EM-CLEARWIRE-049-100527

ORIGINAL

May 27, 2010

S. Derek Phelps, Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification
Clearwire Corporation Notice to make an Exempt Modification to an Existing Facility at 4 Oliver Road, Enfield, CT
Clearwire Site Number CT-HFD0007

Dear Mr. Phelps,

Pursuant to Conn. Agency Regulations Sections 16-50j-73 and 16-50j-72(b), Clearwire Corporation (Clearwire) hereby gives notice to the Connecticut Siting Council (Council) and the Town of Enfield, CT. of Clearwire's intent to make an exempt modification to an existing monopole tower (tower) located at 4 Oliver Road, Enfield, CT. Specifically, Clearwire plans to add three (3) antennas to the tower, one (1) per sector and to add three (3) microwave dishes, one (1) per sector for backhaul at the 137' AGL. Pursuant to the Council's regulations, (Conn. Agency Regulations Section 16-50j-72(b)), Clearwire's plans do not constitute a modification subject to the Council's review because Clearwire will not change the height of the tower, will not extend the boundaries of the compound, will not increase the noise levels at the site and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards. A copy of this notice has been sent to Town Manager Mathew Coppler of the Town Enfield, CT.

Clearwire is currently developing a 4G wireless broadband network to provide high-speed wireless data and VoIP service within the State of Connecticut. Clearwire's 4G service leverages the WiMAX technology to enable enhanced wireless data communications. In order to accomplish the upgrade at this site, Clearwire plans to add three (3) WiMAX antennas, two (2) dishes and to install additional WiMAX related electronic equipment at the base of the tower.

The tower is a 150' monopole located at 4 Oliver Road, Enfield, Connecticut (Latitude 41 57 34 N Longitude 72 35 35 W). The tower is owned by Crown Castle USA. Currently, Verizon, Sprint, Nextel, T Mobile, AT&T, Cingular and XM Radio are located on the tower, as well as a number of other public service antennas. Presently, Clearwire is not located at the site. Clearwire's base station equipment will be located on the ground next to the pole. A site plan with the tower elevations and site plan specifications is attached.

Clearwire will add three (3) antennas, one (1) to each sector, and mount two (2) microwave dishes, one (1) above each of those antennas. The center line for the microwave dishes will be 137'. Nine coaxial cables will be added to the structure, 2 per antenna and one per microwave dish. These cables will be inside the tower and bundled. To confirm that the tower

can support these changes, Clearwire commissioned Crown Castle USA Inc. to perform a structural analysis of the tower and the proposed changes. According to that structural dated March 3, 2010 and attached hereto, the structure is sufficient to support the proposed loading and will not need to be modified. The tower, with the additions and the modifications will be at less than 98.3% of its capacity.

Within the existing compound, Clearwire will install one (1) WiMAX radio and power cabinet on the existing pad at the site. The new equipment will be adjacent to the existing tower. Excluding brief, construction related noise during the addition of this equipment, the proposed changes to the tower will not increase noise levels at the site.

