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

March 4, 2014

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

Re: Notice of Exempt Modification
Wireless Solutions IV, LLC/ T-Mobile co-location
Site ID CT11636A
72 Boggy Hole Rd, Old Lyme

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, Wireless Solutions IV, LLC owns the existing monopole telecommunications tower and related facility at 72 Boggy Hole Rd., Old Lyme, Connecticut (Latitude: 41.32214401, Longitude: -72.3074655). T-Mobile intends to replace three existing antennas with six new antennas and related equipment at this existing telecommunications facility in Old Lyme ("Old Lyme 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 First Selectwoman, Bonnie Reemsnyder and the property owner, Michael Sanders.

The existing Old Lyme Facility consists of a 175 foot tall monopole tower, approved by the Council in Docket No. 209. T-Mobile plans to replace three existing antennas with six new antennas and replace three TMAs (tower mounted amplifiers) at a centerline of 175 feet. (See the plans revised to February 28, 2014 attached hereto as Exhibit A). T-Mobile will also install an equipment cabinet, install fiber and coax cable and reuse existing coax cables. The existing Old Lyme Facility is structurally capable of supporting T-Mobile's proposed modifications, as indicated in the structural analysis dated February 17, 2014 and attached hereto as Exhibit B.

The planned modifications to the Old Lyme 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 tower. T-Mobile's replacement and additional antennas will be installed at a centerline of 175 feet, merely replacing existing antennas located at the same 175 foot elevation. The enclosed tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require an extension of the site boundaries or lease area as depicted on Sheet 1 of Exhibit A. T-Mobile's equipment will be located entirely within the existing compound area.

3. The proposed modification to the Old Lyme 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, measured at the base of the tower, to a level at or above the applicable standard. According to a Radio Frequency Emissions Analysis Report prepared by EBI dated February 21, 2014, T-Mobile's operations would add 0.395% of the FCC Standard. Therefore, the calculated "worst case" power density for the planned combined operation at the site including all of the proposed antennas would be 36.705% of the FCC Standard as calculated for a mixed frequency site as evidenced by the engineering exhibit attached hereto as Exhibit C.

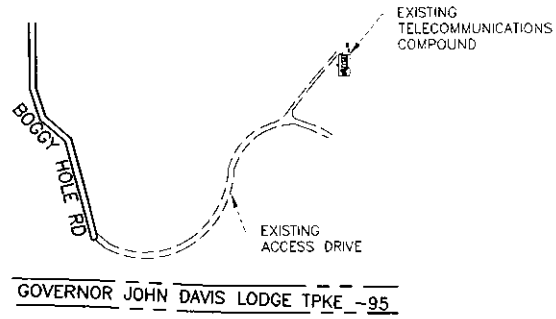
For the foregoing reasons, T-Mobile respectfully submits that the proposed replacement antennas and equipment at the Old Lyme Facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Upon acknowledgement by the Council of this proposed exempt modification, T-Mobile shall commence construction approximately sixty days from the date of the Council's notice of acknowledgement.

Sincerely,

Julie D. Kohler, Esq.

cc: Town of Old Lyme, First Selectwoman Bonnie Reemsnyder
Wireless Solutions IV, LLC
Michael Sanders
Sheldon Freincle, Northeast Site Solutions

