

March 11, 2010

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

RECEIVED  
MAR 12 2010

ORIGINAL

CONNECTICUT  
SITING COUNCIL

**Re: Notice of Exempt Modification  
Clearwire Corporation Notice to make an Exempt Modification to an Existing  
Facility at 1021 Blue Hills Avenue, Bloomfield, CT  
Clearwire Site Number CT-HFD0024**

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 Bloomfield, CT. of Clearwire's intent to make an exempt modification to an existing monopole tower (tower) located at 1021 Blue Hills Ave., Bloomfield, CT. Specifically, Clearwire plans to add three (3) antennas to the tower, one (1) per sector and to add two (2) microwave dishes, one (1) per sector for backhaul at the 120' 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 Louie Chapman Jr. of the Town of Bloomfield, 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 XXX' monopole located at 1021 Blue Hills Avenue, Bloomfield, Connecticut (Latitude 41 48 15 N Longitude 72 41 47 W). The tower is owned by the Town of Bloomfield, CT.. Currently, Sprint, XM Satellite Radio, AT&T, Cingular, T-Mobile and Pocket are located on the tower, as well as a number of Bloomfield 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 120'. 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 FDH Inc. to perform a structural analysis of the tower and the proposed changes. According to that structural dated January 11, 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 97.8% 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 74.2933% of the NCRP'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.

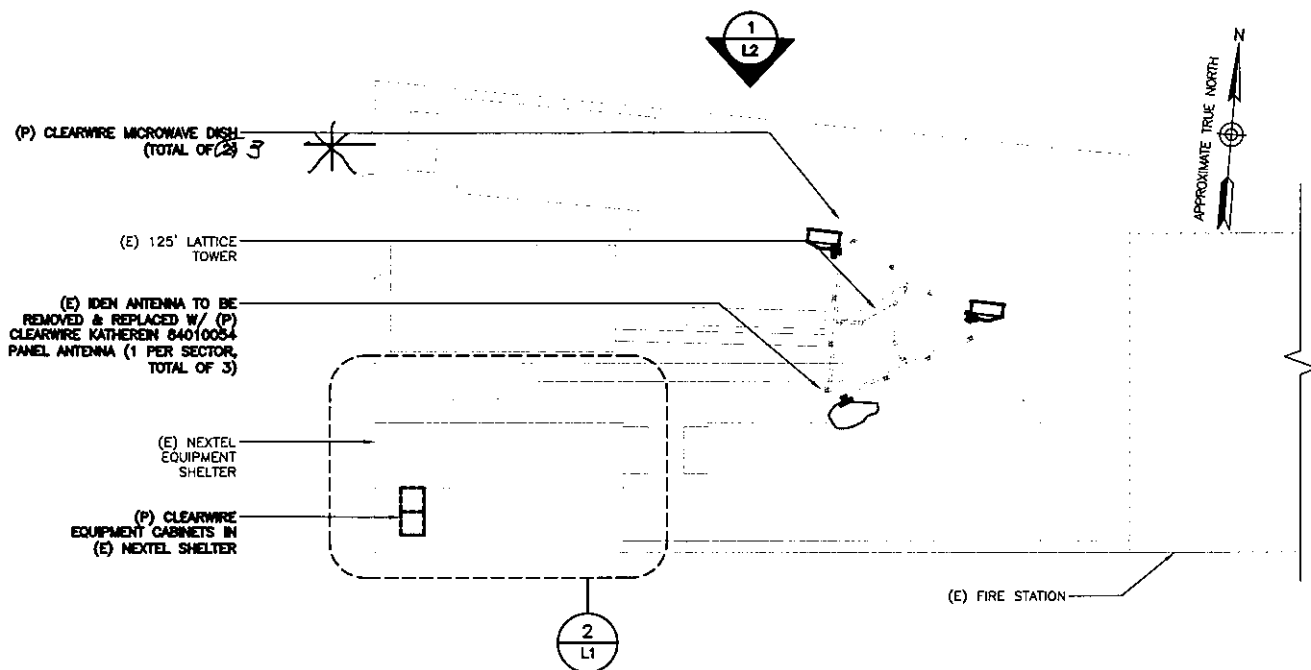
In conclusion, Clearwire's proposed plan to add three (3) WiMAX antennas, two (2) microwave dishes and the associated base station equipment does not constitute a modification subject to the Council's jurisdiction because Clearwire will not increase the height of the tower, will not extend the boundaries 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.  
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Bloomfield, CT 06002  
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Agent for Clearwire Corporation

