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

August 24, 2011

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

RE: **EM-T-MOBILE-097-110805** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 3 Edmund Road, Newtown, 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:

- The tower mounted amplifiers be installed in accordance with recommendations made in the Structural Analysis prepared by FDH Engineering dated July 6, 2011 and stamped by Christopher Murphy; and
- Following the installation of the proposed equipment, T-Mobile shall provide documentation certifying that the installation complied with the engineer's recommendations.
- 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 August 5, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require

explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Patricia E. Llodra, First Selectman, Town of Newtown
Gary Frenette, Zoning Enforcement Officer, Town of Newtown
SBA

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August 10, 2011

The Honorable Patricia E. Llodra
First Selectman
Town of Newtown
Town Hall
3 Primrose Street
Newtown, CT 06470-5307

RE: **EM-T-MOBILE-097-110805 -** Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 3 Edmund Road, Newtown, Connecticut.

Dear First Selectman Llodra:

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

If you have any questions or comments regarding this proposal, please call me or inform the Council by August 24, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Gary Frenette, Zoning Enforcement Officer, Town of Newtown

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-097-110805

Via Hand Delivery

August 5, 2011

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

RE: **Notice of Exempt Modification / Newtown @ 3 Edmund Road**

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 3 Edmund Road in Newtown.

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

cc/encl: First Selectman E. Patricia Llodra

40285532 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	:	
3 Edmund Road, Newtown, Connecticut.	:	August 5, 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 Town of Newtown of T-Mobile's intent to make an exempt modification to the existing monopole tower (the "Tower") located at 3 Edmund Road in Newtown, Connecticut. Specifically, T-Mobile plans to upgrade its wireless system in Connecticut by implementing its Universal Mobile Telecommunications System ("UMTS"). UMTS is a third-generation ("3G") technology that utilizes a code division multiple access ("CDMA") base to allow for fast and large data transfers. To accomplish this upgrade, T-Mobile must modify its antenna and equipment configurations at many of its existing sites.

Once the UMTS upgrade is complete, T-Mobile will operate on a more unified communication system, allowing international wireless telephones to function world-wide. Furthermore, UMTS will enhance global positioning system ("GPS") navigation capabilities and provide emergency responders with more advanced tracking capabilities. The proposed UMTS technology is compatible with the existing second-generation ("2G") Global System for Mobile Communication ("GSM") currently on the Tower and the proposed upgrade is expected to enhance the existing 2G system. In order to accomplish the upgrade at this site, T-Mobile plans to add UMTS technology and install associated equipment at the base of the Tower.

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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 139-foot monopole tower located at 3 Edmund Road in Newtown, Connecticut (latitude N 41° 25' 15", longitude W -73° 17' 54.5"). The Tower is owned by SBA. Multiple carriers are currently located on the Tower. Currently, T-Mobile has 3 panel antennas and 6 Tower Mounted Amplifiers ("TMA"), (Model No. ddTMA) with a centerline of 128 feet mounted on the Tower. A site plan with Tower specifications is attached.

T-Mobile plans remove and replace it 3 existing antennas with 3 quad pole GSM/UMTS (Model No.APX16DWV) antennas. Additionally, T-Mobile plans to remove and replace its 6 existing ddTMA with 6 new TMA. The 6 new TMA will include 3 Twin AWS TMAs and 3 Twin PCS TMAs. The centerline of the new antennas and TMAs will remain at 128 feet.

To confirm the Tower can support these changes, T-Mobile commissioned FDH Engineering to perform a Structural Analysis of the Tower (attached). According to the Structural Analysis Report, dated July 6, 2011, the Tower has "the foundation should have the necessary capacity to support the existing and proposed loading" for T-Mobile's planned modifications (Structural Analysis Report, page 3).

Within the existing compound T-Mobile plans to locate its proposed UMTS equipment cabinet on its proposed 10.5-foot by 10.5-foot (approximately) concrete pad. Additionally, T-Mobile plans to consolidate its equipment by removing 1 of its 2 existing equipment cabinets. Therefore, no increase in the size of the boundaries of the site is necessary.

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Excluding brief, minor, construction-related noise during the addition of the antennas, TMAs and the installation of the equipment cabinet, the proposed 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 7.1% of the NCRP's standard for maximum permissible exposure. Collectively, the antennas on the Tower will emit 21.7% 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.

