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

November 22, 2013

Julie D. Kohler, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604

RE: **EM-T-MOBILE-034-131106** – T-Mobile Northeast LLC notice of intent to modify an existing telecommunications facility located at 24 Hospital Avenue, Danbury, Connecticut.

Dear Attorney Kohler:

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 the 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;
- Within 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 November 5, 2013. 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,

Melanie A. Bachman
Acting Executive Director

MAB/CDM/jb

c: The Honorable Mark D. Boughton, Mayor, City of Danbury
Dennis Elpern, City Planner, City of Danbury
Danbury Hospital



CONNECTICUT SITING COUNCIL

·T· · ·Mobile·



Please Reply To:
Sam Simons
35 Griffin Road South
Bloomfield, CT 06002
203-482-5156
Sam.Simons@T-Mobile.com

May 11, 2015

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06501

**Re: EM-T-Mobile-034-131106**
T-Mobile Site ID CT11108A
24 Hospital Ave, Danbury CT
Notice of Construction Completion

Dear Attorney Bachman:

The Connecticut Siting Council ("Council") acknowledged the above referenced T-Mobile Northeast LLC ("T-Mobile") notice of exempt modification on November 22, 2013. T-Mobile hereby notifies the Council that construction of the acknowledged modifications were complete as of May 15,2014.

Please don't hesitate to contact me with any questions.

Sincerely,

Sam Simons

Samuel Simons, T-Mobile

cc: Mark Richard, T-Mobile

COHEN and WOLF P.C.
ATTORNEYS AT LAW

**JULIE D. KOHLER**

PLEASE REPLY TO: Bridgeport
WRITER'S DIRECT DIAL: (203) 337-4157
E-Mail Address: jkohler@cohenandwolf.com

November 5, 2013

Attorney Melanie Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

**Re: Notice of Exempt Modification**
**Danbury Hospital/T-Mobile co-location**
**Site ID CT11108A**
**24 Hospital Avenue, Danbury**

Dear Attorney Bachman:

This office represents T-Mobile Northeast LLC ("T-Mobile") and has been retained to file exempt modification filings with the Connecticut Siting Council on its behalf.

In this case, Danbury Hospital owns the existing building that hosts several wireless telecommunications facilities at 24 Hospital Avenue, Road, Danbury Connecticut (longitude -73.445988/ latitude 41.40504). The Council assumed jurisdiction of a facility at this site in Docket 79 in 1987 and has acknowledged multiple exempt modifications since that time. This facility is therefore within the Council's jurisdiction.

T-Mobile intends to replace six antennas and related equipment at this existing telecommunications facility in Danbury ("Danbury Facility"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the Mayor, Mark D. Boughton and the property owner, Danbury Hospital.

The existing Danbury Facility consists of a 134' 7" building on which T-Mobile currently has 3 rooftop mounted arrays and associated equipment. T-Mobile plans to replace four antennas and remove 2 TMAs (tower mounted amplifiers) at a centerline of 127 feet and replace 2 antennas and remove 1 TMA at a centerline of 154 feet. T-Mobile will remove 4 equipment cabinets, 1 battery/power cabinet and a remote radio unit, and install 1 GSM/UMTS/LTE cabinet. (See the plans revised to September 16, 2013 attached hereto as Exhibit A). T-Mobile will also add fiber cabling and reuse existing fiber and coax cables. The

existing Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated September 19, 2013 and attached hereto as Exhibit B.

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

1. The proposed modification will not increase the height of the rooftop or the antennas. T-Mobile's equipment is simply a replacement of existing equipment at the same centerlines. The enclosed plans confirm that the proposed modification will not increase the height of the Facility.

2. The installation of the T-Mobile replacement equipment in the existing equipment area, as reflected on the attached site plan, will not require an extension of the site boundaries. T-Mobile's proposed equipment will be located entirely within the existing equipment area.

3. The proposed modification to the Facility will not increase the noise levels at the existing facility by six decibels or more.

4. The operation of the replacement antennas will not increase the total radio frequency (RF) power density to a level at or above the applicable standard for general population exposure. Please see the RF Compliance Report prepared by EBI dated November 1, 2013 attached hereto as Exhibit C.

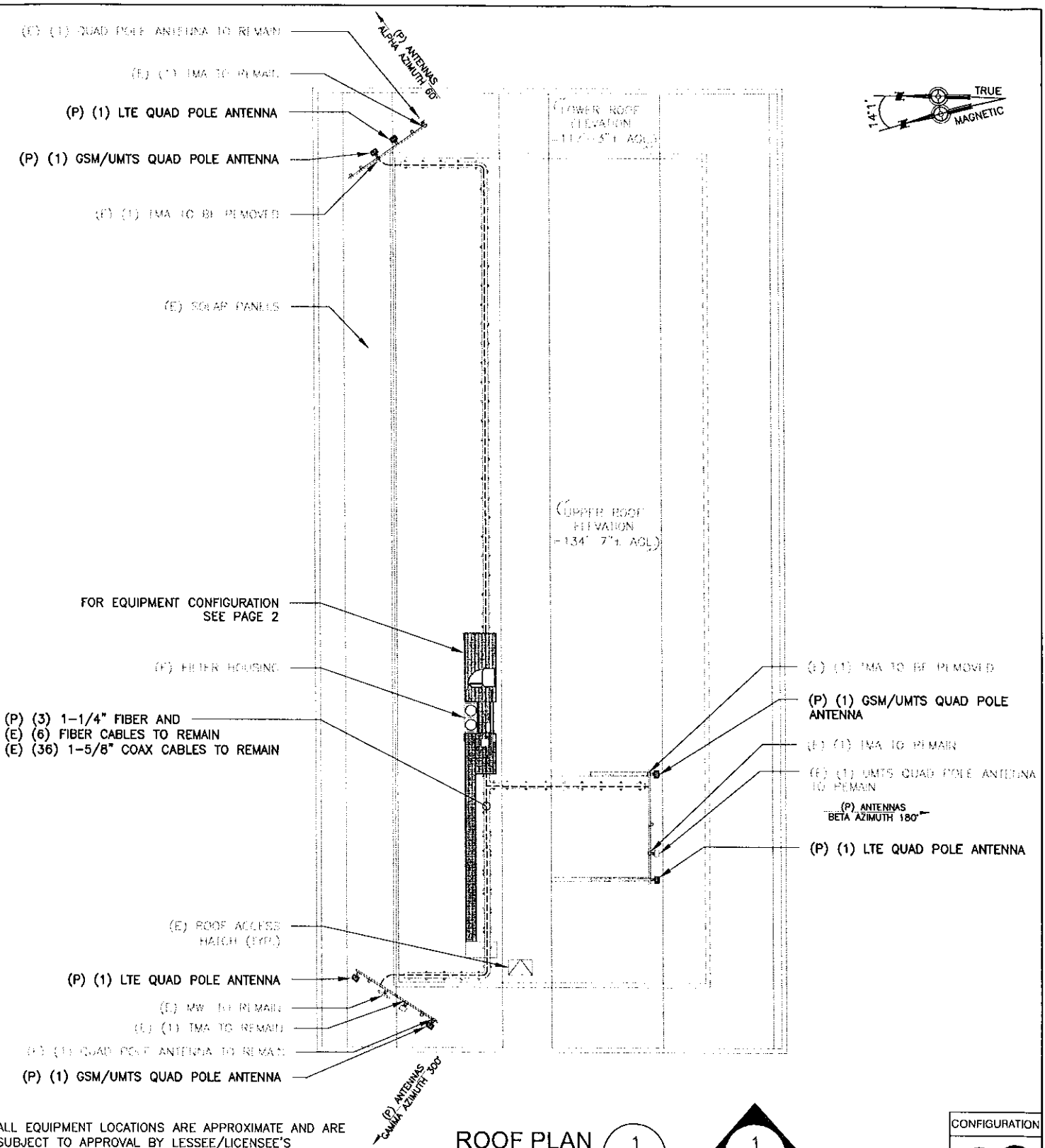
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Danbury Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Julie D. Kohler, Esq.

cc: City of Danbury, Mayor Mark D. Boughton
Danbury Hospital
Scott Chase, NSS

# EXHIBIT A




ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

ROOF PLAN 1/LE-1
N.T.S.

1/LE-3

CONFIGURATION
**2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |


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


# LEASE EXHIBIT

SITE NUMBER:
CT11108A

SITE NAME:
DANBURY HOSPITAL

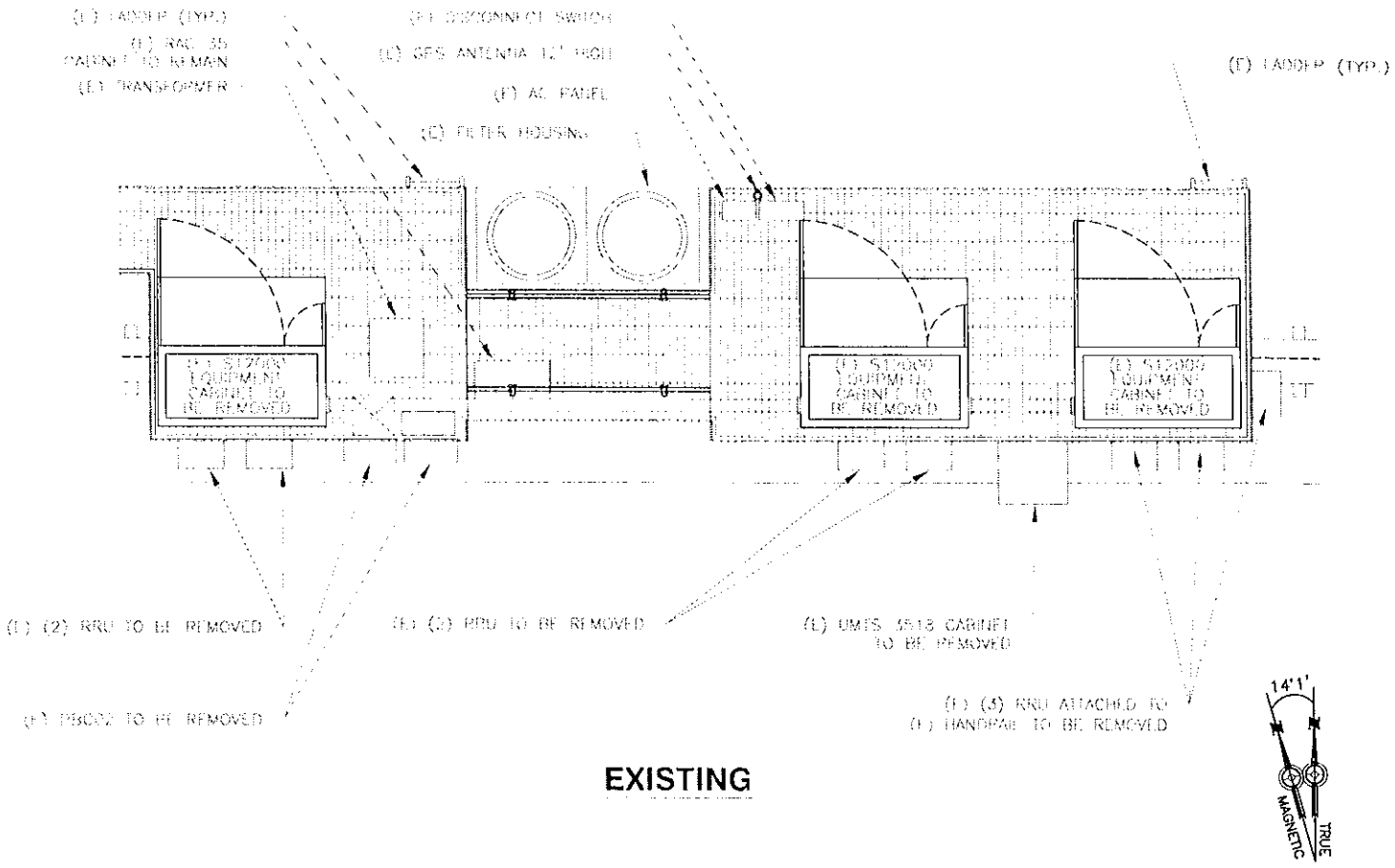
SITE ADDRESS:
24 HOSPITAL AVENUE
DANBURY, CT 06810


NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

FOR

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


DRAWN BY: MtH | CHECKED BY: MtH

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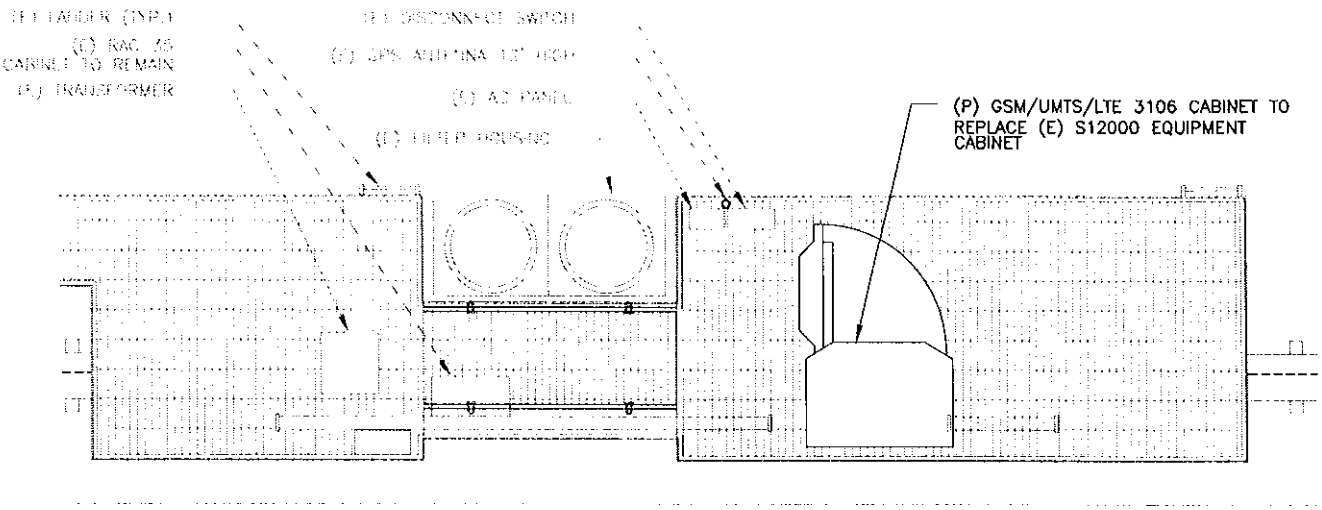


## FINAL

## EQUIPMENT LAYOUT PLAN

N.T.S.