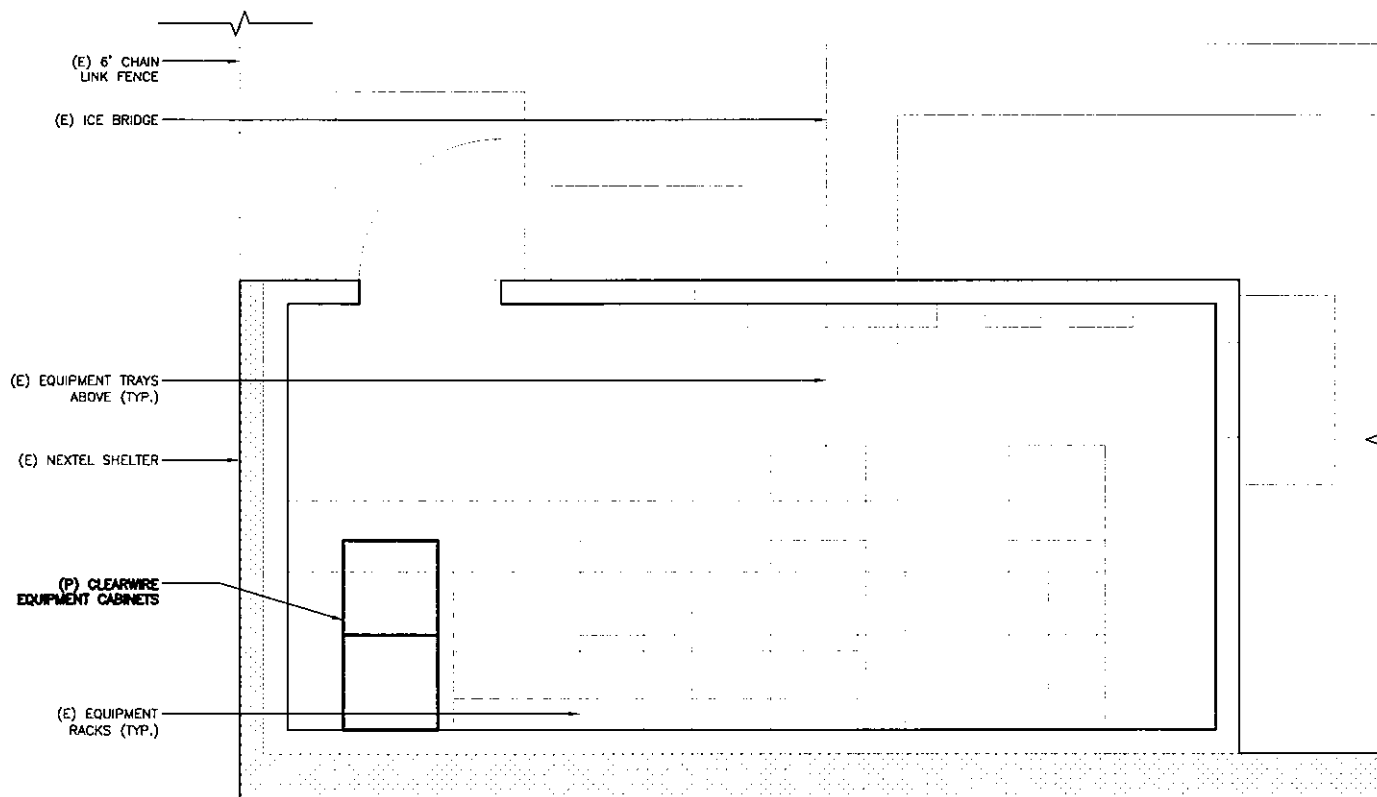
Cc: Town Manager Louie Chapman Jr.  
Town of Bloomfield



## ROOF PLAN

SCALE: N.T.S.