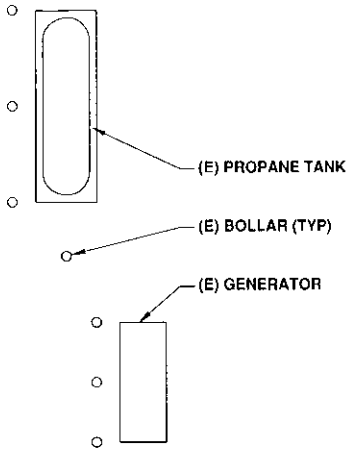
EXHIBIT A

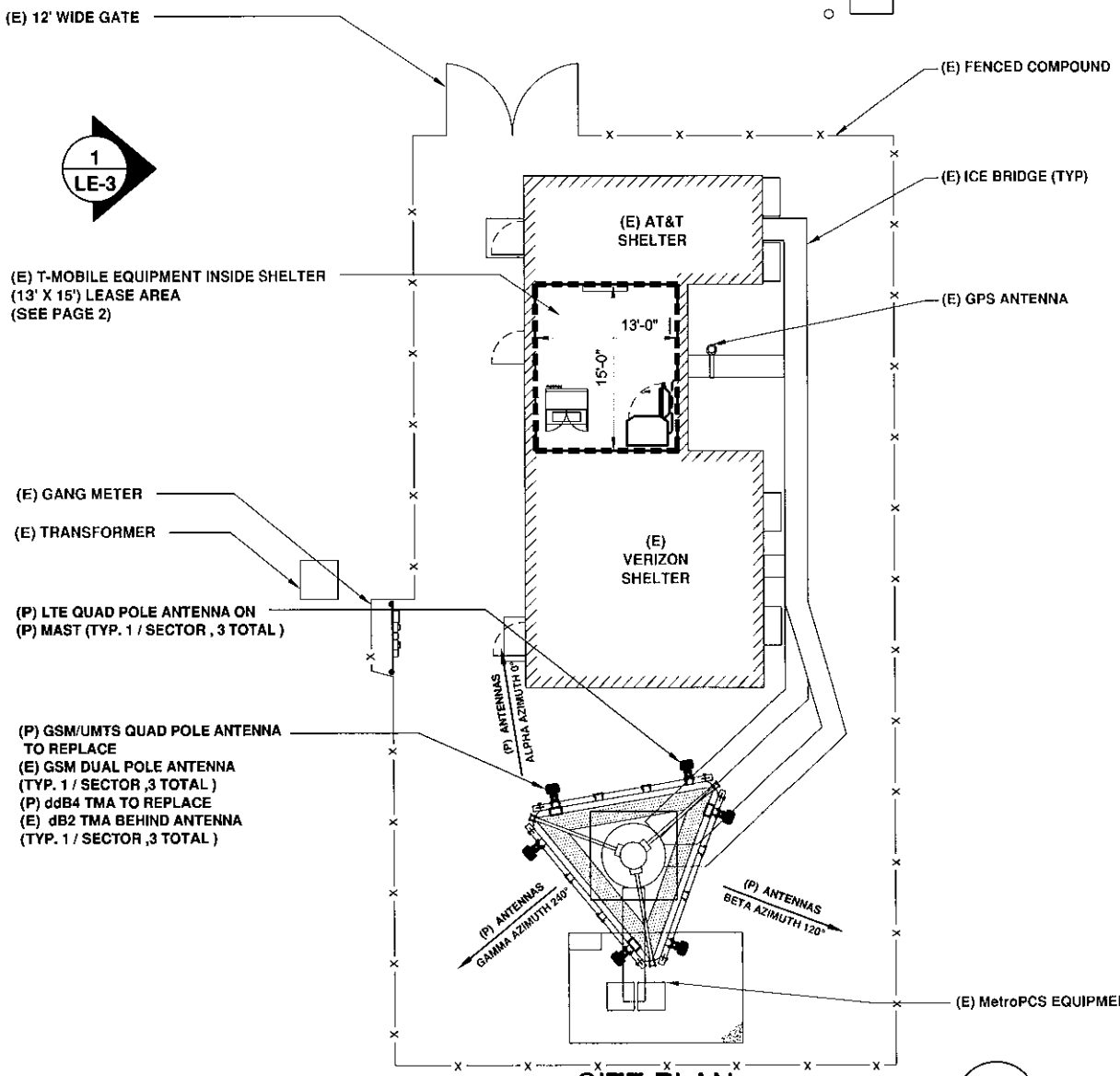


KEY PLAN

SCALE: NOT TO SCALE

1 / LE1





SITE PLAN

SCALE: N.T.S.

2 / LE-1

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.07.14
LE REV 0	02.28.14

ATLANTIS GROUP
1340 Centre Street
Suite 212
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER:
CT11636A

