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 17, 2011

Jennifer A. Herz, Esq.
Brown Rudnick LLP
CityPlace I, 185 Asylum Street
Hartford, CT 06103

RE: **EM-T-MOBILE-089-110526** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 175 Lester Street, New Britain, Connecticut.

Dear Attorney Herz:

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 25, 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,

LRoberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Timothy T. Stewart, Mayor, City of New Britain
Frank M. Wiatr, Director of License Permit & Inspection/ Chief Bldg. Official, City of New Britain
Crown Castle USA, Inc.

CSC
CONNECTICUT SITING COUNCIL

BROWNRUDNICK

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

JENNIFER A. HERZ
Direct Dial: (860) 509-6527
jherz@brownrudnick.com

EM-T-MOBILE-089-110526

ORIGINAL

May 25, 2011

Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modification / New Britain @ 175 Lester Street**

Dear Chairman Stein:

On behalf of T-Mobile Northeast, LLC ("T-Mobile"), enclosed for filing is an original and 5 copies of T-Mobile's Notice of Exempt Modification for the Facility located at 175 Lester Street in New Britain.

I also enclose herewith a check in the amount of $625.00 representing the filing fee.

I would appreciate it if you would date-stamp the enclosed 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.

Very truly yours,

BROWN RUDNICK LLP

Jennifer A. Herz

JH/bh
Enclosures

ce/encl: Mayor Timothy T. Stewart

40284014 v1 - HERZJA - 029431/0001

CONNECTICUT SITING COUNCIL

In re:		
T-Mobile Northeast, LLC's Notice to Make an	:	**EXEMPT MODIFICATION NO. _____**
Exempt Modification to an Existing Facility at	:	
175 Lester Street, New Britain, Connecticut.	:	May 26, 2011

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), T-Mobile Northeast, LLC ("T-Mobile") hereby gives notice to the Connecticut Siting Council ("Council") and the City of New Britain of T-Mobile's intent to make an exempt modification to the existing monopole tower (the "Tower") located at 175 Lester Street in New Britain, Connecticut. Specifically, T-Mobile plans to optimize its network in Connecticut by installing additional Global System for Mobile communications ("GSM") antennas and Tower Mounted Amplifiers ("TMA") at many of its existing sites. The installation of new antennas and TMAs will optimize T-Mobile's network by increasing its network capacity. Once this optimization is complete, T-Mobile will operate on a network that provides additional capacity for wireless voice communications.

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 site, 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 190-foot monopole tower located at 175 Lester Street in New Britain, Connecticut (latitude N 41° 41' 11.8", longitude W -72° 45' 27.8"). The Tower is owned by Crown Castle. Currently, T-Mobile has 9 panel antennas and 6 TMAs with a centerline of 162 feet mounted on the Tower. A site plan with Tower specifications is attached.

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

T-Mobile plans to remove and replace its 6 existing GSM antennas (Model No. APXV18). The centerline of the replaced antennas will remain at 162 feet. T-Mobile will continue to utilize its existing coaxial cables.

To confirm the Tower can support these changes, T-Mobile commissioned Vertical Structures Inc. to perform a structural assessment of the Tower (attached). According to the Structural Analysis Report, dated February 23, 2011 the Tower has "...sufficient capacity ..." (Structural Analysis Report, page 1).

T-Mobile is not planning to install additional ground equipment. Therefore, no increase in the boundaries of the site will be necessary. Excluding brief, minor, construction-related noise during the replacement of the antennas, T-Mobile's changes to the Tower will not increase noise levels at the site.

The proposed antennas 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 power density analysis measured at the base of the Tower indicates that T-Mobile's antennas will emit 4.61% of the NCRP's standard for maximum permissible exposure. Collectively, the antennas on the Tower will emit 20.1% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be 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.

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In conclusion, T-Mobile's proposed plan to remove and replace 6 of its antennas 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 NORTHEAST, LLC

By: _____

Jennifer A. Herz
Brown Rudnick LLP
185 Asylum Street
Hartford, CT 06103-3402
Email - jherz@brownrudnick.com
Phone - 860.509.6527 /Fax - 860.509.6501

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

Certificate of Service

This is to certify that on this 26th day of May, 2011, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Mayor Timothy T. Stewart
City Hall
27 West Main Street
New Britain, CT 06051

By: _____
Jennifer A. Herz

40283579 v1 - 029431/0001

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

CROWN CASTLE MONOPOLE

175 LESTER STREET
NEW BRITAIN, CT 06051

SITE NUMBER: CT11783B

SITE TYPE: CO-LOCATION ON MONOPOLE TOWER

GENERAL NOTES

1. 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

15. 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.

16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

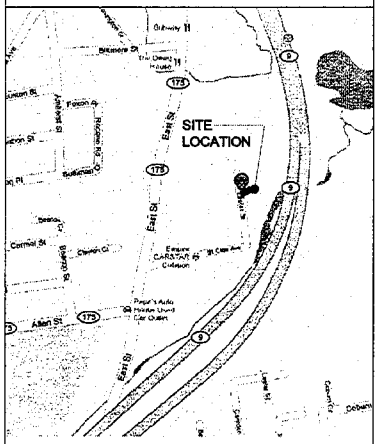
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY:
CALL BEFORE YOU DIG (CT): 1-800-922-4455

18. COORDINATE NEW ANTENNA, ANTENNA SUPPORT FRAME AND COAXIAL CABLE INSTALLATION WITH STRUCTURAL ANALYSIS REPORT BY OTHERS. NO WORK SHALL BE PERFORMED ON THE TOWER UNTIL ANY AND ALL MODIFICATION REQUIREMENTS STIPULATED IN THE STRUCTURAL ANALYSIS REPORT HAVE BEEN MET.

19. 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 TOWER DUE TO THE ADDITION AND/OR MODIFICATIONS.

VICINITY MAP

SCALE:1"= 1000'



SITE DIRECTIONS

FROM BLOOMFIELD OFFICE:

DEPART GRIFFIN RD N TOWARD TARIFFVILLE RD. TURN RIGHT ONTO TARIFFVILLE RD. TAKE RAMP RIGHT FOR SR-187 SOUTH / SR-189 SOUTH. KEEP STRAIGHT ONTO SR-187 SOUTH / BLUE HILLS AVENUE EXT. KEEP LEFT ONTO DAY HILL RD. TAKE RAMP RIGHT FOR I-91 SOUTH / RICHARD P HORAN MEMORIAL HWY TOWARD HARTFORD. AT EXIT 32A-32B, TAKE RAMP RIGHT FOR I-84 WEST / US-6 WEST TOWARD WATERBURY. AT EXIT 39A, TAKE RAMP RIGHT FOR SR-9 SOUTH TOWARD NEW BRITAIN / NEWINGTON. AT EXIT 29, TAKE RAMP RIGHT FOR ELLA GRASSO BLVD TOWARD NEWINGTON. TURN LEFT ONTO ELLA GRASSO RD. TURN RIGHT ONTO FENN RD. TURN RIGHT ONTO SR-175 / CEDAR ST. TURN LEFT ONTO ST CLAIR AVE. ROAD NAME CHANGES TO LESTER ST. ARRIVE AT 175 LESTER ST, NEW BRITAIN, CT 06051 ON THE RIGHT

SHEET INDEX

SHT. NO.	DESCRIPTION
01	TITLE SHEET
02	COMPOUND PLAN & NOTES
03	ELEVATION
04	ANTENNA DETAILS
05	GROUNDING NOTES, RISERS AND DETAILS

PROJECT DESCRIPTION:

