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 9TH EDITION.
 - INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
 - UNISTRUTS SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP, WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-HIP GALVANIZED AFTER FABRICATION.
 - EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF 1/2" DIAMETER STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-20 AND OR HY-150 SYSTEMS (AS SPECIFIED ON DWG.) OR ENGINEERS APPROVED EQUAL WITH 4-1/4" MIN. EMBEDMENT DEPTH.
 - EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLTS II OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MINIMUM EMBEDMENT SHALL BE THREE AND ONE HALF (3 1/2) INCHES.

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APPROVALS

LANDLORD _____

LEASING _____

R.F. _____

ZONING _____

CONSTRUCTION _____

A/E _____

DRAWN BY: GC

CHECKED BY: S.M.

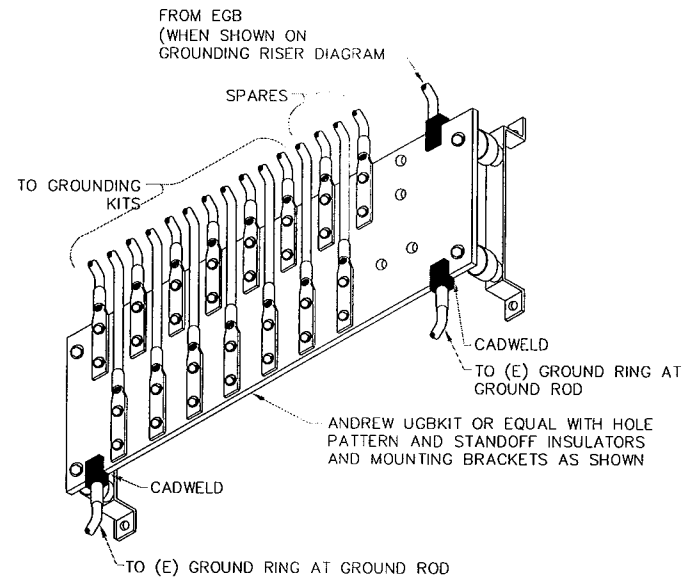
SUBMITTALS		
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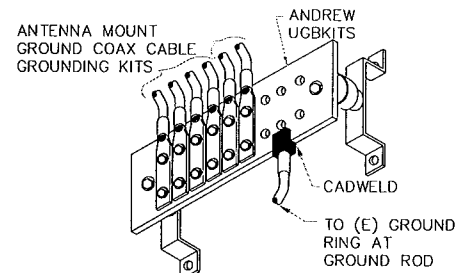
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 FARMINGTON, CT 06032

SHEET TITLE:
EQUIPMENT AND ANTENNAS DETAILS

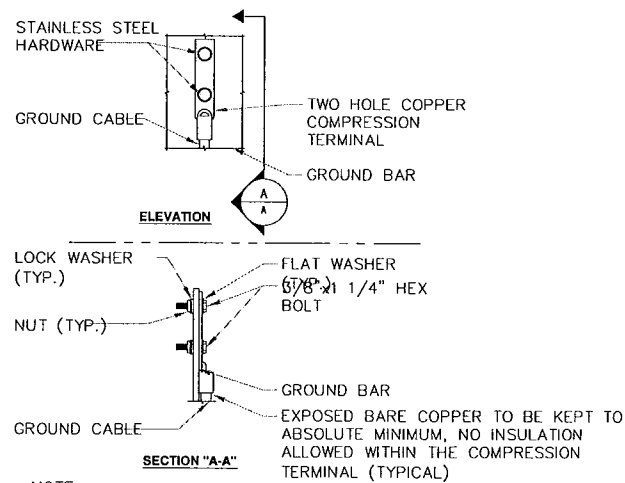
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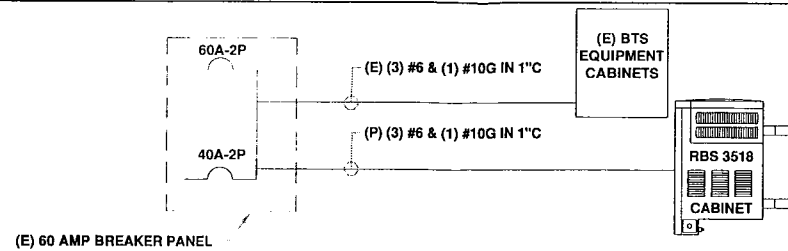
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MASTER GROUND BAR (EGB)
SCALE: N.T.S. 05



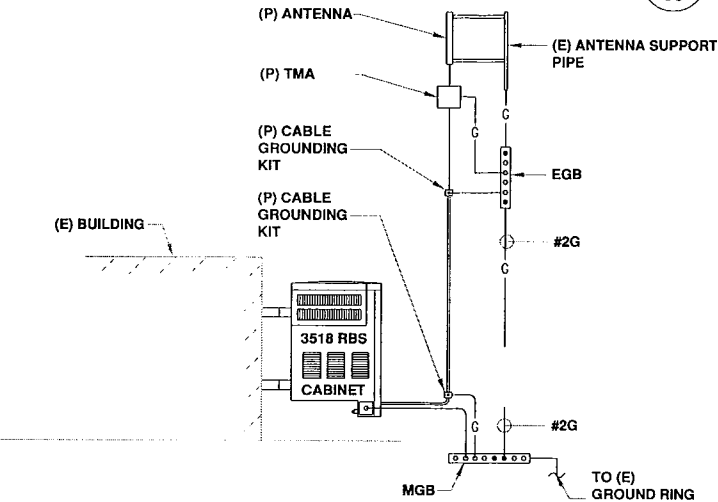
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EQUIPMENT GROUND BAR (EGB)
SCALE: N.T.S. 05



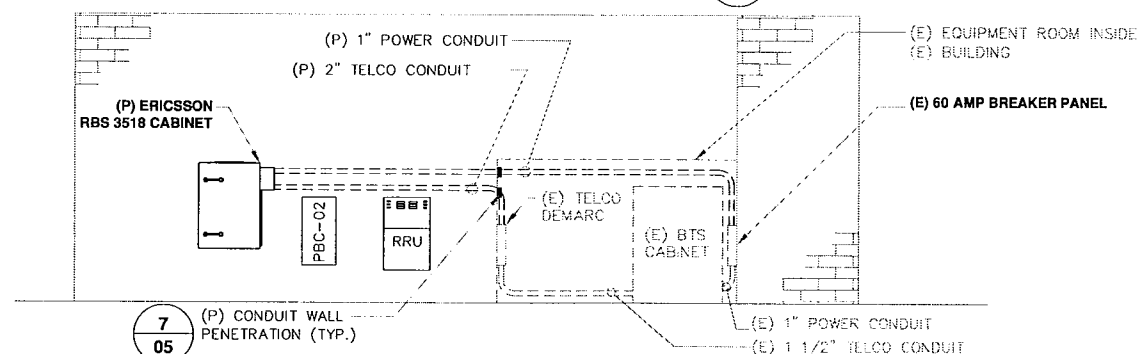
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TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: N.T.S. 05



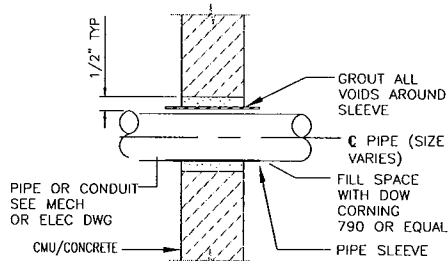
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ONE LINE POWER DIAGRAM
SCALE: N.T.S. 05



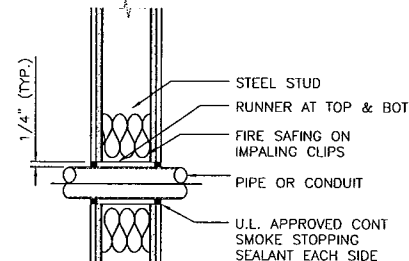
5
GROUNDING RISER DIAGRAM
SCALE: N.T.S. 05



6
POWER/TELCO RISER DIAGRAM
SCALE: N.T.S. 05



7
PIPE PENETRATION AT CWU WALL
(CONC WALL/SLAB SIMILAR)
SCALE: N.T.S. 05



7
PIPE PENETRATION THRU
FIRE EATED GYP BD WALL
SCALE: N.T.S. 05

ELECTRICAL LEGEND

	NEW PANEL BOARD, SURFACE MOUNTED
	EXISTING PANEL BOARD, SURFACE MOUNTED
	DRY TYPE TRANSFORMER
	METER
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
	FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
	TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
	DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
	EXPOSED WIRING
	HOME RUNS, MINIMUM 2#10 + 1#10G IN 3/4" CONDUIT U.O.N.
	ABOVE FINISHED FLOOR
	UNLESS OTHERWISE NOTED
	WEATHERPROOF
	GROUND FAULT INTERRUPTER
	AMPERE
	VOLT
	KILOWATT - HOUR
	CONDUIT
	GROUND
	GROUNDING
	MASTER GROUND
	EQUIPMENT GROUND BAR
	GROUND COPPER WIRE, SIZE AS NOTED
	EXPOSED WIRING
	COAXIAL CABLE
	5/8"x8" COPPER CLAD STEEL GROUND ROD
	EXOTHERMIC (CADWELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
	POWER PROTECTION CABINET

ELECTRICAL AND GROUNDING NOTES

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION.
- RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH FULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
- RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH FULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREEN/LEE CONDUIT MEASURING TAPE AT EACH END.
- WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- GROUNDING SHALL COMPLY WITH NEC ART. 250.
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURER'S COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
- ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND TMA TO EGB PLACED NEAR THE ANTENNA LOCATION.
- BOND ANTENNA EGB'S AND MGB TO GROUND RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 3 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND TMA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

TRANSCEND WIRELESS, LLC
10 INDUSTRIAL AVE
MARTINVILLE, NJ 07040
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FOR

OMNIPONT COMMUNICATIONS, INC.
DBA T-MOBILE USA, INC.
35 GRIFFIN ROAD SOUTH
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FAX: (860) 692-7159

ATLANTIS GROUP
15 Cypress St., Suite 300
Newton Center, MA 02459
Office: 617-965-0789
Fax: 617-663-6032

A&E SEAL

APPROVAL

LANDLORD _____
LEASING _____
R.F. _____
ZONING _____
CONSTRUCTION _____
A/E _____

DRAWN BY: GC

CHECKED BY: S.M.

SUBMITTALS

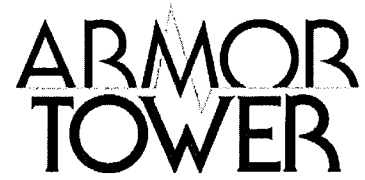
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CT11134A
FARMINGTON /
I-84 X37_1
200 COLT HIGHWAY
FARMINGTON, CT 06032

SHEET TITLE:
ELECTRICAL AND GROUNDING NOTES, RISERS AND DETAILS

SHEET NUMBER:
05



Structural Analysis of 120 ft. Guyed Tower

Site Number: CT11134A

Site Name: Farmington

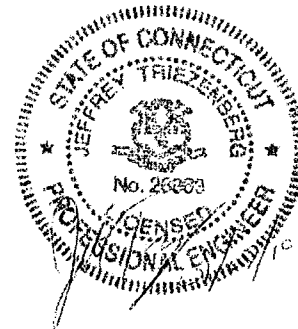
County: Hartford

Location: 200 Colt Highway, Farmington, CT

Checked By:

A handwritten signature in black ink that reads 'S. Alan Bodnar'.