1 / LE-2

CONFIGURATION **2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |


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# LEASE EXHIBIT

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STURBRIDGE, MA 01566
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FOR

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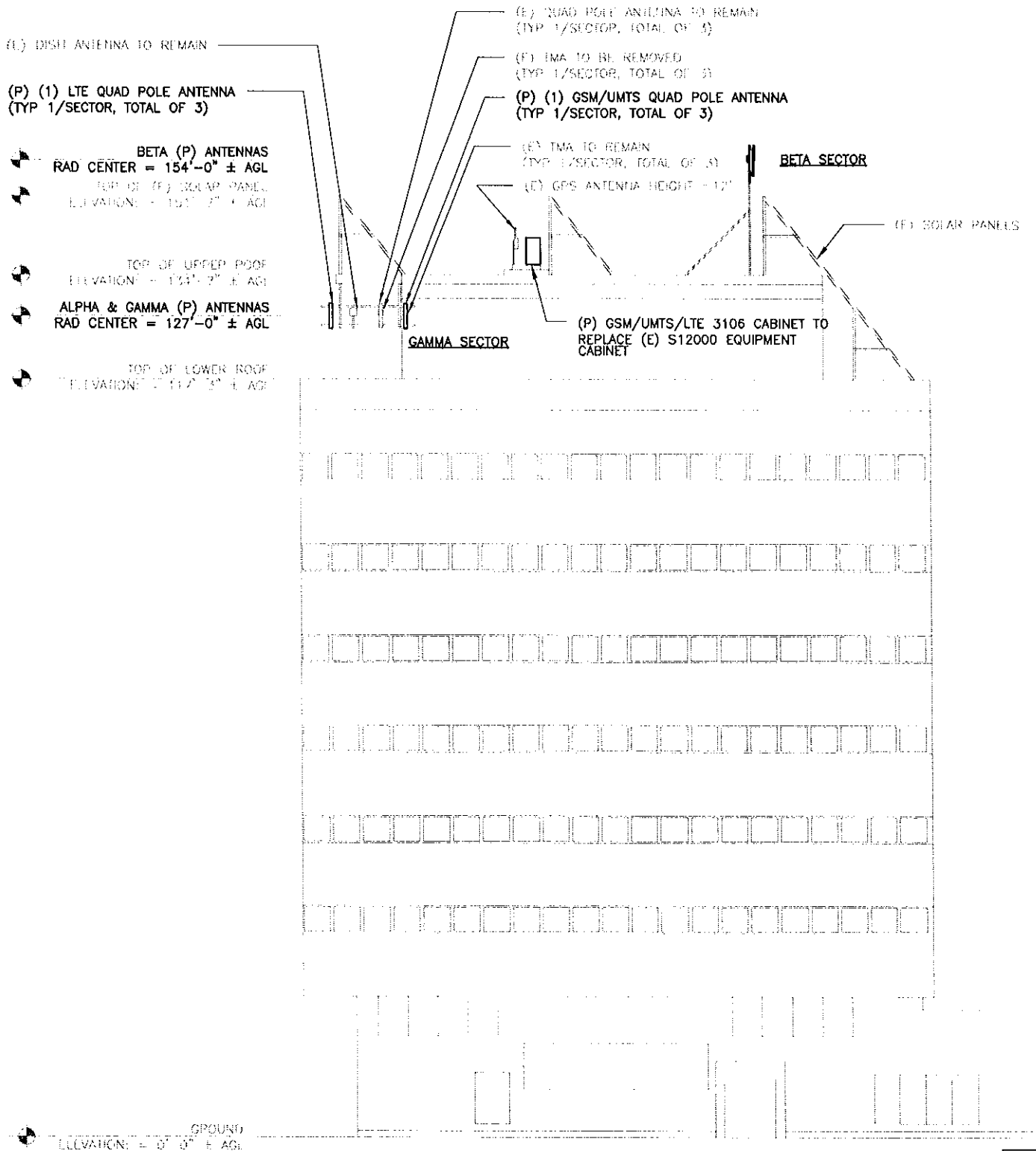
FAX: (860) 692-7159


DRAWN BY: MtH | CHECKED BY: MtH




## ELEVATION

N.T.S.

1
LE-3

CONFIGURATION

**2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |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Suite 203
Newton, MA 02459
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Fax: 617-213-5056


# LEASE EXHIBIT

SITE NUMBER:
CT11108A

SITE NAME:
DANBURY HOSPITAL

SITE ADDRESS:
24 HOSPITAL AVENUE
DANBURY, CT 06810


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FOR

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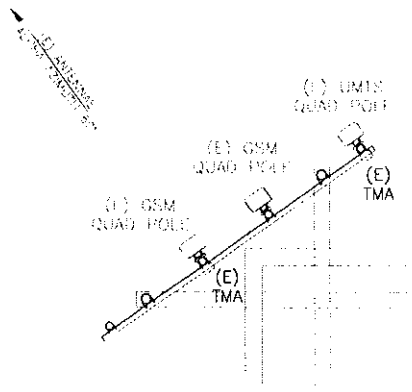
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159


DRAWN BY: MtH | CHECKED BY: MtH

## SECTOR ALPHA

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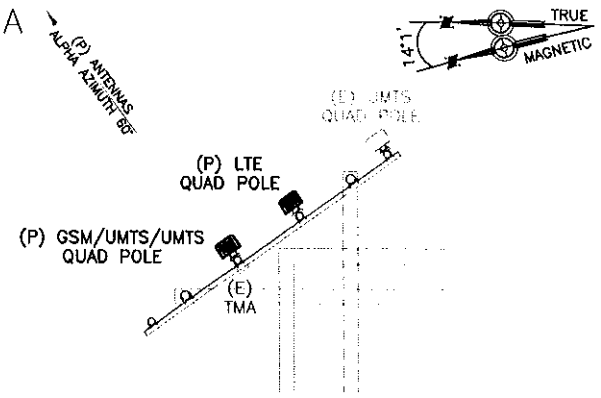
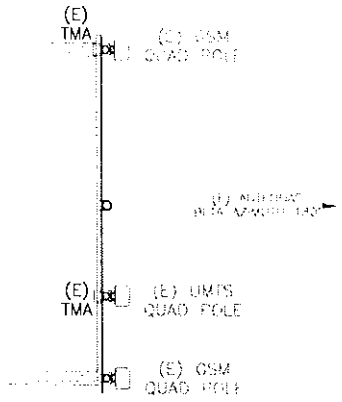



PROPOSED

## SECTOR BETA

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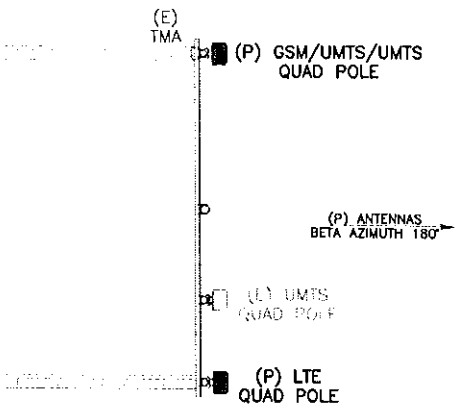
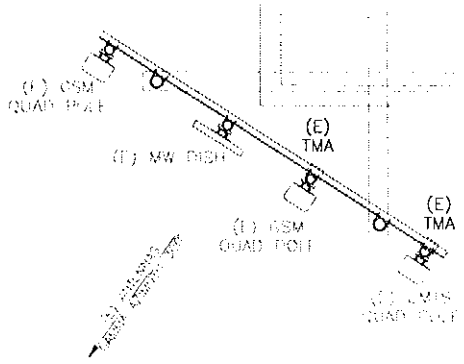



PROPOSED

## SECTOR GAMMA

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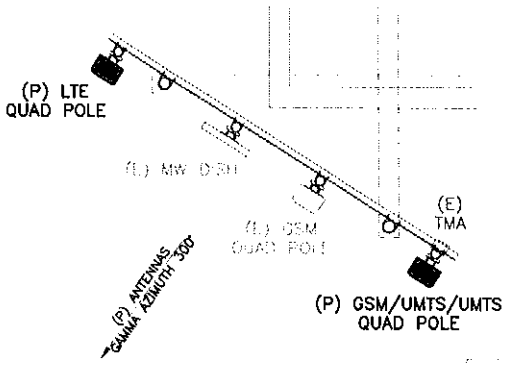


PROPOSED

CONFIGURATION

**2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |


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


# LEASE EXHIBIT

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


DRAWN BY: MtH | CHECKED BY: MtH

# EXHIBIT B

September 19, 2013

Re: Structural Evaluation Letter
T-Mobile Site ID: CT11108A
T-Mobile Site Name: DANBURY HOSPITAL
Site Address: 24 HOSPITAL AVENUE, DANBURY, CT 06810

Atlantis Group Inc. (Atlantis Group) evaluated the structural capacity of the existing wireless telecommunication installation on the building at the above referenced address for the additions and alterations proposed by T-Mobile. Please refer to the lease exhibit prepared by Atlantis Group, dated 9/16/2013 for details of the proposed changes at the site. The evaluation is based on Structural Analysis Report prepared by Bay State Design, Inc. dated 12/23/2008 and field photographs.

**Proposed Changes:**

**Equipment Cabinets:** T-Mobile equipment cabinets are located on a steel platform on the rooftop, supported by the building structural system. T-Mobile is proposing the following:

| Existing Equipment Cabinets | Final Equipment Cabinets |
|---|---|
| *(3) S12000 Cabinet – 1257lbs each<br>*(1) UMTS 3518 Cabinet – 75lbs<br>*(1) PBC02 – 262lbs<br>*(7) RRU – 60lbs each<br>(1) Transformer - 250lbs<br>(1) RAC 35 – 120lbs | (1) GSM/UMTS/LTE 3106 Cabinet – 1875lbs<br>(1) Trasformer- 250lbs<br>(1) RAC 35 – 120lbs |
| Total Weight- 4898lbs | Total Weight- 2245lbs |

***To be removed in Final.**

**Antennas and accessories:** T-Mobile is proposing the following changes to the antennas, which are attached to sector mounts located on the rooftop:

**Existing Configuration of T-MOBILE Appurtenances:**

| Sector | Rad Center (ft) | Antenna & TMA | | Mount |
|---|---|---|---|---|
| Alpha | 127 | GSM QUAD POLE<br>UMTS QUAD POLE<br>TMA | (2) APX16PV-16PVL-E<br>(1) APX16PV-16PVL-E<br>(1) dd B2 (1) dd B4 | (1) Sector Mount |
| Beta | 154 | GSM QUAD POLE<br>UMTS QUAD POLE<br>TMA | (2) APX16PV-16PVL-E<br>(1) APX16DWV-16DWVS-A20<br>(1) dd B2 (1) dd B4 | (1) Sector Mount |
| Gamma | 127 | GSM QUAD POLE<br>UMTS QUAD POLE<br>TMA<br>ANTENNA | (2) APX16PV-16PVL-E<br>(1) APX16DWV-16DWVS-A20<br>(1) dd B2 (1) dd B4<br>(1) MW Antenna | (1) Sector Mount |

1340 Centre Street Suite 203
Newton Massachusetts, 02459
Phone: 617-965-0789
Fax: 617-965-0103

**Proposed and Final Configuration of T-MOBILE Appurtenances:**

| Sector | Rad Center (ft) | Antenna & TMA | | Mount |
|---|---|---|---|---|
| Alpha | 127 | GSM/UMTS/UMTS QUAD POLE<br>LTE QUAD POLE<br>UMTS QUAD POLE<br>TMA | (1) AIR21 B2A/B4P<br>(1) AIR21 B4A/B2P<br>(1) APX16PV-16PVL-E<br>(1) dd B4 | (1) Sector Mount |
| Beta | 154 | GSM/UMTS/UMTS QUAD POLE<br>LTE QUAD POLE<br>UMTS QUAD POLE<br>TMA | (1) AIR21 B2A/B4P<br>(1) AIR21 B4A/B2P<br>(1) APX16DWV-16DWVS-A20<br>(1) dd B4 | (1) Sector Mount |
| Gamma | 127 | GSM/UMTS/UMTS QUAD POLE<br>LTE QUAD POLE<br>GSM QUAD POLE<br>TMA<br>Antenna | (1) AIR21 B2A/B4P<br>(1) AIR21 B4A/B2P<br>(1) APX16PV-16PVL-E<br>(1) dd B4<br>(1) MW Antenna | (1) Sector Mount |

**Evaluation Conditions:** The analysis is based on the information provided to Atlantis Group and is assumed to be current and correct. Unless otherwise noted, the structure and the foundation system are assumed to be in good condition, free of defects and can achieve theoretical strength. It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Atlantis Group will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance. Contractor should inspect the condition of the existing structure, mounts and connections and notify Atlantis Group for any discrepancies and deficiencies before proceeding with the construction.