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

EQUIPMENT CABINET (4) :	(1) (E) ERICSSON RBS 3106 UMTS CABINET ON (E) CONC. PAD TO REMAIN
	(2) (E) NORTEL S8000 CABINETS ON (E) CONC. PAD TO REMAIN
ALPHA ANTENNA (2) :	(1) NEW DUAL POLE APXV18-209014-C-A20 GSM PANEL ANTENNA TO REPLACE (1) (E) RR90-17-02DP GSM PANEL ANTENNA
	(1) (E) DUAL POLE APXV16-2065165-A20 UMTS PANEL ANTENNA TO REMAIN
TMA (2):	(1) (E) TWIN PCS TMA TO REMAIN (1) (E) TWIN AWS TMA TO REMAIN
COAX (4) :	(4) (E) 1-5/8" COAX CABLES TO REMAIN
BETA ANTENNA (3) :	(2) NEW DUAL POLE APXV18-209014-C-A20 GSM PANEL ANTENNAS TO REPLACE (2) (E) RR90-17-02DP GSM PANEL ANTENNAS
	(1) (E) DUAL POLE APXV16-2065165-A20 UMTS PANEL ANTENNA TO REMAIN
TMA (2):	(1) (E) TWIN PCS TMA TO REMAIN (1) (E) TWIN AWS TMA TO REMAIN
COAX (6) :	(6) (E) 1-5/8" COAX CABLES TO REMAIN
GAMMA ANTENNA (4) :	(3) NEW DUAL POLE APXV18-209014-C-A20 GSM PANEL ANTENNAS TO REPLACE (3) (E) RR90-17-02DP GSM PANEL ANTENNAS
	(1) (E) DUAL POLE APXV18-2065165-A20 UMTS PANEL ANTENNA TO REMAIN
TMA (2):	(1) (E) TWIN PCS TMA TO REMAIN (1) (E) TWIN AWS TMA TO REMAIN
COAX (8) :	(8) (E) 1-5/8" COAX CABLES TO REMAIN

PROJECT SUMMARY

SITE NUMBER:	CT11783B
SITE NAME:	CROWN CASTLE MONOPOLE
SITE ADDRESS:	175 LESTER STREET NEW BRITAIN, CT 06051
SITE TYPE:	CO-LOCATION
PROPERTY OWNER:	CROWN CASTLE
APPLICANT, LESSEE/LICENSEE, PROJECT OWNER:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 (860) 692-7100
A/E:	ATLANTIS GROUP INC. 1340 CENTRE ST, SUITE 230 NEWTON CENTER, MA 02459 (617) 965-0789
PROJECT MANAGER:	LISA LIN ALLEN NORTHEAST TOWERS, INC. 199 BRICKYARD ROAD FARMINGTON, CT 06032 (860) 677-1999
ZONING REPRESENTATIVE:	BROWN RUDNICK LLP THOMAS J REGAN CITYPLACE I, 35TH FLOOR 185 ASYLUM STREET HARTFORD, CT 06103-3402 (860) 509-6500
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

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.

NORTHEAST TOWERS
199 BRICKYARD ROAD
FARMINGTON, CT 06032
OFFICE: (860) 677-1999

FOR

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX:(860) 692-7159

ATLANTIS GROUP
1340 Centre Street, Suite 203
Newton Center, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

A&E SEAL

APPROVALS

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

DRAWN BY: GC

CHECKED BY: SM

SUBMITTALS

A	04/19/11	ISSUED FOR REVIEW

CT11783B
CROWN CASTLE MONOPOLE
175 LESTER STREET
NEW BRITAIN, CT 06051

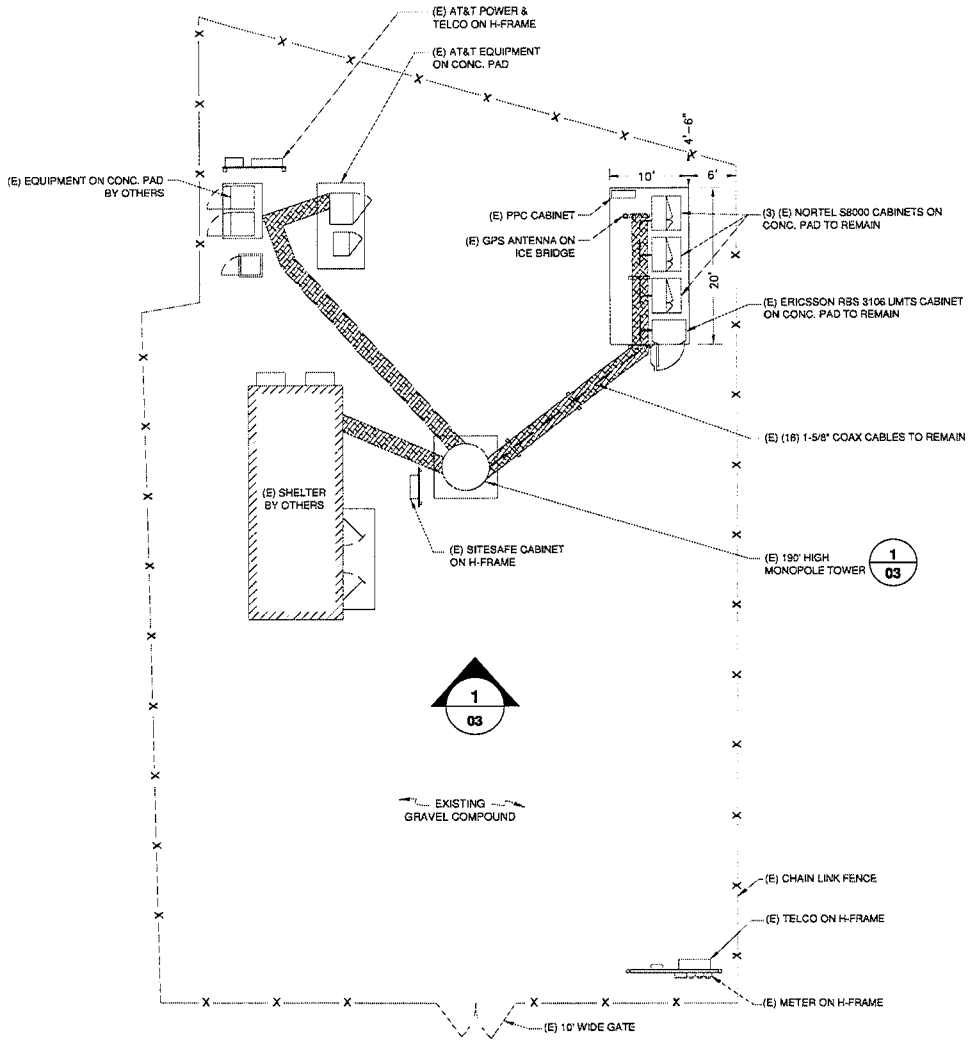
SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

01

NO STRUCTURAL EVALUATION HAS BEEN CONDUCTED BY ATLANTIS GROUP, INC. STRUCTURAL EVALUATION OF THE EXISTING TOWER TO ACCOMMODATE THE NEW ANTENNAS IS NOT PART OF THIS SCOPE OF WORK AND SHOULD BE DONE SEPARATELY BY THE TOWER STRUCTURAL ENGINEER. NO ADDITIONS OR MODIFICATIONS TO THE EXISTING TOWER SHALL BE MADE WITHOUT APPROVAL OF THE TOWER STRUCTURAL ENGINEER.



COMPOUND PLAN 1/02

SCALE: 1/16" = 1'-0" (11x17)
SCALE: 1/8" = 1'-0" (24x36)

8 0 8 16 24

NORTH

NOTES:

1. 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.
2. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY TRUE NORTH AND INFORM CONSTRUCTION MANAGER OF ANY DISCREPANCIES BEFORE STARTING CONSTRUCTION.
3. 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.
4. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.
5. 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.
6. 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.
7. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
8. 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	MGB	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	℄	CENTERLINE
STL	STEEL	℘	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
- EXISTING ANTENNA
- ASPHALT
- NEW ACCESS EASEMENT
- CONCRETE
- ELECTRIC BOX
- LIGHT POLE
- FND. MONUMENT
- SPOT ELEVATION
- SET POINT
- REVISION
- GRID REFERENCE
- REVISION REFERENCE (DET. / SHT.)
- ELEVATION (D / SH)
- SECTIONS & DETAILS (D / SH)
- GROUT OR PLASTER
- (E) BRICK
- (E) MASONRY
- CONCRETE
- EARTH
- GRAVEL
- PLYWOOD
- SAND
- WOOD CONT.
- WOOD BLOCKING
- STEEL
- CENTER LINE
- PROPERTY LINE
- STEPPED FOOTING
- MATCH LINE
- WORK POINT
- UGP — UNDERGROUND POWER LINE
- UGT — UNDERGROUND TELCO LINE
- OHU — OVERHEAD UTILITY LINE
- G — GROUND WIRE
- COAXIAL CABLE
- X—X— CHAIN LINK FENCE