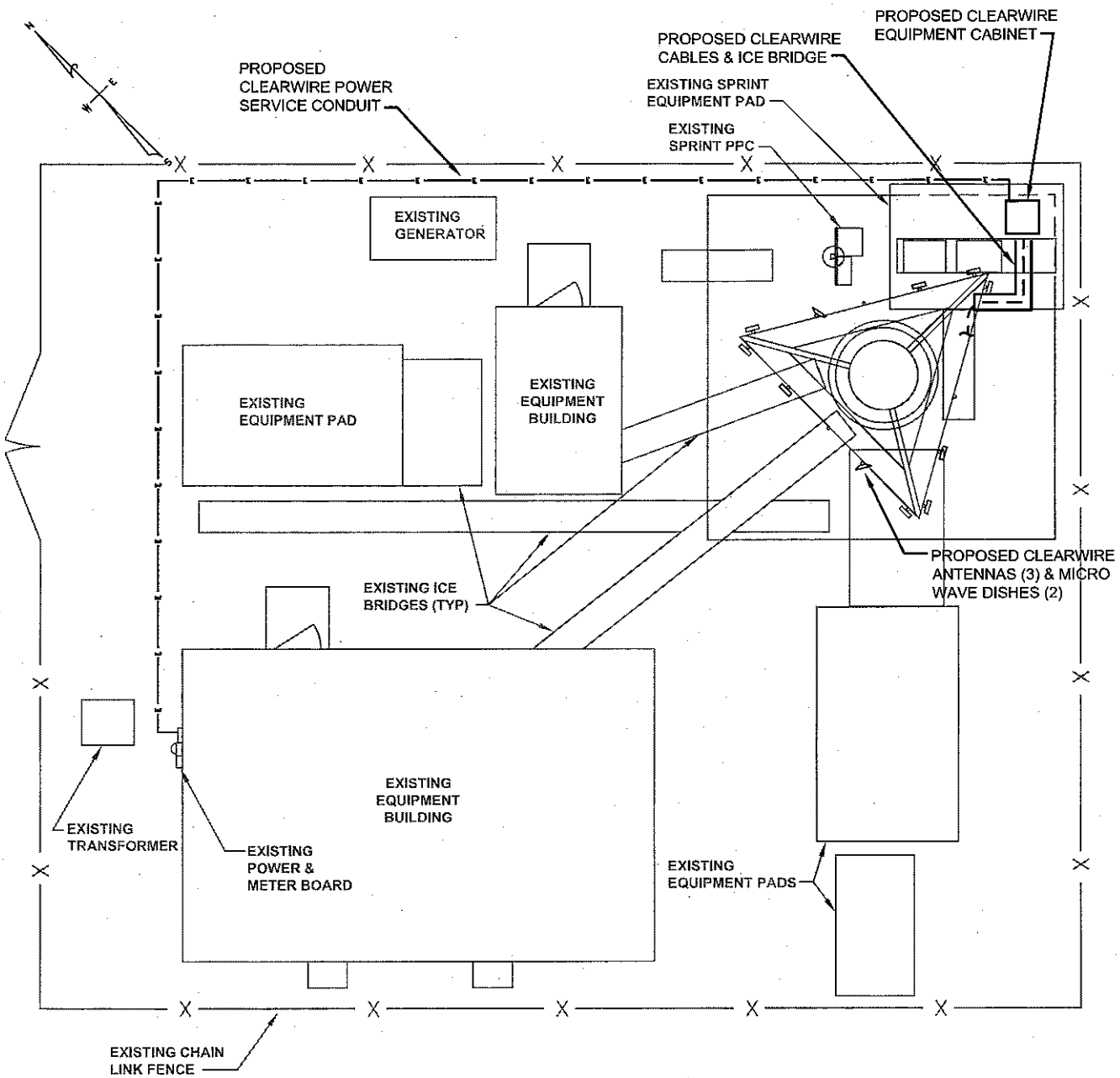
The addition of new WiMAX antennas and microwave dishes will not adversely impact the health and safety of the surrounding community or the people working on the tower. The total radio frequency exposure measured around the base of the tower will be well below the National Council on Radiation Protection and Measurements' (NCRP) standard adopted by the Federal Communications Commission (FCC). The worst case power density analysis for the WiMAX antennas and dishes, measured at the base of the tower, indicates that the WiMAX antennas and dishes will emit .36% of the NCRP's standard for maximum permissible exposure. The cumulative power density analysis indicates that all the antennas on the structure will emit 29.50% of the NRCP's standard for maximum permissible exposure. Therefore, the power density levels will be well below the FCC mandated radio frequency exposure limits in all locations around the base of the tower. The power density analysis is attached.

In conclusion, Clearwire's proposed plan to add three (3) WiMAX antennas, two (2) microwave dishes and the associated base station equipment does not constitute a modification subject to the Council's jurisdiction because Clearwire will not increase the height of the tower, will not extend the boundaries of the compound at the site, will not increase the noise levels at the site and the radio frequency electromagnetic radiation power density will stay within all applicable standards.