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

T-MOBILE 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
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HARTFORD, CT 06103
(860) 509-6500

Certificate of Service

This is to certify that on this 5th day of August, 2011, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

First Selectman E. Patricia Llodra
Newtown Municipal Center
3 Primrose Street
Newtown, CT 06470

By: _____
Jennifer A. Herz

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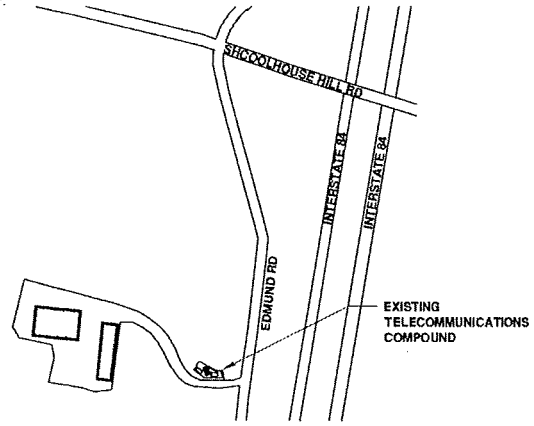
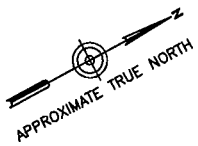
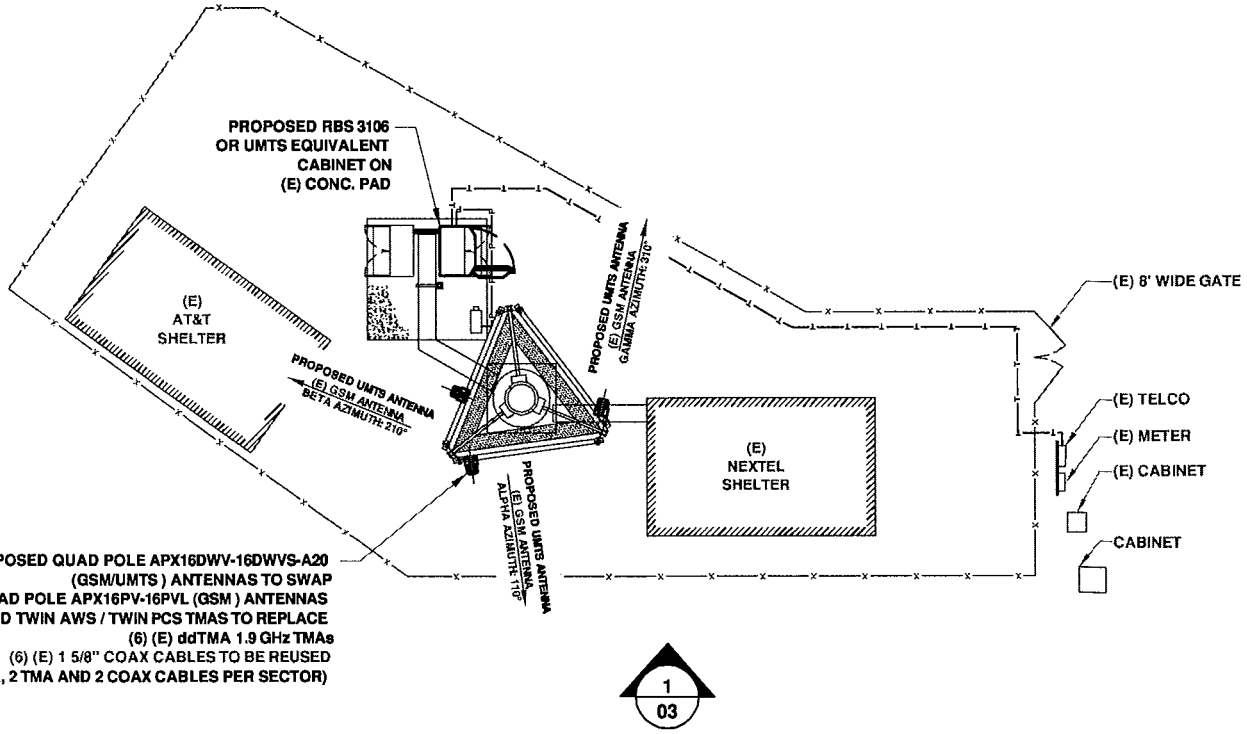
BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500