NORTHEAST TOWERS
199 BRICKYARD ROAD
FARMINGTON, CT 06032
OFFICE: (860) 677-1999

FOR

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX:(860) 692-7159

ATLANTIS GROUP
1340 Centre Street, Suite 203
Newton Center, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

A&E SEAL

APPROVALS

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

DRAWN BY: GC

CHECKED BY: SM

SUBMITTALS

A	04/19/11	ISSUED FOR REVIEW

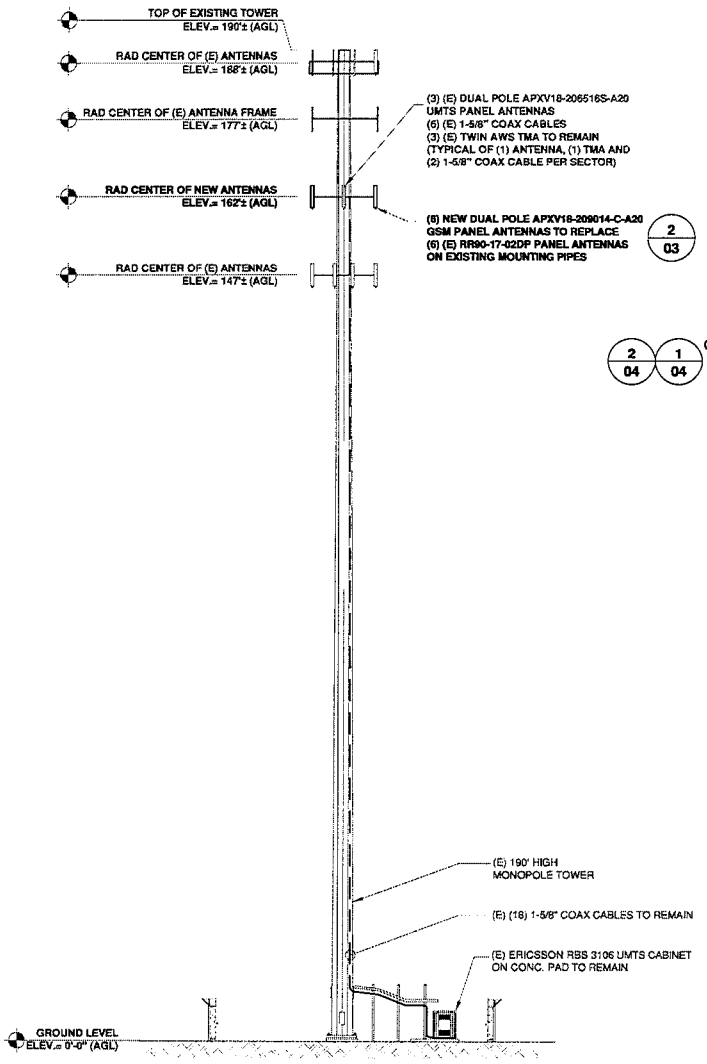
CT11783B
CROWN CASTLE
MONOPOLE

175 LESTER STREET
NEW BRITAIN, CT 06051

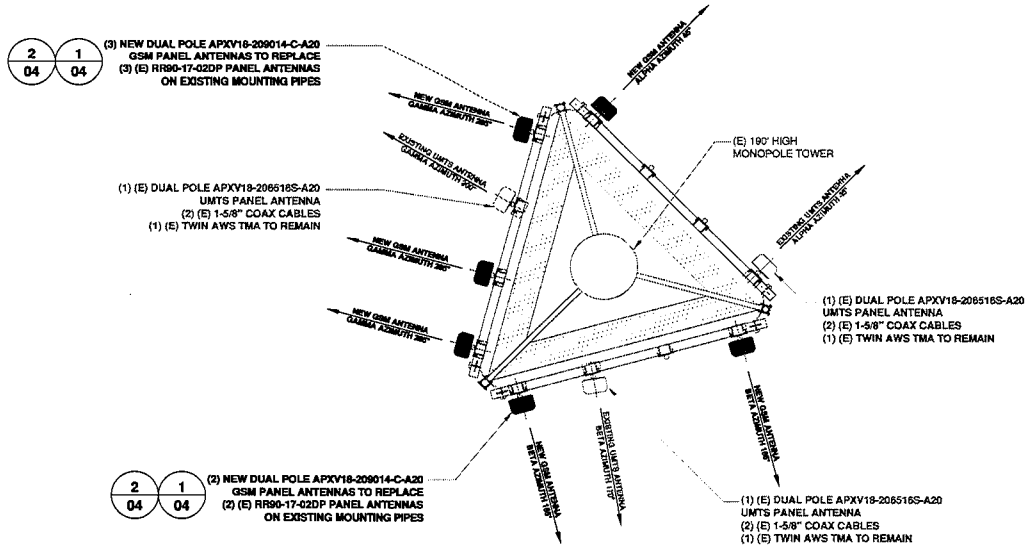
SHEET TITLE:
COMPOUND PLAN AND NOTES

SHEET NUMBER:
02

NO STRUCTURAL EVALUATION HAS BEEN CONDUCTED BY ATLANTIS GROUP, INC. STRUCTURAL EVALUATION OF THE EXISTING TOWER TO ACCOMMODATE THE NEW ANTENNAS IS NOT PART OF THIS SCOPE OF WORK AND SHOULD BE DONE SEPARATELY BY THE TOWER STRUCTURAL ENGINEER. NO ADDITIONS OR MODIFICATIONS TO THE EXISTING TOWER SHALL BE MADE WITHOUT APPROVAL OF THE TOWER STRUCTURAL ENGINEER.



ELEVATION 1/03
SCALE: 1/2" = 1'-0" (11x17)
SCALE: 1" = 1'-0" (24x36)
1 0 1 2 3



ANTENNA PLAN DETAIL 2/03
SCALE: NOT TO SCALE
NORTH

ANTENNA AZIMUTHS:

SECTOR ALPHA
EXISTING AZIMUTH:
UMTS/GSM= 45°

SECTOR BETA
EXISTING AZIMUTH:
UMTS/GSM= 170°/165°

SECTOR GAMMA
EXISTING AZIMUTH:
UMTS/GSM= 300°/285°

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FOR

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ATLANTIS GROUP
1340 Centre Street, Suite 203
Newton Center, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

A&E SEAL

APPROVALS

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

DRAWN BY:	GC
CHECKED BY:	SM

SUBMITTALS

A	04/19/11	ISSUED FOR REVIEW

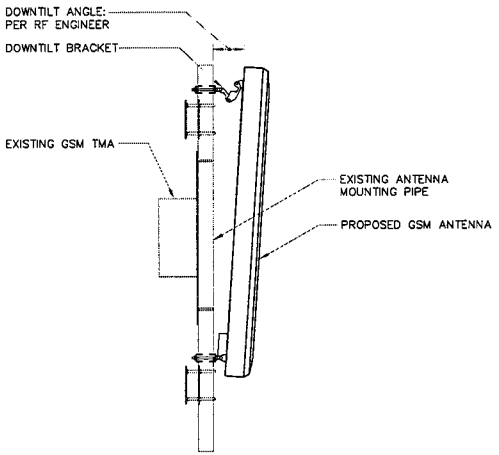
CT11783B
CROWN CASTLE
MONOPOLE

175 LESTER STREET
NEW BRITAIN, CT 06051

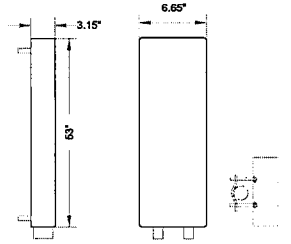
SHEET TITLE:
ELEVATION

SHEET NUMBER:
03

NO STRUCTURAL EVALUATION HAS BEEN CONDUCTED BY ATLANTIS GROUP, INC. STRUCTURAL EVALUATION OF THE EXISTING TOWER TO ACCOMMODATE THE NEW ANTENNAS IS NOT PART OF THIS SCOPE OF WORK AND SHOULD BE DONE SEPARATELY BY THE TOWER STRUCTURAL ENGINEER. NO ADDITIONS OR MODIFICATIONS TO THE EXISTING TOWER SHALL BE MADE WITHOUT APPROVAL OF THE TOWER STRUCTURAL ENGINEER.



MOUNTING ASSEMBLY 1/04
N.T.S.