1



## SHELTER PLAN

SCALE: N.T.S.

2

(E) EXISTING  
(P) PROPOSED

**MIXTON**  
BAY STATE  
DESIGN

241 Boston Post Road West  
Marlborough, MA. 01752  
Phone: 508-229-4100  
Fax: 508-485-5321

Bay State Design, Inc.  
Architects • Engineers  
241 Boston Post Road West  
Marlborough, MA. 01752  
Phone: 508-229-4100  
Fax: 508-485-5321

**clearw're**

5808 LAKE WASHINGTON BLVD.  
NE SUITE 300  
KIRKLAND, WA 98033

PROJECT LOCATION:  
BLUE HILLS FIRE STATION  
CT-HFD0024A  
1021 BLUE HILLS STREET  
BLOOMFIELD, CT

APPROVED BY:

SITE TYPE:  
COPLANE

PROJECT MANAGER:  
JP

DRAWN BY:  
NS

DATE:  
02/15/10

REVISION:  
0

BSDA PROJ. #:  
2908.022

SHEET:

L1

TOP OF TOWER &  
§ OF (E) I-MOBILE ANTENNAS  
ELEV. = 125'-0" ± A.G.L.

§ OF (E) NEXTEL ANTENNAS &  
(P) CLEARWIRE ANTENNAS  
ELEV. = 120'-0" ± A.G.L.

§ OF (P) CLEARWIRE MICROWAVE DISH  
ELEV. = 115'-0" ± A.G.L.

§ OF VERIZON ANTENNAS  
ELEV. = 107'-0" ± A.G.L.

§ OF AT&T ANTENNAS  
ELEV. = 98'-0" ± A.G.L.

§ OF (E) SPRINT ANTENNAS  
ELEV. = 87'-0" ± A.G.L.

§ OF POCKET ANTENNAS  
ELEV. = 75'-0" ± A.G.L.

GRADE  
ELEV. = 0'-0" ± A.G.L.

125'  
(E) 135' LATTICE  
TOWER

(E) ICE BRIDGE

(P) CLEARWIRE  
EQUIPMENT CABINET

(E) NEXTEL  
EQUIPMENT  
SHELTER

NOTE:  
NEXTEL SHELTER FACADE  
NOT SHOWN FOR CLARITY.

(E) IDEN ANTENNA TO BE  
REMOVED & REPLACED BY (P)  
CLEARWIRE ANTENNA 6-FOLD  
PANEL ANTENNA (1 PER SECTOR,  
TOTAL OF 3)

(P) CLEARWIRE MICROWAVE DISH  
(TOTAL OF 2)

(E) EXISTING  
(P) PROPOSED

ELEVATION

SCALE: N.T.S.

1

**MAXTON**  
BAY STATE  
DESIGN

241 Boston Post Road West  
Marlborough, MA 01752  
Phone: 508-228-4100  
Fax: 508-485-5321

Bay State Design, Inc.  
Architects - Engineers  
241 Boston Post Road West  
Marlborough, MA 01752  
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Fax: 508-485-5321

**clearw're**

5808 LAKE WASHINGTON BLVD.  
NE SUITE 300  
KIRKLAND, WA 98033

PROJECT LOCATION:  
BLUE HILLS FIRE STATION  
CT-HFD0024A  
1021 BLUE HILLS STREET  
BLOOMFIELD, CT

APPROVED BY:

SITE TYPE:  
COPLANE

PROJECT MANAGER:  
JP

DRAWN BY:  
NS

DATE:  
02/15/10

REVISION:  
0

BSDA PROJ. #:  
2908.022

SHEET:

L2



**Structural Analysis for  
SBA Network Services, Inc.**

**125' Self-Support Tower**

**Site Name: Bloomfield  
Site ID: CT01725-A**

FDH Project Number 10-01035E S1

Prepared By:

A handwritten signature in cursive script that reads "Brent McLain".