SITE NAME:
WIRELESS SOLUTIONS OLD LYME

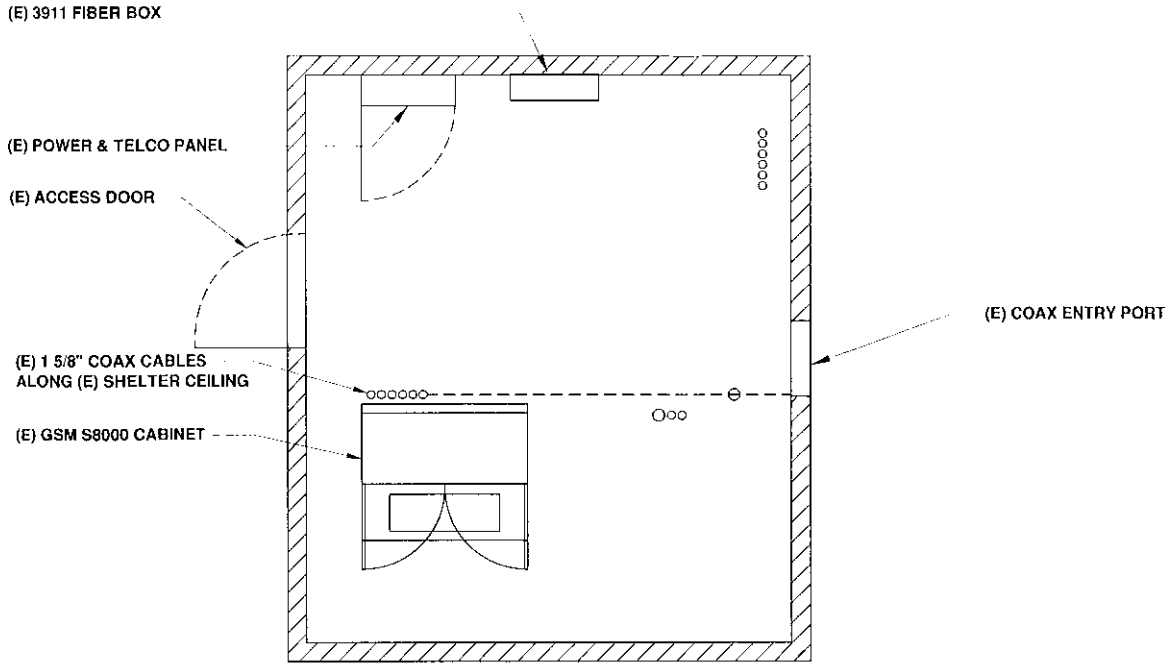
SITE ADDRESS:
72 BOGGY HOLE ROAD
OLD LYME, CT 06371

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

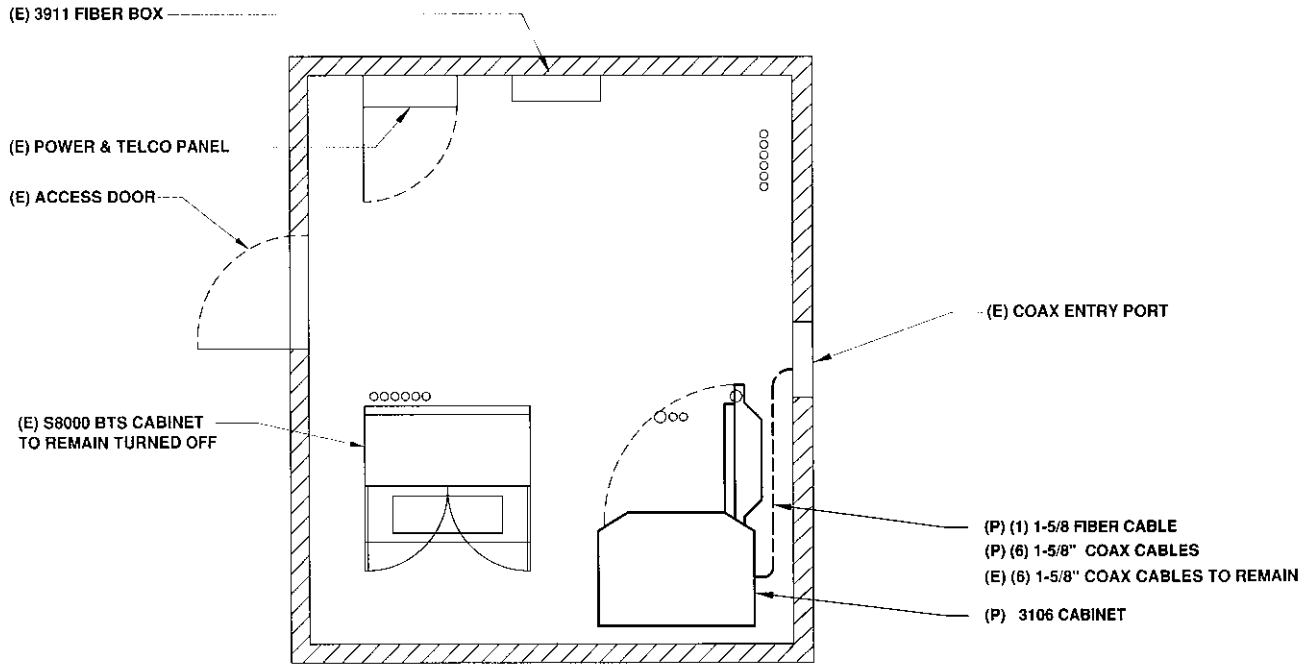
DRAWN BY: FG | CHECKED BY: SM



EQUIPMENT LAYOUT PLAN (BEFORE)

1 LE2

SCALE: NTS



EQUIPMENT LAYOUT PLAN (AFTER)

2 LE2

SCALE: NTS

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.07.14
LE REV 0	02.28.14

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Fax: 617-213-5056

LEASE EXHIBIT

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CT11636A

SITE NAME:
WIRELESS SOLUTIONS OLD LYME

SITE ADDRESS:
72 BOGGY HOLE ROAD
OLD LYME, CT 06371

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

FOR

T-MOBILE NORTHEAST, LLC
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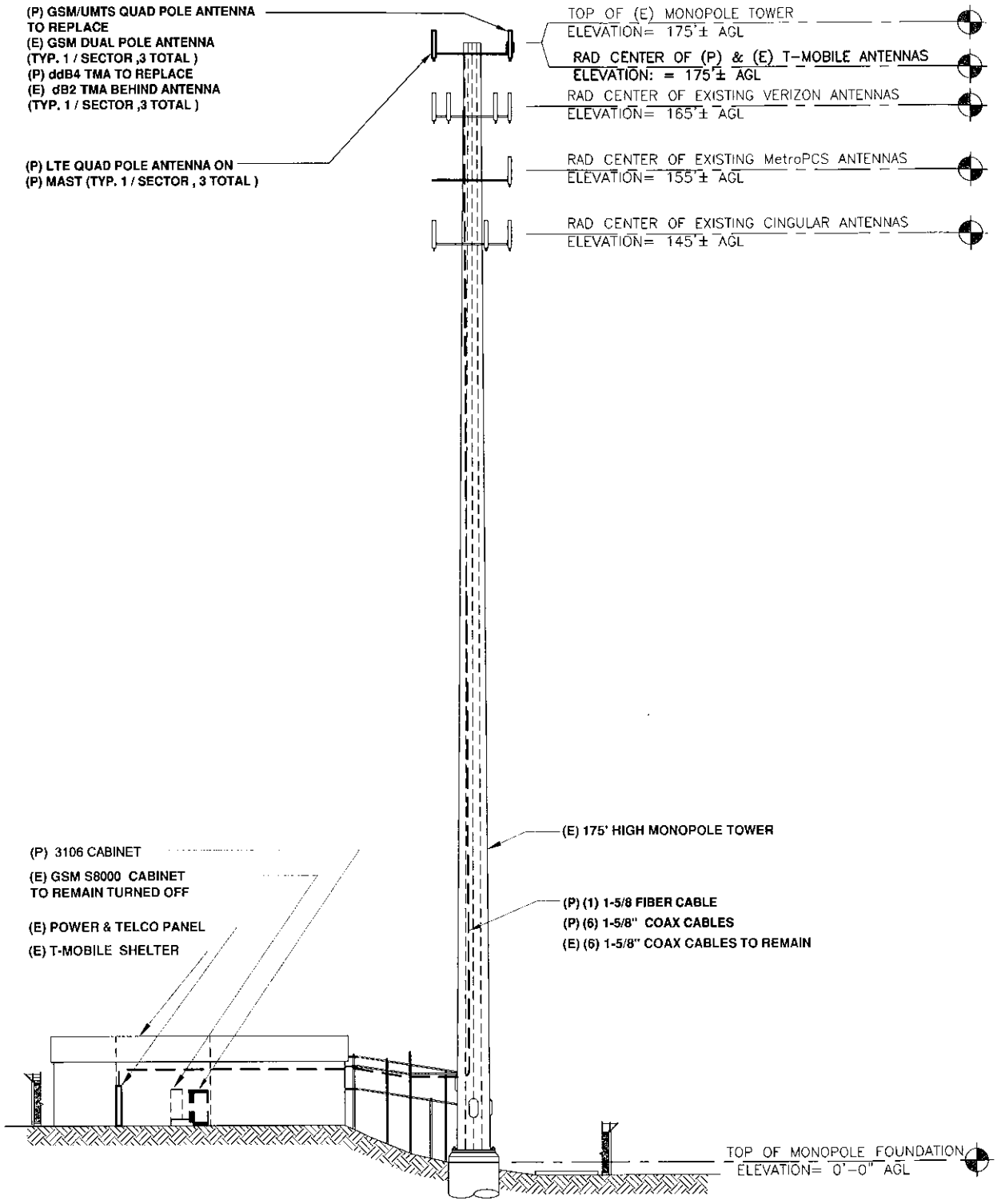
DRAWN BY: FG | CHECKED BY: SM



WEST ELEVATION VIEW

SCALE: 1-1/2" = 1'-0"

1 / LE3

CONFIGURATION

2C

SUBMITTALS	
LE REV A	02.07.14
LE REV 0	02.28.14

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LEASE EXHIBIT

SITE NUMBER:
CT11636A

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WIRELESS SOLUTIONS OLD LYME

SITE ADDRESS:
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OLD LYME, CT 06371