MANUFACTURE: RFS:
MODEL NO. APXV18-209014-C-A20
DIMENSIONS - HxWxD, (IN) 53x6.65x3.15

DUAL POLE ANTENNA DETAIL 2/04
N.T.S.

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A&E SEAL

APPROVALS

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

DRAWN BY:	GC
CHECKED BY:	SM

SUBMITTALS

A	04/19/11	ISSUED FOR REVIEW

CT11783B
CROWN CASTLE
MONOPOLE

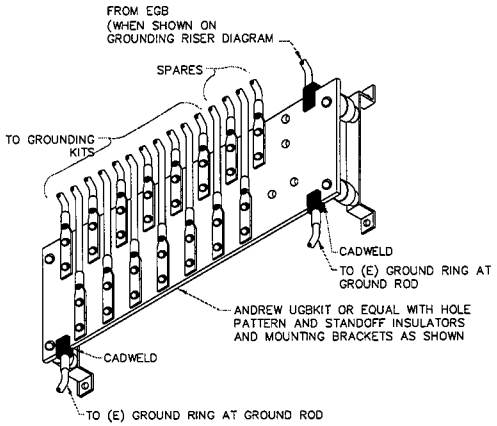
175 LESTER STREET
NEW BRITAIN, CT 06051

SHEET TITLE:

ANTENNA DETAILS

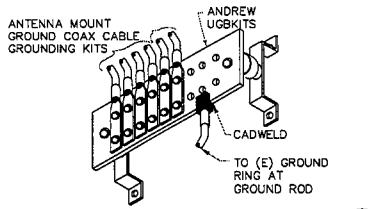
SHEET NUMBER:

04



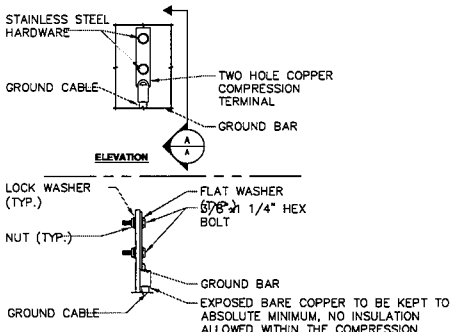
MASTER GROUND BAR (EGB) 1/07

SCALE: N.T.S.



EQUIPMENT GROUND BAR (EGB) 2/07

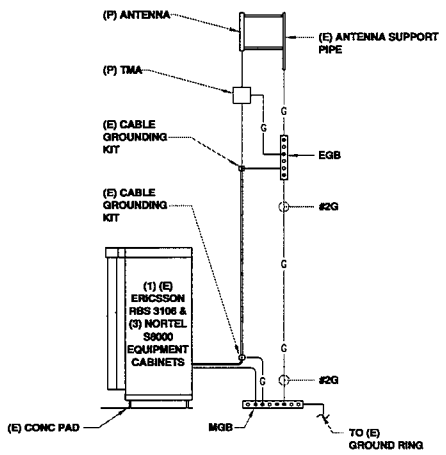
SCALE: N.T.S.



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

TYPICAL GROUND BAR CONNECTIONS DETAIL 3/07

SCALE: N.T.S.



GROUNDING RISER DIAGRAM 5/07

SCALE: N.T.S.

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.
- A.F.F. ABOVE FINISHED FLOOR
- U.O.N. UNLESS OTHERWISE NOTED
- WP WEATHERPROOF
- GFI GROUND FAULT INTERRUPTER
- A AMPERE
- V VOLT
- KWH KILOWATT - HOUR
- C CONDUIT
- G GROUND
- GROUND
- MGB MASTER GROUND ○ MECHANICAL CONNECTION • CADWELD CONNECTION
- EGB EQUIPMENT GROUND BAR ○ MECHANICAL CONNECTION • CADWELD CONNECTION
- —C— 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
- PPC POWER PROTECTION CABINET

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. 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.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE PULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. 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 PULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. 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.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250.
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURER'S COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. 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.
16. 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.
17. 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 8" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND TMA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
22. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULT FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
23. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND TMA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
24. CONTRACTOR SHALL CHECK CAPACITY OF EXISTING SERVICE & PANEL ON SITE TO DETERMINE IF CAPACITY EXISTS TO ACCOMMODATE THE ADDED LOAD OF THIS PROJECT. ADVISE ENGINEER OF ANY DISCREPANCY.

NORTHEAST TOWERS
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FOR

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A&E SEAL

APPROVALS

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

DRAWN BY: GC

CHECKED BY: SM

SUBMITTALS

A	04/19/11	ISSUED FOR REVIEW

CT11783B
CROWN CASTLE
MONOPOLE

175 LESTER STREET
NEW BRITAIN, CT 06051

SHEET TITLE:

GROUNDING NOTES, RISERS AND DETAILS

SHEET NUMBER:

05

Date: **February 23, 2011**

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

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
(859) 624-8360
caseltyne@verticalstructures.com

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Change-Out**	
	Carrier Site Number:	CT11783B
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	803175
	Crown Castle Site Name:	NEW BRITAIN 3
	Crown Castle JDE Job Number:	150310
	Crown Castle Work Order Number:	389744
Engineering Firm Designation:	**Vertical Structures, Inc. Project Number:**	2011-004-010
Site Data:	**Lester Road, New Britain, CT, Hartford County**	
	Latitude *41° 41' 11.8"*, Longitude *-72° 45' 27.8"*	
	188 Foot - Monopole Tower	

Dear Veronica Harris,

Vertical Structures, Inc. 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 405538, in accordance with application 117564, revision 0.

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:

LC1: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

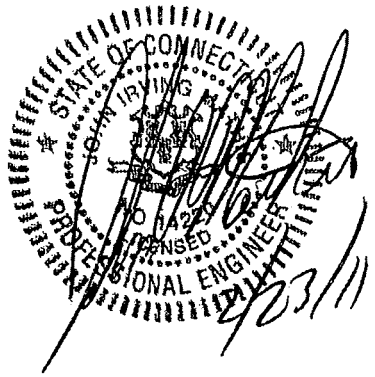
The analysis has been performed in accordance with the TIA/EIA-222-F standard and local code requirements based upon a wind speed of 80 mph fastest mile.

All modifications and 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 *Vertical Structures, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc.. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Craig Aseltyne, P.E.
Project Engineer



Date: **February 23, 2011**

Veronica Harris
Crown Castle USA Inc.
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Mahwah, NJ 07430
(201) 236-9094

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
(859) 624-8360
caseltyne@verticalstructures.com

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Change-Out**	
	Carrier Site Number:	CT11783B
	Carrier Site Name:	N/A
Crown Castle Designation:	**Crown Castle BU Number:**	803175
	Crown Castle Site Name:	NEW BRITAIN 3
	Crown Castle JDE Job Number:	150310
	Crown Castle Work Order Number:	389744
Engineering Firm Designation:	**Vertical Structures, Inc. Project Number:**	2011-004-010
Site Data:	**Lester Road, New Britain, CT, Hartford County**	
	Latitude *41° 41' 11.8"*, Longitude *-72° 45' 27.8"*	
	188 Foot - Monopole Tower	

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All modifications and 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 *Vertical Structures, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc.. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Craig Aseltyne, P.E.
Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 188 ft Monopole tower designed by Summit in 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-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 80 mph with no ice and 50 mph under service loads. Also, per Crown Castle's direction and in accordance with ASCE-7-05 we have considered a fastest mile wind speed of 38 mph with an escalating 1.0 inch ice thickness.