Respectfully Submitted

Thomas F. Flynn III
Site Development Project Manager
Maxton Technology Inc.
1296 Blue Hills Avenue
Bloomfield, CT 06002
508-821-6974
Tom.Flynn@maxtontech.com
Agent for Clearwire Corporation

Cc: Town Manager Mathew Coppler
Town of Enfield

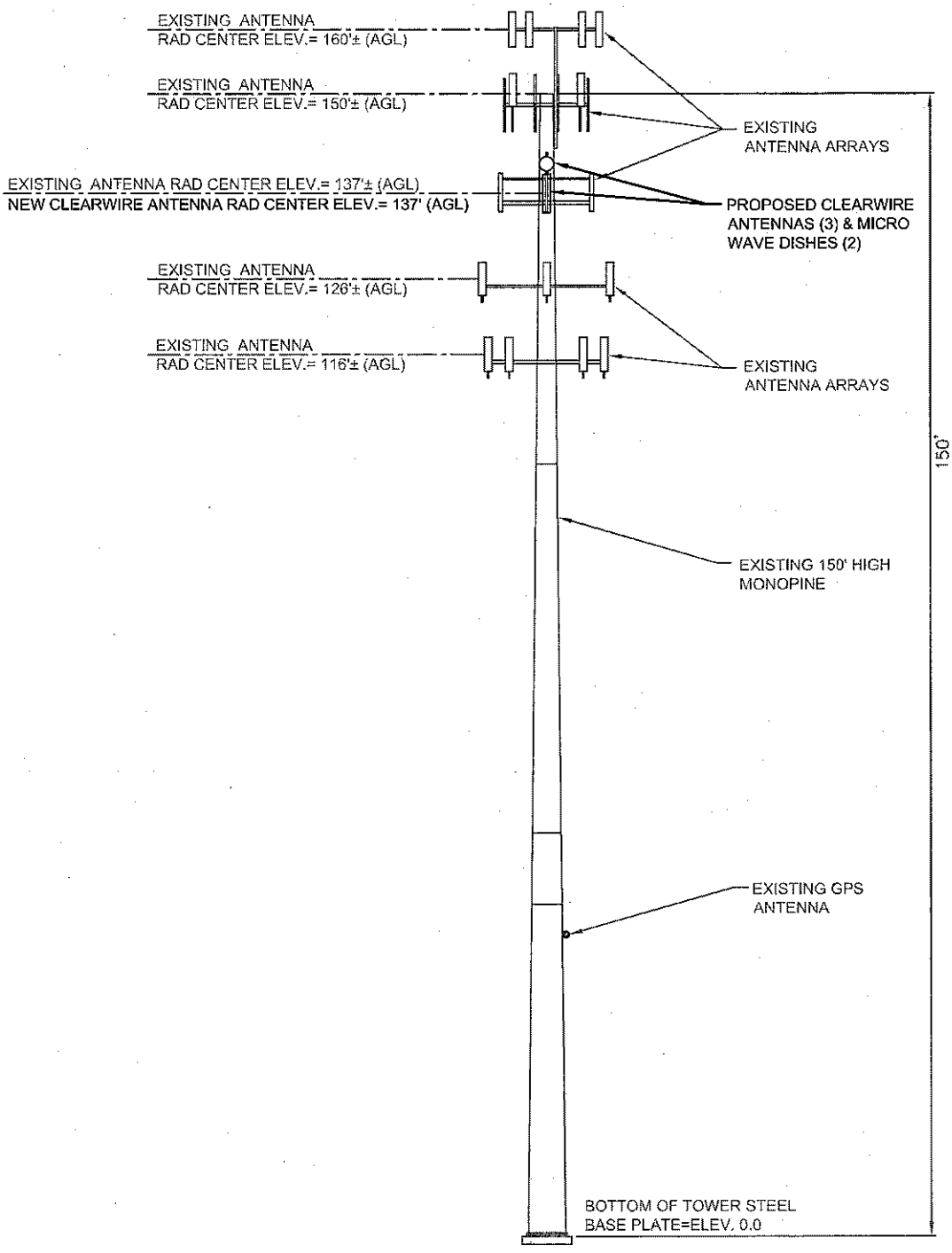


SITE PLAN

SCALE: NTS

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

DiCESARE BENTLEY ENGINEERS / SURVEYORS / PLANNERS	clear w're® CLEAR WIRELESS, LLC 4400 CARILLION POINT KIRKLAND, WA 98033	PROJECT LOCATION: ENFIELD CT-HFD0007B 4 OLIVER ROAD ENFIELD, CT	SITE TYPE: MONOPOLE CO-LOCATION		DB PROJ. #: 09-083.40
			PROJECT MANAGER: PB	DRAWN BY: ACG	L1
		APPROVED BY:	DATE: 3/8/2010	REVISION: 1	



TOWER ELEVATION

SCALE: NTS

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

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			PROJECT MANAGER: PB	DRAWN BY: ACG	L2
		APPROVED BY:	DATE: 3/8/2010	REVISION: 1	

Date: **March 03, 2010**

Mitzi Parker
Crown Castle USA Inc.
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject: **Structural Analysis Report**

Carrier Designation:	***Clearwire Corp* Co-Locate**	
	Carrier Site Number:	CT03XC092
	Carrier Site Name:	ENFIELD
Crown Castle Designation:	**Crown Castle BU Number:**	806373
	Crown Castle Site Name:	HRT 101 943232
	Crown Castle JDE Job Number:	131428
	Crown Castle Work Order Number:	320439
Engineering Firm Designation:	**Crown Castle Project Number:**	320439
Site Data:	**OFF OLIVER ST., ENFIELD, Hartford County, CT** **Latitude *41° 57' 36.2"*, Longitude *-72° 35' 32.3"*** **150 Foot - Monopole Tower**	

Dear Mitzi Parker,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 320439, in accordance with application 95849, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

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

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

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

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

Structural analysis prepared by: Craig Thompson, EIT

Respectfully submitted by:

Aaron C. Poot, P.E.
Engineering Supervisor

STATE OF CONNECTICUT