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: FG | CHECKED BY: SM

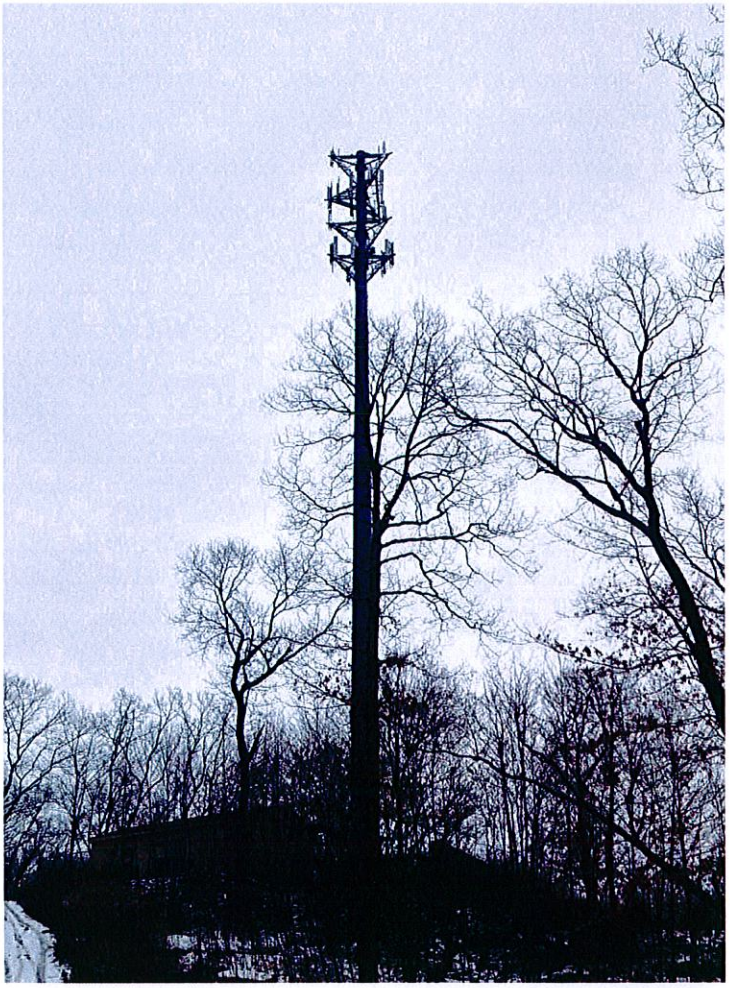
EXHIBIT B

STRUCTURAL ANALYSIS REPORT
MONOPOLE TOWER

Prepared For:

T-Mobile

35 Griffin Road South
Bloomfield, CT 06002



Tower Rating

Tower:	**Pass (80%)**
Foundation:	**Pass**

Atlantis Group, Inc.
2-17-2014

STATE OF CONNECTICUT
DMITRIY V. ALBUL
No. 26725
LICENSED PROFESSIONAL ENGINEER

2/23/2014

CT Professional Engineer
License No: 26725

Site ID: CT11636A
Site Name: Wireless Solutions
Old Lyme
72 Boggy Hole Rd,
Old Lyme, CT

Prepared By:
Atlantis Group, Inc.
1340 Centre Street, Suite 203
Newton, Massachusetts 02459
Phone: 617-965-0789, Fax: 617-965-0103

CONTENTS

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 175 feet monopole tower, located at 72 Boggy Hole Rd, Old Lyme, CT, for the alteration and addition of wireless telecommunication appurtenances proposed by T-Mobile.

The structural analysis of the site is based on the following documents provided to us:

1. Structural Analysis Report prepared by Centek Engineering, Inc., Centek project No. 12001, dated September 21, 2012.
2. Existing and proposed antenna information provided by T-Mobile.

1.1 STRUCTURE

The subject tower is a 175 foot monopole consisting of 5 polygon, tubular sections manufactured by Engineer Endeavors, Inc. Please refer to the tower elevation drawing in Appendix A for details about the tower geometry and analyzed antenna loading.

2.0 EXISTING AND PROPOSED CONFIGURATION

Antennas and Appurtenances:

The analysis is based on the following existing and proposed appurtenances:

Existing Configuration of T-MOBILE Appurtenances:

Sector	RAD Center (ft.)	Antenna & TMA		Mount	Feed Lines
Alpha	175	GSM Antenna TMA	(1) RR90-17 (1) dB2	Low Profile platform	(6) 1 5/8"
Beta		GSM Antenna TMA	(1) RR90 (1) dB2		
Gamma		GSM Antenna TMA	(1) RR90 (1) dB2		

Proposed Configuration of T-MOBILE Appurtenances:

Sector	RAD Center (ft.)	Antenna & TMA		Mount	Feed Lines
Alpha	175	GSM/UMTS Antenna LTE Antenna TMA	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P (1) ddB4	Low Profile platform	(12) 1 5/8" + (1) 1 5/8" Hybrid cable
Beta		GSM/UMTS Antenna LTE Antenna TMA	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P (1) ddB4		
Gamma		GSM/UMTS Antenna LTE Antenna TMA	(1) AIR21 B2A/B4P (1) AIR21 B4A/B2P (1) ddB4		

Note that the existing and proposed lines are to be installed inside the tower.

3.0 CODES AND LOADING

The tower was analyzed per ANSI/TIA-222-F as referenced by the 2005 Connecticut Building Code with 2011 Supplement, which is the adopted building code. The following wind loading was used in compliance with the standard for New London County, CT.

- Basic wind speed 85 mph (W) without ice [fastest-mile speed equivalent to 100 mph 3-second gust].
- Basic wind speed 75 mph (W_i) with 1/2" radial and escalating ice.

The following load combinations were used with wind blowing at 0°, 60° and 90°, measured from a line normal to the face of the guyed tower.

- D + Dg + W
- D + Dg + I + W_i + 1.0Ti

D: Dead Load of structure and appurtenances, except guy wires
W: Wind Load, without ice
W_i: Wind Load with ice
I: Ice Gravity Load
Dg: Dead Load of guy assemblies

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

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.