KEY PLAN (1 / LE1)
SCALE: NOT TO SCALE



(3) PROPOSED QUAD POLE APX16DWV-16DWVS-A20
(GSM/UMTS) ANTENNAS TO SWAP
(3) (E) QUAD POLE APX16PV-16PVL (GSM) ANTENNAS
(6) PROPOSED TWIN AWS / TWIN PCS TMAS TO REPLACE
(6) (E) ddTMA 1.9 GHz TMAs
(6) (E) 1 5/8" COAX CABLES TO BE REUSED
(TYP. 1 ANTENNA, 2 TMA AND 2 COAX CABLES PER SECTOR)

(1 / 03)

COMPOUND PLAN (2 / LE1)
SCALE: 1" = 12'-0" (8.5x11)
6 0 6 12 18

SUBMITTALS	
LE REV A	06-01-11
REVISED PER COMMENTS 1	07-11-11

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

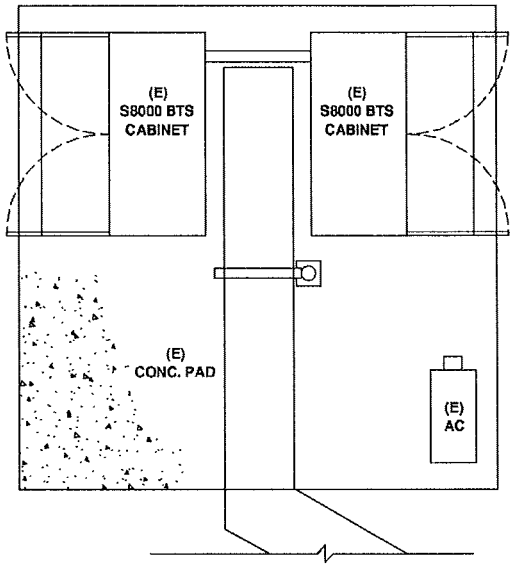
LEASE EXHIBIT

SITE NUMBER: CT11259F

3 EDMUND ROAD
NEWTOWN, CT

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

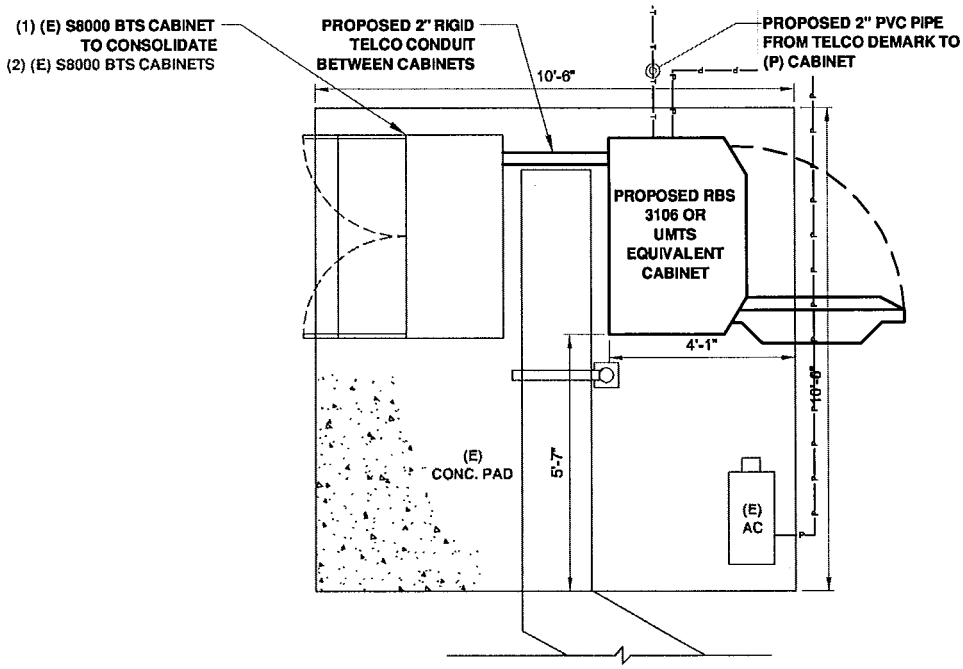
DRAWN BY: MB | CHECKED BY: SM



EQUIPMENT PLAN (BEFORE) 1 LE2

SCALE: 1/4" = 1'-0" (8.5x11)

2 0 2 4 6



EQUIPMENT PLAN (AFTER) 1 LE2

SCALE: 1/4" = 1'-0" (8.5x11)