Brent McLain, EI  
Project Engineer

Reviewed By:

A handwritten signature in cursive script that reads "Christopher M. Murphy".

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

**FDH Engineering, Inc.**

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

January 11, 2010



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



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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed an analysis of the existing self-support tower located in Bloomfield, 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 existing/proposed antenna loading, current tower geometry, and the member sizes was obtained from Fred A. Nudd Corp. (Project No. 5566A) structural report dated March 11, 1998 and SBA Network Services, Inc.

The *basic design wind speed* per *TIA/EIA-222-F* standards is 80 MPH without ice and 38 MPH with 1" radial ice. Ice is considered to increase in thickness with height.

## Conclusions

With the existing and proposed antennas from Clearwire/Nextel in place at 120 ft. the tower meets the requirements of the *TIA/EIA-222-F* standards, provided the **Recommendations** listed below are satisfied. Furthermore, provide the foundations were constructed per the foundation dimensions listed in the structural report (see Fred A. Nudd Corp. Project No. 5566A) and based on normal soil parameters per *TIA/EIA-222-F* standards, the foundations 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, current antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

## Recommendations

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 recommendations:

1. Proposed coax lines must be installed as shown in **Figure 1**.
2. The proposed radios should be installed behind the proposed antennas/dishes.

## 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.	Centerline Elevation (ft) <sup>1</sup>	Coax and Lines <sup>2</sup>	Carrier	Mount Type	Description
1-14	125	(1) 1-1/4" (2) 7/8" (2) 1/2"	Blue Hills Fire & PD	(1) Platform w/ Handrails	(3) Celwave PD455 (2) 20' Omnis (assumed)
		(18) 1-5/8" <sup>3</sup>	T-Mobile		(6) EMS RV90-17-00 (3) RFS APX16PV-16PVL-C (9) OneBase Twin TMAs
15-26	120 <sup>4</sup>	(12) 1-1/4"	Nextel	(3) T-Frames	(12) Decibel DB844H90E-XY
27-38	107 <sup>5</sup>	(12) 1-5/8" (2) 1/2"	Verizon	(3) T-Frames	(6) Antel LPA-80063/4CF (6) Antel LPA-185063/8CF (2) GPS
39-44	98 <sup>6</sup>	(12) 1-1/4"	Cingular	(3) T-Frames	(6) Powerwave 7770.00 (12) TMAs
45-56	87 <sup>7</sup>	(12) 1-1/4"	Sprint	(3) T-Frames	(12) Decibel DB980F65T2E-M
57-59	75	(6) 1-5/8"	Pocket	Direct	(3) RFS APXV18-206517S-C
60	50	---	---	(1) Standoff	(1) 2' Omni (assumed)

1 Omni elevations measured from the base of the antenna.

2 See **Figure 1** for coax location.

3 Currently, T-Mobile has (12) 1-5/8" coax at 125 ft. According to the information provided by SBA, T-Mobile reserves the right to (18) 1-5/8" coax. Analysis performed with full leased loading in place.

4 Nextel's existing loading will be altered at 120 ft. See the proposed loading below.

5 Currently, Verizon has (12) 1-5/8" coax at 107 ft. According to the information provided by SBA, Verizon reserves the right to install (12) 1-5/8" coax and (2) 1/2" coax at 107 ft. Analysis performed with full leased loading in place.

6 Currently, Cingular has (6) Powerwave 7770.00 antennas, (12) TMAs, and (12) 7/8" coax at 98 ft. According to the information provided by SBA, Cingular reserves the right to (12) 1-1/4" coax at 98 ft. Analysis performed with full leased loading in place.