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
162	163	6	celwave	APXV18-209014-C-A20 w/ Mount Pipe			

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
188	190	3	powerwave technologies	7770.00 w/ Mount Pipe	6	1 5/8	1
		6	powerwave technologies	LGP21401 TMA			
		1		Platform Mount [LP 602-1]			
177	177	1		Platform Mount [LP 601-1]			1
162	163	3	celwave	APXV18-206516S-C-A20 w/ Mount Pipe	18	1 5/8	1
		6	celwave	ATMAA1412D-1A20 TMA			
		6	ems wireless	RR90-17-02DP w/Mount Pipe			3
	162	1		Platform Mount [LP 601-1]			1
147	147	3	andrew	LNX-6512DS-T4M w/Mount Pipe			2
		3	antel	BXA-185090/8CFx2 w/ Mount Pipe			
		6	antel	WPA-80090/4CF w/ Mount Pipe	12	1 5/8	1
		6	celwave	FD9R6004/2C-3L Diplexer			2
		1		Platform Mount [LP 601-1]			1

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment to be Removed

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)
190	190	12		1' x 5' x 3" Panel Antenna		
		1	summit	14' Platform		
177	177	12		1' x 5' x 3" Panel Antenna		
		1	summit	14' Platform		
162	162	12		1' x 5' x 3" Panel Antenna		
		1	summit	14' Platform		
147	147	12		1' x 5' x 3" Panel Antenna		
		1	summit	14' Platform		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	T-Mobile Change-Out Revision #0	117564	CCI iSite
Tower Drawing	Summit Job No. 29200-1787	679659	CCI iSite
Foundation Drawing	TEP Project No.100063/Summit Job No. 29200-1787	679660	CCI iSite
Geotechnical Report	CHA Project No. 8961.07.46	679661	CCI iSite

3.1) Analysis Method

RISATower (version 5.4.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. Crown Castle's CCIplate 1.2 analysis tool was used to evaluate the anchor bolts, base plate, and any flange splices.

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.

This analysis may be affected if any assumptions are not valid or have been made in error. Vertical Structures, Inc. 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 (lb)	SF*P_allow (lb)	% Capacity	Pass / Fail
L1	188 - 137	Pole	TP32.711x22x0.25	1	-9523.37	1302250.30	45.6	Pass
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-17356.10	2094289.54	66.0	Pass
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-28231.60	3048944.11	67.0	Pass
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-46468.00	4876780.30	55.9	Pass
							Summary	
						Pole (L3)	67.0	Pass
						Rating =	67.0	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	58.7	Pass
1	Base Plate	0	60.4	Pass
	Base Foundation (Compared w/ Design Loads)	0	70.0	Pass

Structure Rating (max from all components) =	70.0%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity.
2) Capacities up to 105% are considered acceptable based on analysis methods used.

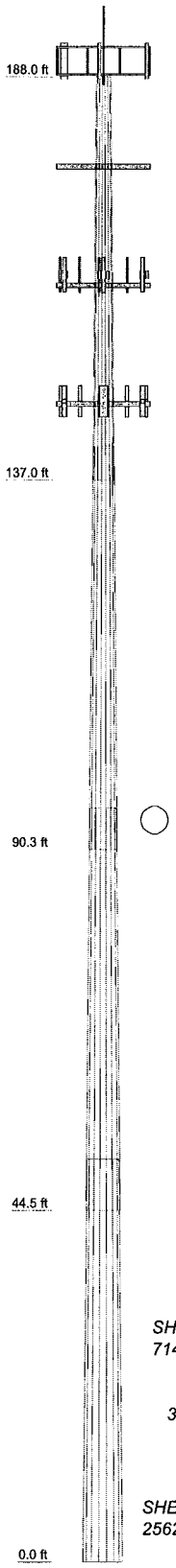
4.1) Recommendations

N/A

APPENDIX A

RISA TOWER OUTPUT

Section	4	3	2	1
Length (ft)	51.00	51.00	51.00	51.00
Number of Sides	18	18	18	18
Thickness (in)	0.5000	0.3750	0.3125	0.2500
Socket Length (ft)		6.50	5.25	4.25
Top Dia (in)	48.8988	40.3023	31.3184	22.0000
Bot Dia (in)	59.6100	51.0140	42.0300	32.7110
Grade			A607-65	
Weight (lb) 34149.8	14804.6	9353.6	6259.0	3732.6



AXIAL
65694 lb

SHEAR
7141 lb

MOMENT
988110 lb-ft

TORQUE 303 lb-ft
38 mph WIND - 1.0000 in ICE

AXIAL
46480 lb

SHEAR
25629 lb

MOMENT
3257173 lb-ft

TORQUE 903 lb-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 8' x 3/4" (VSI)	192	(2) ATMAA1412D-1A20 TMA (T-Mobile)	162
Platform Mount [LP 602-1]	190	(3) APXV18-209014-C-A20 w/ Mount Pipe (T-Mobile)	162
7770.00 w/ mount pipe	190	APXV18-209014-C-A20 w/ Mount Pipe (T-Mobile)	162
7770.00 w/ mount pipe	190	(2) APXV18-209014-C-A20 w/ Mount Pipe (T-Mobile)	162
7770.00 w/ mount pipe	190	Platform Mount [LP 601-1]	147
(2) LGP21401 TMA (VSI)	190	(2) WPA-80090/4CF w/ Mount Pipe	147
(2) LGP21401 TMA (VSI)	190	(2) WPA-80090/4CF w/ Mount Pipe	147
(2) LGP21401 TMA (VSI)	190	(2) WPA-80090/4CF w/ Mount Pipe	147
(3) 6' x 2" Antenna Mount Pipe (VSI)	190	BXA-185090/8CFx2 w/ Mount Pipe (VSI)	147
(3) 6' x 2" Antenna Mount Pipe (VSI)	190	BXA-185090/8CFx2 w/ Mount Pipe (VSI)	147
(3) 6' x 2" Antenna Mount Pipe (VSI)	190	BXA-185090/8CFx2 w/ Mount Pipe (VSI)	147
Platform Mount [LP 601-1]	177	LNX-6512DS-T4M w/Mount Pipe	147
(2) 8'x2" Antenna Mount Pipe	177	LNX-6512DS-T4M w/Mount Pipe	147
(2) 8'x2" Antenna Mount Pipe	177	LNX-6512DS-T4M w/Mount Pipe	147
(2) 8'x2" Antenna Mount Pipe	177	(2) FD9R6004/2C-3L Diplexer	147
Platform Mount [LP 601-1] (T-Mobile)	162	(2) FD9R6004/2C-3L Diplexer	147
APXV18-206516S-C-A20 w/ Mount Pipe (VSI) (T-Mobile)	162	(2) FD9R6004/2C-3L Diplexer	147
APXV18-206516S-C-A20 w/ Mount Pipe (VSI) (T-Mobile)	162		
APXV18-206516S-C-A20 w/ Mount Pipe (VSI) (T-Mobile)	162		
(2) ATMAA1412D-1A20 TMA (T-Mobile)	162		
(2) ATMAA1412D-1A20 TMA (T-Mobile)	162		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 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 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 67%

Vertical Structures, Inc.
309 Spangler Drive, Suite E
Richmond, KY 40475
Phone: (859) 624-8360
FAX: (859) 624-8369

Job: *New Britain 3, CT BU#803175*		
Project: *Vertical Structures Job No. 2011-004-010*		
Client: Crown Castle	Drawn by: Asel	App'd:
Code: TIA/EIA-222-F	Date: 02/23/11	Scale: NTS
Path:		Dwg No. E-1

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 Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

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

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	188.00-137.00	51.00	4.25	18	22.0000	32.7110	0.2500	1.0000	A607-65 (65 ksi)
L2	137.00-90.25	51.00	5.25	18	31.3184	42.0300	0.3125	1.2500	A607-65 (65 ksi)
L3	90.25-44.50	51.00	6.50	18	40.3023	51.0140	0.3750	1.5000	A607-65 (65 ksi)
L4	44.50-0.00	51.00		18	48.8988	59.6100	0.5000	2.0000	A607-65 (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	22.3394	17.2586	1031.4832	7.7212	11.1760	92.2945	2064.3237	8.6310	3.4320	13.728
	33.2156	25.7578	3429.0204	11.5237	16.6172	206.3538	6862.5527	12.8813	5.3171	21.269
L2	32.7080	30.7540	3735.3228	11.0071	15.9098	234.7819	7475.5606	15.3799	4.9620	15.879
	42.6784	41.3785	9098.0688	14.8097	21.3512	426.1143	18208.1091	20.6932	6.8473	21.911
L3	42.0437	47.5235	9571.6471	14.1742	20.4736	467.5120	19155.8887	23.7663	6.4332	17.155
	51.8010	60.2731	19526.7966	17.9768	25.9151	753.4907	39079.2871	30.1423	8.3185	22.183
L4	51.0393	76.8089	22730.9630	17.1816	24.8406	915.0736	45491.8360	38.4117	7.7262	15.452
	60.5296	93.8076	41409.2395	20.9841	30.2819	1367.4593	82872.9664	46.9127	9.6114	19.223