It is assumed that all prior additions and alterations by T-Mobile has been properly designed and structural components, Including building structural members, have been qualified for the changed conditions. Atlantis Group does not assume any liability which may arise due to invalidity of this assumption.

The evaluation results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require Atlantis Group to generate an additional structural evaluation.

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Phone: 617-965-0789
Fax: 617-965-0103

**CONCLUSION:**

**Cabinet & Platform:** The proposed final cabinet weights (2245lbs) are less than the existing cabinet weights (4898lbs). The proposed load on the structure is below the code required design live load for elevated platforms of 60psf, thus the structure is considered to have **adequate** structural capacity without further evaluation per 2005 Connecticut Building Code, 2005 Connecticut Supplement and 2009 Amendment.

**Antenna Sector Mounts:** New antennas (4.66 $ft^2$ front wind area) are smaller than existing antennas (4.78 $ft^2$ front wind area). As the sector mounts were previously qualified for the existing configuration and higher wind loads, the evaluation condition and the design still apply and the sector mounts are considered **adequate**. It is assumed that sector mounts were designed properly and building qualified during the original design and all prior modifications.

Therefore, the additions and alterations proposed by T-Mobile **can be implemented as intended** with the conditions outlined in this letter.

Should you need any clarifications or have any questions about this letter, please contact me at (617) 965-0789.

Sincerely,
Atlantis Group
09-19-2013

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057


1340 Centre Street Suite 203
Newton Massachusetts, 02459
Phone: 617-965-0789
Fax: 617-965-0103

# EXHIBIT C

# TMO MAT RF Compliance Report

Site # CT11108A
Danbury Hospital
24 Hospital Avenue
Danbury, Connecticut 06810

EBI Project No. 69130858
November 1, 2013


Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

Prepared by:

EBI Consulting
environmental | engineering | due diligence

## TABLE OF CONTENTS



## TABLES



## APPENDICES

## EXECUTIVE SUMMARY

EnviroBusiness Inc. (dba EBI Consulting or EBI) has been contracted by T-Mobile to conduct radio frequency electromagnetic (RF-EME) modeling for T-Mobile Site # CT11108A at 24 Hospital Avenue in Danbury, Connecticut to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields. This document addresses the compliance of T-Mobile's transmitting facilities independently and in relation to all collocated facilities at the site. EBI field personnel conducted a site survey on October 23, 2013.

## STATEMENT OF COMPLIANCE

As presented in the sections below, based on worst-case theoretical modeling, there are no areas in front of the T-Mobile antennas on any walking surface that exceed the FCC standards for general population exposure. However, there are areas where workers elevated above the rooftop may be exposed to power densities greater than the general population and occupational limits.

Based on the FCC criteria, there are three (3) measured areas on the upper rooftop that exceed the FCC's general population exposure limits, but do not exceed the FCC's occupational exposure limits. There are no measured areas on any accessible ground-level walking/working surface related to the existing site conditions that exceed the FCC's occupational and exposure limits at this site.

Signage is recommended at the site as presented in Section 4.0. Posting of the signage at the site brings the site into compliance with FCC rules and regulations.

# 1. INTRODUCTION

Radio frequency waves are electromagnetic waves from the portion of the electromagnetic spectrum at frequencies lower than visible light and microwaves. The wavelengths of radio waves range from thousands of meters to around 30 centimeters. These wavelengths correspond to frequencies as low as 3 cycles per seconds (or hertz [Hz]) to as high as one gigahertz (one billion cycles per second).

Personal Communication (PCS) facilities used by T-Mobile in this area operate within a frequency range of 1900-2100 MHz. Facilities typically consist of: 1) electronic transceivers (the radios or cabinets) connected to wired telephone lines; and 2) antennas that send the wireless signals created by the transceivers to be received by individual subscriber units (PCS telephones). Transceivers are typically connected to antennas by coaxial cables.

Because of the short wavelength of PCS services, the antennas require line-of-site paths for good propagation, and are typically installed a distance above ground level. Antennas are constructed to concentrate energy towards the horizon, with as little energy as possible scattered towards the ground or the sky. This design, combined with the low power of PCS facilities, generally results in no possibility for exposure to approach Maximum Permissible Exposure (MPE) levels, with the exception of in areas in the immediate vicinity of the antennas.

MPE limits do not represent levels where a health risk exists, since they are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size or health.

## 2. SITE/PROJECT DESCRIPTION

This project site includes nine (9) T-Mobile wireless telecommunication antennas (at three sector locations, two (2) proposed and one (1) existing antenna per sector) on a rooftop located at 24 Hospital Avenue in Danbury, Connecticut. Table 1 contains an antenna inventory and a summary of exposure information.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits for workers and general population/uncontrolled exposure limits for members of the general public that may be exposed to antenna fields. Access to this site is considered uncontrolled. Additional information regarding controlled and uncontrolled exposure limits is provided in Appendix A. Appendix B presents a site safety plan that provides a plan view of the rooftop with antenna locations. Site plans are also provided in Appendix D.

EBI field personnel conducted a site survey on October 23, 2013. Verizon, Sprint, and AT&T antennas are also present on the rooftop. These other carriers were also included in the modeling analysis using elevations collected on site and assumed parameters based on EBI's prior experience with these carriers. Table 1 contains modeling information for all carriers at this site. It was also noted that there were six (6) omni antennas, three (3) whip antennas, a microwave dish, and another unknown antenna on the rooftop. These antennas were not included in the modeling as there was not enough information to model. Appendix E contains photos depicting the locations of installed signage that were taken during the site visit. Appendix B presents a site sketch indicating antenna locations.

## 3. RESULTS OF RF EME MODELING

EBI has performed theoretical modeling using Roofview® and/or TowerCalc® to estimate the maximum potential power density from each antenna based on worst-case assumptions for the number of antennas and power. The modeling assumes a maximum of 1 radio for each GSM sector with a power level of 30 Watts per transmitter, a maximum 2 radio count for each UMTS sector with a power level of 30 to 40 watts per transmitter, and a maximum 1 radio count for each LTE sector with a power level of 30 watts per transmitter in order to provide a worst-case evaluation of predicted MPE levels.

The assumptions used in the modeling of T-Mobile's antennas are based upon virtual antenna specifications, information collected during the field survey, information provided by T-Mobile and information gathered from other sources. The parameters used for modeling T-Mobile antennas are summarized in the modeling export files presented in Appendix C.

Verizon, Sprint, and AT&T also have antennas located on the rooftop. Information about these antennas was included in the modeling analysis. The assumptions used in the modeling of other carrier antennas are based on a set of virtual antenna specifications developed by EBI based on industry standards. The parameters used for modeling of other carrier antennas are also summarized in the modeling export files presented in Appendix C. There were six (6) omni antennas, three (3) whip antennas, a microwave dish, and another unknown antenna installed on the rooftop. These antennas were not included in the modeling as there was not enough information to model.

As presented in the "Electromagnetic Energy Safety Plan," included in Appendix B, the worst-case power density will not exceed the FCC's occupational or general population limits on any accessible rooftop-level walking or working surface. However, for elevated workers, power densities may exceed the occupational limit above ground level in front of the T-Mobile antennas.

Additionally, there are no predicted exceedances of the FCC's general population or occupational MPE limits at the main roof level in front of the other carrier antennas at this site. Table 1 outlines the predicted extents of the areas in front of each of the other carrier antennas that exceed the occupational and general population limits. For a person at ground level, the maximum ambient RF exposure level from the T-Mobile, Sprint, AT&T, and Verizon equipment is calculated to be 0.006 $mW/cm^2$, which is equivalent to 1.00% of the general population exposure limit.

## 4. MITIGATION/SITE CONTROL OPTIONS

EBI's modeling indicates that there are no areas on any walking or working surface at the rooftop-level in front of the T-Mobile antennas that may exceed the FCC standards for general population exposure. All exposures above the FCC's safe limits require that individuals be elevated above the rooftop. Workers should not be elevated in front of the antennas unless the wireless equipment is shut down and lockout/tagout procedures implemented in accordance with T-Mobile standard operating protocols. During EBI's site visit, it was noted that there was a blue "Notice" sign below the Verizon antennas and a red "Warning" sign below the T-Mobile Sector B antenna. It is recommended that a blue "Notice" sign be posted at all access points to the rooftop. It is also recommended that a yellow "Caution" sign and red "Climber Warning" sign be posted at the wall below each of the T-Mobile Sectors.

These protocols and recommended control measures have been summarized and included with a graphic representation of the antennas and associated signage and control areas in a RF-EME Site Safety Plan, which is included as Appendix B. Individuals and workers accessing the rooftop should be provided a copy of the attached Site Safety Plan, made aware of the posted sign, and signify their understanding of the Site Safety Plan.

## 5. SUMMARY AND CONCLUSIONS

EBI has prepared a Radiofrequency Emissions Compliance Report for telecommunications equipment installed at Site #CT11108A, located at 24 Hospital Avenue, in Danbury, Connecticut. EBI has conducted theoretical modeling to estimate the worst-case power density from T-Mobile antennas and other carriers' antennas to determine worst-case predicted RF-EME exposure levels from wireless communications equipment installed at this site. This report summarizes the results of RF-EME modeling in relation to relevant Federal Communications Commission (FCC) RF-EME compliance standards for limiting human exposure to RF-EME fields.

As presented in the preceding sections, based on worst-case theoretical modeling, there are no areas in front of the T-Mobile antennas on any walking surface that exceed the FCC standards for general population exposure. However, there are areas where workers elevated above the rooftop may be exposed to power densities greater than the general population and occupational limits.

Additionally, based on the FCC criteria, there are three (3) measured areas on the upper rooftop that exceed the FCC's general population exposure limits, but do not exceed the FCC's occupational exposure limits. There are no measured areas on any accessible ground-level walking/working surface related to the existing site conditions that exceed the FCC's occupational and exposure limits at this site.

Recommended control measures are outlined within a Site Safety Plan (attached); this plan includes procedures to shut down and lockout/tagout this wireless equipment in accordance with T-Mobile's standard operating protocol.

## 6. LIMITATIONS

This *Report* was prepared for the use of T-Mobile, Inc. It was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same locale under like circumstances. The conclusions provided by EBI are based solely on the information provided by the client. The observations in this *Report* are valid on the date of the investigation. Any additional information that becomes available concerning the Subject Property should be provided to EBI so that our conclusions may be revised and modified, if necessary. This *Report* has been prepared in accordance with Standard Conditions for Engagement and authorized proposal, both of which are integral parts of this *Report*. No other warranty, expressed or implied, is made.

## 7. REFERENCES

Federal Communications Commission (FCC) Office of Engineering & Technology (OET). Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. OET Bulletin 65, Edition 97-01. August 1997.

FCC. Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields Fourth Edition, August 1999; (OET Bulletin 56).

Richard Tell Associates, Inc., RoofView® User Guide. Version 4.15. February 10, 2003.

## Table 1: Antenna Mount and Exposure Detail

| T-MOBILE | | | | | |
|---|---|---|---|---|---|
| T-Mobile Sector/ Antenna | Azimuth (°) | Antenna Base Height (ft) Above Nearest Walking Surface | Antenna Mount | MPE Occupational Exceedance (ft) | MPE General Population Exceedance (ft) |
| | | | | in Front of Antenna | |
| A1 (GSM) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| A1 (UMTS) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| A2 (LTE) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| A3 (UMTS) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| B1 (GSM) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| B1 (UMTS) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| B2 (UMTS) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| B3 (LTE) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| C1 (GSM) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| C1 (UMTS) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| C2 (UMTS) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| C3 (LTE) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| **OTHER CARRIERS** | | | | | |
| Other Carrier Sector / Antenna | Azimuth (°) | Antenna Base Height Above (ft) Nearest Walking Surface | Antenna Mount | MPE Occupational Exceedance (ft) | MPE General Population Exceedance (ft) |
| | | | | in Front of Antenna | |
| VZN A1 | 0 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN A2 | 0 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN A3 | 0 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN A4 | 0 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN B1 | 180 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN B2 | 180 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN B3 | 180 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN B4 | 180 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN C1 | 270 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN C2 | 270 | 34 | Pipe | No Exceedance | No Exceedance |
| VZN C3 | 270 | 34 | Pipe | No Exceedance | No Exceedance |

| | | | | | |
|---|---|---|---|---|---|
| VZN C4 | 270 | 34 | Pipe | No Exceedance | No Exceedance |
| ATT A1 | 0 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT A2 | 0 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT A3 | 0 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT B1 | 120 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT B2 | 120 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT B3 | 120 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT C1 | 270 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT C2 | 270 | 7 | Pipe | No Exceedance | No Exceedance |
| ATT C3 | 270 | 7 | Pipe | No Exceedance | No Exceedance |
| SPT A1 | 30 | 9 | Pipe | No Exceedance | No Exceedance |
| SPT B1 | 120 | 33 | Pipe | No Exceedance | No Exceedance |
| SPT C1 | 270 | 33 | Pipe | No Exceedance | No Exceedance |

# APPENDIX A: REGULATORY AND MODELING INFORMATION

## Calculation of Near Field and Far Field Power Density

### Near Field

Prediction methods have been developed from the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications cell sites. The near field zone is defined by distance, D, from an antenna beyond which the manufacturer's published, far field antenna patterns will be fully formed; the near field may exist for increasing D until some or all of three conditions have been met:

$$1)\ D > \frac{2h^2}{\lambda} \qquad 2)\ D > 5h \qquad 3)\ D > 1.6\lambda$$

where $h$ = aperture height of the antenna, in meters, and
$\lambda$ = wavelength of the transmitted signal, in meters.