AARON C. POOT
No. 25050
LICENSED
PROFESSIONAL ENGINEER

3/3/10

RISA Tower Report - version 5.3.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150 ft Monopole tower designed by VALMONT in November of 1991. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 37.6 mph with 1 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
137	139	2	andrew	VHLP2.5-11	3 6	1/2 5/16	-
		2	dragonwave	HORIZON COMPACT			
	135	3	kathrein	840 10054 w/ Mount Pipe			
		1	motorola	TIMING 2000			
		3	samsung telecommunications	WIMAX DAP HEAD			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
160	160	1	tower mounts	Side Arm Mount [SO 701-3]	12	1-5/8	1
152		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP13519			
		6	powerwave technologies	LGP21401			
150	152	1	antel	BXA-185063/8CF w/ Mount Pipe	-	-	2
		2	antel	BXA-185090/8CFx2 w/ Mount Pipe			
		2	antel	BXA-70063/6CFx4 w/ Mount Pipe			
		1	antel	BXA-70063/6CFx6 w/ Mount Pipe			
		2	antel	LPA-80063/4CF w/ Mount Pipe			
		4	antel	LPA-80080/4CF w/ Mount Pipe			
	150	1	tower mounts	Platform Mount [LP 713-1]	12	1-5/8	1

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
137	137	6	decibel	DB980H90E-M w/ Mount Pipe	6	1-5/8	1
		1	tower mounts	Platform Mount [LP 713-1]			
126	127	9	swedcom	ALP 9212-N w/ Mount Pipe	9	7/8	1
	126	-	-	-	12	1-1/4	3
		1	tower mounts	T-Arm Mount [TA 602-3]	-	-	1
116	117	3	ems wireless	DR65-18-02DPL2Q w/ Mount Pipe	6 6	1-1/4 1-5/8	1
		3	rfs celwave	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe			
	116	6	andrew	ONEBASE TWIN DUAL DUPLEX TMA			
		1	tower mounts	Side Arm Mount [SO 701-3]			
50	50	1	symmetricom	58532A	1	1/2	2
		1	tower mounts	Side Arm Mount [SO 701-1]			
40	40	1	tower mounts	Side Arm Mount [SO 701-1]	1	1/2	1
		1	unknown	GPS			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) SLA feed lines control; were considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
147	147	4	-	PD10017	-	-
140	140	12	-	PD1132	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH	821582	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Valmont	821581	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont	822743	CCISITES