7 Currently, Sprint has (6) Decibel DB980F65T2E-M antennas and (6) 1-1/4" coax at 87 ft. According to the information provided by SBA, Sprint reserves the right to install an additional (6) Decibel DB980F65T2E-M antennas and (6) 1-1/4" coax for a final configuration of (12) Decibel DB980F65T2E-M antennas and (12) 1-1/4" coax 87 ft. Analysis performed with full leased loading in place.

### Proposed Loading:

Antenna No.	Centerline Elevation (ft)	Coax and Lines	Carrier	Mount Type	Description
1-14	120	(12) 1-1/4" (7) 5/16" (2) 1/2"	Clearwire/ Nextel	(3) T-Frames (existing at 120 ft)	(9) Decibel DB844H90E-XY (3) Kathrein 840-10054 (2) Andrew VHLP2.5 Dishes (2) Dragonwave Horizon DUO Radio (2) Samsung U-RAS Flexible Radio



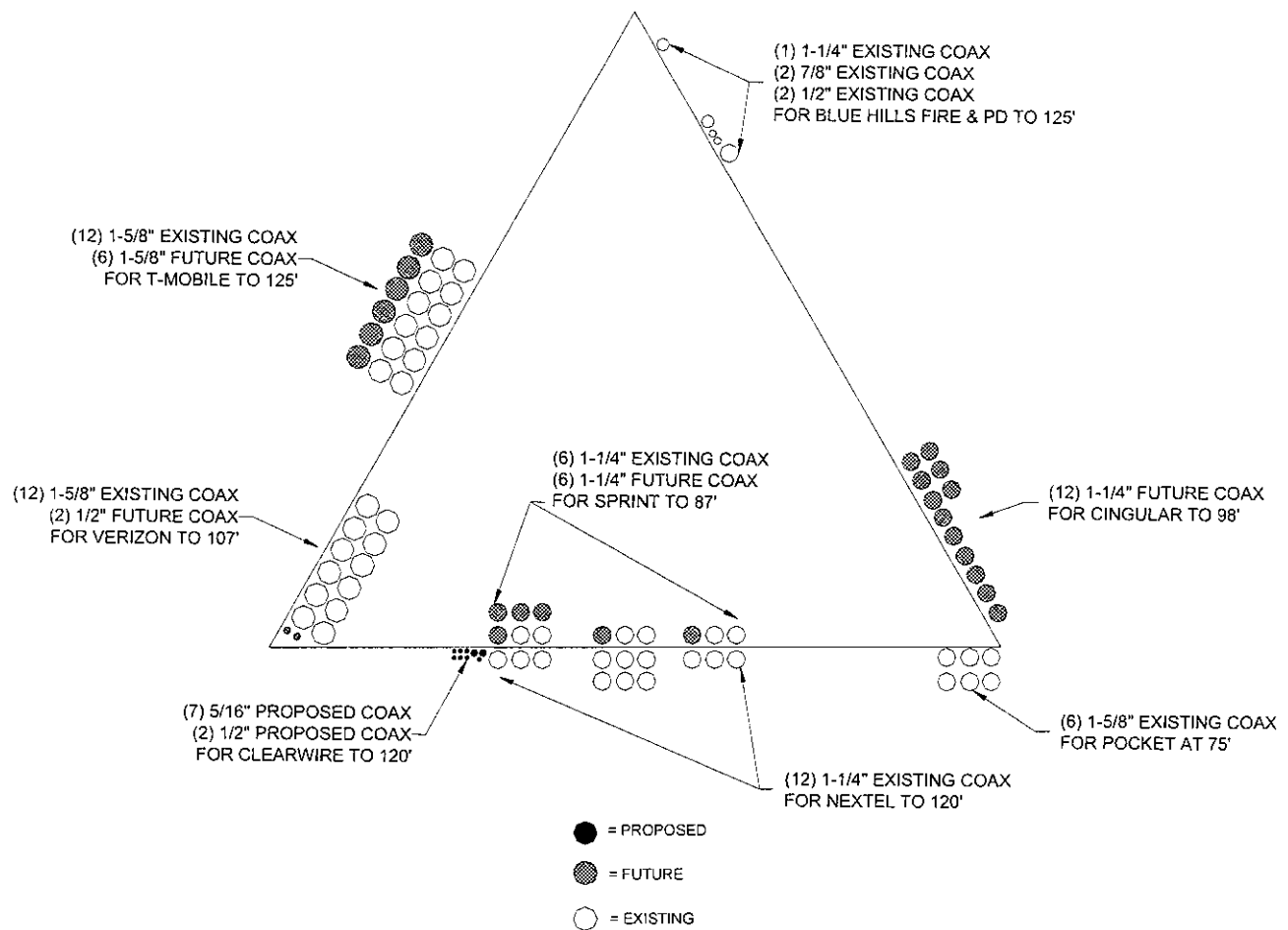


Figure 1 – Coax Layout

## RESULTS

The following yield strength of steel for individual members was used for analysis:

**Table 2 – Material Strength**

Member Type	Yield Strength
Legs	55 ksi
Diagonals	36 ksi
Horizontals	36 ksi

**Table 3** displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions. **Table 5** displays the maximum antenna rotations at service wind speeds.

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 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
T1	125 - 120	Leg	P2.5x.203	9.1	Pass