2 0 2 4 6

SUBMITTALS	
LE REV A	06-01-11
REVISED PER COMMENTS 1	07-11-11

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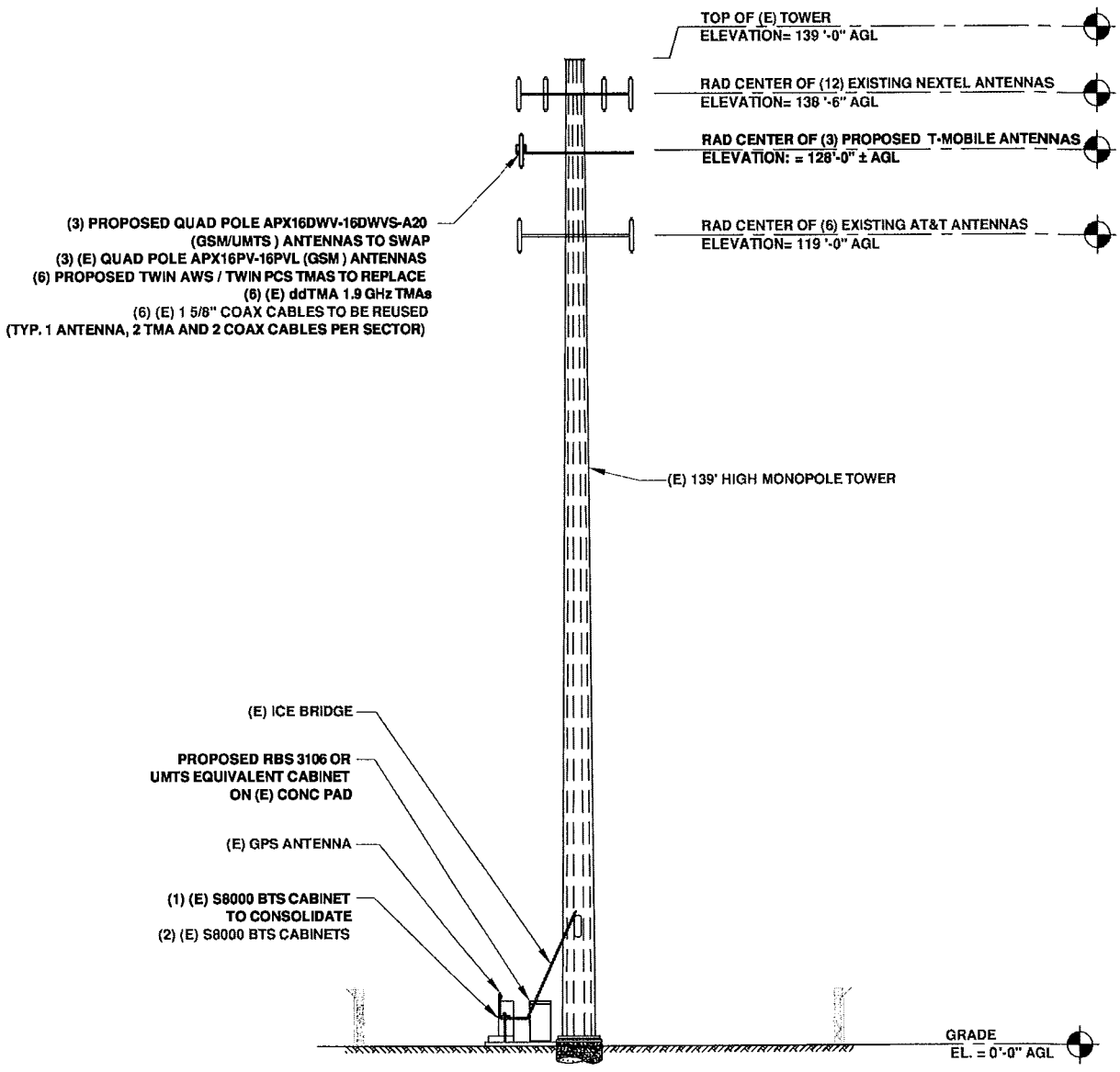

EAST ELEVATION

1
LE3

SCALE: 1" = 24'-0" (8.5x11)

12 0 12 24 36

SUBMITTALS	
LE REV A	06-01-11
REVISED PER COMMENTS 1	07-11-11

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Newton, MA 02459
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DRAWN BY: MB | CHECKED BY: SM

FDH Engineering, Inc., 2730 Rowland Rd. Raleigh, NC 27615, Ph. 919.755.1012, Fax 919.755.1031

Structural Analysis for SBA Network Services, Inc.