S. Alan Bodnar
Structural Engineer



T-Mobile USA
35 Griffin Road South
Bloomfield, CT 06002

January 2010

January 7, 2010

Mr. Hans Fiedler
T-Mobile USA
35 Griffin Road South
Bloomfield, CT 06002



RE: CT11134A
200 Colt Highway
Farmington, CT 06032

Dear Mr. Fiedler:

We have completed the structural analysis of the subject tower and **have found it to be adequate within the scope of this analysis to support the proposed antenna loading.** The tower was analyzed according to the requirements of EIA 222-F standard for Hartford County for 80 mph (fastest mile) wind speed with no ice and 69.3 mph wind with ½" ice. The results of the analysis showed the tower to be stressed at 63.2%.

The tower we analyzed is a 120' guyed tower consisting of all-bolted sections with pipe legs and solid rod bracing. The tower face is 6'-0" across full height, and tapering to 1'-0" across in the bottom 12 feet (base section). The tower mast is laterally supported by one level of guying attached to one set of guy anchors. Foundation details have not been provided to us and are therefore considered unknown.

The antenna loading used in the analysis consisted of the following:

All existing antennas and transmission lines with the exception of the following:

- Remove (3) existing panel antennas (EMS RR9017000P)
- Add (3) panel antennas (RFS APX16DWV-16DWVS-E-A20), to be mounted to existing pipe mounts remaining from panel antennas removed (see above).
- Add (2) 1-5/8" COAX cables to feed new antenna (gamma sector only).
- Replace (6) existing single GSM TMA's with (3) new twin PCS/PCS TMA's (1 per sector, typical).
- Add (1) twin AWS/AWS TMA (gamma sector only).
- Proposed feed lines are to be located as shown on drawing E-7, on a new feed line ladder.

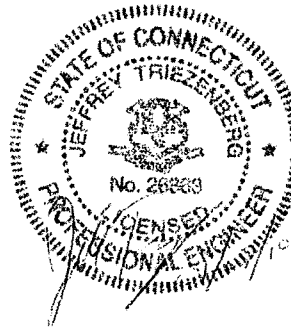
We appreciate the opportunity to provide our services to T-Mobile and Atlantis Group. If you have any questions concerning this analysis, please contact us.

Sincerely,

ARMOR TOWER, INC.

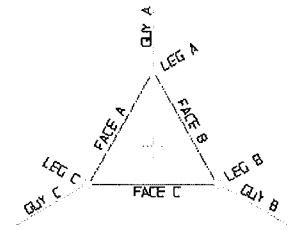
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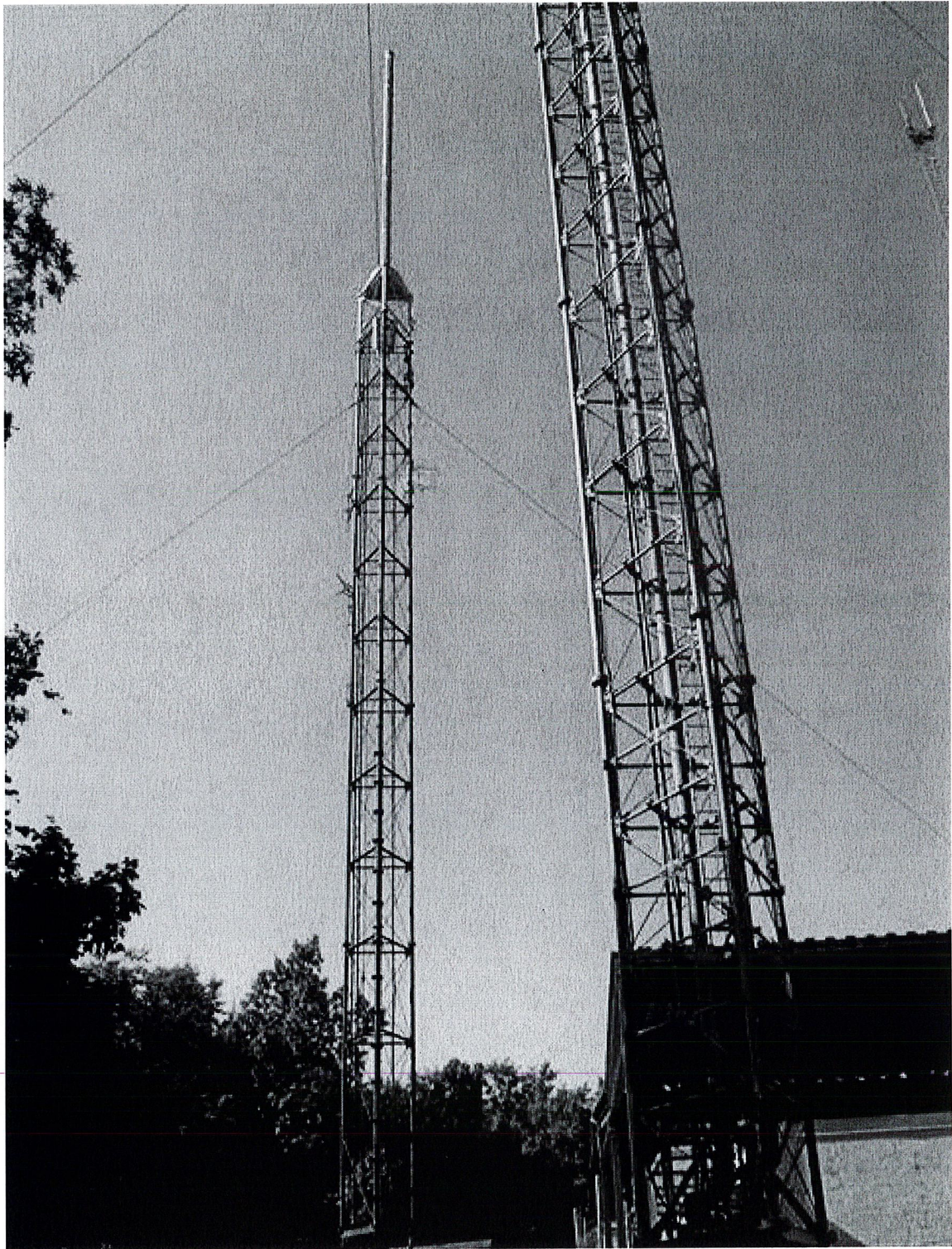
Jeff Triezenberg, P.E.
Structural Engineer

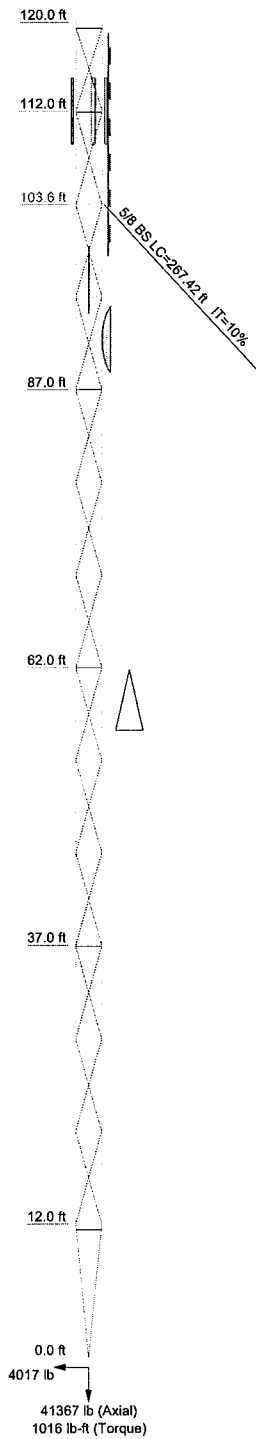
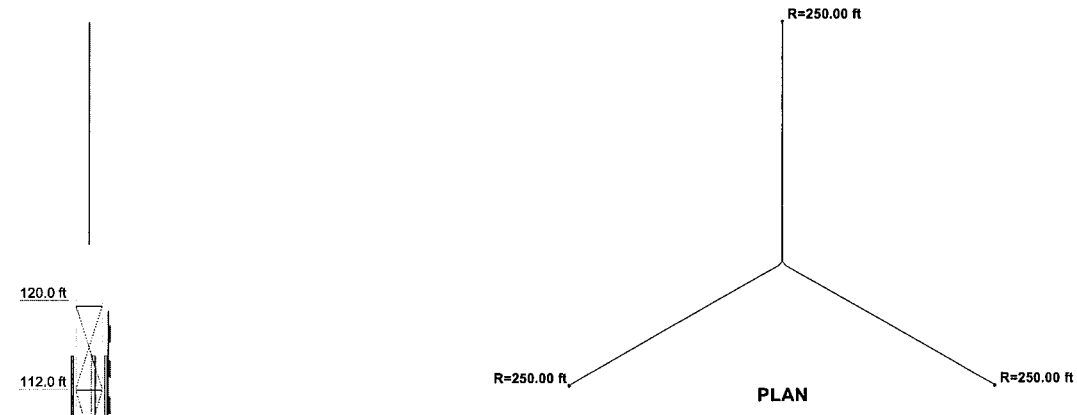


PRIMARY ASSUMPTIONS USED IN THE ANALYSIS

1. Leg A is assumed to be oriented west, Leg B to be oriented north east.
2. Allowable steel stresses are defined by AISC-ASD 9th Edition and all welds conform to AWS D1.1 specifications.
3. Armor Tower has been commissioned to analyze this tower according to the requirements of TIA/EIA 222-F for Hartford County, CT. Per this code, a basic wind speed of 80 mph (fastest-mile) without ice and 69 mph with ½" ice has been considered. It is the client's responsibility to check with local authorities or the tower owner if a greater wind or ice loading is required to be considered in the analysis. Note that Section 3108.4 of the International Building Code states that "Towers shall be designed to resist wind loads according to TIA/EIA-222."
4. The acceptability of the analyzed antenna loading is the responsibility of T-Mobile / Atlantis Group and its affiliates to confirm with the respective carriers or tower owner.
5. Any deviation from the analyzed antenna loading will require a re-analysis of the tower for verification of structural integrity. Proposed feed lines must be located as shown on drawing E-7.
6. This analysis assumes all tower members galvanized adequately to prevent corrosion of the steel and that all tower members are in "like new" condition with no physical deterioration. This analysis also assumes the tower has been maintained properly per TIA/EIA-222-F Annex E recommended inspection and maintenance procedures for tower owners and is in a plumb condition. Site observations indicate an adequately galvanized tower.
7. No accounting for residual stresses due to incorrect tower erection can be made. This analysis assumes all bolts are appropriately tightened providing necessary connection continuity and that the installation of the tower was performed by a qualified tower erector.
8. This certification does not include foundations. Geotechnical or foundation information was not provided to Armor Tower to complete a foundation assessment for the proposed loading. Armor Tower therefore does not accept responsibility for foundation adequacy.
9. No conclusions, expressed or implied, shall indicate that Armor Tower has made an evaluation of the original design, materials, fabrication, or potential erection deficiencies. Any information contrary to that assumed for the purpose of preparing this analysis could alter the findings and conclusions as stated.
10. Tower member sizes and geometry are based on a tower mapping provided by Atlantis Group. Existing antenna loading is based on customer supplied data.
11. The investigation of the load-carrying capacities of the antenna supporting frames/mounts is outside the scope of this analysis. We recommend that material of adequate size and strength be utilized for this purpose.