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.

5.0 ANALYSIS and ASSUMPTIONS

The tower was analyzed by utilizing tnx-Tower, a non-linear 3-Dimensional finite element software, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix-A of this report.

6.0 RESULTS and CONCLUSION

Based on an analysis per ANSI/TIA-222-F, the existing tower is found to have **adequate** structural capacity for the proposed changes by T-Mobile. For the aforementioned load combinations and as a maximum, the tower will be stressed to **80%** of capacity.
The tower foundation system was found to have **adequate** structural strength.

Reactions:

Maximums	Atlantis Analysis	Design
Base Shear (kips)	30.6	54.5
Overturning Moment (ft-kips)	3578	7558

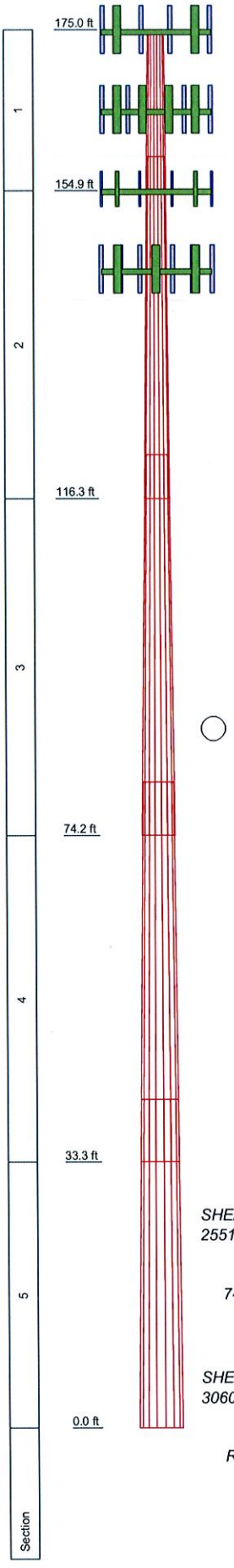
Therefore, the proposed additions and alterations by T-Mobile can be implemented with the conditions outlined in this report.

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

Sincerely,
Atlantis Group, Inc.

2/23/2014

APPENDIX A
CALCULATIONS



AXIAL
72298 lb

SHEAR
25515 lb

MOMENT
3066 kip-ft

TORQUE 0 kip-ft
74 mph WIND - 0.5000 in ICE

AXIAL
63588 lb

SHEAR
30602 lb

MOMENT
3578 kip-ft

TORQUE 0 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(2) Ericsson AIR21 w. Mtg Pipe (P-TMO-Alpha)	175	14' Lo-Profile Monopole (VZW)	165
(2) Ericsson AIR21 w. Mtg Pipe (P-TMO-Beta)	175	(2) APXV18-206516S-C w. MtgPipe (Metro-Alpha)	155
(2) Ericsson AIR21 w. Mtg Pipe (P-TMO-Gamma)	175	(2) APXV18-206516S-C w. MtgPipe (Metro-Beta)	155
Ericsson KRY 112 71/x TMA (P-TMO-Alpha)	175	(2) APXV18-206516S-C w. MtgPipe (Metro-Gamma)	155
Ericsson KRY 112 71/x TMA (P-TMO-Beta)	175	14' Lo-Profile Monopole (MetroPCS)	155
Ericsson KRY 112 71/x TMA (P-TMO-Gamma)	175	(2) DUO1417-8686 w/Mount Pipe (ATT-Alpha)	145
14' Lo-Profile Monopole (TMO)	175	(2) DUO1417-8686 w/Mount Pipe (ATT-Beta)	145
(2) LPA-80080-4CF-EDIN-x w. Mtg Pipe (VZW-Alpha)	165	(2) DUO1417-8686 w/Mount Pipe (ATT-Gamma)	145
BXA-171063-8BF w. Mtg Pipe (VZW-Alpha)	165	Powerwave 7770.00 w. MtgPipe (ATT-Alpha)	145
BXA-70063-6CF w. MtgPipe (VZW-Alpha)	165	Powerwave 7770.00 w. MtgPipe (ATT-Beta)	145
(2) LPA-80080-4CF-EDIN-x w. Mtg Pipe (VZW-Beta)	165	Powerwave 7770.00 w. MtgPipe (ATT-Gamma)	145
BXA-171063-8BF w. Mtg Pipe (VZW-Beta)	165	(2) CG1900w850 TMA (ATT-Alpha)	145
BXA-70063-6CF w. MtgPipe (VZW-Beta)	165	(2) CG1900w850 TMA (ATT-Beta)	145
(2) LPA-80080-4CF-EDIN-x w. Mtg Pipe (VZW-Gamma)	165	(2) CG1900w850 TMA (ATT-Gamma)	145
BXA-171063-8BF w. Mtg Pipe (VZW-Gamma)	165	TT19-08BP111-001 TMA (ATT-Alpha)	145
BXA-70063-6CF w. MtgPipe (VZW-Gamma)	165	TT19-08BP111-001 TMA (ATT-Beta)	145
		TT19-08BP111-001 TMA (ATT-Gamma)	145 - 142
		14' Lo-Profile Monopole (ATT)	145