139 ft Monopole

SBA Site Name: Newtown 2
SBA Site ID: CT13060-A

FDH Project Number 11-05208E S2

Prepared By:

Taylor LaForge
Project Engineer

Reviewed By:

Christopher M. Murphy, PE
President
CT PE License No. 25842

FDH Engineering, Inc.
2730 Rowland Rd.
Raleigh, NC 27615
(919) 755-1012
info@fdh-inc.com

July 6, 2011

Prepared pursuant to TIA/EIA-222-F June 1996 Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Newtown, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F.* Information pertaining to the soil parameters, foundation dimensions, existing/proposed antenna loading, current tower geometry, and member sizes was obtained from:

- Sabre Communications Corp. (Job No. 06-07285) Structural Design Report dated July 28, 2005
- Jaworski Geotech, Inc. (Project No. 04125G) Geotechnical Evaluation dated January 30, 2004
- FDH, Inc. (Job No. 08-07125T) TIA Inspection Report dated September 10, 2008
- SBA Network Services, Inc.

The *basic design wind speed* per *TIA/EIA-222-F* standards is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the current and proposed antennas from T-Mobile at 128 ft., the tower meets the requirements of the *TIA/EIA-222-F* standards provided the **Recommendation** below is satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Sabre Job Number 06-07285), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e. the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendation

To ensure the requirements of the *TIA/EIA-222-F* standards are met with the existing and proposed loading in place, we have the following recommendation:

1. Proposed TMAs should be installed behind the proposed panel antennas.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from this layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

Table 1 – Appurtenance Loading

Existing Loading:

Antenna No.	Antenna Elevation (ft)	Description	Coax and Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
1-12	138.5	(12) Decibel DB844H90E-XY	(15) 1-5/8"	Nextel	138.5	(1) 12.5' Low Profile Platform
13-24	128[2,3]	(12) RFS APX18PV-16PVL (6) Remec S20057A1 TMAs	(12) 1-5/8" (1) 1/4" (Dead)	T-Mobile	128	(1) 10' Low Profile Platform
15-36	119[4]	(9) Powerwave 7770 (3) Powerwave P65-16 (9) Powerwave LGP 2140x TMAs (3) Powerwave TT19-08BP111-001 TMAs (6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Suppressor	(24) 1-5/8" (1) Fiber Cable (2) Power Cables	AT&T	119	(1) Low Profile Platform

1 Coax installed inside the pole's shaft unless otherwise noted.
2 Currently, T-Mobile has (3) RFS APX18PV-16PVL antennas installed at 128'. According to information provided by SBA, T-Mobile may install an additional (9) RFS APX18PV-16PVL antennas at this elevation.
3 T-Mobile's loading at 128' will be altered. See the proposed loading below.
4 Currently, AT&T has (6) Powerwave 7770 antennas, (6) Powerwave LGP2140x TMAs, and (12) 1-5/8" coax installed at 119'. According to information provided by SBA, T-Mobile may install an additional (3) Powerwave 7770 antennas, (3) Powerwave P65-16 antennas, (3) Powerwave TT19-08BP111-001 TMAs, (6) Ericsson RRUS-11 RRUs, (1) Raycap DC6-48-60-18-8F surge suppressor, (3) Powerwave LGP 2140x TMAs, (1) Fiber Cable, and (12) 1-5/8" coax. The analysis was performed with the leased loading in place.

Proposed Loading:

Antenna No.	Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
1-12	128[1]	(12) RFS APX16DWV-16DWVS-A20 (3) RFS ATMPP1412D-1CWA Twin PCS TMAs (3) RFS ATMAA1412D-1A20 Twin AWS TMAs	(12) 1-5/8"	T-Mobile	128	(1) 10' Low Profile Platform

1 This represents the final configuration for T-Mobile at 128'. According to information provided by SBA, T-Mobile will remove (3) RFS APX18PV-16PVL antennas and (6) Remec S20057A1 TMAs from the tower and the remaining (9) RFS APX18PV-16PVL antennas from the lease and install (3) RFS APX16DWV-16-DWVS-A20 antennas, (3) RFS ATMPP1412-1CWA Twin PCS TMAs, and (3) RFS ATMAA1412D-1A20 Twin AWS TMAs. T-Mobile may also install an additional (9) RFS APX16DWV-16-DWVS-A20 antennas at this elevation.