DESIGNED APPURTENANCE LOADING

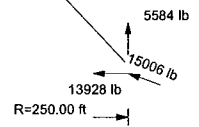
TYPE	ELEVATION	TYPE	ELEVATION
TFU-30 GTH-R CH 14	120	TMA KRY112 89 5 (T-Mobile gamma(P))	112
upper side arm	117.5 - 115.83	TMA KRY112 144 1 (T-Mobile gamma(P))	112
RFS APX16DWV-16DWVS-E-A20 w. Hardware (T-Mobile alpha(P))	112	DB224	109
TMA KRY112 89 5 (T-Mobile alpha(P))	112	lower side arm	108.2 - 106.5
RFS APX16DWV-16DWVS-E-A20 w. Hardware (T-Mobile beta(P))	112	whip antenna	104.33 - 89.33
TMA KRY112 89 5 (T-Mobile beta(P))	112	PR-850	91.5
RFS APX16DWV-16DWVS-E-A20 w. Hardware (T-Mobile gamma(P))	112	gate boom	91.5 - 87.2

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A7-33	33 ksi	60 ksi			

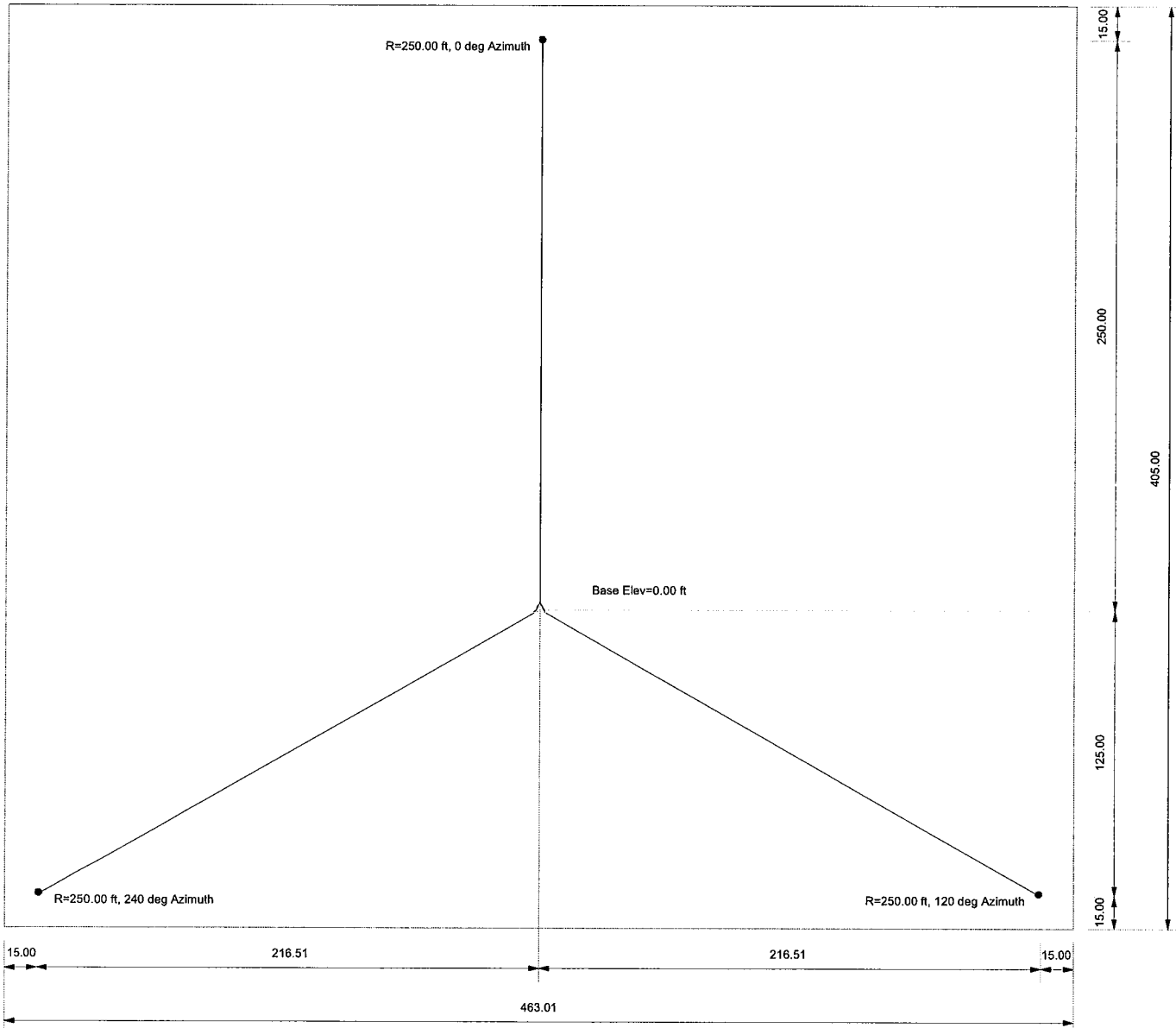
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. (P) = proposed
6. (E) = existing
7. TOWER RATING: 63.2%



ARMOR TOWER	Armor Tower 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840	Job: 120 FT GUYED TOWER ANALYSIS
		Project: T-MOBILE CT11134A
		Client: ATLANTIS GROUP Drawn by: JT App'd:
		Code: TIA/EIA-222-F Date: 01/04/10 Scale: NTS
		Path: Y:\Analysis Group\T-Mobile\CT11134A Farmington\RISACT11134A2.ed Dwg No. E-1

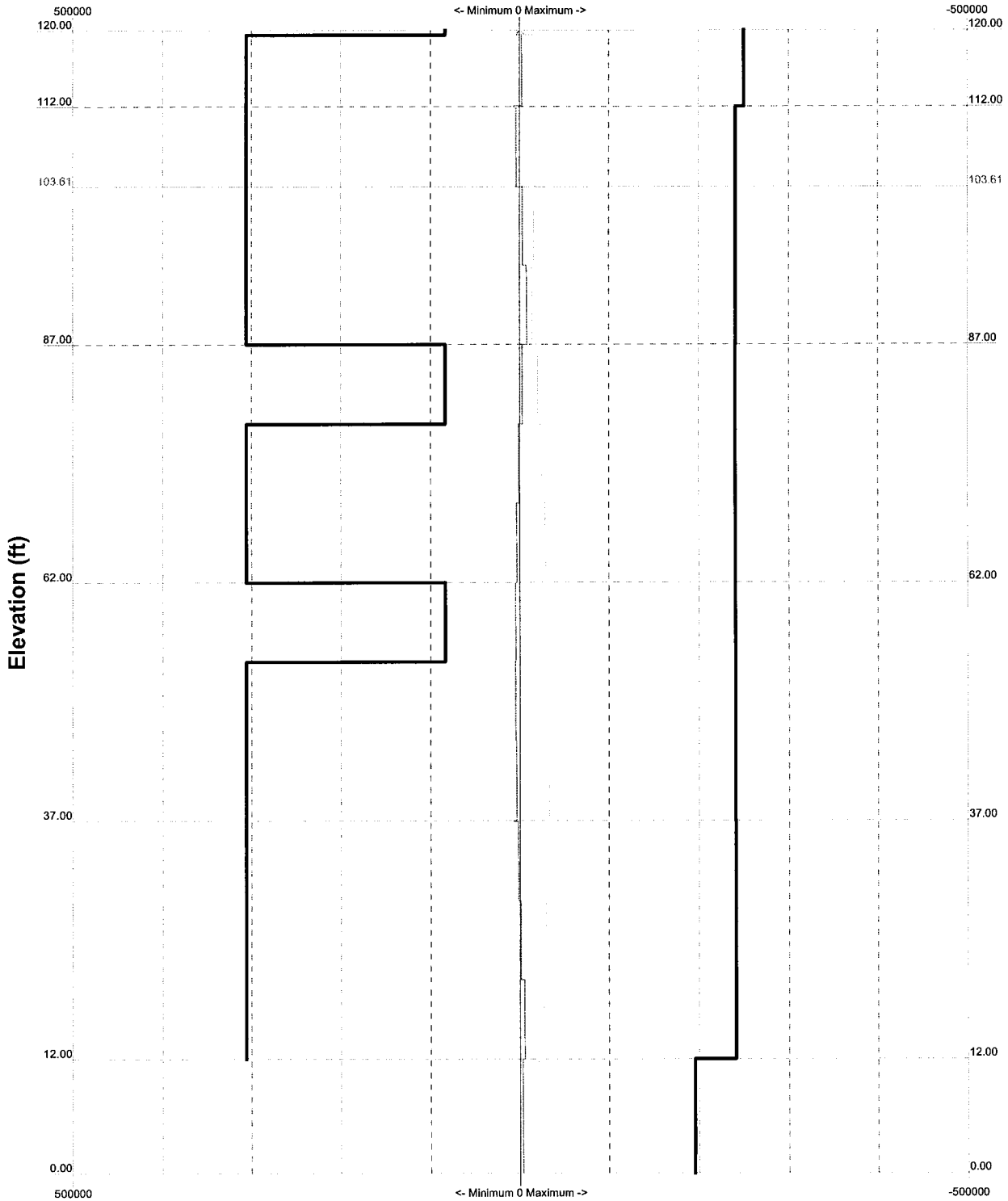
Plot Plan
Total Area - 4.30 Acres



ARMOR TOWER	Armor Tower		Job: 120 FT GUYED TOWER ANALYSIS		
	1 North Main St Cortland, NY		Project: T-MOBILE CT11134A		
	Phone: 607-591-5381		Client: ATLANTIS GROUP	Drawn by: JT	App'd:
	FAX: 866-870-0840		Code: TIA/EIA-222-F	Date: 01/04/10	Scale: NTS
		Path:	Dwg No. E-2		

TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice

Leg Capacity ——— Leg Compression (lb)



ARMOR TOWER	Armor Tower		Job: 120 FT GUYED TOWER ANALYSIS		
	1 North Main St		Project: T-MOBILE CT11134A		
	Cortland, NY		Client: ATLANTIS GROUP	Drawn by: JT	App'd:
	Phone: 607-591-5381		Code: TIA/EIA-222-F	Date: 01/04/10	Scale: NTS
	FAX: 866-870-0840		Path: Y:\Atlantis Group\T-Mobile\CT11134A Farmington\RISA\CT11134A2.dwg	Dwg No. E-3	