3.1) Analysis Method

RISATower (version 5.3.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) The base plate grout was not considered in the analysis.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	150 - 97.1667	Pole	TP31.13x20.3x0.25	1	-9.40	1250.85	93.5	Pass
L2	97.1667 - 49.0833	Pole	TP40.49x29.6392x0.375	2	-18.97	2442.03	96.0	Pass
L3	49.0833 - 0	Pole	TP49.8x38.5268x0.438	3	-35.21	3619.24	98.3	Pass
							Summary	
						Pole (L3)	98.3	Pass
						Rating =	98.3	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	92.7	Pass
1	Base Plate	0	63.0	Pass
1	Base Foundation Soil Interaction	0	90.9	Pass

Structure Rating (max from all components) =	98.3%

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

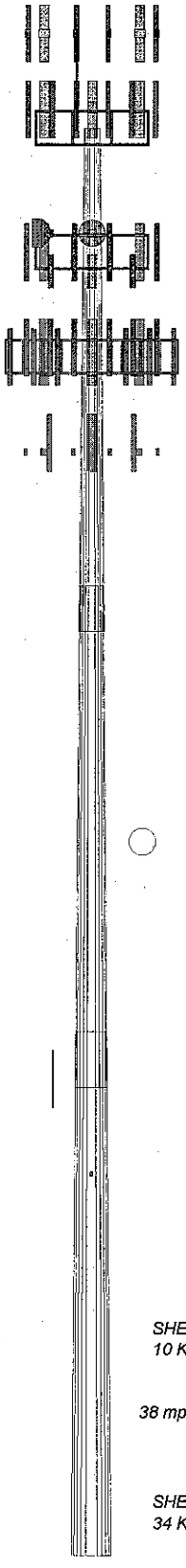
4.1) Recommendations

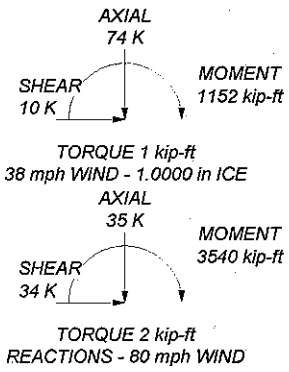
The tower and foundation are sufficient to carry the existing, reserved and proposed loading. No modifications are required at this time.

APPENDIX A

RISA TOWER OUTPUT

Section	3	2	1
Length (ft)	55.00	52.82	52.83
Number of Sides	12	12	12
Thickness (in)	0.4380	0.3750	0.2500
Lap Splice (ft)		5.92	4.83
Top Dia (in)	38.5268	29.6392	20.3000
Bot Dia (in)	49.8000	40.4900	31.1300
Grade		S-22	
Weight (K)	11.5	7.5	3.7
	22.8		