RESULTS

Based on information obtained from the original design drawings, the yield strength of steel for individual members was as follows:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Shaft Sections	65 ksi
Flange Plates	60 ksi
Flange Bolts	92 ksi
Base Plate	60 ksi
Anchor Bolts	75 ksi

Table 3 displays the summary of the ratio (as a percentage) of actual force in the member to their allowable capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its allowable capacity. **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information.

Table 3 – Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	139 - 129	Pole	TP22.2x19.85x0.1875	11.7	Pass
		Flange Bolts	(8) 1.00" Ø w/ BC = 25.25"	17.6	Pass
		Flange Plate	29.50" Ø PL x 0.750" thk.	31.1	Pass
L2	129 - 97.75	Pole	TP29.54x22.2x0.1875	75.0	Pass
L3	97.75 - 48	Pole	TP40.86x28.2842x0.3125	75.2	Pass
L4	48 - 0	Pole	TP51.51x39.0009x0.3125	88.4	Pass
		Anchor Bolts	(12) 2.25" Ø w/ BC = 58.00"	81.3	Pass
		Base Plate	56.00" Square PL x 2.75" thk.	65.4	Pass

*Capacities include 1/3 allowable increase for wind.

Table 4 – Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	29 k	33 k
Shear	23 k	24 k
Moment	2,332 k-ft	2,662 k-ft

GENERAL COMMENTS

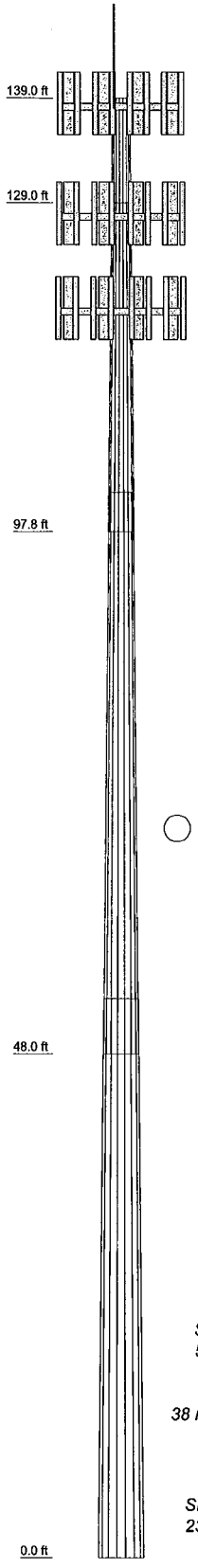
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

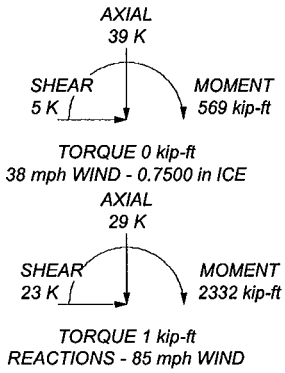
LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

Section	1	2	3	4
Length (ft)	10.00	31.25	53.50	53.25
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.1875	0.3125	0.3125
Socket Length (ft)		3.75	5.25	
Top Dia (in)	19.8500	22.2000	28.2842	39.0009
Bot Dia (in)	22.2000	29.5400	40.8600	51.5100
Grade	A572-65			
Weight (K)	0.4	1.6	6.2	8.1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod	139	Powerwave - P65-16-XLH-RR w/ mount pipe	119
(4) DB844H90E-XY w/Mount Pipe	138.5	Powerwave - P65-16-XLH-RR w/ mount pipe	119
(4) DB844H90E-XY w/Mount Pipe	138.5	Powerwave - P65-16-XLH-RR w/ mount pipe	119
12.5' Low Profile Platform [LP 303-1]	138.5	(3) Powerwave - LGP 21401 TMA	119
(4) DB844H90E-XY w/Mount Pipe	138.5	(3) Powerwave - LGP 21401 TMA	119
(4) RFS - APX16DWV-16DWVS-A20 w/ mount pipe	128	(3) Powerwave - LGP 21401 TMA	119
(4) RFS - APX16DWV-16DWVS-A20 w/ mount pipe	128	Powerwave - TT19-08BP111-001 TMA	119
ATMPP1412D-1CWA Twin PCS	128	Powerwave - TT19-08BP111-001 TMA	119
ATMPP1412D-1CWA Twin PCS	128	Powerwave - TT19-08BP111-001 TMA	119
ATMPP1412D-1CWA Twin PCS	128	(2) Ericsson - RRUs 11	119
RFS - ATMAA1412D-1A20 Twin AWS TMA	128	(2) Ericsson - RRUs 11	119
RFS - ATMAA1412D-1A20 Twin AWS TMA	128	(2) Ericsson - RRUs 11	119
RFS - ATMAA1412D-1A20 Twin AWS TMA	128	Low Profile Platform Mount [LP 403-1]	119
10' Low Profile Platform [LP 305-1]	128	Raycap - DC6-48-60-18-8F Surge Protection	119
(4) RFS - APX16DWV-16DWVS-A20 w/ mount pipe	128	(3) Powerwave - 7770.00 w/ mount pipe	119
Pipe Mount	128	(3) Powerwave - 7770.00 w/ mount pipe	119
(3) Powerwave - 7770.00 w/ mount pipe	119		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 88.4%