		Diagonal	5/8	42.4	Pass
		Top Girt	L1 1/2x1 1/2x3/16	6.4 6.8 (b)	Pass
		Mid Girt	L1 1/2x1 1/2x3/16	2.1	Pass
T2	120 - 100	Leg	P2.5x.203	69.9	Pass
		Diagonal	L1 1/2x1 1/2x3/16	69.0	Pass
		Top Girt	L1 1/2x1 1/2x3/16	5.8 7.0 (b)	Pass
T3	100 - 80	Leg	P3.5x.226	83.8	Pass
		Diagonal	L2x2x3/16	51.7 82.6 (b)	Pass
T4	80 - 60	Leg	P5x.258	76.7	Pass
		Diagonal	L2 1/2x2 1/2x3/16	43.5 89.0 (b)	Pass
T5	60 - 40	Leg	P6x.28	74.1	Pass
		Diagonal	L2 1/2x2 1/2x3/16	50.9 66.0 (b)	Pass
T6	40 - 30	Leg	P6x.28	89.8	Pass
		Diagonal	L3x3x3/16	53.8 76.8 (b)	Pass
T7	30 - 20	Leg	P6x.28	97.8	Pass
		Diagonal	L3x3x3/16	58.7 76.3 (b)	Pass
T8	20 - 0	Leg	P8x.322	68.6	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
		Diagonal	L3 1/2x3 1/2x1/4	34.7 58.8 (b)	Pass

\* Capacities include 1/3 allowable increase for wind.

**Table 4 – Maximum Base Reactions**

Load Type	Direction	Current Analysis (TIA/EIA-222-F)
Individual Foundation	Horizontal	18 k
	Uplift	199 k
	Compression	223 k
Overturing Moment		2,312 k-ft

\*Foundation determined to be adequate per independent analysis.

**Table 5 – Maximum Antenna Rotations at Service Wind Speed (Proposed Antennas Only)**

Centerline Elevation (ft)	Dish	Tilt (deg)	Twist (deg)
118	Andrew VHLP2.5	0.4746*	0.0053*

\* Tilt and Twist listed at 50 MPH are to be reviewed by Clearwire/Nextel.