The FCC Office of Engineering and Technology Bulletin No. 65 (OET 65 – August 1997) gives this formula for calculating power density in the near field zone about an individual RF source:

$$\text{power density}\quad S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}, \quad \text{in } mW/cm^2,$$

where $\theta_{BW}$ = half-power beamwidth of antenna, in degrees, and
$P_{net}$ = net power input to the antenna, in watts.

The factor of 0.1 in the numerator converts to the desired units of power density. This formula has been built into the RoofView® program (described in the RF-EME Modeling Methodology section, below) that calculates FCC public and occupational limits.

### Far Field

OET 65 gives the following formula for calculating power density in the far field of an individual RF source:

$$\text{power density}\quad S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}, \quad \text{in } mW/cm^2,$$

where ERP = total ERP (all polarizations), in kilowatts,
RFF = relative field factor at the direction to the actual point of calculation, and
D = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into TowerCalc®.

## Regulatory Background

The National Environmental Policy Act of 1969 (NEPA) requires all Federal agencies to evaluate the effects of their actions on the quality of the human environment. One of several environmental factors addressed by these requirements is human exposure to RF energy emitted by FCC-regulated transmitters and facilities.

The FCC revised and updated their RF exposure guidelines on August 1, 1996, as a result of a rule-making proceeding initiated in 1993. The new guidelines incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric and magnetic field strength and power density for transmitters operating at frequencies between 0.3 MHz and 100,000 MHz. Implementation of the new guidelines for mobile and portable devices became effective August 7, 1996.

The FCC's MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC guidelines incorporate two separate tiers of exposure limits that are based upon occupational/controlled exposure limits (for workers) and general population/uncontrolled exposure limits for members of the general public.

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

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

Table 1 and Figure 1(below), which are included within the FCC's OET Bulletin 65, summarize the MPE limits for RF emissions. These limits are designed to provide a substantial margin of safety. They vary by frequency to take into account the different types of equipment that may be in operation at a particular facility, and are "time-averaged" limits to reflect different durations resulting from controlled and uncontrolled exposures.

**Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

**(A) Limits for Occupational/Controlled Exposure**

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) ($mW/cm^2$) | Averaging Time $|E|^2$, $|H|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | ($900/f^2$)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 5 | 6 |

**(B) Limits for General Population/Uncontrolled Exposure**

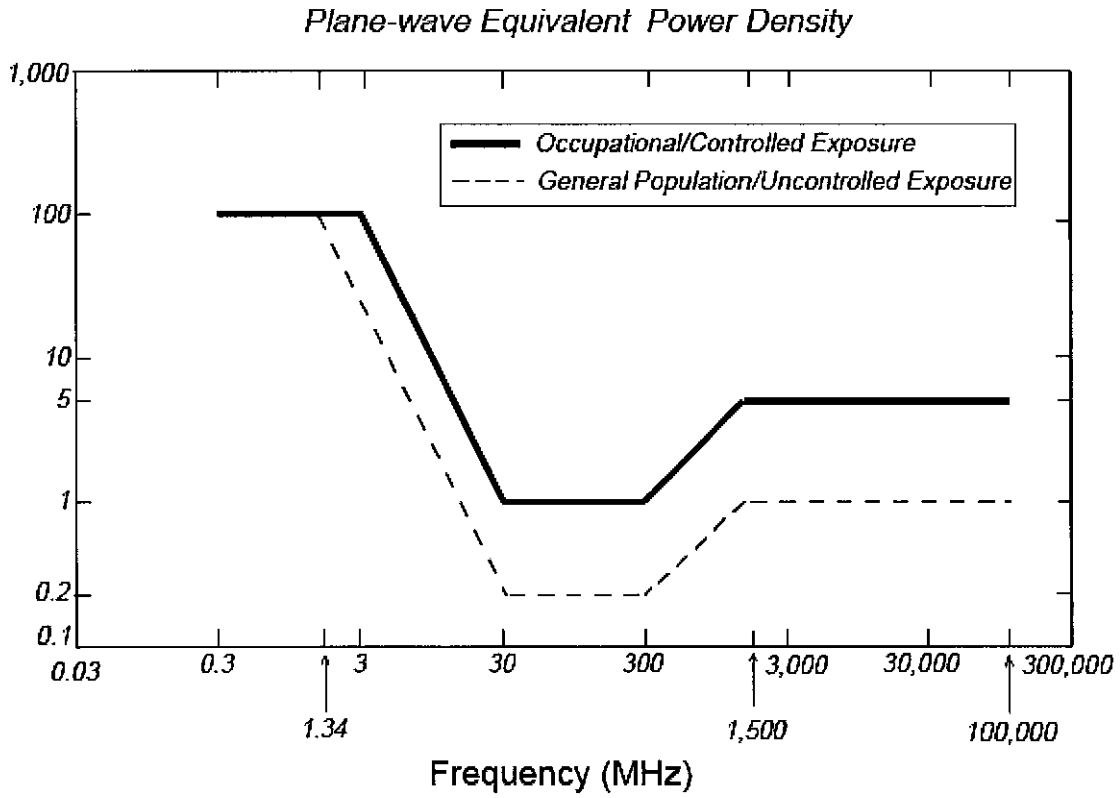
| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) ($mW/cm^2$) | Averaging Time $|E|^2$, $|H|^2$ or S (minutes) |
|---|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | ($180/f^2$)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | f/1500 | 30 |
| 1500-100,000 | -- | -- | 1.0 | 30 |

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: ***Occupational/controlled*** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: ***General population/uncontrolled*** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

*Figure 1.* *FCC Limits for Maximum Permissible Exposure (MPE)*




Based on the above, the most restrictive thresholds for exposures of unlimited duration to RF energy for several personal wireless services are summarized below:

| Personal Wireless Service | Approx. Frequency | Occupational Limit | Public Limit |
|---|---|---|---|
| Personal Communication (PCS) | 1,950 MHz | 5.00 mW/cm² | 1.00 mW/cm² |
| Cellular Telephone | 870 MHz | 2.90 mW/cm² | 0.58 mW/cm² |
| Specialized Mobile Radio | 855 MHz | 2.85 mW/cm² | 0.57 mW/cm² |
| Most Restrictive Freq, Range | 30-300 MHz | 1.00 mW/cm² | 0.20 mW/cm² |

MPE limits do not represent levels where a health risk exists, since they are designed to provide a substantial margin of safety. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size or health.

For this project, the anticipated frequency range in which the antennas will operate is 1900-2100 MHz.

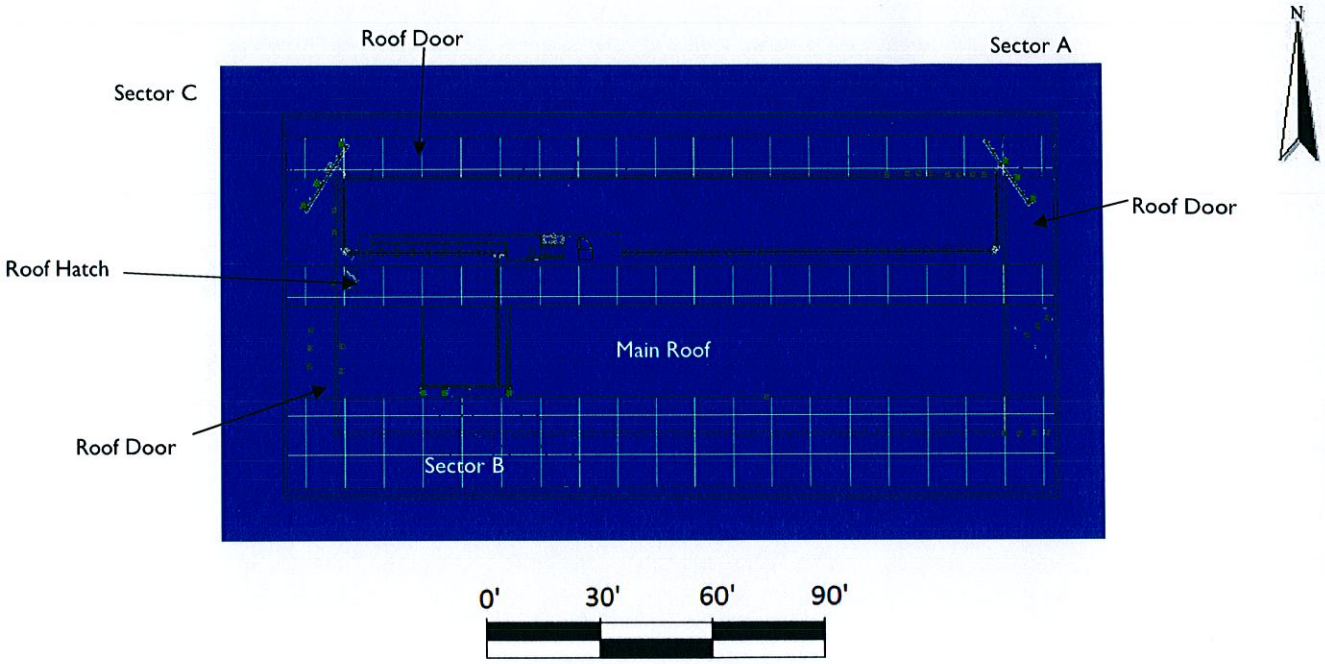
## RF-EME Modeling Methodology

EBI assesses the RF impacts of the proposed equipment and other wireless carriers through the use of TowerCalc® and RoofView® software models to predict worst-case RF exposure fields due to antennas at this site. TowerCalc® and RoofView® are widely-used predictive modeling programs that have been developed by Richard Tell Associates to predict both near field and far field RF power density values for telecommunications sites produced by vertical collinear antennas that are typically used in the cellular, PCS, paging and other communications services. The models utilize several operational specifications for different types of antennas to produce a plot of spatially-averaged power densities that can be expressed as a percentage of the applicable exposure limit. The calculations utilized by these programs are summarized in Appendix A. For this report, EBI utilized worst-case antenna and power data, and compared the resultant worst-case MPE levels to the FCC's occupational/controlled exposure limits outlined in OET Bulletin 65. (NOTE: *EBI retained Richard Tell Associates to provide technical support services to ensure that modeling and the resultant compliance evaluation for this site is fully consistent with FCC requirements).*

TowerCalc® and RoofView® calculate RF near-field levels from selected antennas by applying a model that takes into account parameters such as the antenna's aperture height, azimuthal beam width for directional antennas and the location of the antennas relative to workers at this site. Resulting spatially averaged power densities are expressed as a percentage of a user selectable exposure limit depending on frequency.

# APPENDIX B: RF-EME SAFETY PLAN

# ELECTROMAGNETIC ENERGY SAFETY PLAN




**PLAN VIEW**

## ROOFTOP RF EME ANTENNA INFORMATION AND EXPOSURE CONTROL AREAS

| | |
|---|---|
| | Power density is less than the FCC's uncontrolled MPE. Individuals may work freely within the blue exposure control areas on the rooftop. |
| | Distance [feet] in front of the antennas and direction of areas where power density is greater than the FCC's uncontrolled MPE, but less than the FCC's occupational MPE. Occupational exposure in these areas should be limited to less than 30 minutes unless proper personal protective equipment is utilized by qualified individuals with proper safety training. Access by the general public should not be allowed. |
| | Distance [feet] in front of the antennas and direction of areas where power density is greater than the FCC's occupational MPE. Occupational exposure in these areas should be limited to brief incursions by qualified individuals with proper safety training. Generally, other individuals should be restricted from entering this area until they have contacted T-Mobile who will turn off their transmitter using OSHA-approved lockout/tagout procedures. Contact for Red Exposure Control Area Lockout/Tagout Procedures: **Network Operations Center: 888-218-6664 (toll-free) Site ID # CT11108A.** |

| T-Mobile Sector/ Antenna | Azimuth (°) | Antenna Base Above Nearest Walking Surface (feet) | Antenna Mount | MPE Exceedance (feet in front of antenna) | |
|---|---|---|---|---|---|
| | | | | Occupational | General Population |
| A1 (GSM) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| A1 (UMTS) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| A2 (LTE) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| A3 (UMTS) | 60 | 7 | Pipe | No Exceedance | No Exceedance |
| B1 (GSM) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| B1 (UMTS) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| B2 (UMTS) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| B3 (LTE) | 180 | 17 | Pipe | No Exceedance | No Exceedance |
| C1 (GSM) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| C1 (UMTS) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| C2 (UMTS) | 300 | 7 | Pipe | No Exceedance | No Exceedance |
| C3 (LTE) | 300 | 7 | Pipe | No Exceedance | No Exceedance |