FDH ENGINEERING
Tower Analysis
FDH Engineering, Inc.
2730 Rowland Road, Suite 100
Raleigh, NC 27615
Phone: (919) 755-1012
FAX: (919) 755-1031

Job:	***Newton 2, CT13060-A***
Project:	***11-05208E S2***
Client: SBA Network Services	Drawn by: Taylor LaForge
Code: TIA/EIA-222-F	Date: 07/06/11
Path:	
App'd:	
Scale: NTS	
Dwg No. E-1	

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 Tower Inc
From: Amir Uzzaman - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11259F
Date: July 28, 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 3 Edmund Road, Newtown, 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 (1940-1949.8), (2140-2145), (2110-2120)MHz frequency Band.
2) The antenna array consists of three sectors, with 1 antenna per sector.
3) The model number for GSM antenna is APX16DWV-16DWV.
3) The model number for UMTS antenna is APX16DWV-16DWV.
4) GSM antenna center line height is 128 ft.
4) UMTS antenna center line height is 128 ft.
5) The maximum transmit power from any GSM sector is 2399.5 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2393.81 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 3 Edmund Road, Newtown, CT, is 0.07065 mW/cm^2. This value represents 7.065% 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 14.6376%. The combined Power Density for the site is 21.703% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	**CT11259F**
Site Address:	**3 Edmund Road**
Town:	**Newtown**
Tower Height:	**139 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	APX16DWV-16DWV	**Antenna Model**	APX16DWV-16DWV
Cable Size	1 5/8 in.	**Cable Size**	1 5/8 in.
Cable Length	150 ft.	**Cable Length**	150 ft.
Antenna Height	128.0 ft.	**Antenna Height**	128.0 ft.
Ground Reflection	1.6	**Ground Reflection**	1.6
Frequency	1945.0 MHz	**Frequency**	2.1 GHz
Jumper & Connector loss	4.50 dB	**Jumper & Connector loss**	1.50 dB
Antenna Gain	18.0 dBi	**Antenna Gain**	18.0 dBi
Cable Loss per foot	0.0116 dB	**Cable Loss per foot**	0.0116 dB
Total Cable Loss	1.7400 dB	**Total Cable Loss**	1.7400 dB
Total Attenuation	6.2400 dB	**Total Attenuation**	3.2400 dB
Total EIRP per Channel	54.77 dBm	**Total EIRP per Channel**	60.78 dBm
(In Watts)	299.94 W	**(In Watts)**	1196.91 W
Total EIRP per Sector	63.80 dBm	**Total EIRP per Sector**	63.79 dBm
(In Watts)	2399.50 W	**(In Watts)**	2393.81 W
nsg	11.7600	**nsg**	14.7600
Power Density (S) =	**0.035369 mW/cm^2**	**Power Density (S) =**	**0.035285 mW/cm^2**
T-Mobile Worst Case % MPE =		**7.0654%**	

Equation Used :

$$S = \frac{(ERP)(nsg)}{4\pi R^2}$$

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

Co-Location Total

Carrier	% of Standard
Nextel	3.88
Cingular	7.559
Cingular	3.1986
Other Antenna Systems	
Total Excluding T-Mobile	**14.6376 %**
T-Mobile	7.0654
Total % MPE for Site	**21.7030%**