Vx

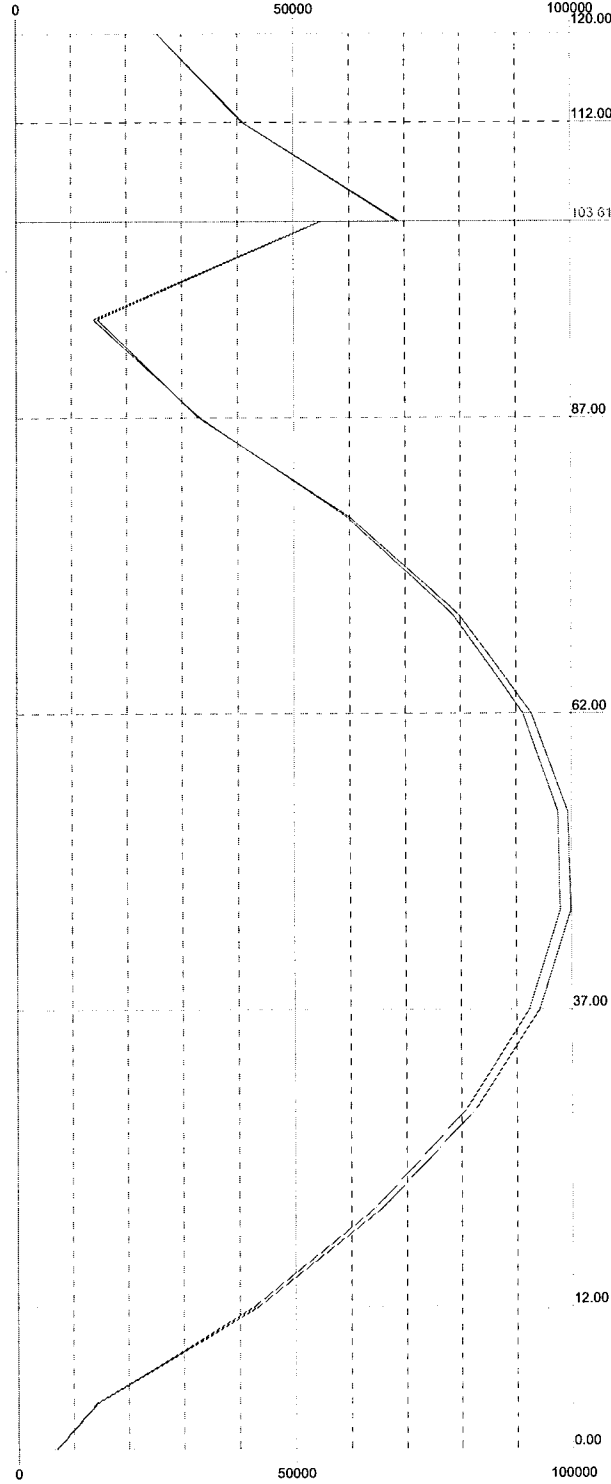
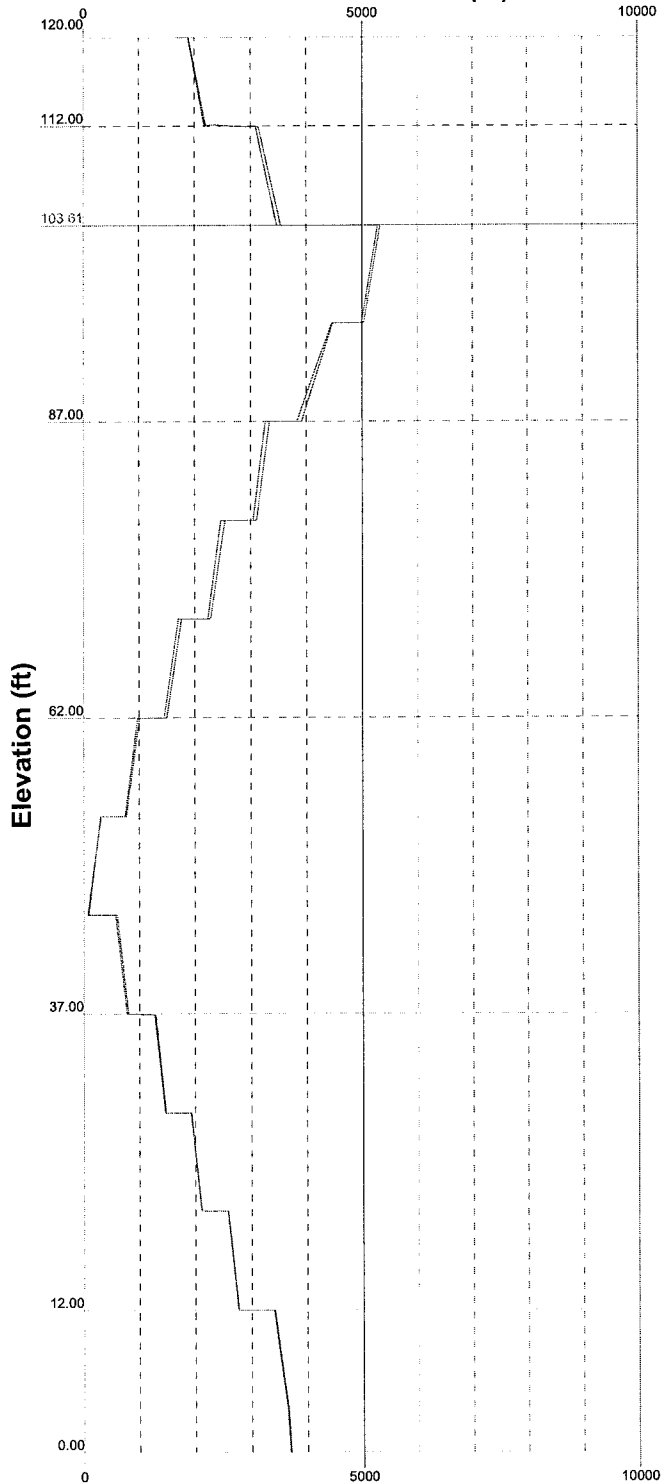
Vz

Mx

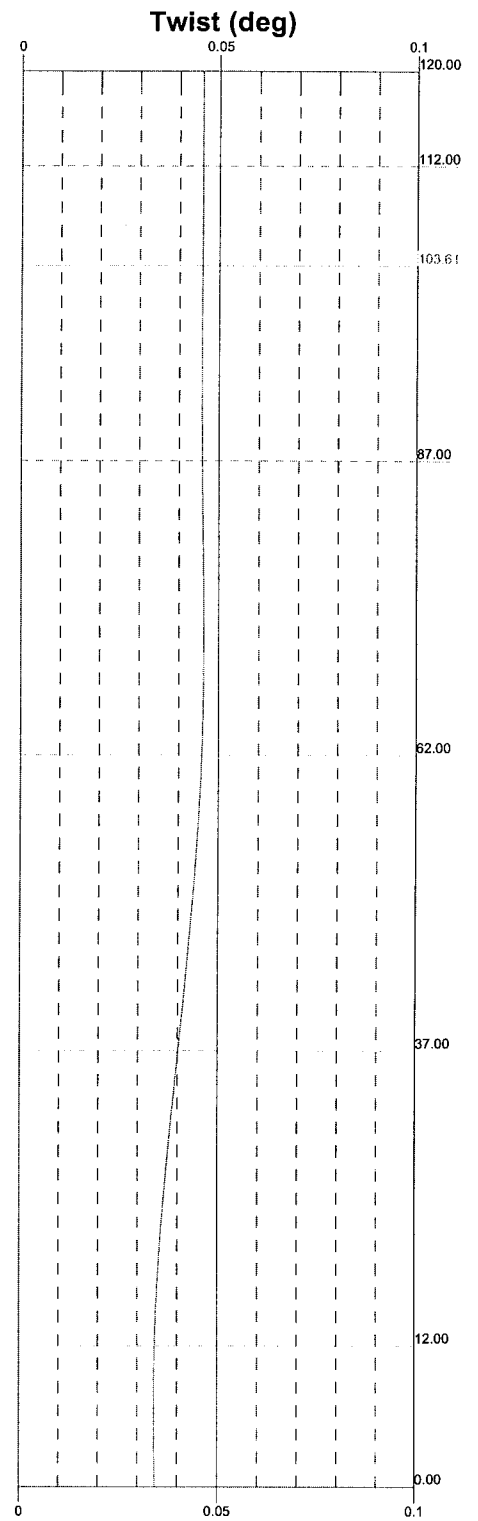
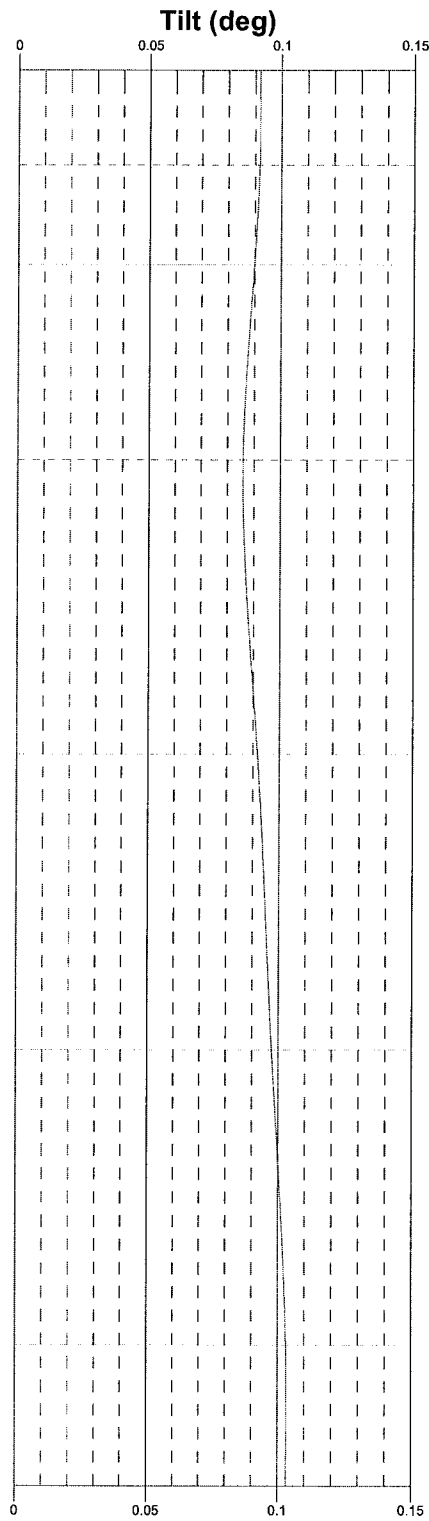
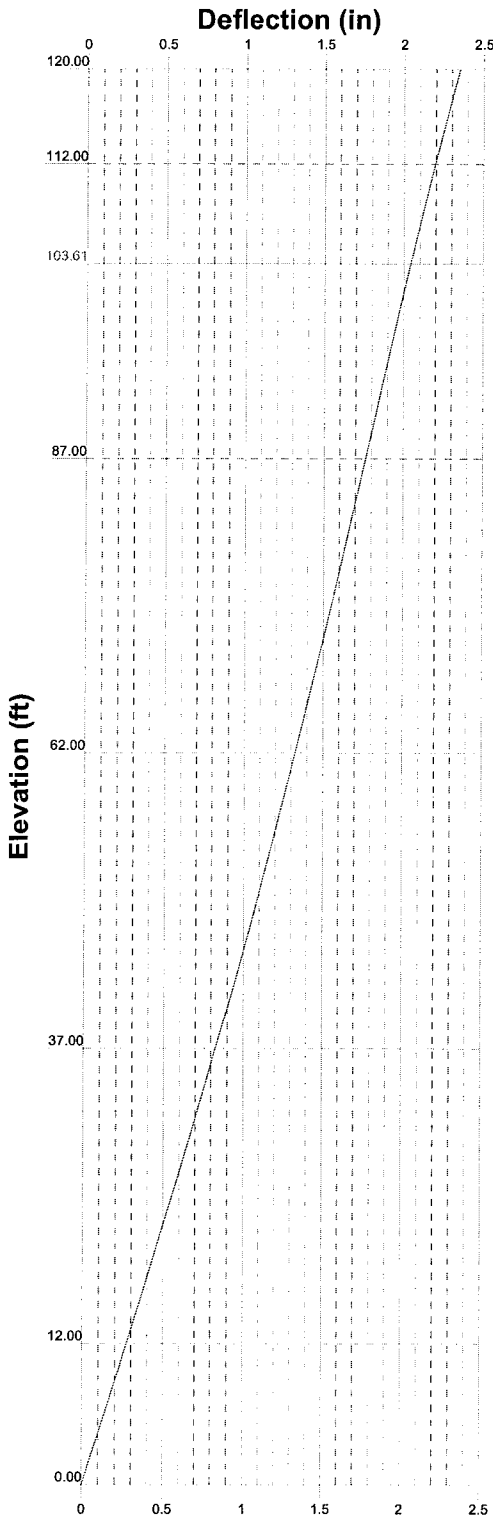
Mz

Global Mast Shear (lb)

Global Mast Moment (lb-ft)