**Note: In order for this plan to accurately portray restricted areas it must be reprinted in color only.**

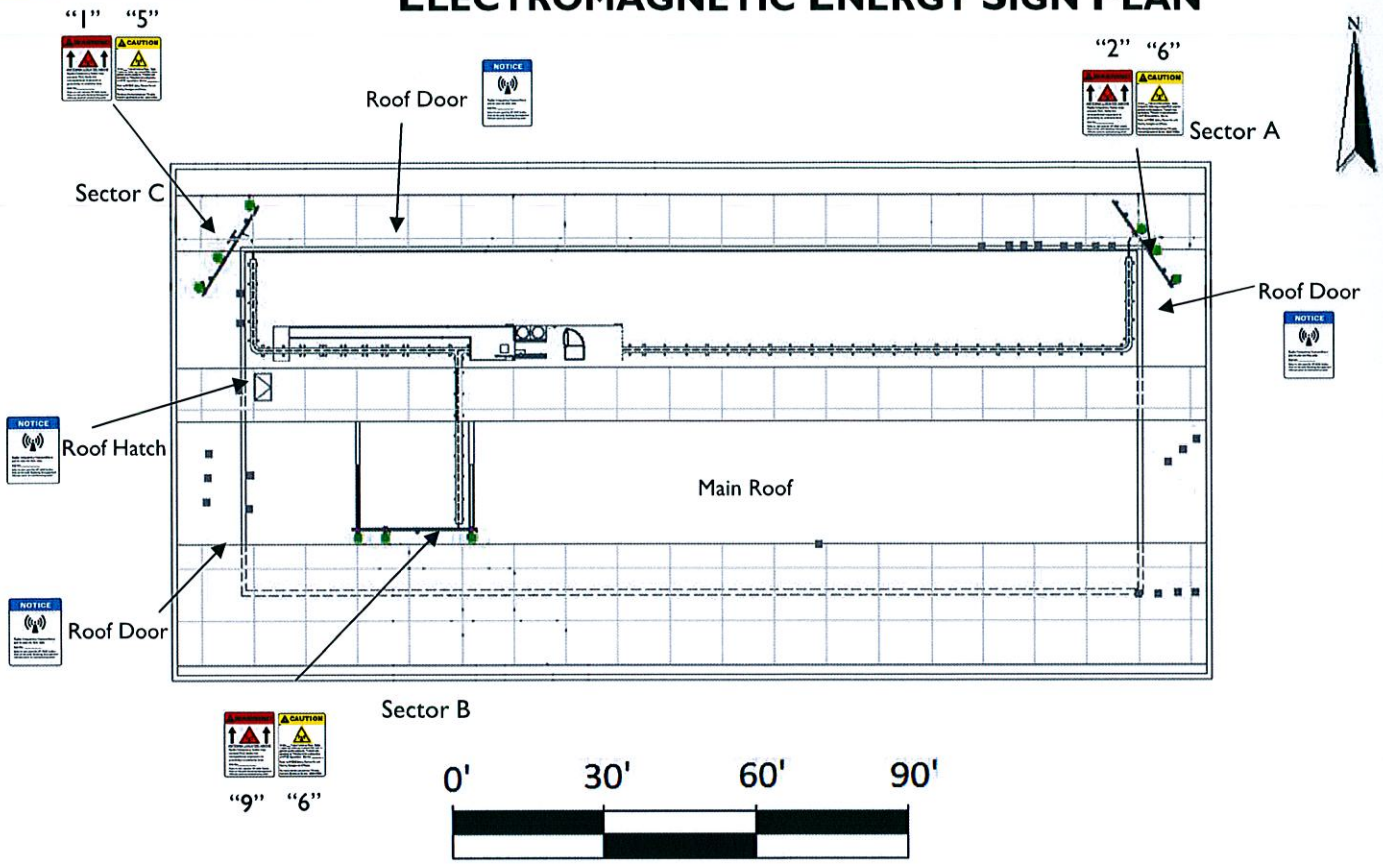
T-Mobile uses theoretical modeling to estimate the worst-case power density from each antenna. The transmitter power output used in the model is based on 1-1-1 (GSM), 2-2-2 (UMTS), and 1-1-1 (LTE) radio configuration for Sectors A, B and C. The FCC recognizes that these theoretical models over-estimate the actual exposure one would experience and generally considers the results to represent a worst-case exposure scenario. MPE limits are designed to provide a substantial margin of safety and do not represent levels where a health risk exists. Individuals accessing the rooftop should signify their understanding of the three exposure control areas on this plan and the actions necessary to control their exposure to RF energy. Information regarding other carrier antennas is provided within the RF-EME Compliance Report.

**Electromagnetic Energy Safety Plan**

**Facility Operator:** T-Mobile
**T-Mobile Site Name:** Danbury Hospital
**T-Mobile Site Number:** CT11108A
**Location:** 24 Hospital Avenue
Danbury, Connecticut 06810
**Date:** 11/01/13 **Rev.** 0

EBI Consulting
environmental | engineering | due diligence

# ELECTROMAGNETIC ENERGY SIGN PLAN




**PLAN VIEW**

## SIGNAGE INSTRUCTIONS

| Sign Image | Description | Posting Instructions |
|---|---|---|
| NOTICE | **Sign A: Blue Notice Sign (8-1/2" x 11")** Used to notify individuals they are entering an area where the power density emitted from transmit antennas is within the FCC's MPE limit for the general public. | Securely post at the first point of access to the rooftop (on the interior of the roof access doors and roof access hatch) in a manner conspicuous to all individuals entering thereon.<br><br>Denote Site ID Number on Sign in Permanent Marker. |
| CAUTION | **Sign B: Yellow Caution Sign (8-1/2" x 11")** Used for horizontal and vertical setbacks from RF EME exposures to caution individuals that they are entering an area where the power density emitted from transmit antennas may exceed the FCC's MPE limit for the general public, but is less than the occupational exposure limit. | Securely post on the wall near the T-Mobile antennas, in a manner conspicuous to all individuals entering thereon.<br><br>Denote Site ID Number and Distance "6" for Sector A and B and "5" for Sector C (from Plan View) on Sign in Permanent Marker. |
| WARNING | **Sign F: Red Warning Sign (8-1/2" x 11")** Used for vertical setbacks from RF EME exposures to warn individuals that they are entering an area where the power density emitted from transmit antennas may exceed the FCC's MPE limit for occupational exposure. | Securely post on the wall 24' above the roof at Sector A and on the wall 48" above Sector B and C, in a manner conspicuous to all individuals entering thereon.<br><br>Denote Site ID Number and Distance "2" for Sector A "9" for Sector B and "1" for Sector C (from Plan View) Inscribed on Sign in Permanent Marker. |

**Note: In order for this plan to accurately portray restricted areas it must be reprinted in color only.**

PLAN DEVELOPED BY EBI CONSULTING BASED UPON BASE PLAN PREPARED BY ATLANTIS GROUP DATED 09-16-13.

**Electromagnetic Energy Safety Plan**

**Facility Operator:** T-Mobile
**T-Mobile Site Name:** Danbury Hospital
**T-Mobile Site Number:** CT11108A
**Location:** 24 Hospital Avenue
Danbury, Connecticut 06810
**Date:** 11/01/13 **Rev.** 0

# APPENDIX C: MODELING EXPORT FILES

StartMapDefinition

| Roof Max Y | Roof Max X | Map Max Y | Map Max X | Y Offset | X Offset | Number of envelope | | |
|---|---|---|---|---|---|---|---|---|
| 200 | 200 | 210 | 210 | 0 | 0 | 1 | $K$21:$HB | $K$21:$HB$220 |

List Of Area
$K$21:$HB

StartSettingsData

| Standard | Method | Uptime | Scale Factc | Low Thr | Low Color | Mid Thr | Mid Color | Hi Thr | Hi Color | Over Color | Ap Ht Mult | Ap Ht Method |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 2 | 3 | 1 | 20 | 1 | 50 | 2 | 100 | 2 | 3 | 1.5 | 1 |

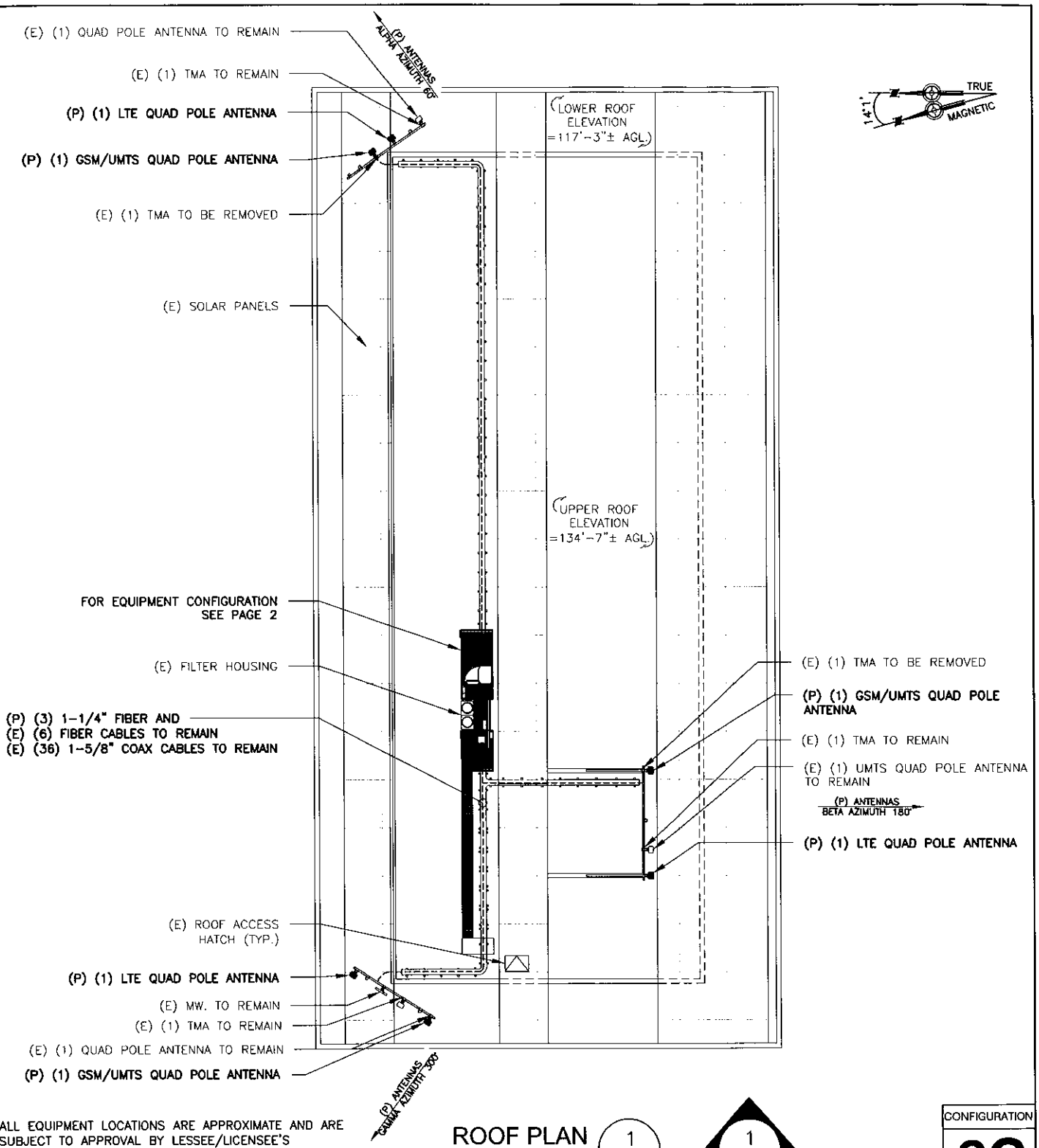
StartAntennaData It is advisable to provide an ID (ant 1) for all antennas