## 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. If there are substantial modifications made to the appurtenance loading provided by SBA Network Services, Inc., 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	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	T31	T32	T33	T34	T35	T36	T37	T38	T39	T40	T41	T42	T43	T44	T45	T46	T47	T48	T49	T50	T51	T52	T53	T54	T55	T56	T57	T58	T59	T60	T61	T62	T63	T64	T65	T66	T67	T68	T69	T70	T71	T72	T73	T74	T75	T76	T77	T78	T79	T80	T81	T82	T83	T84	T85	T86	T87	T88	T89	T90	T91	T92	T93	T94	T95	T96	T97	T98	T99	T100	T101	T102	T103	T104	T105	T106	T107	T108	T109	T110	T111	T112	T113	T114	T115	T116	T117	T118	T119	T120	T121	T122	T123	T124	T125	T126	T127	T128	T129	T130	T131	T132	T133	T134	T135	T136	T137	T138	T139	T140	T141	T142	T143	T144	T145	T146	T147	T148	T149	T150	T151	T152	T153	T154	T155	T156	T157	T158	T159	T160	T161	T162	T163	T164	T165	T166	T167	T168	T169	T170	T171	T172	T173	T174	T175	T176	T177	T178	T179	T180	T181	T182	T183	T184	T185	T186	T187	T188	T189	T190	T191	T192	T193	T194	T195	T196	T197	T198	T199	T200	T201	T202	T203	T204	T205	T206	T207	T208	T209	T210	T211	T212	T213	T214	T215	T216	T217	T218	T219	T220	T221	T222	T223	T224	T225	T226	T227	T228	T229	T230	T231	T232	T233	T234	T235	T236	T237	T238	T239	T240	T241	T242	T243	T244	T245	T246	T247	T248	T249	T250	T251	T252	T253	T254	T255	T256	T257	T258	T259	T260	T261	T262	T263	T264	T265	T266	T267	T268	T269	T270	T271	T272	T273	T274	T275	T276	T277	T278	T279	T280	T281	T282	T283	T284	T285	T286	T287	T288	T289	T290	T291	T292	T293	T294	T295	T296	T297	T298	T299	T300	T301	T302	T303	T304	T305	T306	T307	T308	T309	T310	T311	T312	T313	T314	T315	T316	T317	T318	T319	T320	T321	T322	T323	T324	T325	T326	T327	T328	T329	T330	T331	T332	T333	T334	T335	T336	T337	T338	T339	T340	T341	T342	T343	T344	T345	T346	T347	T348	T349	T350	T351	T352	T353	T354	T355	T356	T357	T358	T359	T360	T361	T362	T363	T364	T365	T366	T367	T368	T369	T370	T371	T372	T373	T374	T375	T376	T377	T378	T379	T380	T381	T382	T383	T384	T385	T386	T387	T388	T389	T390	T391	T392	T393	T394	T395	T396	T397	T398	T399	T400	T401	T402	T403	T404	T405	T406	T407	T408	T409	T410	T411	T412	T413	T414	T415	T416	T417	T418	T419	T420	T421	T422	T423	T424	T425	T426	T427	T428	T429	T430	T431	T432	T433	T434	T435	T436	T437	T438	T439	T440	T441	T442	T443	T444	T445	T446	T447	T448	T449	T450	T451	T452	T453	T454	T455	T456	T457	T458	T459	T460	T461	T462	T463	T464	T465	T466	T467	T468	T469	T470	T471	T472	T473	T474	T475	T476	T477	T478	T479	T480	T481	T482	T483	T484	T485	T486	T487	T488	T489	T490	T491	T492	T493	T494	T495	T496	T497	T498	T499	T500	T501	T502	T503	T504	T505	T506	T507	T508	T509	T510	T511	T512	T513	T514	T515	T516	T517	T518	T519	T520	T521	T522	T523	T524	T525	T526	T527	T528	T529	T530	T531	T532	T533	T534	T535	T536	T537	T538	T539	T540	T541	T542	T543	T544	T545	T546	T547	T548	T549	T550	T551	T552	T553	