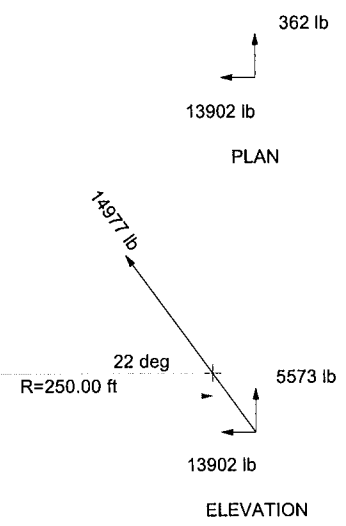
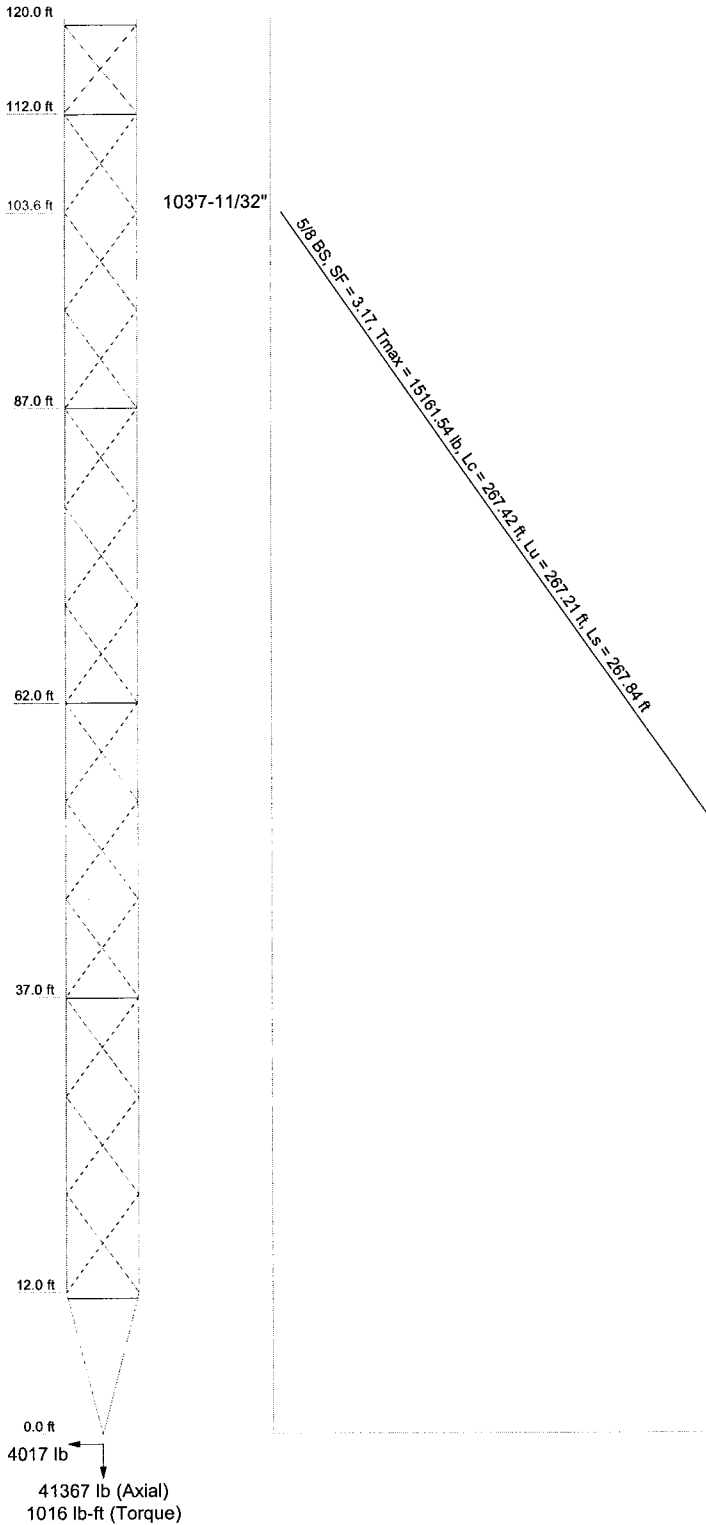
ARMOR TOWER	Armor Tower 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840		Job: 120 FT GUYED TOWER ANALYSIS Project: T-MOBILE CT11134A	
	Client: ATLANTIS GROUP		Drawn by: JT	App'd:
	Code: TIA/EIA-222-F		Date: 01/04/10	Scale: NTS
	Path: Y:\Atlantic Group\T-Mobile\CT11134A Farmingdale\GIS\CT11134A2.dwg		Dwg No. E-4	



ARMOR TOWER	Armor Tower		Job: 120 FT GUYED TOWER ANALYSIS		
	1 North Main St Cortland, NY		Project: T-MOBILE CT11134A		
	Phone: 607-591-5381		Client: ATLANTIS GROUP	Drawn by: JT	App'd:
	FAX: 866-870-0840		Code: TIA/EIA-222-F	Date: 01/04/10	Scale: NTS
			Path: Y:\Atlantis Group\T-Mobile\CT11134A Farmington\RISA\CT11134A2.dwg		Dwg No. E-5

Guy Tensions and Tower Reactions
 TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice

Maximum Values
 Anchor 'C' @ 250 ft Azimuth 240 deg Elev 0 ft
 Plane through centroid of tower



	Armor Tower		Job: 120 FT GUYED TOWER ANALYSIS		
	1 North Main St		Project: T-MOBILE CT11134A		
	Cortland, NY		Client: ATLANTIS GROUP	Drawn by: JT	App'd:
	Phone: 607-591-5381		Code: TIA/EIA-222-F	Date: 01/04/10	Scale: NTS
	FAX: 866-870-0840		Path:	Dwg No. E-6	

Feedline Plan

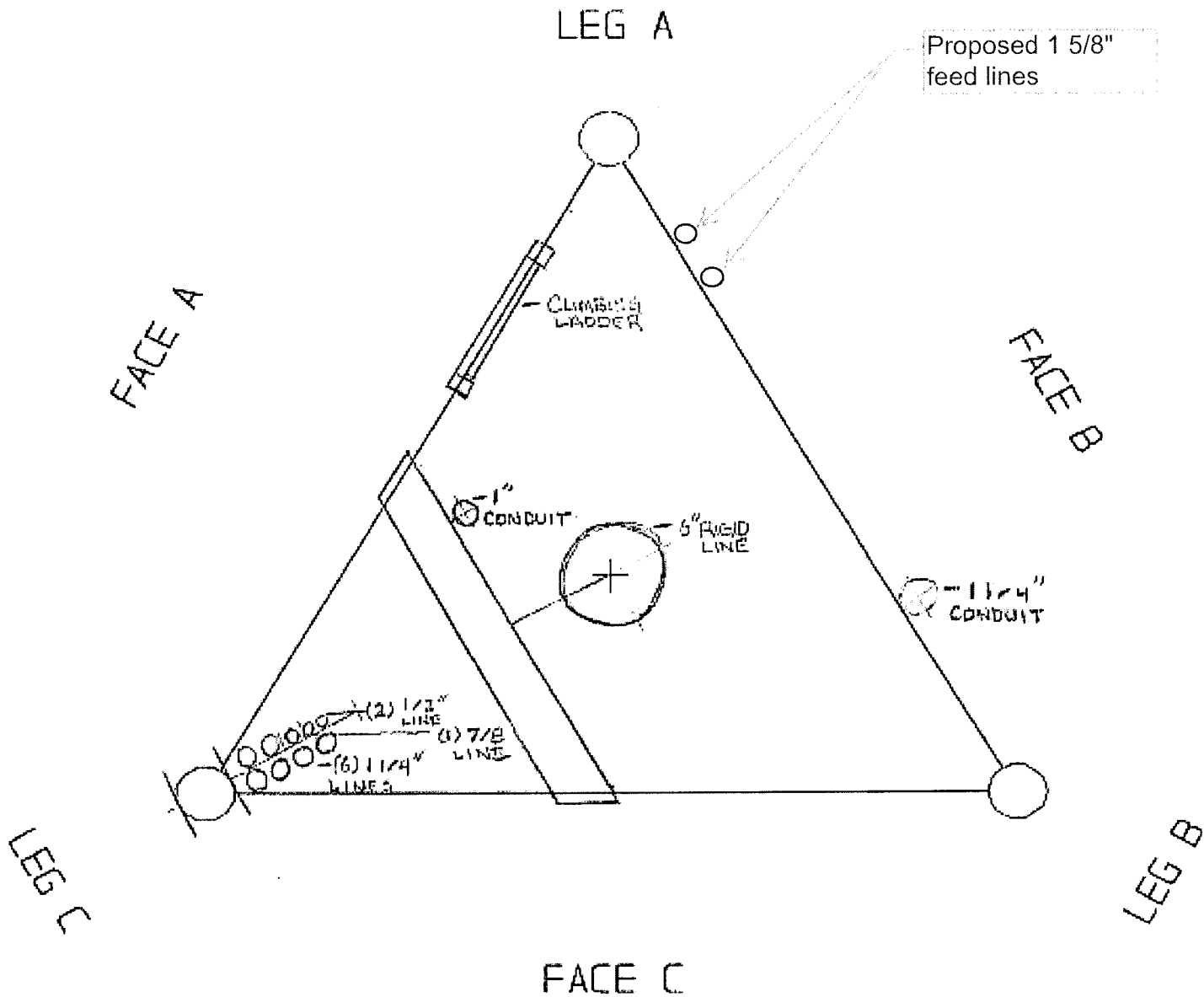
Round

Flat

App In Face

App Out Face

TRANSMISSION LINE LAYOUT

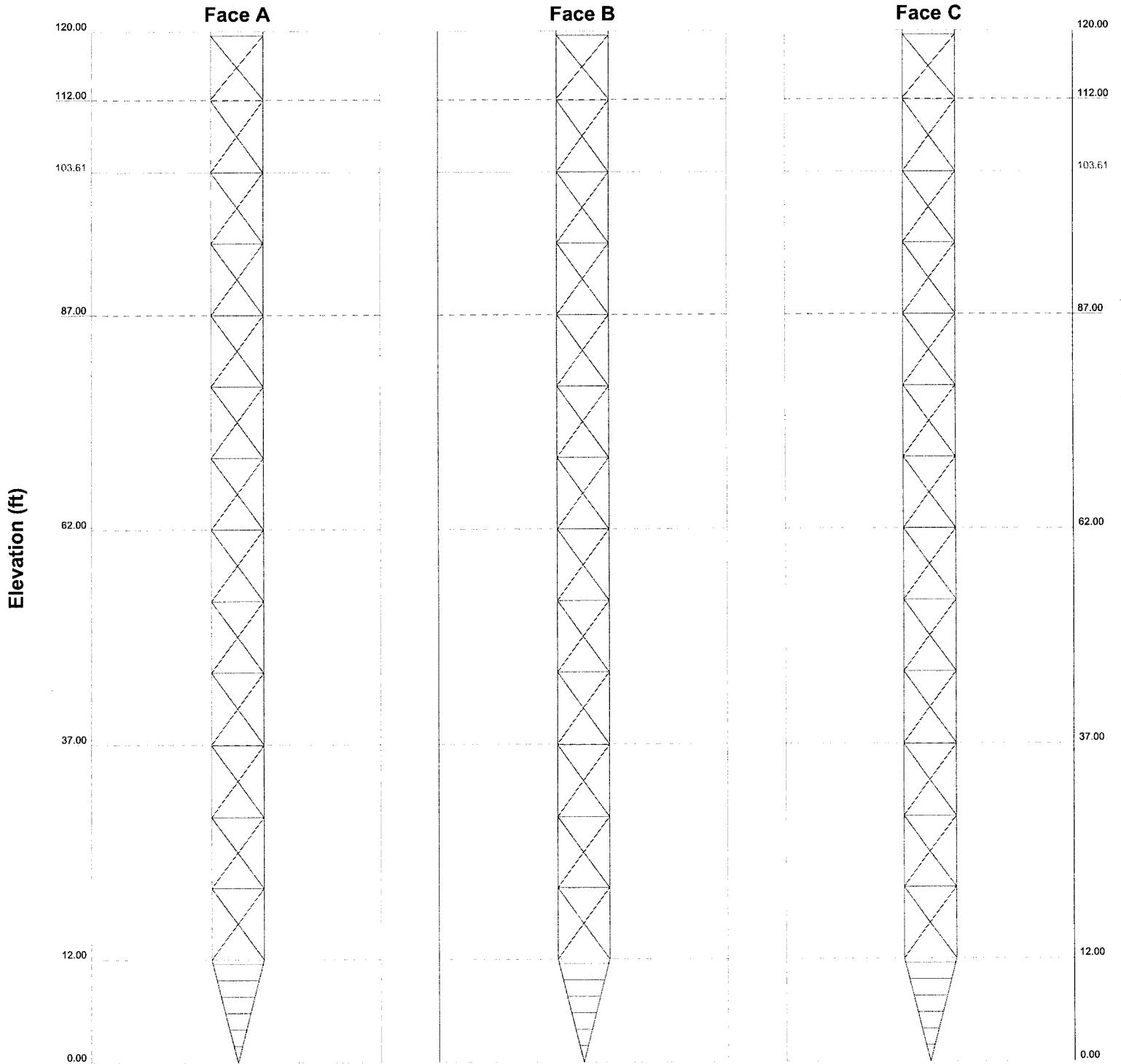


ARMOR TOWER	Armor Tower		Job: 120 FT GUYED TOWER ANALYSIS		
	1 North Main St Cortland, NY		Project: T-MOBILE CT11134A		
	Phone: 607-591-5381		Client: ATLANTIS GROUP	Drawn by: JT	App'd:
	FAX: 866-870-0840		Code: TIA/EIA-222-F	Date: 12/30/09	Scale: NTS
			Path:	Dwg No. E-7	