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 188.00-137.00				1	1	1		
L2 137.00-90.25				1	1	1		
L3 90.25-44.50				1	1	1		
L4 44.50-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
561 (1-5/8 AIR) (T-Mobile)	C	No	Inside Pole	163.00 - 8.00	18	No Ice	0.00	1.35
						1/2" Ice	0.00	1.35
						1" Ice	0.00	1.35
						2" Ice	0.00	1.35
						4" Ice	0.00	1.35
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	147.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	Inside Pole	188.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	188.00-137.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C	0.000	0.000	0.000	0.000	981.12
L2	137.00-90.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1826.06
L3	90.25-44.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1786.99
L4	44.50-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1425.69

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	188.00-137.00	A	1.210	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	981.12
L2	137.00-90.25	A	1.159	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1826.06
L3	90.25-44.50	A	1.089	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1786.99
L4	44.50-0.00	A	1.000	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1425.69

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	188.00-137.00	0.0000	0.0000	0.0000	0.0000
L2	137.00-90.25	0.0000	0.0000	0.0000	0.0000
L3	90.25-44.50	0.0000	0.0000	0.0000	0.0000
L4	44.50-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Lightning Rod 8' x 3/4" (VSI)	C	None		0.0000	192.00	No Ice	0.60	0.60	90.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						1/2" Ice	1.41	1.41	96.19
						1" Ice	2.25	2.25	107.49
						2" Ice	3.67	3.67	146.05
						4" Ice	5.74	5.74	291.29
***									
Platform Mount [LP 602-1]	C	None		0.0000	190.00	No Ice	32.03	32.03	1343.30
						1/2" Ice	38.71	38.71	1800.09
						1" Ice	45.39	45.39	2256.88
						2" Ice	58.75	58.75	3170.46
						4" Ice	85.47	85.47	4997.62
7770.00 w/ mount pipe	A	From Centroid-Leg	3.50 -5.00 0.00	0.0000	190.00	No Ice	6.22	4.35	56.90
						1/2" Ice	6.77	5.20	102.99
						1" Ice	7.30	5.92	159.01
						2" Ice	8.38	7.41	293.01
						4" Ice	10.69	10.76	679.74
7770.00 w/ mount pipe	B	From Centroid-Leg	3.50 -5.00 0.00	0.0000	190.00	No Ice	6.22	4.35	56.90
						1/2" Ice	6.77	5.20	102.99
						1" Ice	7.30	5.92	159.01
						2" Ice	8.38	7.41	293.01
						4" Ice	10.69	10.76	679.74
7770.00 w/ mount pipe	C	From Centroid-Leg	3.50 -5.00 0.00	0.0000	190.00	No Ice	6.22	4.35	56.90
						1/2" Ice	6.77	5.20	102.99
						1" Ice	7.30	5.92	159.01
						2" Ice	8.38	7.41	293.01
						4" Ice	10.69	10.76	679.74
(2) LGP21401 TMA (VSI)	A	From Centroid-Leg	3.50 -5.00 0.00	0.0000	190.00	No Ice	1.29	0.36	14.10
						1/2" Ice	1.45	0.48	21.26
						1" Ice	1.61	0.60	30.32
						2" Ice	1.97	0.87	54.89
						4" Ice	2.79	1.52	135.29
(2) LGP21401 TMA (VSI)	B	From Centroid-Leg	3.50 -5.00 0.00	0.0000	190.00	No Ice	1.29	0.36	14.10
						1/2" Ice	1.45	0.48	21.26
						1" Ice	1.61	0.60	30.32
						2" Ice	1.97	0.87	54.89
						4" Ice	2.79	1.52	135.29
(2) LGP21401 TMA (VSI)	C	From Centroid-Leg	3.50 -5.00 0.00	0.0000	190.00	No Ice	1.29	0.36	14.10
						1/2" Ice	1.45	0.48	21.26
						1" Ice	1.61	0.60	30.32
						2" Ice	1.97	0.87	54.89
						4" Ice	2.79	1.52	135.29
(3) 6' x 2" Antenna Mount Pipe (VSI)	A	From Centroid-Leg	3.50 2.50 0.00	0.0000	190.00	No Ice	1.43	1.43	23.00
						1/2" Ice	1.92	1.92	33.83
						1" Ice	2.29	2.29	48.71
						2" Ice	3.06	3.06	91.28
						4" Ice	4.70	4.70	231.84
(3) 6' x 2" Antenna Mount Pipe (VSI)	B	From Centroid-Leg	3.50 2.50 0.00	0.0000	190.00	No Ice	1.43	1.43	23.00
						1/2" Ice	1.92	1.92	33.83
						1" Ice	2.29	2.29	48.71
						2" Ice	3.06	3.06	91.28
						4" Ice	4.70	4.70	231.84
(3) 6' x 2" Antenna Mount Pipe (VSI)	C	From Centroid-Leg	3.50 2.50 0.00	0.0000	190.00	No Ice	1.43	1.43	23.00
						1/2" Ice	1.92	1.92	33.83
						1" Ice	2.29	2.29	48.71
						2" Ice	3.06	3.06	91.28
						4" Ice	4.70	4.70	231.84
***									
Platform Mount [LP 601-1]	A	None		0.0000	177.00	No Ice	28.47	28.47	1122.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						1/2" Ice	33.59	33.59	1513.66
						1" Ice	38.71	38.71	1905.31
						2" Ice	48.95	48.95	2688.62
						4" Ice	69.43	69.43	4255.25
(2) 8'x2" Antenna Mount Pipe	A	From Centroid-Face	3.50 0.00 0.00	0.0000	177.00	No Ice	1.90	1.90	26.00
						1/2" Ice	2.73	2.73	40.34
						1" Ice	3.40	3.40	59.96
						2" Ice	4.40	4.40	115.66
						4" Ice	6.50	6.50	297.15
(2) 8'x2" Antenna Mount Pipe	B	From Centroid-Face	3.50 0.00 0.00	0.0000	177.00	No Ice	1.90	1.90	26.00
						1/2" Ice	2.73	2.73	40.34
						1" Ice	3.40	3.40	59.96
						2" Ice	4.40	4.40	115.66
						4" Ice	6.50	6.50	297.15
(2) 8'x2" Antenna Mount Pipe	C	From Centroid-Face	3.50 0.00 0.00	0.0000	177.00	No Ice	1.90	1.90	26.00
						1/2" Ice	2.73	2.73	40.34
						1" Ice	3.40	3.40	59.96
						2" Ice	4.40	4.40	115.66
						4" Ice	6.50	6.50	297.15
***									
Platform Mount [LP 601-1] (T-Mobile)	A	None		0.0000	162.00	No Ice	28.47	28.47	1122.00
						1/2" Ice	33.59	33.59	1513.66
						1" Ice	38.71	38.71	1905.31
						2" Ice	48.95	48.95	2688.62
						4" Ice	69.43	69.43	4255.25
APXV18-206516S-C-A20 w/ Mount Pipe (VSI) (T-Mobile)	A	From Centroid-Face	3.50 0.00 1.00	0.0000	162.00	No Ice	3.76	3.20	36.95
						1/2" Ice	4.14	3.83	68.28
						1" Ice	4.57	4.47	108.25
						2" Ice	5.47	5.81	207.80
						4" Ice	7.40	8.74	512.65
APXV18-206516S-C-A20 w/ Mount Pipe (VSI) (T-Mobile)	B	From Centroid-Face	3.50 0.00 1.00	-15.0000	162.00	No Ice	3.76	3.20	36.95
						1/2" Ice	4.14	3.83	68.28
						1" Ice	4.57	4.47	108.25
						2" Ice	5.47	5.81	207.80
						4" Ice	7.40	8.74	512.65
APXV18-206516S-C-A20 w/ Mount Pipe (VSI) (T-Mobile)	C	From Centroid-Face	3.50 0.00 1.00	-10.0000	162.00	No Ice	3.76	3.20	36.95
						1/2" Ice	4.14	3.83	68.28
						1" Ice	4.57	4.47	108.25
						2" Ice	5.47	5.81	207.80
						4" Ice	7.40	8.74	512.65
(2) ATMAA1412D-1A20 TMA (T-Mobile)	A	From Centroid-Face	3.50 0.00 1.00	-15.0000	162.00	No Ice	1.17	0.47	13.00
						1/2" Ice	1.31	0.57	20.62
						1" Ice	1.47	0.69	30.11
						2" Ice	1.81	0.95	55.52
						4" Ice	2.58	1.57	137.44
(2) ATMAA1412D-1A20 TMA (T-Mobile)	B	From Centroid-Face	3.50 0.00 1.00	-15.0000	162.00	No Ice	1.17	0.47	13.00
						1/2" Ice	1.31	0.57	20.62
						1" Ice	1.47	0.69	30.11
						2" Ice	1.81	0.95	55.52
						4" Ice	2.58	1.57	137.44
(2) ATMAA1412D-1A20 TMA (T-Mobile)	C	From Centroid-Face	3.50 0.00 1.00	-15.0000	162.00	No Ice	1.17	0.47	13.00
						1/2" Ice	1.31	0.57	20.62
						1" Ice	1.47	0.69	30.11
						2" Ice	1.81	0.95	55.52
						4" Ice	2.58	1.57	137.44
(3) APXV18-209014-C-A20 w/ Mount Pipe	A	From Centroid-	3.50 0.00	-15.0000	162.00	No Ice	3.86	3.45	40.60
						1/2" Ice	4.33	4.27	73.64