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

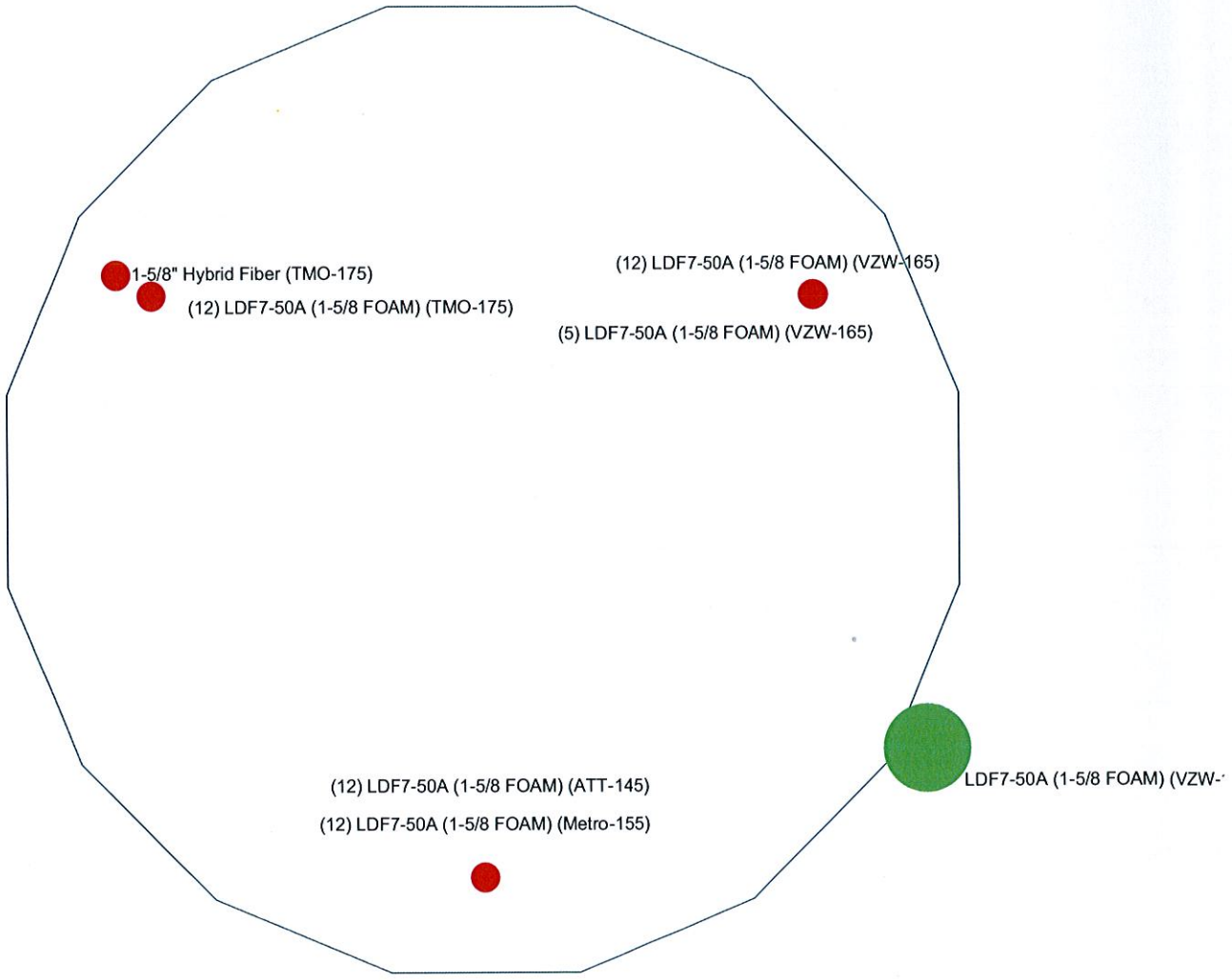
1. Tower is located in New London County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
6. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
7. Welds are fabricated with ER-70S-6 electrodes.
8. (P)roposed TMO equipment. All others considered existing.
9. TOWER RATING: 80.9%

ATLANTIS GROUP

Atlantis Group
1340 Centre Street, Suite 212
Newton, MA 02459
Phone: (617)965-0789
FAX: (617)213-3123

Job: ***175' EEI MONOPOLE ANALYSIS***
Project: ***CT11636A - Old Lyme***
Client: T-Mobile | Drawn by: PB | App'd:
Code: TIA/EIA-222-F | Date: 02/14/14 | Scale: N
Path: Y:\Atlantis Group\T-Mobile\CT11636A\Feb2014 Analysis\RisaCalcs\175MP.er | Dwg No.

Round Flat App In Face App Out Face



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Phone: (617)965-0789
FAX: (617)213-3123

Job	Page
175' EEI MONOPOLE ANALYSIS	1 of 5
Project	**Date**
CT11636A - Old Lyme	15:59:26 02/14/14
Client	**Designed by**
T-Mobile	PB

Load Combinations

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

Maximum Reactions

Location	*Condition*	*Gov. Load Comb.*	*Vertical lb*	*Horizontal, X lb*	*Horizontal, Z lb*
Pole	Max. Vert	21	72298.29	0.00	-25515.04
	Max. H_x	11	63587.57	30601.54	-0.00
	Max. H_z	2	63587.57	-0.00	30601.52
	Max. M_x	2	3577.81	-0.00	30601.52
	Max. M_z	5	3578.17	-30601.54	-0.00
	Max. Torsion	22	0.45	12757.52	-22096.67
	Min. Vert	1	63587.57	0.00	0.00
	Min. H_x	5	63587.57	-30601.54	-0.00
	Min. H_z	8	63587.57	-0.00	-30601.52

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. M_x	8	-3578.07	-0.00	-30601.52
	Min. M_z	11	-3577.73	30601.54	-0.00
	Min. Torsion	16	-0.45	-12757.52	22096.67