Stress Distribution Chart

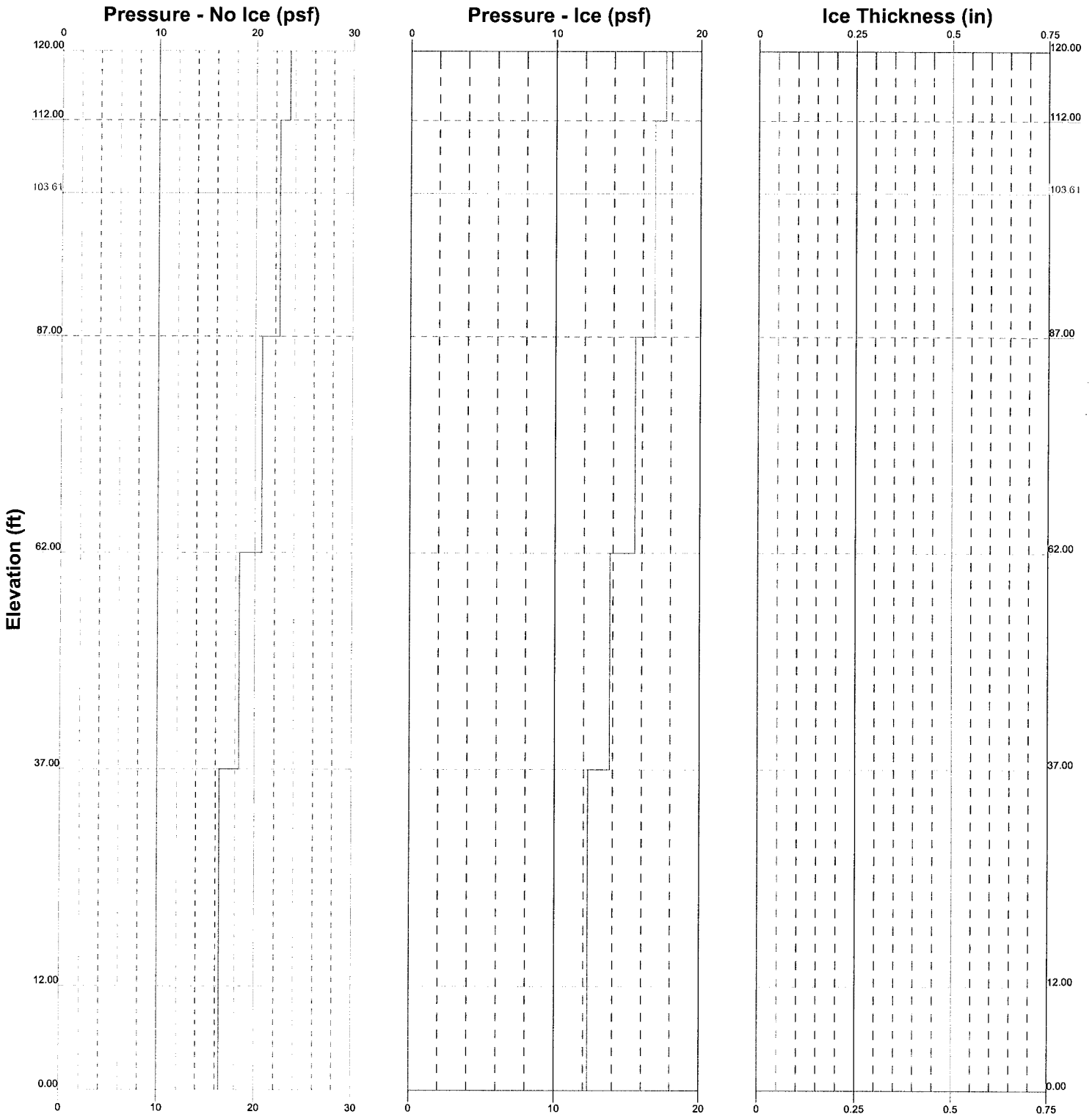
0' - 120'

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



ARMOR TOWER	Armor Tower 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840		Job: 120 FT GUYED TOWER ANALYSIS		
	Project: T-MOBILE CT11134A		Drawn by: JT	App'd:	
	Client: ATLANTIS GROUP		Code: TIA/EIA-222-F	Date: 01/04/10	Scale: NTS
	Path:		Y:\Atlanta Group\T-Mobile\CT11134A Farmington\TIA\CT11134A2.dwg		
			Dwg No. E-8		

Wind Pressures and Ice Thickness
TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice



ARMOR TOWER	Armor Tower 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840		Job: 120 FT GUYED TOWER ANALYSIS		
			Project: T-MOBILE CT11134A		
			Client: ATLANTIS GROUP	Drawn by: JT	App'd:
			Code: TIA/EIA-222-F	Date: 01/04/10	Scale: NTS
			Path: Y:\Atlantis Group\T-Mobile\CT11134A Farmington\RSA\CT11134A2.dwg		Dwg No. E-9



Armor Tower
 1 North Main St
 Cortland, NY
 Phone: 607-591-5381
 FAX: 866-870-0840

Job
 120 FT GUYED TOWER ANALYSIS

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Project
 T-MOBILE CT11134A

Date
 15:35:24 12/30/09

Client
 ATLANTIS GROUP

Designed by
 JT

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Torques
	lb	lb	lb	lb-ft
Leg Weight	14504.38			
Bracing Weight	2696.33			
Total Member Self-Weight	17200.71			
Guy Weight	657.34			
Total Weight	24847.89			
Wind 0 deg - No Ice		10.68	-12811.51	-444.30
Wind 30 deg - No Ice		6258.58	-10798.85	-779.79
Wind 60 deg - No Ice		10728.96	-6182.85	-937.20
Wind 90 deg - No Ice		12498.65	-10.68	-879.54
Wind 120 deg - No Ice		11120.39	6396.51	-576.17
Wind 150 deg - No Ice		6240.08	10788.17	-99.75
Wind 180 deg - No Ice		-10.68	12347.19	375.40
Wind 210 deg - No Ice		-6258.58	10798.85	779.79
Wind 240 deg - No Ice		-11131.07	6415.01	1020.47
Wind 270 deg - No Ice		-12498.65	10.68	879.54
Wind 300 deg - No Ice		-10718.28	-6164.35	561.80
Wind 330 deg - No Ice		-6240.08	-10788.17	99.75
Member Ice	2541.13			
Guy Ice	550.90			
Total Weight Ice	31947.59			
Wind 0 deg - Ice		11.61	-13001.66	-771.10
Wind 30 deg - Ice		6424.20	-11063.70	-875.23
Wind 60 deg - Ice		11048.14	-6355.48	-780.40
Wind 90 deg - Ice		12828.29	-11.61	-496.83
Wind 120 deg - Ice		11305.69	6490.77	-56.33
Wind 150 deg - Ice		6404.08	11052.08	378.40
Wind 180 deg - Ice		-11.61	12690.85	708.01
Wind 210 deg - Ice		-6424.20	11063.70	875.23
Wind 240 deg - Ice		-11317.31	6510.89	827.43
Wind 270 deg - Ice		-12828.29	11.61	496.83
Wind 300 deg - Ice		-11036.52	-6335.37	72.39
Wind 330 deg - Ice		-6404.08	-11052.08	-378.40
Total Weight	24847.89			
Wind 0 deg - Service		4.17	-5004.50	-173.56
Wind 30 deg - Service		2444.76	-4218.30	-304.61
Wind 60 deg - Service		4191.00	-2415.17	-366.09
Wind 90 deg - Service		4882.29	-4.17	-343.57
Wind 120 deg - Service		4343.90	2498.64	-225.07
Wind 150 deg - Service		2437.53	4214.13	-38.96
Wind 180 deg - Service		-4.17	4823.12	146.64
Wind 210 deg - Service		-2444.76	4218.30	304.61
Wind 240 deg - Service		-4348.08	2505.86	398.62
Wind 270 deg - Service		-4882.29	4.17	343.57
Wind 300 deg - Service		-4186.83	-2407.95	219.45
Wind 330 deg - Service		-2437.53	-4214.13	38.96

Load Combinations

ARMOR TOWER <i>Armor Tower</i> 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840	Job	120 FT GUYED TOWER ANALYSIS	Page	2 of 9
	Project	T-MOBILE CT11134A	Date	15:35:24 12/30/09
	Client	ATLANTIS GROUP	Designed by	JT

<i>Comb. No.</i>	<i>Description</i>
1	Dead Only
2	Dead+Wind 0 deg - No Ice+Guy
3	Dead+Wind 30 deg - No Ice+Guy
4	Dead+Wind 60 deg - No Ice+Guy
5	Dead+Wind 90 deg - No Ice+Guy
6	Dead+Wind 120 deg - No Ice+Guy
7	Dead+Wind 150 deg - No Ice+Guy
8	Dead+Wind 180 deg - No Ice+Guy
9	Dead+Wind 210 deg - No Ice+Guy
10	Dead+Wind 240 deg - No Ice+Guy
11	Dead+Wind 270 deg - No Ice+Guy
12	Dead+Wind 300 deg - No Ice+Guy
13	Dead+Wind 330 deg - No Ice+Guy
14	Dead+Ice+Temp+Guy
15	Dead+Wind 0 deg+Ice+Temp+Guy
16	Dead+Wind 30 deg+Ice+Temp+Guy
17	Dead+Wind 60 deg+Ice+Temp+Guy
18	Dead+Wind 90 deg+Ice+Temp+Guy
19	Dead+Wind 120 deg+Ice+Temp+Guy
20	Dead+Wind 150 deg+Ice+Temp+Guy
21	Dead+Wind 180 deg+Ice+Temp+Guy
22	Dead+Wind 210 deg+Ice+Temp+Guy
23	Dead+Wind 240 deg+Ice+Temp+Guy
24	Dead+Wind 270 deg+Ice+Temp+Guy
25	Dead+Wind 300 deg+Ice+Temp+Guy
26	Dead+Wind 330 deg+Ice+Temp+Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Force lb</i>	<i>Major Axis Moment lb-ft</i>	<i>Minor Axis Moment lb-ft</i>
T1	120 - 112	Leg	Max Tension	4	6551.35	830.30	-463.72
			Max. Compression	2	-15190.27	2.64	123.95
			Max. Mx	11	5487.28	-855.96	-329.19
			Max. My	8	-2632.60	-3.78	950.28
			Max. Vy	4	5539.71	368.69	-196.96
			Max. Vx	8	6397.53	-3.81	417.14
		Diagonal Top Girt	Max Tension	7	6021.85	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-3397.16	0.00	0.00
			Max. Mx	14	-3055.23	-29.60	0.00
			Max. My	24	-3039.41	0.00	0.00
			Max. Vy	14	19.73	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
			T2	112 - 87	Leg	Max Tension	8
			Max. Compression	6	-16867.38	-785.56	-455.09