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(T-Mobile)		Face	1.00			1" Ice	4.80	4.97	116.08
						2" Ice	5.82	6.42	221.33
						4" Ice	8.01	9.54	544.16
APXV18-209014-C-A20 w/ Mount Pipe	B	From Centroid-	3.50 0.00	-15.0000	162.00	No Ice 1/2" Ice	3.86 4.33	3.45 4.27	40.60 73.64
(T-Mobile)		Face	1.00			1" Ice	4.80	4.97	116.08
						2" Ice	5.82	6.42	221.33
						4" Ice	8.01	9.54	544.16
(2) APXV18-209014-C-A20 w/ Mount Pipe	C	From Centroid-	3.50 0.00	-15.0000	162.00	No Ice 1/2" Ice	3.86 4.33	3.45 4.27	40.60 73.64
(T-Mobile)		Face	1.00			1" Ice	4.80	4.97	116.08
						2" Ice	5.82	6.42	221.33
						4" Ice	8.01	9.54	544.16
***									
Platform Mount [LP 601-1]	A	None		0.0000	147.00	No Ice	28.47	28.47	1122.00
						1/2" Ice	33.59	33.59	1513.66
						1" Ice	38.71	38.71	1905.31
						2" Ice	48.95	48.95	2688.62
						4" Ice	69.43	69.43	4255.25
(2) WPA-80090/4CF w/ Mount Pipe	A	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	3.74 4.11	3.57 4.12	26.60 60.36
		Face	0.00			1" Ice	4.49	4.70	101.86
						2" Ice	5.26	5.97	203.25
						4" Ice	6.93	8.88	503.38
(2) WPA-80090/4CF w/ Mount Pipe	B	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	3.74 4.11	3.57 4.12	26.60 60.36
		Face	0.00			1" Ice	4.49	4.70	101.86
						2" Ice	5.26	5.97	203.25
						4" Ice	6.93	8.88	503.38
(2) WPA-80090/4CF w/ Mount Pipe	C	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	3.74 4.11	3.57 4.12	26.60 60.36
		Face	0.00			1" Ice	4.49	4.70	101.86
						2" Ice	5.26	5.97	203.25
						4" Ice	6.93	8.88	503.38
BXA-185090/8CFx2 w/ Mount Pipe (VSI)	A	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	3.87 4.59	4.04 5.17	40.20 76.74
		Face	0.00			1" Ice	5.27	6.15	123.93
						2" Ice	6.52	7.78	239.51
						4" Ice	9.19	11.41	593.34
BXA-185090/8CFx2 w/ Mount Pipe (VSI)	B	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	3.87 4.59	4.04 5.17	40.20 76.74
		Face	0.00			1" Ice	5.27	6.15	123.93
						2" Ice	6.52	7.78	239.51
						4" Ice	9.19	11.41	593.34
BXA-185090/8CFx2 w/ Mount Pipe (VSI)	C	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	3.87 4.59	4.04 5.17	40.20 76.74
		Face	0.00			1" Ice	5.27	6.15	123.93
						2" Ice	6.52	7.78	239.51
						4" Ice	9.19	11.41	593.34
LNX-6512DS-T4M w/Mount Pipe	A	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	6.31 7.02	5.01 6.10	53.75 104.24
		Face	0.00			1" Ice	7.61	6.91	165.19
						2" Ice	8.81	8.56	309.23
						4" Ice	11.38	12.09	720.18
LNX-6512DS-T4M w/Mount Pipe	B	From Centroid-	3.50 0.00	-30.0000	147.00	No Ice 1/2" Ice	6.31 7.02	5.01 6.10	53.75 104.24
		Face	0.00			1" Ice	7.61	6.91	165.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
						2" Ice	8.81	8.56	309.23
						4" Ice	11.38	12.09	720.18
LNX-6512DS-T4M w/Mount Pipe	C	From Centroid-Face	3.50 0.00 0.00	-30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.31 7.02 7.61 8.81 11.38	5.01 6.10 6.91 8.56 12.09	53.75 104.24 165.19 309.23 720.18
(2) FD9R6004/2C-3L Diplexer	A	From Centroid-Face	3.50 0.00 0.00	-30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	3.10 5.40 8.79 19.61 62.87
(2) FD9R6004/2C-3L Diplexer	B	From Centroid-Face	3.50 0.00 0.00	-30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	3.10 5.40 8.79 19.61 62.87
(2) FD9R6004/2C-3L Diplexer	C	From Centroid-Face	3.50 0.00 0.00	-30.0000	147.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.37 0.45 0.54 0.75 1.28	0.08 0.14 0.20 0.34 0.74	3.10 5.40 8.79 19.61 62.87

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 lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	188 - 137 (1)	TP32.711x22x0.25	51.00	0.00	0.0	39.000	25.0495	-9523.37	976932.00	0.010
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	51.00	0.00	0.0	39.000	40.2848	-17356.10	1571110.00	0.011
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	51.00	0.00	0.0	39.000	58.6481	-28231.60	2287280.00	0.012
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	51.00	0.00	0.0	39.000	93.8076	-46468.00	3658500.00	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	188 - 137 (1)	TP32.711x22x0.25	379137.50	-23.317	39.000	0.598	0.00	0.000	39.000	0.000
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	1139925.00	-33.876	39.000	0.869	0.00	0.000	39.000	0.000

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	2041266.67	-34.342	39.000	0.881	0.00	0.000	39.000	0.000
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	3257175.00	-28.583	39.000	0.733	0.00	0.000	39.000	0.000

Pole Interaction Design Data

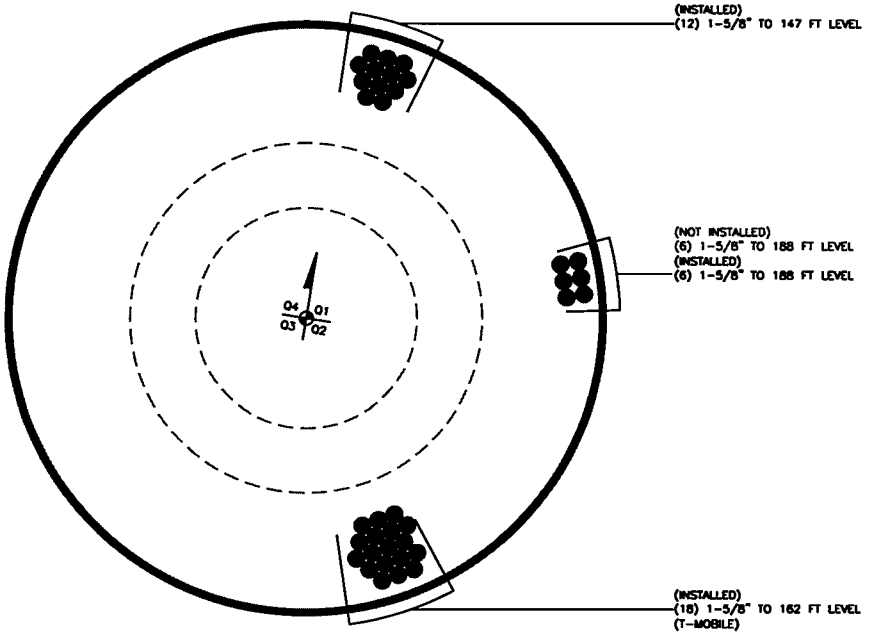
Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	188 - 137 (1)	TP32.711x22x0.25	0.010	0.598	0.000	0.608 ✓	1.333	H1-3 ✓
L2	137 - 90.25 (2)	TP42.03x31.3184x0.3125	0.011	0.869	0.000	0.880 ✓	1.333	H1-3 ✓
L3	90.25 - 44.5 (3)	TP51.014x40.3023x0.375	0.012	0.881	0.000	0.893 ✓	1.333	H1-3 ✓
L4	44.5 - 0 (4)	TP59.61x48.8988x0.5	0.013	0.733	0.000	0.746 ✓	1.333	H1-3 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	188 - 137	Pole	TP32.711x22x0.25	1	-9523.37	1302250.30	45.6	Pass
L2	137 - 90.25	Pole	TP42.03x31.3184x0.3125	2	-17356.10	2094289.54	66.0	Pass
L3	90.25 - 44.5	Pole	TP51.014x40.3023x0.375	3	-28231.60	3048944.11	67.0	Pass
L4	44.5 - 0	Pole	TP59.61x48.8988x0.5	4	-46468.00	4876780.30	55.9	Pass
							Summary	
						Pole (L3)	67.0	Pass
						RATING =	**67.0**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 803175 TOWER ID: C_BASELEVEL