| ID | Name | (MHz) Freq | Trans Power | Trans Count | Coax Len | Coax Type | Other Loss | Input Power | Calc Power | Mfg | Model | (ft) X | (ft) Y | (ft) Z | Type | (ft) Aper | dBd Gain | BWdth Pt Dir | Uptime Profile | ON flag |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TMO A1 | GSM | 1900 | 30 | 1 | 95 | 1 5/8 LDF | 1.46 | | 21.43489 | Ericsson | AIR21 B2A, | 32 | 197 | 7 | | 4.6 | 15.35 | 65;330 | | ON• |
| TMO A1 | UMTS | 1900 | 30 | 1 | 95 | 1 5/8 LDF | 1.46 | | 21.43489 | Ericsson | AIR21 B2A, | 32 | 197 | 7 | | 4.6 | 15.35 | 65;330 | | ON• |
| TMO A2 | LTE | 2100 | 30 | 1 | 95 | 1 5/8 LDF | 1.46 | | 21.43489 | Ericsson | AIR21 B2A, | 36 | 201 | 7 | | 4.6 | 15.35 | 65;330 | | ON• |
| TMO A3 | UMTS | 2100 | 40 | 1 | 95 | 1 5/8 LDF | 1.46 | | 28.57985 | RFS | APX16PV-1 | 42 | 205 | 7 | | 4.6 | 16.3 | 65;330 | | ON• |
| TMO B1 | GSM | 1900 | 30 | 1 | 95 | 1 5/8 LDF | 1.46 | | 21.43489 | Ericsson | AIR21 B2A, | 92 | 66 | 17 | | 4.6 | 15.35 | 65;90 | | ON• |
| TMO B1 | UMTS | 1900 | 30 | 1 | 95 | 1 5/8 LDF | 1.46 | | 21.43489 | Ericsson | AIR21 B2A, | 92 | 66 | 17 | | 4.6 | 15.35 | 65;90 | | ON• |
| TMO B2 | UMTS | 2100 | 40 | 1 | 95 | 1 5/8 LDF | 1.46 | | 28.57985 | RFS | APX16DW\ | 92 | 49 | 17 | | 4.6 | 16.3 | 65;90 | | ON• |
| TMO B3 | LTE | 2100 | 30 | 1 | 95 | 1 5/8 LDF | 1.46 | | 21.43489 | Ericsson | AIR21 B2A, | 92 | 44 | 17 | | 4.6 | 15.35 | 65;90 | | ON• |
| TMO C1 | GSM | 1900 | 30 | 1 | 175 | 1 5/8 LDF | 1.52 | | 21.14079 | Ericsson | AIR21 B2A, | 43 | 12 | 7 | | 4.6 | 15.35 | 65;210 | | ON• |
| TMO C1 | UMTS | 1900 | 30 | 1 | 175 | 1 5/8 LDF | 1.52 | | 21.14079 | Ericsson | AIR21 B2A, | 43 | 12 | 7 | | 4.6 | 15.35 | 65;210 | | ON• |
| TMO C2 | UMTS | 2100 | 40 | 1 | 175 | 1 5/8 LDF | 1.52 | | 28.18772 | RFS | APX16PV-1 | 37 | 16 | 7 | | 4.6 | 16.3 | 65;210 | | ON• |
| TMO C3 | LTE | 2100 | 30 | 1 | 175 | 1 5/8 LDF | 1.52 | | 21.14079 | Ericsson | AIR21 B2A, | 27 | 22 | 7 | | 4.6 | 15.35 | 65;210 | | ON• |
| VZN A1 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 35 | 184 | 34 | | 5 | 12 | 85;270 | | ON• |
| VZN A2 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 35 | 187 | 34 | | 5 | 12 | 85;270 | | ON• |
| VZN A3 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 35 | 190 | 34 | | 5 | 12 | 85;270 | | ON• |
| VZN A4 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 35 | 193 | 34 | | 5 | 12 | 85;270 | | ON• |
| VZN B1 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 103 | 201 | 34 | | 5 | 12 | 85;90 | | ON• |
| VZN B2 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 103 | 198 | 34 | | 5 | 12 | 85;90 | | ON• |
| VZN B3 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 103 | 195 | 34 | | 5 | 12 | 85;90 | | ON• |
| VZN B4 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 103 | 192 | 34 | | 5 | 12 | 85;90 | | ON• |
| VZN C1 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 85 | 22 | 34 | | 5 | 12 | 85;180 | | ON• |
| VZN C2 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 81 | 22 | 34 | | 5 | 12 | 85;180 | | ON• |
| VZN C3 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 49 | 22 | 34 | | 5 | 12 | 85;180 | | ON• |
| VZN C4 | Verizon | 850 | 25 | 1 | | | 3 | | 12.52968 | Unknown | Unknown | 45 | 22 | 34 | | 5 | 12 | 85;180 | | ON• |
| ATT A1 | ATT | 850 | 33 | 1 | | | 3 | | 16.53918 | Unknown | Unknown | 35 | 146 | 7 | | 4.5 | 12 | 86;270 | | ON• |
| ATT A2 | ATT | 850 | 34 | 1 | | | 3 | | 17.04037 | Unknown | Unknown | 35 | 149 | 7 | | 4.5 | 12 | 86;270 | | ON• |
| ATT A3 | ATT | 850 | 33 | 1 | | | 3 | | 16.53918 | Unknown | Unknown | 35 | 152 | 7 | | 4.5 | 12 | 86;270 | | ON• |
| ATT B1 | ATT | 850 | 33 | 1 | | | 3 | | 16.53918 | Unknown | Unknown | 87 | 203 | 7 | | 4.5 | 12 | 86;30 | | ON• |
| ATT B2 | ATT | 850 | 34 | 1 | | | 3 | | 17.04037 | Unknown | Unknown | 90 | 201 | 7 | | 4.5 | 12 | 86;30 | | ON• |
| ATT B3 | ATT | 850 | 33 | 1 | | | 3 | | 16.53918 | Unknown | Unknown | 93 | 198 | 7 | | 4.5 | 12 | 86;30 | | ON• |
| ATT C1 | ATT | 850 | 33 | 1 | | | 3 | | 16.53918 | Unknown | Unknown | 86 | 13 | 7 | | 4.5 | 12 | 86;180 | | ON• |
| ATT C2 | ATT | 850 | 34 | 1 | | | 3 | | 17.04037 | Unknown | Unknown | 82 | 13 | 7 | | 4.5 | 12 | 86;180 | | ON• |
| ATT C3 | ATT | 850 | 33 | 1 | | | 3 | | 16.53918 | Unknown | Unknown | 78 | 13 | 7 | | 4.5 | 12 | 86;180 | | ON• |
| SPT A1 | Sprint | 1900 | 20 | 1 | | | 3 | | 10.02374 | RFS | APXVSPP1 | 35 | 142 | 9 | | 6 | 16 | 65;300 | | ON• |
| SPT B1 | Sprint | 1900 | 20 | 1 | | | 3 | | 10.02374 | RFS | APXVSPP1 | 93 | 147 | 33 | | 6 | 16 | 65;30 | | ON• |
| SPT C1 | Sprint | 1900 | 20 | 1 | | | 3 | | 10.02374 | RFS | APXV9ERR | 65 | 20 | 33 | | 6 | 16 | 65;180 | | ON• |

StartSymbolData

| Sym | Map Mark | Roof X | Roof Y | Map Label | Description ( notes for this table only ) |
|---|---|---|---|---|---|
| Sym | | 5 | 35 | AC Unit | Sample symbols |
| Sym | | 14 | 5 | Roof Access | |
| Sym | | 45 | 5 | AC Unit | |
| Sym | | 45 | 20 | Ladder | |

# APPENDIX D: SITE PLANS




ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

ROOF PLAN 1/LE-1
N.T.S.

1/LE-3

CONFIGURATION
**2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |


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


# LEASE EXHIBIT

SITE NUMBER:
CT11108A

SITE NAME:
DANBURY HOSPITAL

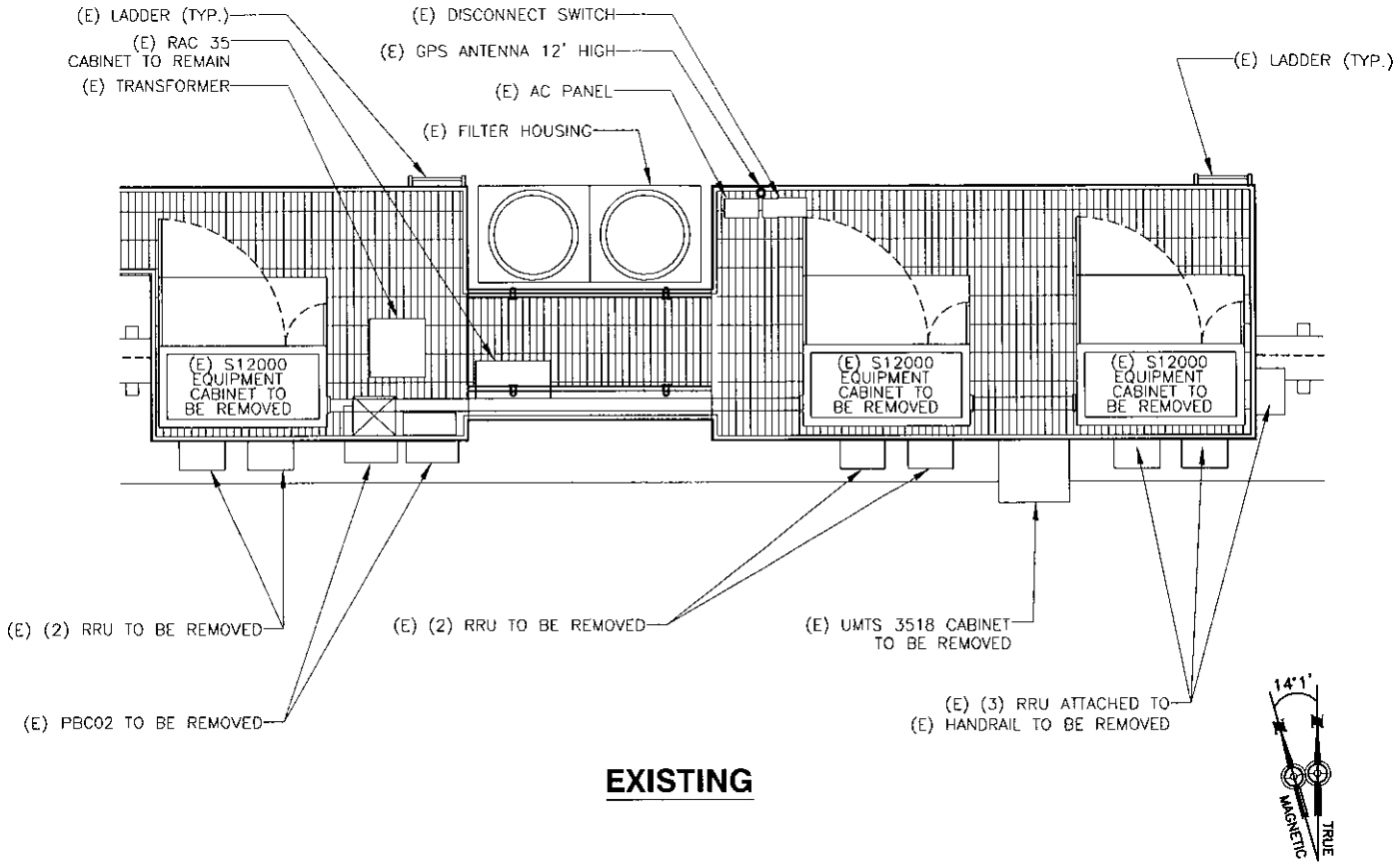
SITE ADDRESS:
24 HOSPITAL AVENUE
DANBURY, CT 06810


NORTHEAST SITE SOLUTIONS
54 MAIN STREET, UNIT 3
STURBRIDGE, MA 01566
(508) 434-5237

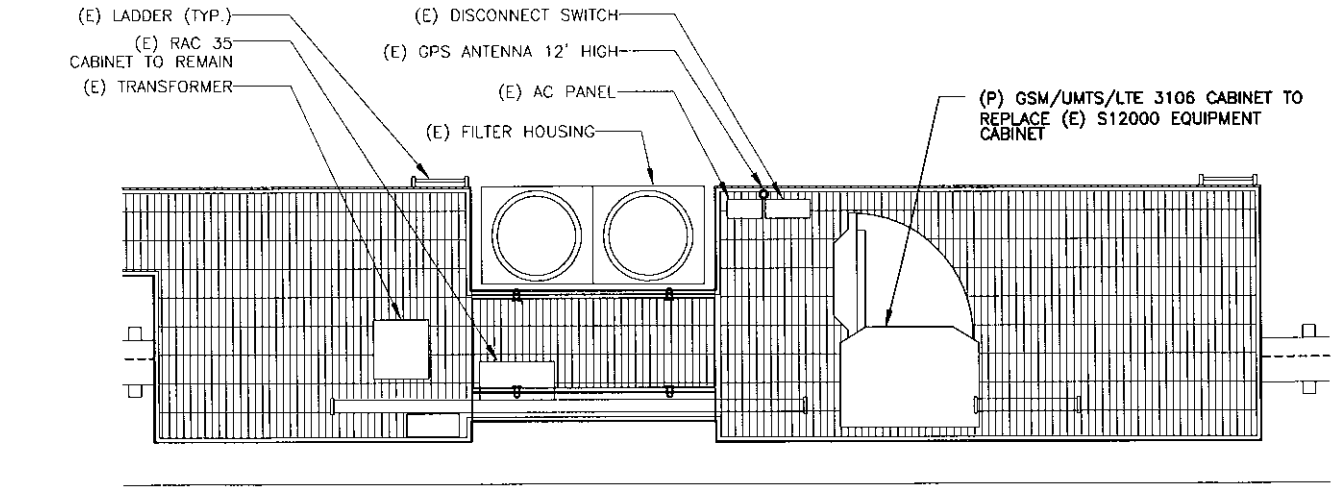
FOR

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


DRAWN BY: MtH | CHECKED BY: MtH




## EXISTING




## FINAL

## EQUIPMENT LAYOUT PLAN

N.T.S.

1 / LE-2

CONFIGURATION **2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |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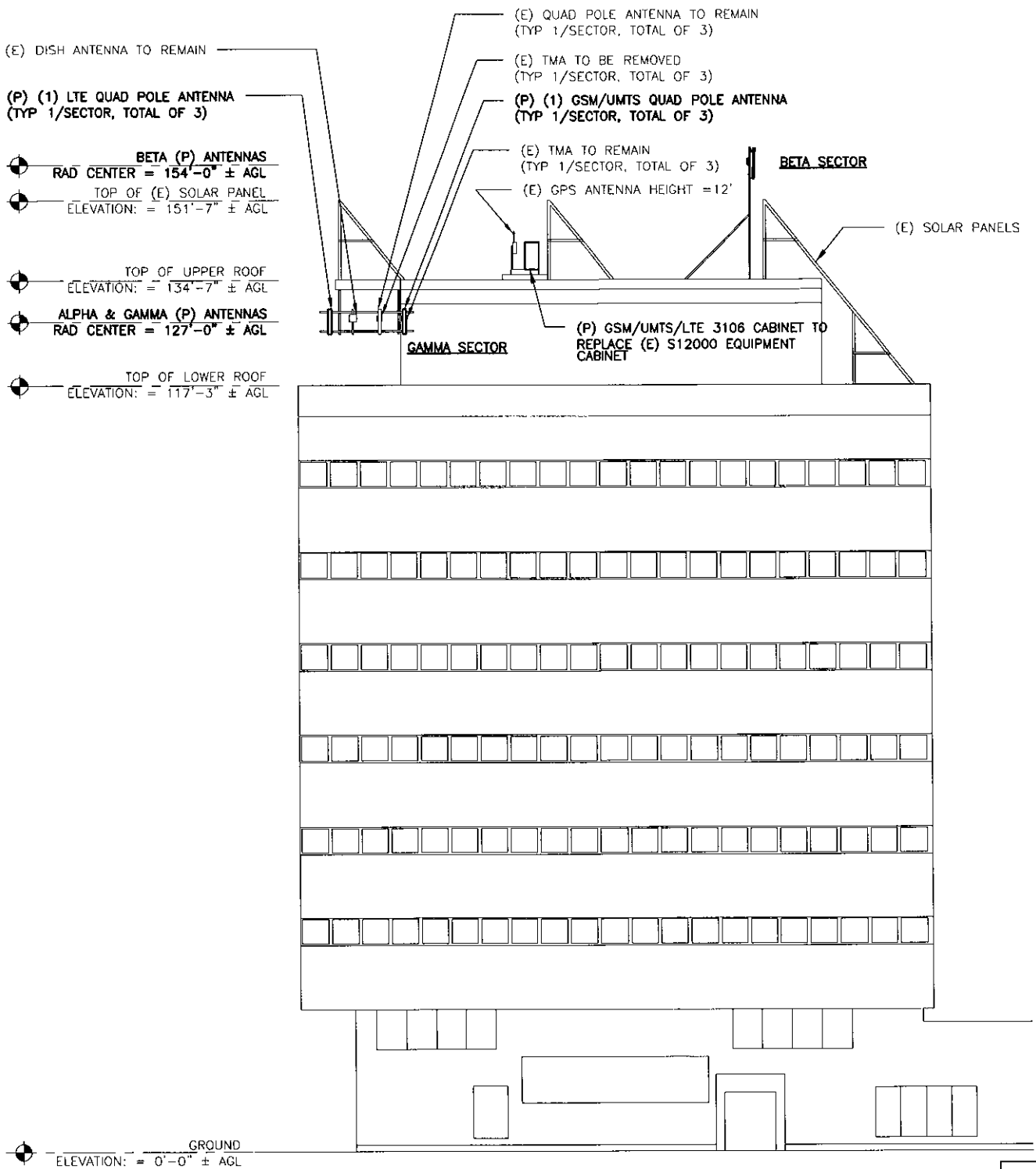
DRAWN BY: MtH | CHECKED BY: MtH