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	63587.57	0.00	0.00	0.13	-0.22	0.00
Dead+Wind 0 deg - No Ice	63587.57	0.00	-30601.52	-3577.81	-0.22	0.34
Dead+Wind 30 deg - No Ice	63587.57	15300.77	-26501.69	-3098.46	-1789.20	0.39
Dead+Wind 60 deg - No Ice	63587.57	26501.71	-15300.76	-1788.84	-3098.82	0.34
Dead+Wind 90 deg - No Ice	63587.57	30601.54	0.00	0.13	-3578.17	0.20
Dead+Wind 120 deg - No Ice	63587.57	26501.71	15300.76	1789.10	-3098.82	0.00
Dead+Wind 150 deg - No Ice	63587.57	15300.77	26501.69	3098.72	-1789.20	-0.19
Dead+Wind 180 deg - No Ice	63587.57	0.00	30601.52	3578.07	-0.22	-0.34
Dead+Wind 210 deg - No Ice	63587.57	-15300.77	26501.69	3098.71	1788.75	-0.39
Dead+Wind 240 deg - No Ice	63587.57	-26501.71	15300.76	1789.10	3098.37	-0.34
Dead+Wind 270 deg - No Ice	63587.57	-30601.54	0.00	0.13	3577.73	-0.20
Dead+Wind 300 deg - No Ice	63587.57	-26501.71	-15300.76	-1788.84	3098.37	-0.00
Dead+Wind 330 deg - No Ice	63587.57	-15300.77	-26501.69	-3098.46	1788.75	0.19
Dead+Ice+Temp	72298.29	0.00	0.00	0.36	-0.62	0.00
Dead+Wind 0 deg+Ice+Temp	72298.29	-0.00	-25515.04	-3064.63	-0.64	0.39
Dead+Wind 30 deg+Ice+Temp	72298.29	12757.52	-22096.67	-2654.00	-1533.14	0.45
Dead+Wind 60 deg+Ice+Temp	72298.29	22096.68	-12757.52	-1532.13	-2655.01	0.39
Dead+Wind 90 deg+Ice+Temp	72298.29	25515.05	-0.00	0.37	-3065.64	0.22
Dead+Wind 120 deg+Ice+Temp	72298.29	22096.68	12757.52	1532.87	-2655.01	0.00
Dead+Wind 150 deg+Ice+Temp	72298.29	12757.52	22096.67	2654.73	-1533.14	-0.22
Dead+Wind 180 deg+Ice+Temp	72298.29	-0.00	25515.04	3065.36	-0.64	-0.39
Dead+Wind 210 deg+Ice+Temp	72298.29	-12757.52	22096.67	2654.73	1531.87	-0.45
Dead+Wind 240 deg+Ice+Temp	72298.29	-22096.68	12757.52	1532.87	2653.74	-0.39
Dead+Wind 270 deg+Ice+Temp	72298.29	-25515.05	-0.00	0.37	3064.37	-0.22
Dead+Wind 300 deg+Ice+Temp	72298.29	-22096.68	-12757.52	-1532.13	2653.74	-0.00
Dead+Wind 330 deg+Ice+Temp	72298.29	-12757.52	-22096.67	-2654.00	1531.87	0.22
Dead+Wind 0 deg - Service	63587.57	0.00	-15247.82	-1783.03	-0.22	0.17
Dead+Wind 30 deg - Service	63587.57	7623.91	-13205.00	-1544.13	-891.80	0.20
Dead+Wind 60 deg - Service	63587.57	13205.00	-7623.91	-891.45	-1544.49	0.17
Dead+Wind 90 deg - Service	63587.57	15247.82	0.00	0.13	-1783.39	0.10
Dead+Wind 120 deg - Service	63587.57	13205.00	7623.91	891.71	-1544.49	0.00
Dead+Wind 150 deg - Service	63587.57	7623.91	13205.00	1544.39	-891.80	-0.10
Dead+Wind 180 deg - Service	63587.57	0.00	15247.82	1783.29	-0.22	-0.17
Dead+Wind 210 deg - Service	63587.57	-7623.91	13205.00	1544.39	891.36	-0.20
Dead+Wind 240 deg - Service	63587.57	-13205.00	7623.91	891.71	1544.04	-0.17
Dead+Wind 270 deg - Service	63587.57	-15247.82	0.00	0.13	1782.94	-0.10
Dead+Wind 300 deg - Service	63587.57	-13205.00	-7623.91	-891.45	1544.04	-0.00
Dead+Wind 330 deg - Service	63587.57	-7623.91	-13205.00	-1544.13	891.36	0.10

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 154.87	25.586	30	1.3301	0.0002
L2	159.12 - 116.289	21.214	30	1.2814	0.0002
L3	121.708 - 74.1693	12.106	31	0.9889	0.0002
L4	80.8281 - 33.3281	5.140	31	0.6141	0.0001
L5	41.1589 - 0	1.315	31	0.2867	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175'	(2) Ericsson AIR21 w. Mtg Pipe	30	25.586	1.3301	0.0002	36162
165'	(2) LPA-80080-4CF-EDIN-x w. Mtg PIpe	30	22.816	1.3037	0.0002	18081
155'	(2) APXV18-206516S-C w. MtgPipe	30	20.113	1.2607	0.0002	10272
145'	(2) DUO1417-8686 w/Mount Pipe	30	17.525	1.1945	0.0002	8298
143'6"	TT19-08BP111-001 TMA	30	17.148	1.1829	0.0002	8065
142'	TT19-08BP111-001 TMA	30	16.775	1.1711	0.0002	7846

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 154.87	51.318	5	2.6679	0.0005
L2	159.12 - 116.289	42.552	5	2.5703	0.0005
L3	121.708 - 74.1693	24.284	5	1.9837	0.0004
L4	80.8281 - 33.3281	10.312	5	1.2319	0.0002
L5	41.1589 - 0	2.638	6	0.5752	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175'	(2) Ericsson AIR21 w. Mtg Pipe	5	51.318	2.6679	0.0005	18093
165'	(2) LPA-80080-4CF-EDIN-x w. Mtg PIpe	5	45.764	2.6151	0.0005	9046
155'	(2) APXV18-206516S-C w. MtgPipe	5	40.342	2.5287	0.0005	5138
145'	(2) DUO1417-8686 w/Mount Pipe	5	35.152	2.3960	0.0005	4149
143'6"	TT19-08BP111-001 TMA	5	34.397	2.3729	0.0005	4032
142'	TT19-08BP111-001 TMA	5	33.649	2.3490	0.0005	3922

Base Plate Design Data

Plate Thickness	*Number of Anchor Bolts*	*Actual Allowable Ratio Bolt Tension*	*Actual Allowable Ratio Bolt Compression*	*Actual Allowable Ratio Plate Stress*	*Actual Allowable Ratio Stiffener Stress*	*Controlling Condition*	*Ratio*
in		*lb*	*lb*	*ksi*	*ksi*		
2.5000	32	69577.20 131210.58 0.53	73551.00 217809.56 0.34	48.550 45.000 1.08		Plate	1.08 ✔