ARMOR TOWER <i>Armor Tower</i> 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840	Job	120 FT GUYED TOWER ANALYSIS	Page	3 of 9
	Project	T-MOBILE CT11134A	Date	15:35:24 12/30/09
	Client	ATLANTIS GROUP	Designed by	JT

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Mx	11	2160.49	932.67	56.31
			Max. My	21	-6660.72	-3.20	-945.65
			Max. Vy	4	5701.93	-106.47	72.83
			Max. Vx	8	6556.25	-5.23	-129.28
		Diagonal	Max Tension	16	5749.99	0.00	0.00
		Horizontal	Max Tension	23	3347.65	0.00	0.00
			Max. Compression	25	-3203.79	0.00	0.00
			Max. Mx	14	-3158.57	-29.60	0.00
			Max. My	24	-3162.99	0.00	0.00
			Max. Vy	14	19.73	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-4752.11	0.00	0.00
			Max. Mx	14	-4635.00	-29.60	0.00
			Max. My	24	-4657.03	0.00	0.00
			Max. Vy	14	19.73	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
		Guy A	Bottom Tension	21	14930.84		
			Top Tension	21	15086.53		
			Top Cable Vert	21	6054.09		
			Top Cable Norm	21	13818.51		
			Top Cable Tan	21	0.31		
			Bot Cable Vert	21	-5554.84		
			Bot Cable Norm	21	13859.07		
			Bot Cable Tan	21	0.31		
		Guy B	Bottom Tension	25	15005.85		
			Top Tension	25	15161.54		
			Top Cable Vert	25	6083.03		
			Top Cable Norm	25	13887.73		
			Top Cable Tan	25	0.03		
			Bot Cable Vert	25	-5583.78		
			Bot Cable Norm	25	13928.29		
			Bot Cable Tan	25	0.03		
		Guy C	Bottom Tension	17	14976.87		
			Top Tension	17	15132.55		
			Top Cable Vert	17	6071.84		
			Top Cable Norm	17	13860.98		
			Top Cable Tan	17	0.28		
			Bot Cable Vert	17	-5572.59		
			Bot Cable Norm	17	13901.54		
			Bot Cable Tan	17	0.28		
T3	87 - 62	Leg	Max Tension	23	3686.02	-51.22	25.00
			Max. Compression	25	-29144.63	-59.14	-36.17
			Max. Mx	24	-13176.59	-146.60	-1.86
			Max. My	15	-21496.48	1.32	-158.54
			Max. Vy	11	58.69	63.74	-15.10
			Max. Vx	2	61.58	-34.49	59.77
		Diagonal	Max Tension	16	4534.21	0.00	0.00
		Horizontal	Max Tension	1	0.00	0.00	0.00
			Max. Compression	12	-3307.24	0.00	0.00
			Max. Mx	14	-2996.62	-29.60	0.00
			Max. My	24	-2995.82	0.00	0.00
			Max. Vy	14	19.73	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
		Top Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	25	-3274.78	0.00	0.00
			Max. Mx	14	-3035.01	-29.60	0.00
			Max. My	24	-3021.28	0.00	0.00
			Max. Vy	14	19.73	0.00	0.00
			Max. Vx	24	-0.00	0.00	0.00
T4	62 - 37	Leg	Max Tension	23	4981.69	-64.22	32.62



Armor Tower
 1 North Main St
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Job
 120 FT GUYED TOWER ANALYSIS

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Project
 T-MOBILE CT11134A

Date
 15:35:24 12/30/09

Client
 ATLANTIS GROUP

Designed by
 JT

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft	
T5	37 - 12	Diagonal	Max. Compression	17	-32873.59	179.86	-100.71	
			Max. Mx	18	-30622.50	206.42	-61.51	
			Max. My	21	-32829.42	5.11	218.26	
			Max. Vy	5	-53.53	29.87	18.53	
			Max. Vx	8	-57.45	3.76	22.65	
			Max Tension	11	3151.38	0.00	0.00	
			Horizontal	Max Tension	1	0.00	0.00	0.00
				Max. Compression	12	-3319.67	0.00	0.00
				Max. Mx	14	-2961.73	-29.60	0.00
				Max. My	24	-2950.96	0.00	0.00
		Max. Vy		14	19.73	0.00	0.00	
		Max. Vx		24	-0.00	0.00	0.00	
		Top Girt		Max Tension	1	0.00	0.00	0.00
				Max. Compression	12	-3319.41	0.00	0.00
				Max. Mx	14	-2982.24	-29.60	0.00
				Max. My	24	-2970.00	0.00	0.00
			Max. Vy	14	19.73	0.00	0.00	
			Max. Vx	24	-0.00	0.00	0.00	
			Leg	Max Tension	10	7211.46	28.56	-20.17
				Max. Compression	17	-31904.55	33.93	-18.90
				Max. Mx	17	-27278.67	-613.02	263.34
				Max. My	21	-27223.92	-73.85	-657.33
		Max. Vy		18	2514.63	-20.27	49.50	
		Max. Vx		21	2882.94	5.15	-34.44	
		Diagonal		Max Tension	22	4140.27	0.00	0.00
				Max Tension	1	0.00	0.00	0.00
				Max. Compression	8	-3290.13	0.00	0.00
				Max. Mx	14	-3002.36	-29.60	0.00
			Max. My	24	-2917.60	0.00	0.00	
			Max. Vy	14	19.73	0.00	0.00	
Max. Vx	24		-0.00	0.00	0.00			
Top Girt	Max Tension		1	0.00	0.00	0.00		
	Max. Compression		12	-3285.30	0.00	0.00		
	Max. Mx		14	-2938.05	-29.60	0.00		
	Max. My	24	-2925.30	0.00	0.00			
	Max. Vy	14	19.73	0.00	0.00			
	Max. Vx	24	-0.00	0.00	0.00			
	Leg	Max Tension	1	0.00	0.00	0.00		
		Max. Compression	17	-22565.76	-46.02	-179.15		
		Max. Mx	25	-21544.30	666.15	-4.10		
		Max. My	16	-13167.94	-275.94	473.22		
Max. Vy		25	1802.55	666.15	-4.10			
Max. Vx		18	798.28	-276.96	-375.12			
Horizontal		Max Tension	12	126.24	9.08	-11.40		
		Max. Compression	15	-124.57	4.92	20.15		
		Max. Mx	23	-33.49	67.21	-21.69		
		Max. My	10	-34.79	38.42	-34.10		
	Max. Vy	23	133.68	67.21	-21.69			
	Max. Vx	10	64.69	-31.11	27.68			
	Top Girt	Max Tension	23	1693.14	-91.30	24.86		
		Max. Compression	4	-810.17	160.25	37.51		
		Max. Mx	18	1503.95	-343.75	-54.46		
		Max. My	11	899.83	-289.42	-60.86		
Max. Vy		23	-123.24	-270.54	-46.32			
Max. Vx		11	-23.85	-289.42	-60.86			

Maximum Reactions

ARMOR TOWER Armor Tower 1 North Main St Cortland, NY Phone: 607-591-5381 FAX: 866-870-0840	Job	120 FT GUYED TOWER ANALYSIS	Page	5 of 9
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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb	
Mast	Max. Vert	23	41367.09	3414.69	-2004.34	
	Max. H _x	24	40896.08	3895.62	-18.64	
	Max. H _z	15	41343.11	-30.25	3947.42	
	Max. M _x	1	0.00	-12.13	-16.27	
	Max. M _z	1	0.00	-12.13	-16.27	
	Max. Torsion	5	1014.03	-3445.23	2.19	
	Min. Vert	1	30148.42	-12.13	-16.27	
	Min. H _x	18	40870.15	-3959.03	-21.21	
	Min. H _z	21	40924.90	-32.74	-3913.53	
	Min. M _x	1	0.00	-12.13	-16.27	
	Min. M _z	1	0.00	-12.13	-16.27	
	Min. Torsion	11	-1015.93	3420.21	4.19	
	Guy C @ 250 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-207.87	-589.57	340.37
	Guy B @ 250 ft Elev 0 ft Azimuth 120 deg	Max. H _x	10	-207.87	-589.57	340.37
Max. H _z		17	-5572.59	-12038.95	6951.01	
Min. Vert		17	-5572.59	-12038.95	6951.01	
Min. H _x		17	-5572.59	-12038.95	6951.01	
Min. H _z		10	-207.87	-589.57	340.37	
Guy A @ 250 ft Elev 0 ft Azimuth 0 deg	Max. Vert	6	-209.22	592.36	341.99	
	Max. H _x	25	-5583.78	12062.27	6964.11	
	Max. H _z	25	-5583.78	12062.27	6964.11	
	Min. Vert	25	-5583.78	12062.27	6964.11	
	Min. H _x	6	-209.22	592.36	341.99	
Guy A @ 250 ft Elev 0 ft Azimuth 0 deg	Min. H _z	6	-209.22	592.36	341.99	
	Max. Vert	2	-208.40	-0.00	-682.04	
	Max. H _x	24	-2980.24	361.88	-7571.91	
	Max. H _z	2	-208.40	-0.00	-682.04	
	Min. Vert	21	-5554.84	0.31	-13859.07	
	Min. H _x	18	-2964.46	-361.65	-7534.26	
Min. H _z	21	-5554.84	0.31	-13859.07		

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	30148.42	12.13	16.27	0.00	0.00	0.00
Dead+Wind 0 deg - No Ice+Guy	33416.71	11.37	-3513.01	0.00	0.00	-436.74
Dead+Wind 30 deg - No Ice+Guy	32476.87	1744.60	-2939.11	0.00	0.00	-513.74
Dead+Wind 60 deg - No Ice+Guy	31725.20	2966.57	-1684.64	0.00	0.00	-869.04
Dead+Wind 90 deg - No Ice+Guy	32461.98	3445.23	-2.19	0.00	0.00	-1014.03
Dead+Wind 120 deg - No Ice+Guy	33398.17	3076.86	1781.97	0.00	0.00	-494.62
Dead+Wind 150 deg - No Ice+Guy	32449.72	1713.06	2992.51	0.00	0.00	161.56
Dead+Wind 180 deg - No Ice+Guy	31715.16	13.40	3420.16	0.00	0.00	373.26