**ELEVATION** (1 / LE-3)
N.T.S.

CONFIGURATION
**2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |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BLOOMFIELD, CT 06002
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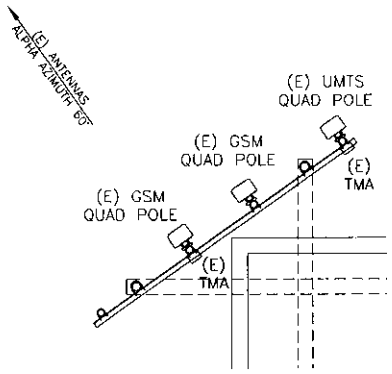
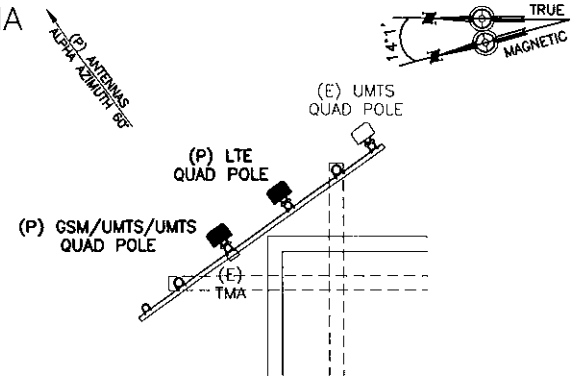
DRAWN BY: MtH | CHECKED BY: MtH

## SECTOR ALPHA

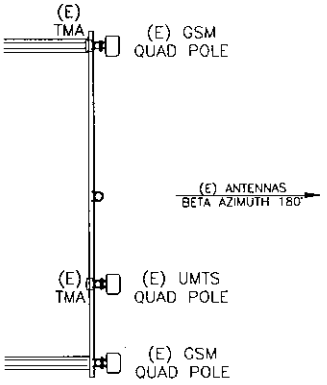



EXISTING

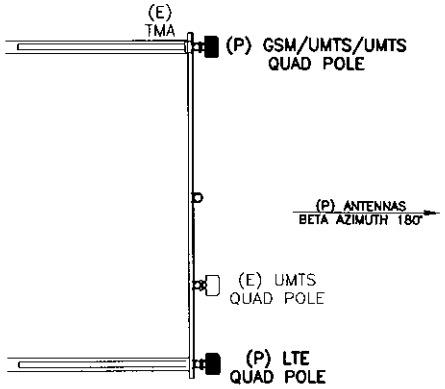



PROPOSED

## SECTOR BETA

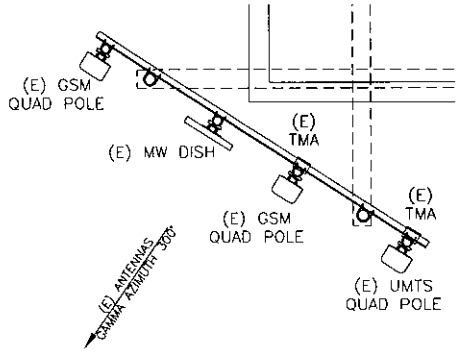



EXISTING

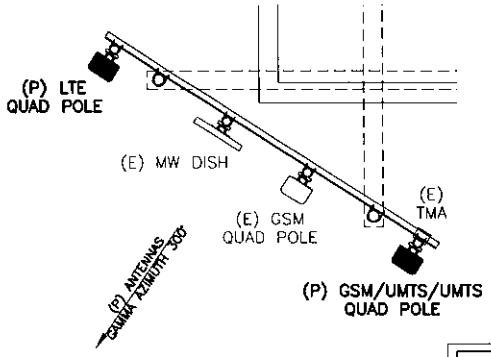



PROPOSED

## SECTOR GAMMA




EXISTING




PROPOSED

CONFIGURATION

**2C**

| SUBMITTALS | |
|---|---|
| LE REV A | 09.12.13 |
| LE REV 0 | 09.16.13 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |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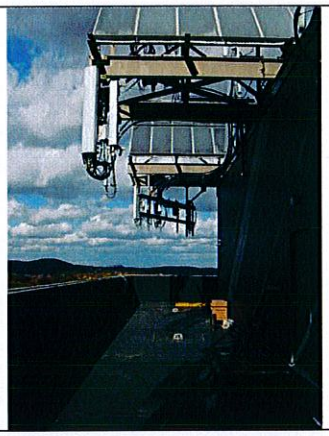
OFFICE: (860) 692-7100
FAX: (860) 692-7159


DRAWN BY: MtH | CHECKED BY: MtH

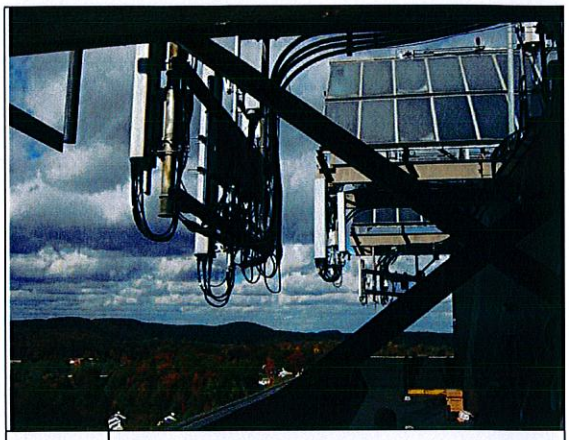
# APPENDIX E: SITE PHOTOGRAPHS



| | |
|---|---|
| 1. | Nearest walking surface below Sprint Sector A |

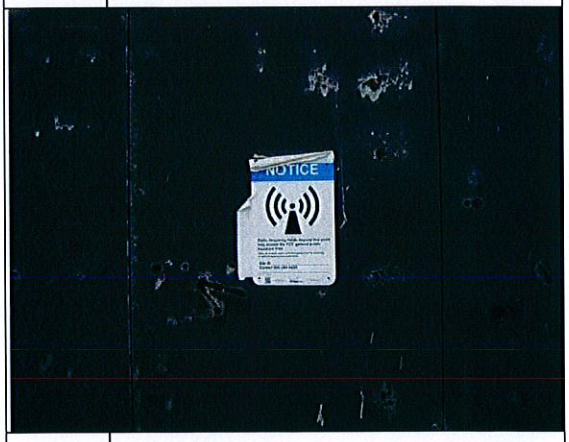
| | |
|---|---|
| 2. | Nextel antennas (disconnected) on east wall |

| | |
|---|---|
| 3. | AT&T Sector C |

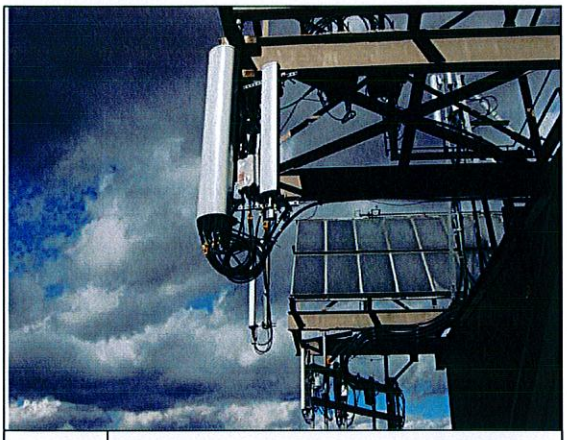


| | |
|---|---|
| 4. | Nearest walking surface below AT&T and Sprint antennas |

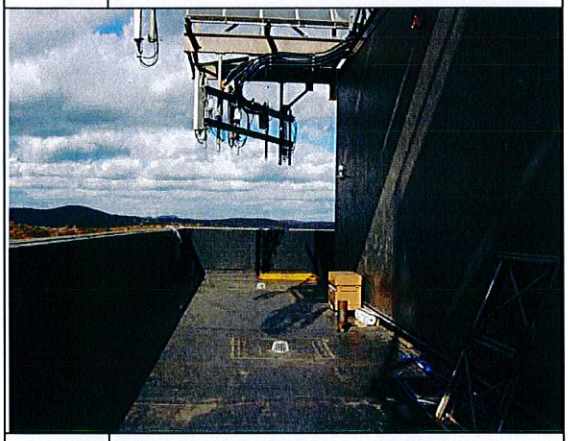
| | |
|---|---|
| 5. | T-Mobile Sector B antennas (left 3) |



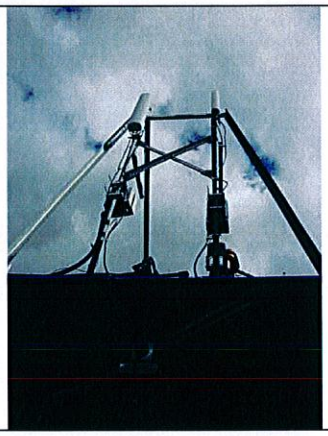

| | |
|---|---|
| 6. | Blue Notice antennas below Sprint antennas |



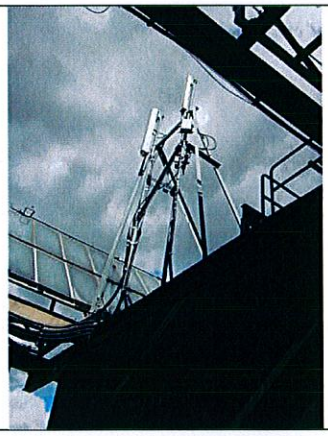
| | |
|---|---|
| **7.** | Sprint antennas on east side of building |



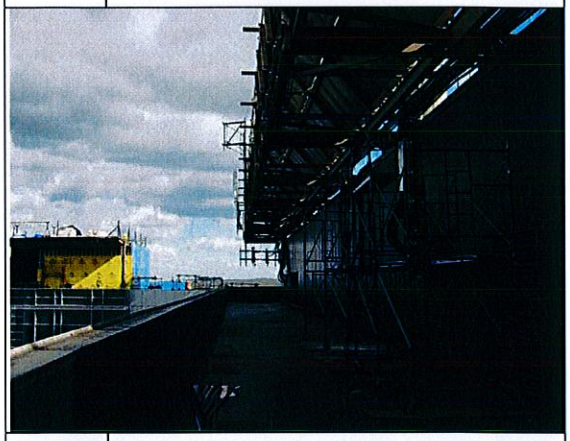
| | |
|---|---|
| **8.** | Nearest walking surface below T-Mobile Sector C |



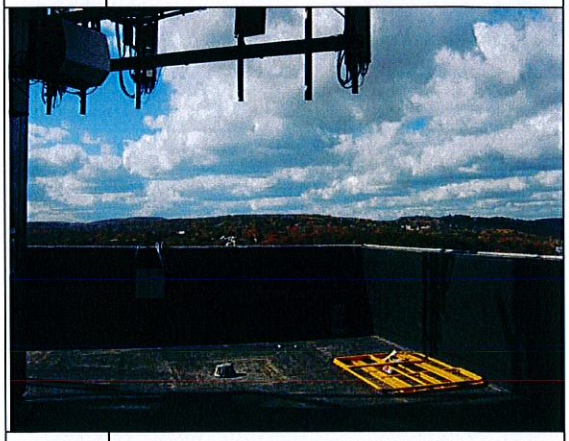
| | |
|---|---|
| **9.** | Verizon Sector B antennas (2 of 4) |