Compression Checks

Pole Design Data

Section No.	*Elevation*	*L*	L_u	*Kl/r*	F_a	*A*	*Actual P*	*Allow. P_a*	*Ratio $\frac{P}{P_a}$*
	ft	*ft*	*ft*		*ksi*	in^2	*lb*	*lb*	
L1	175 - 154.87 (1)	20'1-9/16'	175'	210.4	3.374	16.7330	-6673.88	56451.20	0.118
L2	154.87 - 116.289 (2)	42'9-31/32"	175'	159.0	5.905	44.2770	-14296.60	261473.00	0.055
L3	116.289 - 74.1693 (3)	47'6-15/32"	175'	126.2	9.373	74.3740	-26276.30	697074.00	0.038
L4	74.1693 - 33.3281 (4)	47'6"	175'	105.6	13.397	100.0340	-42260.90	1340150.00	0.032
L5	33.3281 - 0 (5)	41'1-29/32"	175'	90.4	18.191	129.8440	-63580.70	2362020.00	0.027

Pole Bending Design Data

Section No.	*Elevation*	*Actual M_x*	*Actual f_{bx}*	*Allow. F_{bx}*	*Ratio $\frac{f_{bx}}{F_{bx}}$*	*Actual M_y*	*Actual f_{by}*	*Allow. F_{by}*	*Ratio $\frac{f_{by}}{F_{by}}$*
	ft	*kip-ft*	*ksi*	*ksi*		*kip-ft*	*ksi*	*ksi*	
L1	175 - 154.87 (1)	71.42	-7.374	39.000	0.189	0.00	0.000	39.000	0.000
L2	154.87 - 116.289 (2)	613.73	-18.160	39.000	0.466	0.00	0.000	39.000	0.000
L3	116.289 - 74.1693 (3)	1432.92	-20.048	39.000	0.514	0.00	0.000	39.000	0.000
L4	74.1693 - 33.3281 (4)	2402.01	-20.886	39.000	0.536	0.00	0.000	39.000	0.000
L5	33.3281 - 0 (5)	3578.21	-20.509	39.000	0.526	0.00	0.000	39.000	0.000

Pole Interaction Design Data

Section No.	*Elevation* *ft*	*Ratio* $\frac{P}{P_a}$	*Ratio* $\frac{f_{bx}}{F_{bx}}$	*Ratio* $\frac{f_{by}}{F_{by}}$	*Comb. Stress Ratio*	*Allow. Stress Ratio*	*Criteria*
L1	175 - 154.87 (1)	0.118	0.189	0.000	0.307 ✔	1.333	H1-3 ✔
L2	154.87 - 116.289 (2)	0.055	0.466	0.000	0.520 ✔	1.333	H1-3 ✔
L3	116.289 - 74.1693 (3)	0.038	0.514	0.000	0.552 ✔	1.333	H1-3 ✔
L4	74.1693 - 33.3281 (4)	0.032	0.536	0.000	0.567 ✔	1.333	H1-3 ✔
L5	33.3281 - 0 (5)	0.027	0.526	0.000	0.553 ✔	1.333	H1-3 ✔

Section Capacity Table

Section No.	*Elevation ft*	*Component Type*	*Critical Element*	*P lb*	*SF*P_{allow} lb*	*% Capacity*	*Pass Fail*
L1	175 - 154.87	Pole	1	-6673.88	75249.45	23.1	Pass
L2	154.87 - 116.289	Pole	2	-14296.60	348543.49	39.0	Pass
L3	116.289 - 74.1693	Pole	3	-26276.30	929199.60	41.4	Pass
L4	74.1693 - 33.3281	Pole	4	-42260.90	1786419.88	42.5	Pass
L5	33.3281 - 0	Pole	5	-63580.70	3148572.53	41.5	Pass
						Summary	
					Pole (L4)	42.5	Pass
					Base Plate	80.9	Pass
					RATING =	**80.9**	**Pass**

Check Foundations

Design OTM: 7803 ft-kip

Proposed OTM: 3578 ft-kip

Foundations are OK

EXHIBIT C

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11636A

Wireless Solutions Old Lyme
72 Boggy Hole Road
Old Lyme, CT 06371

February 21, 2014

EBI Project Number: 62140922

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

February 21, 2014

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Re: Emissions Values for Site: **CT11636A – Wireless Solutions Old Lyme**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 72 Boggy Hole Road, Old Lyme, CT, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of μW/cm2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter (μW/cm2). The general population exposure limit for the cellular band is 567 μW/cm2, and the general population exposure limit for the PCS band is 1000 μW/cm2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 72 Boggy Hole Road, Old Lyme, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is a 6 foot person standing at the base of the tower

For all calculations, all equipment was calculated using the following assumptions:

1) 2 GSM / UMTS channels (1935.000 MHz to 1945.000 MHz / 1983.000 MHz to 1984.000 MHz) were considered for each sector of the proposed installation.
2) 4 UMTS / LTE channels (2110.000 to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation 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.
4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
5) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications

6) The antenna mounting height centerline of the proposed antennas is **175 feet** above ground level (AGL)
7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT11636A - Wireless Solutions Old Lyme
Site Addresss	72 Boggy Hole Road, Old Lyme, CT 06371
Site Type	Guyed Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	175	169	None	0	0	48.326044	0.608294	0.06083%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	175	169	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	175	169	None	0	0	24.163022	0.304147	0.03041%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	175	169	None	0	0	32.217363	0.40553	0.04055%
														Sector total Power Density Value:		0.132%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	175	169	None	0	0	48.326044	0.608294	0.06083%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	175	169	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	175	169	None	0	0	24.163022	0.304147	0.03041%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	175	169	None	0	0	32.217363	0.40553	0.04055%
														Sector total Power Density Value:		0.132%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	175	169	None	0	0	48.326044	0.608294	0.06083%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-			0	-3.95	175	169	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	175	169	None	0	0	24.163022	0.304147	0.03041%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	175	169	None	0	0	32.217363	0.40553	0.04055%
														Sector total Power Density Value:		0.132%	

Site Composite MPE %	
Carrier	MPE %
T-Mobile	0.395%
AT&T	17.870%
Nextel	3.270%
Verizon Wireless	11.840%
MetroPCS	3.330%
Total Site MPE %	**36.705%**

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Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public exposure to RF Emissions.

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.395% (0.132% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **36.705%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803