LEGEND: FEEDLINES
● SOLID BLUE CIRCLE DENOTES EXISTING FEEDLINE
○ OPEN RED CIRCLE DENOTES PROPOSED FEEDLINE
X BLUE "X" DENOTES LOCATION NOT GIVEN
NOTE: ASSUME FEEDLINE ATTACHMENT HEIGHT TO TOWER STEEL AT 8-FEET ABOVE FINISHED GRADE UNLESS OTHERWISE SPECIFIED

CROWN REGION ADDRESS

USA

11/06/06	APPLICATION ADDED FOR WORK ORDER # 310402	CDR
12/07/06	APPLICATION ADDED FOR WORK ORDER # 338784	JM
05/12/08	UPDATED FOR WORK ORDER # 344021	MR
12/01/09	AS-BUILT INFORMATION ADDED FOR WORK ORDER # 348457	LH
06/01/10	INFORMATION ADDED FOR WORK ORDER # 311936	AS
06/01/10	UPDATED FOR WORK ORDER # 313132	MC

DRAWN BY: CDR
CHECKED BY:
DRAWING DATE: 11/05/06

SITE NUMBER:
SITE NAME:

SITE NAME

NEW BRITAIN 3

BUSINESS UNIT NUMBER

803175

SITE ADDRESS

LESTER ROAD
NEW BRITAIN, CT 06050
HARTFORD COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

BASE LEVEL DRAWING

NOT TO SCALE | 1

APPENDIX C

ADDITIONAL CALCULATIONS

Square, Unstiffened Base Plate, Any Rod Material - Rev. F

Assumptions: Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48.
Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)

Site Data

BU#: *803175*
Site Name: *New Britain 3, CT*
App #: *117564, Revision #0*

Reactions		
Moment:	3257.2	ft-kips
Axial:	46.5	kips
Shear:	25.6	kips

Connection Type:	*Butt*

Anchor Rod Data		
Qty:	20	
Diam:	2.25	in
Rod Material:	A615-J	
Grade(Fy):	75	ksi
Bolt Circle:	67	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	66	in
Thick:	3	in
Grade:	50	ksi
B effective	33.73	in

Pole Data		
Diam:	59.61	in
Thick:	0.5	in
Grade:	65	ksi

Stress Increase Factor		
ASIF:	1.333	

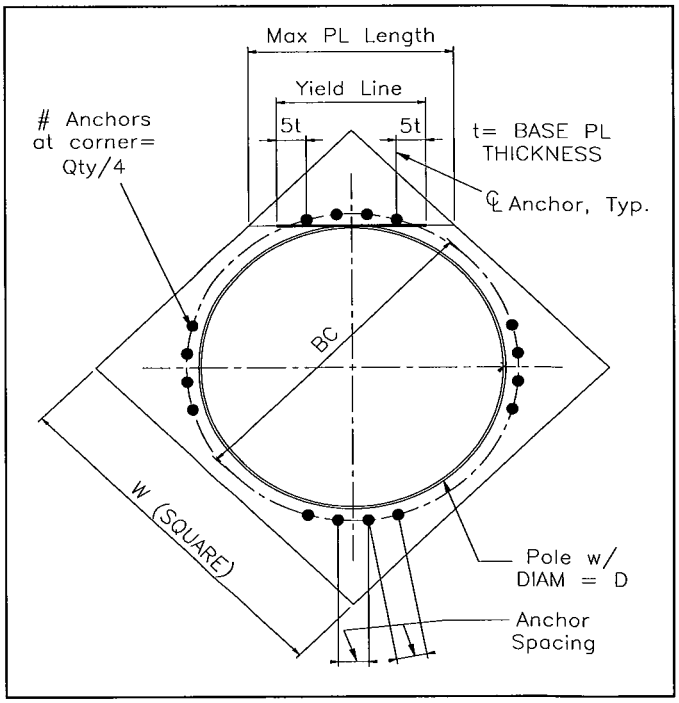
Anchor Rod Results

Maximum Rod Tension:	114.4 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	58.7% Pass

Base Plate Results

Base Plate Stress:	30.2 ksi
Allowable Plate Stress:	50.0 ksi
Base Plate Stress Ratio:	60.4% Pass

PL Ref. Data
Yield Line (in):
33.73
Max PL Length:
33.73



T-Mobile

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Northeast Towers, Inc
From: Amir Uzzaman - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11783B
Date: May 6, 2011

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Monopole at 175 Lester Street, New Britain, 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 3 antennas per sector.
3) The model number for GSM antenna is APXV18-206517-C.
3) The model number for UMTS antenna is APXV18-206517-C.
4) GSM antenna center line height is 162 ft.
4) UMTS antenna center line height is 162 ft.
5) The maximum transmit power from any GSM sector is 2558.11 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2552.05 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 Monopole at 167 Lester Street, New Britain, CT, is 0.046069 mW/cm^2. This value represents 4.6069% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) 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.
The combined Power Density from other carriers is 15.47475%. The combined Power Density for the site is 20.082% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	**CT11783B**
Site Address:	**175 Lester Street**
Town:	**New Britain**
Tower Height:	**188 ft.**
Tower Style:	**Monopole**

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	APXV18-206517-C	**Antenna Model**	APXV18-206517-C
Cable Size	1 5/8	**Cable Size**	1 5/8
Cable Length	[redacted]	**Cable Length**	[redacted]
Antenna Height	[redacted]	**Antenna Height**	[redacted]
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	18.8 dBi	**Antenna Gain**	18.8 dBi
Cable Loss per foot	0.0116 dB	**Cable Loss per foot**	0.0116 dB
Total Cable Loss	2.2620 dB	**Total Cable Loss**	2.2620 dB
Total Attenuation	6.7620 dB	**Total Attenuation**	3.7620 dB
Total EIRP per Channel	55.05 dBm	**Total EIRP per Channel**	61.06 dBm
(In Watts)	319.76 W	**(In Watts)**	1276.03 W
Total EIRP per Sector	64.08 dBm	**Total EIRP per Sector**	64.07 dBm
(In Watts)	2558.11 W	**(In Watts)**	2552.05 W
nsg	12.0380	**nsg**	15.0380
Power Density (S) =	**0.023062 mW/cm^2**	**Power Density (S) =**	**0.023007 mW/cm^2**

T-Mobile Worst Case % MPE = 4.6069%

Equation Used :

$$S = \frac{EIRP}{4\pi R^2}$$

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

Co-Location Total

Carrier	**% of Standard**
Cingular GSM	2.2190 %
Cingular UMTS	0.8858 %
Verizon	6.1523 %
Verizon	3.8438 %
Verizon	2.3740 %
Other Antenna Systems	
Total Excluding T-Mobile	**15.4748 %**
T-Mobile	4.6069
Total % MPE for Site	**20.0816%**