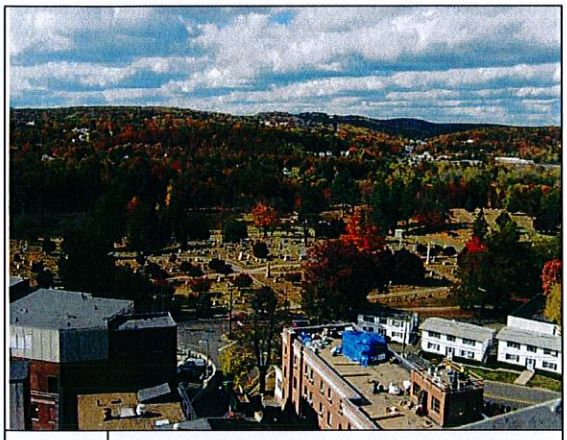
| | |
|---|---|
| **10.** | Verizon Sector B antennas (2 of 4) |



| | |
|---|---|
| **11.** | North roof overview looking east |

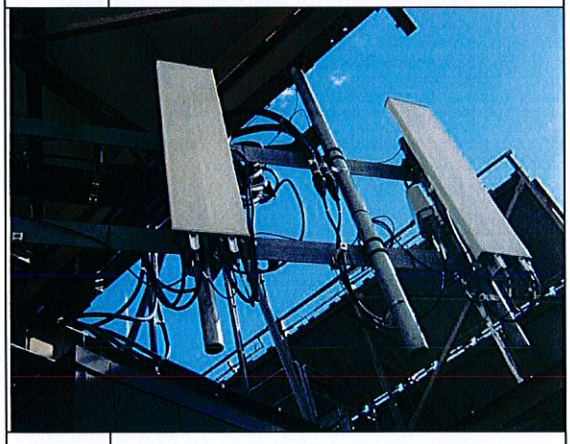


| | |
|---|---|
| **12.** | Nearest walking surface below T-Mobile Sector A |

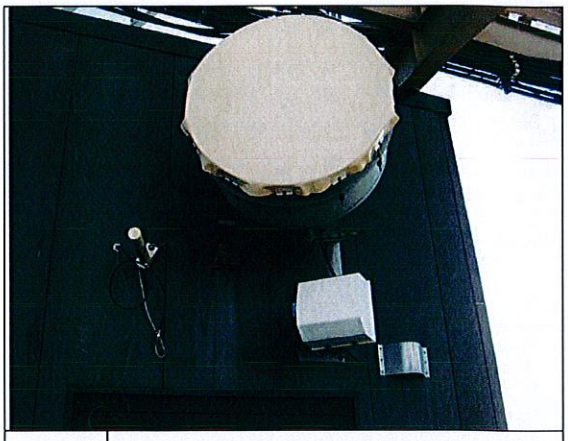


| | |
|---|---|
| **13.** | T-Mobile Sector A broadcast direction |

| | |
|---|---|
| **14.** | T-Mobile Sector A antennas (2 of 4) |



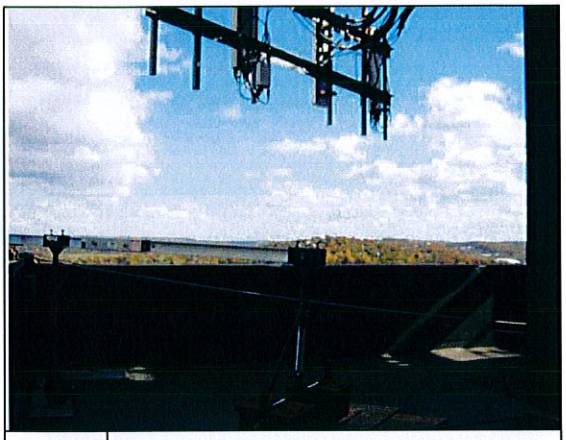
| | |
|---|---|
| **15.** | T-Mobile Sector A antennas (2 of 4) |



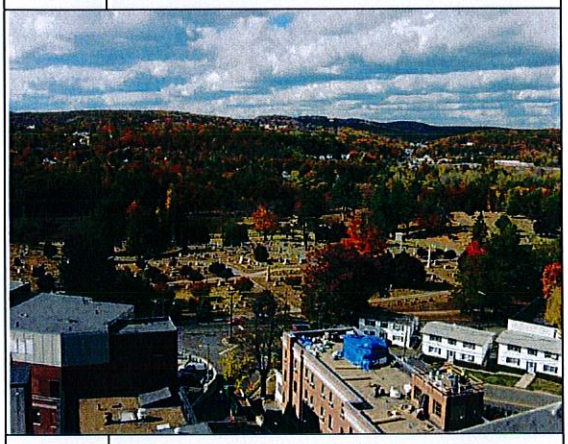
| | |
|---|---|
| **16.** | Large microwave antenna |

| | |
|---|---|
| **17.** | AT&T Sector A antennas |

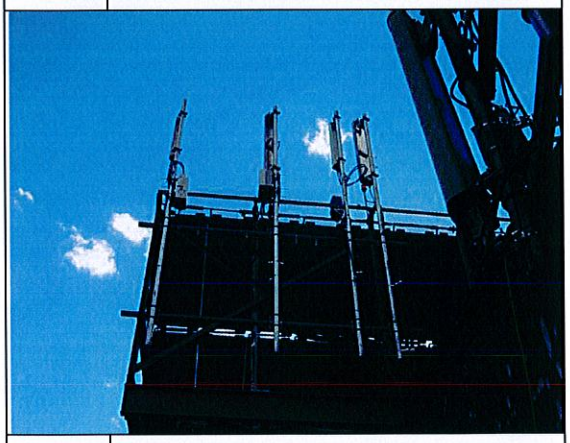
| | |
|---|---|
| **18.** | T-Mobile Sector C antennas |



| | |
|---|---|
| **19.** | NWS below T-Mobile Sector A antennas |



| | |
|---|---|
| **20.** | T-Mobile Sector A broadcast direction |

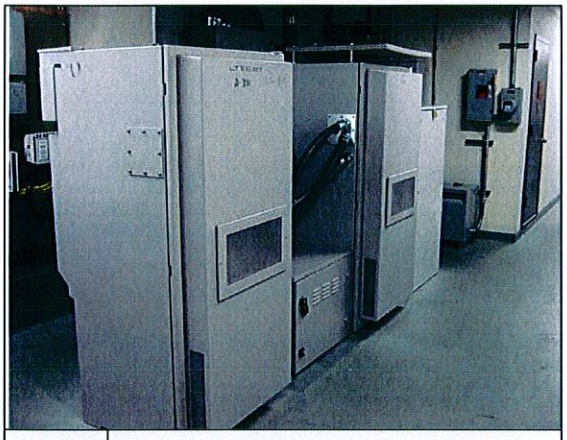


| | |
|---|---|
| **21.** | Verizon Sector B antennas |


| | |
|---|---|
| **22.** | Signage on roof access door at top of stairwell A |


| | |
|---|---|
| **23.** | Signage on roof access door at top of stairwell B |

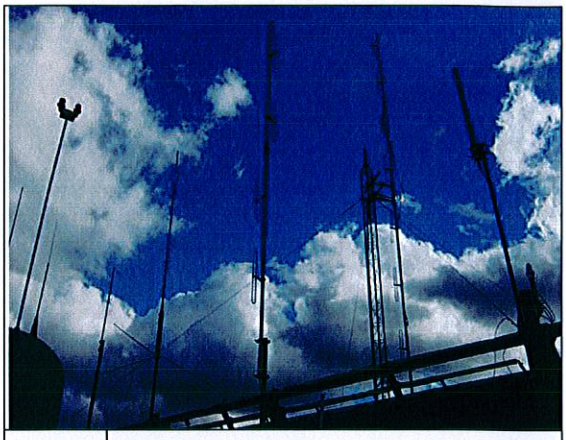

| | |
|---|---|
| **24.** | Signage beside roof access door at top of stairwell B |



| | |
|---|---|
| **25.** | Sprint equipment |

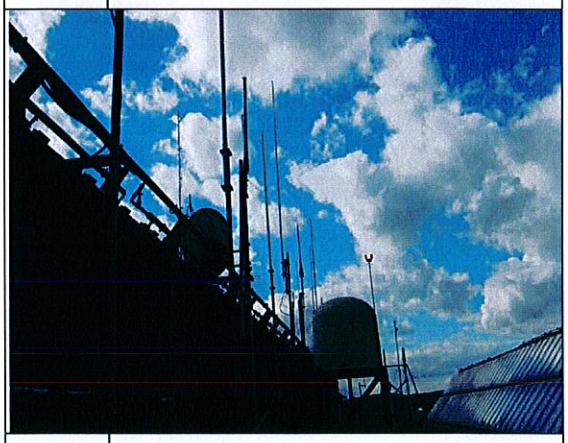
| | |
|---|---|
| **26.** | T-Mobile equipment on upper roof |

| | |
|---|---|
| **27.** | T-Mobile equipment on upper roof |



| | |
|---|---|
| **28.** | Antennas on upper roof |

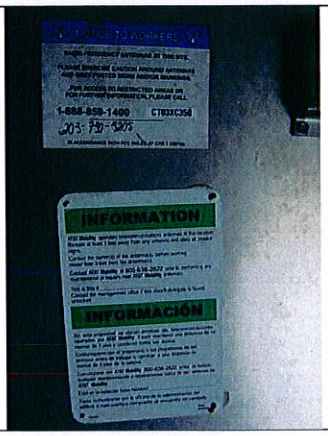
| | |
|---|---|
| **29.** | Antenna on upper roof near T-Mobile Sector B |



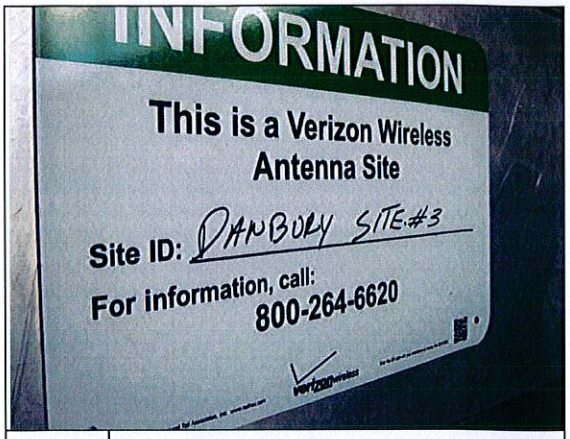
| | |
|---|---|
| **30.** | Omni and whip antennas on upper roof |


| | |
|---|---|
| **31.** | Signage below T-Mobile Sector B |


| | |
|---|---|
| **32.** | Signage at base of triangular lattice tower on upper roof |




| | |
|---|---|
| **33.** | Signage on roof access hatch (typ.) |

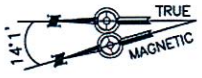


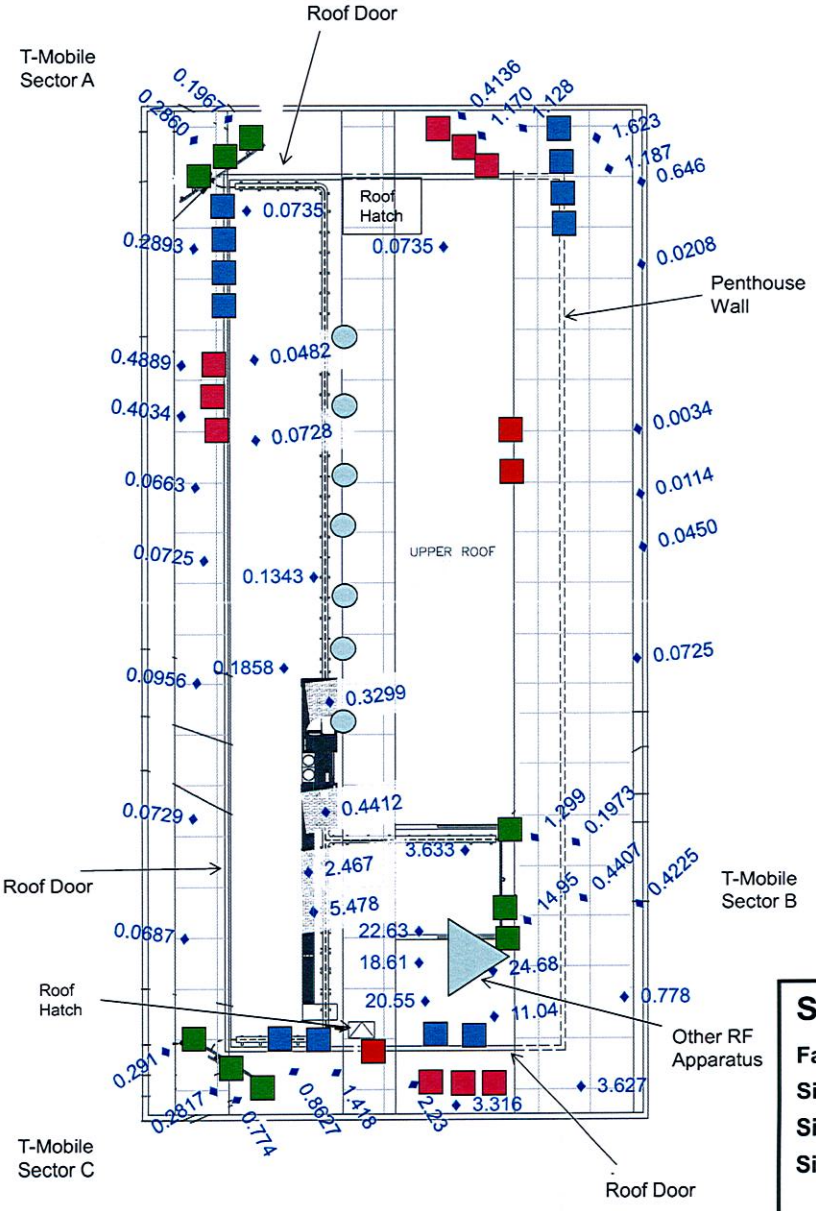

| | |
|---|---|
| **34.** | Signage on roof access hatch (typ.) |


| | |
|---|---|
| **35.** | Signage on roof access hatch (typ.) |

| | |
|---|---|
| **36.** | AT&T equipment |

# APPENDIX F: MONITORING PLAN




## LEGEND

- Sprint Antennas
- AT&T Antennas
- T-Mobile Antennas
- Verizon Antennas
- Omni and Whip Antennas

◆ Blue numbers are Spatially-Averaged Measurements

% FCC Occupational Limit

◆ Green numbers are Spatially-Averaged Measurements

% FCC General Public Limit

# Site Plan with Monitoring Results

**Facility Operator:** T-Mobile

**Site Number:** CT11108A

**Site Name:** Danbury Hospital

**Site Visit Date:** 10-24-13

EBI Consulting
environmental | engineering | due diligence