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Side Arm Mount [SO 701-3]	160	HORIZON COMPACT	137
10'6"x4" Pipe Mount	155	840 10054 w/ Mount Pipe	137
(2) LGP21401	152	WIMAX DAP HEAD	137
(2) 7770.00 w/ Mount Pipe	152	Platform Mount [LP 713-1]	137
(2) LGP13519	152	VHLP2.5-11	137
(2) LGP21401	152	VHLP2.5-11	137
(2) 7770.00 w/ Mount Pipe	152	(3) ALP 9212-N w/ Mount Pipe	126
(2) LGP13519	152	T-Arm Mount [TA 602-3]	126
(2) LGP21401	152	(3) ALP 9212-N w/ Mount Pipe	126
(2) 7770.00 w/ Mount Pipe	152	(3) ALP 9212-N w/ Mount Pipe	126
(2) LGP13519	152	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	116
BXA-185063/8CF w/ Mount Pipe	150	(2) ONEBASE TWIN DUAL DUPLEX TMA	116
BXA-70063/6CFx6 w/ Mount Pipe	150	DR65-18-02DPL2Q w/ Mount Pipe	116
(2) LPA-80063/4CF w/ Mount Pipe	150	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	116
BXA-185090/8CFx2 w/ Mount Pipe	150	(2) ONEBASE TWIN DUAL DUPLEX TMA	116
BXA-70063/6CFx4 w/ Mount Pipe	150	DR65-18-02DPL2Q w/ Mount Pipe	116
(2) LPA-80080/4CF w/ Mount Pipe	150	APX16DWV-16DWV-S-E-ACU w/ Mount Pipe	116
BXA-185090/8CFx2 w/ Mount Pipe	150	Side Arm Mount [SO 701-3]	116
BXA-70063/6CFx4 w/ Mount Pipe	150	(2) ONEBASE TWIN DUAL DUPLEX TMA	116
(2) LPA-80080/4CF w/ Mount Pipe	150	DR65-18-02DPL2Q w/ Mount Pipe	116
Platform Mount [LP 713-1]	150	58532A	50
(2) DB980H90E-M w/ Mount Pipe	137	Side Arm Mount [SO 701-1]	50
HORIZON COMPACT	137	GPS	40
840 10054 w/ Mount Pipe	137	Side Arm Mount [SO 701-1]	40
TIMING 2000	137		
WIMAX DAP HEAD	137		
(2) DB980H90E-M w/ Mount Pipe	137		
840 10054 w/ Mount Pipe	137		
WIMAX DAP HEAD	137		
(2) DB980H90E-M w/ Mount Pipe	137		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
S-22	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 98.3%

CROWN CASTLE
Shaping the Wireless World
Crown Castle
2000 Corporate Drive
Canonsburg, PA
Phone: (724) 416-2000
FAX:

Job: BU# 806373			
Project:			
Client: Crown Castle USA	Drawn by: CThompson	App'd:	
Code: TIA/EIA-222-F	Date: 03/03/10	Scale: NTS	
Path: R:\SA Models - Letters\Work Area\CThompson\806373\806373.eri		Dwg No. E-1	

CLEAR

4400 Carillon Point
Kirkland, WA 98033

To: Maxton
From: Frantz Pierre – Radio Frequency Engineer
Cc: Micah Hawthorne
Subject: Power Density Report for CT-HFD0007
Date: April 19, 2010

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1. Introduction:

This report is the result of Electromagnetic Field Intensities (EMF – Power Densities) study for the Clearwire broadband antenna installation on a Steele Monopole at 4 Oliver Road, Enfield, CT, 06082. 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 Clearwire transmitters are in the (2496 – 2960) Frequency Band
2) The emissions from the Clearwire Microwave dishes are in the 11 GHz Frequency Band
3) The model number for Clearwire Antenna is Argus LLPX310R
4) The model number for the Microwave dish is Andrew VHLP2.5 with 24" Diameter.
5) The Clearwire Panel antenna centerline is 137 feet.
6) The Clearwire Microwave dish centerline is 139 feet.
7) The Maximum Transmit power from any Clearwire panel antenna is 251 Watts Effective Isotropic Radiated Power (EiRP) assuming 2 channels per sector.
8) The Maximum Transmit power from any Clearwire Microwave Dish is 346 Watts Effective Isotropic Radiated Power (EiRP) assuming 1 channel per dish.
9) All antennas are simultaneously transmitting and receiving 24 hours per day.
10) 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 used with the above information to perform the calculations.

3: Conclusion:

Based on the above worst case assumptions, the power density calculation from the Clearwire antenna installation on a Steele Monopole at 4 Oliver Road, Enfield, CT, 06082 is 0.003610 mW/cm^2. This value represents 0.36% 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 Clearwire 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 all other carriers is 29.14 %. The combined Power Density for this site is 29.50% of the M.P.E. standard.