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<i>Load Combination</i>	<i>Vertical</i>	<i>Shear_x</i>	<i>Shear_y</i>	<i>Overturning Moment, M_x</i>	<i>Overturning Moment, M_y</i>	<i>Torque</i>
	<i>lb</i>	<i>lb</i>	<i>lb</i>	<i>lb-ft</i>	<i>lb-ft</i>	<i>lb-ft</i>
Ice+Guy						
Dead+Wind 210 deg - No Ice+Guy	32478.80	-1686.46	2991.26	0.00	0.00	514.69
Dead+Wind 240 deg - No Ice+Guy	33428.95	-3050.81	1780.04	0.00	0.00	931.12
Dead+Wind 270 deg - No Ice+Guy	32483.51	-3420.21	-4.19	0.00	0.00	1015.93
Dead+Wind 300 deg - No Ice+Guy	31725.49	-2942.75	-1686.39	0.00	0.00	494.03
Dead+Wind 330 deg - No Ice+Guy	32469.28	-1721.58	-2940.12	0.00	0.00	-164.67
Dead+Ice+Temp+Guy	39150.53	30.91	21.06	0.00	0.00	-0.00
Dead+Wind 0 deg+Ice+Temp+Guy	41343.11	30.25	-3947.42	0.00	0.00	-736.22
Dead+Wind 30 deg+Ice+Temp+Guy	40879.76	1995.25	-3368.67	0.00	0.00	-433.26
Dead+Wind 60 deg+Ice+Temp+Guy	40934.76	3411.65	-1923.78	0.00	0.00	-718.80
Dead+Wind 90 deg+Ice+Temp+Guy	40870.15	3959.03	21.21	0.00	0.00	-831.23
Dead+Wind 120 deg+Ice+Temp+Guy	41323.96	3479.48	2006.82	0.00	0.00	-20.33
Dead+Wind 150 deg+Ice+Temp+Guy	40857.33	1995.34	3413.88	0.00	0.00	771.88
Dead+Wind 180 deg+Ice+Temp+Guy	40924.90	32.74	3913.53	0.00	0.00	681.19
Dead+Wind 210 deg+Ice+Temp+Guy	40885.95	-1929.99	3412.43	0.00	0.00	432.92
Dead+Wind 240 deg+Ice+Temp+Guy	41367.09	-3414.69	2004.34	0.00	0.00	758.91
Dead+Wind 270 deg+Ice+Temp+Guy	40896.08	-3895.62	18.64	0.00	0.00	831.43
Dead+Wind 300 deg+Ice+Temp+Guy	40941.03	-3349.73	-1925.85	0.00	0.00	35.13
Dead+Wind 330 deg+Ice+Temp+Guy	40877.02	-1934.34	-3369.81	0.00	0.00	-771.84
Dead+Wind 0 deg - Service+Guy	30465.57	11.91	-1387.46	0.00	0.00	-169.22
Dead+Wind 30 deg - Service+Guy	30364.43	690.07	-1154.14	0.00	0.00	-206.74
Dead+Wind 60 deg - Service+Guy	30313.02	1170.97	-650.78	0.00	0.00	-344.49
Dead+Wind 90 deg - Service+Guy	30361.45	1367.66	16.27	0.00	0.00	-402.56
Dead+Wind 120 deg - Service+Guy	30459.75	1231.08	718.67	0.00	0.00	-202.41
Dead+Wind 150 deg - Service+Guy	30359.82	689.82	1187.83	0.00	0.00	58.17
Dead+Wind 180 deg - Service+Guy	30311.07	12.58	1351.38	0.00	0.00	144.11
Dead+Wind 210 deg - Service+Guy	30363.02	-664.71	1187.48	0.00	0.00	206.74
Dead+Wind 240 deg - Service+Guy	30465.17	-1206.19	718.04	0.00	0.00	373.81
Dead+Wind 270 deg - Service+Guy	30364.60	-1343.13	15.57	0.00	0.00	402.63
Dead+Wind 300 deg - Service+Guy	30314.01	-1146.80	-651.37	0.00	0.00	197.68
Dead+Wind 330 deg - Service+Guy	30364.36	-666.15	-1154.47	0.00	0.00	-58.25



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Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	120 - 112	2.351	27	0.0899	0.0455
T2	112 - 87	2.196	27	0.0890	0.0455
T3	87 - 62	1.762	27	0.0865	0.0478
T4	62 - 37	1.324	27	0.0914	0.0447
T5	37 - 12	0.828	35	0.0993	0.0394
T6	12 - 0	0.272	27	0.1052	0.0318

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	TFU-30 GTH-R CH 14	27	2.351	0.0899	0.0455	108423
117.50	upper side arm	27	2.302	0.0897	0.0454	108423
116.67	upper side arm	27	2.286	0.0896	0.0454	108423
115.83	upper side arm	27	2.270	0.0895	0.0454	108423
112.00	RFS APX16DWV-16DWVS-E-A20 w. Hardware	27	2.196	0.0890	0.0455	77841
109.00	DB224	27	2.141	0.0886	0.0457	78171
108.20	lower side arm	27	2.126	0.0884	0.0457	80948
107.35	lower side arm	27	2.111	0.0883	0.0458	84728
106.50	lower side arm	27	2.096	0.0882	0.0459	89077
104.33	whip antenna	27	2.057	0.0879	0.0461	102406
103.61	Guy	27	2.044	0.0878	0.0462	107748
99.33	whip antenna	27	1.970	0.0872	0.0468	156296
94.33	whip antenna	27	1.885	0.0867	0.0474	327817
91.50	PR-850	27	1.837	0.0865	0.0476	833204
89.35	gate boom	27	1.801	0.0865	0.0477	Inf
89.33	whip antenna	27	1.801	0.0865	0.0477	Inf
87.20	gate boom	27	1.765	0.0865	0.0478	607923

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	120 - 112	9.040	10	0.3500	0.1142
T2	112 - 87	8.445	10	0.3476	0.1141
T3	87 - 62	6.704	10	0.3412	0.1202
T4	62 - 37	4.957	10	0.3542	0.1125
T5	37 - 12	3.054	10	0.3745	0.0993
T6	12 - 0	0.999	10	0.3899	0.0801



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Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	TFU-30 GTH-R CH 14	10	9.040	0.3500	0.1142	42230
117.50	upper side arm	10	8.853	0.3493	0.1140	42230
116.67	upper side arm	10	8.790	0.3491	0.1140	42230
115.83	upper side arm	10	8.728	0.3488	0.1140	42230
112.00	RFS APX16DWV-16DWVS-E-A20	10	8.445	0.3476	0.1141	30318
	w. Hardware					
109.00	DB224	10	8.227	0.3463	0.1145	30444
108.20	lower side arm	10	8.170	0.3459	0.1147	31525
107.35	lower side arm	10	8.109	0.3455	0.1148	32995
106.50	lower side arm	10	8.049	0.3451	0.1150	34696
104.33	whip antenna	10	7.895	0.3441	0.1156	39963
103.61	Guy	10	7.845	0.3438	0.1158	42078
99.33	whip antenna	10	7.547	0.3419	0.1172	61148
94.33	whip antenna	10	7.204	0.3405	0.1187	129082
91.50	PR-850	10	7.011	0.3403	0.1194	325358
89.35	gate boom	10	6.865	0.3405	0.1199	225042
89.33	whip antenna	10	6.863	0.3405	0.1199	223341
87.20	gate boom	10	6.718	0.3411	0.1201	129690

Section Capacity Table

Section No.	Elevation ft	Component Type	Critical Element	P lb	SF*P _{allow} lb	% Capacity	Pass Fail
T1	120 - 112	Leg	1	-9520.61	250370.71	6.3	Pass
		Diagonal	8	4817.27	15550.90	7.8 (b)	Pass
		Top Girt	4	-3063.97	9543.58	32.1	Pass
T2	112 - 87	Leg	14	-16867.40	240942.41	7.0	Pass
		Diagonal	32	5749.99	11660.24	49.3	Pass
		Horizontal	27	-3171.05	9543.58	33.2	Pass
		Top Girt	17	-4635.00	9543.58	48.6	Pass
		Guy A@103.611	156	15086.50	24000.00	62.9	Pass
		Guy B@103.611	155	15161.50	24000.00	63.2	Pass
		Guy C@103.611	154	15132.60	24000.00	63.1	Pass
T3	87 - 62	Leg	44	-29144.60	240639.82	12.1	Pass
		Diagonal	71	4534.21	11660.24	38.9	Pass
		Horizontal	66	-3055.68	9543.58	32.0	Pass
		Top Girt	48	-3075.79	9543.58	32.2	Pass
T4	62 - 37	Leg	73	-32873.60	240639.82	13.7	Pass
		Diagonal	100	2607.72	8747.37	29.8	Pass
		Horizontal	87	-3018.83	9543.58	31.6	Pass
		Top Girt	78	-3033.56	9543.58	31.8	Pass
T5	37 - 12	Leg	103	-31904.60	240942.41	13.2	Pass
		Diagonal	113	4140.27	11660.24	35.5	Pass
		Horizontal	115	-3071.68	9543.58	32.2	Pass
		Top Girt	106	-2999.50	9543.58	31.4	Pass
T6	12 - 0	Leg	135	-22564.80	195303.15	11.6	Pass
		Horizontal	141	-34.23	23113.42	1.6	Pass
		Top Girt	137	1693.14	101086.72	1.7	Pass
						Summary	
						Leg (T4)	13.7 Pass
						Diagonal (T2)	49.3 Pass

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<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Critical Element</i>	<i>P lb</i>	<i>SF*P_{allow} lb</i>	<i>% Capacity</i>	<i>Pass Fail</i>
					Horizontal (T2)	33.2	Pass
					Top Girt (T2)	48.6	Pass
					Guy A (T2)	62.9	Pass
					Guy B (T2)	63.2	Pass
					Guy C (T2)	63.1	Pass
					Bolt Checks	7.8	Pass
					RATING =	63.2	Pass

Technical Memo

To: Transcend
From: Amir Uzzaman - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11134A
Date: May 11, 2010

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Guyed Tower at 200 Colt Highway, Farmington, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

- 1) The emissions from T-Mobile transmitters are in the (1935-1944.8), (2140-2145), (2110-2120)MHz frequency Band.
- 2) The antenna array consists of three sectors, with 1 antenna per sector.
- 3) The model number for GSM antenna is APX16DWV-16DWV.
- 3) The model number for UMTS antenna is APX16DWV-16DWV.
- 4) GSM antenna center line height is 112 ft.
- 4) UMTS antenna center line height is 112 ft.
- 5) The maximum transmit power from any GSM sector is 2464.45 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
- 5) The maximum transmit power from any UMTS sector is 2458.61 Watts Effective Radiated Power (EiRP) assuming 2 channels per sector.
- 6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
- 7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) The average ground level of the studied area does not change significantly with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile antenna installation on a Guyed Tower at 200 Colt Highway, Farmington, CT, is 0.09613 mW/cm². This value represents 9.613% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm²) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

Connecticut Market



Worst Case Power Density

Site: CT11134A
Site Address: 200 Colt Highway
Town: Farmington
Tower Height: 120 ft.
Tower Style: Guyed Tower

GSM Data		UMTS Data	
Base Station TX output	20 W	Base Station TX output	40 W
Number of channels	8	Number of channels	2
Antenna Model	APX16DWV-16DWV	Antenna Model	APX16DWV-16DWV
Cable Size	1 5/8 in.	Cable Size	1 5/8 in.
Cable Length	140 ft.	Cable Length	140 ft.
Antenna Height	112.0 ft.	Antenna Height	112.0 ft.
Ground Reflection	1.6	Ground Reflection	1.6
Frequency	1945.0 MHz	Frequency	2.1 GHz
Jumper & Connector loss	4.50 dB	Jumper & Connector loss	1.50 dB
Antenna Gain	18.0 dBi	Antenna Gain	18.0 dBi
Cable Loss per foot	0.0116 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.6240 dB	Total Cable Loss	1.6240 dB
Total Attenuation	6.1240 dB	Total Attenuation	3.1240 dB
Total EIRP per Channel (In Watts)	54.89 dBm 308.06 W	Total EIRP per Channel (In Watts)	60.90 dBm 1229.31 W
Total EIRP per Sector (In Watts)	63.92 dBm 2464.45 W	Total EIRP per Sector (In Watts)	63.91 dBm 2458.61 W
nsg	11.8760	nsg	14.8760
Power Density (S) = 0.048120 mW/cm ²		Power Density (S) = 0.048006 mW/cm ²	
T-Mobile Worst Case % MPE =		9.6127%	

Equation Used :

$$S = \frac{(1000)(grf)^2(Power)10^{(nsg/10)}}{4\pi(R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	% of Standard
Verizon	
Cingular	
Sprint	
AT&T Wireless	
Pocket	
MetroPCS	
Nextel	
Other Antenna Systems	
Total Excluding T-Mobile	0.0000 %
T-Mobile	9.6127
Total % MPE for Site	9.6127%