T554	T555	T556	T557	T558	T559	T560	T561	T562	T563	T564	T565	T566	T567	T568	T569	T570	T571	T572	T573	T574	T575	T576	T577	T578	T579	T580	T581	T582	T583	T584	T585	T586	T587	T588	T589	T590	T591	T592	T593	T594	T595	T596	T597	T598	T599	T600	T601	T602	T603	T604	T605	T606	T607	T608	T609	T610	T611	T612	T613	T614	T615	T616	T617	T618	T619	T620	T621	T622	T623	T624	T625	T626	T627	T628	T629	T630	T631	T632	T633	T634	T635	T636	T637	T638	T639	T640	T641	T642	T643	T644	T645	T646	T647	T648	T649	T650	T651	T652	T653	T654	T655	T656	T657	T658	T659	T660	T661	T662	T663	T664	T665	T666	T667	T668	T669	T670	T671	T672	T673	T674	T675	T676	T677	T678	T679	T680	T681	T682	T683	T684	T685	T686	T687	T688	T689	T690	T691	T692	T693	T694	T695	T696	T697	T698	T699	T700	T701	T702	T703	T704	T705	T706	T707	T708	T709	T710	T711	T712	T713	T714	T715	T716	T717	T718	T719	T720	T721	T722	T723	T724	T725	T726	T727	T728	T729	T730	T731	T732	T733	T734	T735	T736	T737	T738	T739	T740	T741	T742	T743	T744	T745	T746	T747	T748	T749	T750	T751	T752	T753	T754	T755	T756	T757	T758	T759	T760	T761	T762	T763	T764	T765	T766	T767	T768	T769	T770	T771	T772	T773	T774	T775	T776	T777	T778	T779	T780	T781	T782	T783	T784	T785	T786	T787	T788	T789	T790	T791	T792	T793	T794	T795	T796	T797	T798	T799	T800	T801	T802	T803	T804	T805	T806	T807	T808	T809	T810	T811	T812	T813	T814	T815	T816	T817	T818	T819	T820	T821	T822	T823	T824	T825	T826	T827	T828	T829	T830	T831	T832	T833	T834	T835	T836	T837	T838	T839	T840	T841	T842	T843	T844	T845	T846	T847	T848	T849	T850	T851	T852	T853	T854	T855	T856	T857	T858	T859	T860	T861	T862	T863	T864	T865	T866	T867	T868	T869	T870	T871	T872	T873	T874	T875	T876	T877	T878	T879	T880	T881	T882	T883	T884	T885	T886	T887	T888	T889	T890	T891	T892	T893	T894	T895	T896	T897	T898	T899	T900	T901	T902	T903	T904	T905	T906	T907	T908	T909	T910	T911	T912	T913	T914	T915	T916	T917	T918	T919	T920	T921	T922	T923	T924	T925	T926	T927	T928	T929	T930	T931	T932	T933	T934	T935	T936	T937	T938	T939	T940	T941	T942	T943	T944	T945	T946	T947	T948	T949	T950	T951	T952	T953	T954	T955	T956	T957	T958	T959	T960	T961	T962	T963	T964	T965	T966	T967	T968	T969	T970	T971	T972	T973	T974	T975	T976	T977	T978	T979	T980	T981	T982	T983	T984	T985	T986	T987	T988	T989	T990	T991	T992	T993	T994	T995	T996	T997	T998	T999	T1000	T1001	T1002	T1003	T1004	T1005	T1006	T1007	T1008	T1009	T1010	T1011	T1012	T1013	T1014	T1015	T1016	T1017	T1018	T1019	T1020	T1021	T1022	T1023	T1024	T1025	T1026	T1027	T1028	T1029	T1030	T1031	T1032	T1033	T1034	T1035	T1036	T1037	T1038	T1039	T1040	T1041	T1042	T1043	T1044	T1045	T1046	T1047	T1048	T1049	T1050	T1051	T1052	T1053	T1054	T1055	T1056	T1057	T1058	T1059	T1060	T1061	T1062	T1063	T1064	T1065	T1066	T1067	T1068	T1069	T1070	T1071	T1072	T1073	T1074	T1075	T1076	T1077	T1078	T1079	T1080	T1081	T1082	T1083	T1084	T1085	T1086	T1087	T1088	T1089	T1090	T1091	T1092	T1093	T1094	T1095	T1096	T1097	T1098	T1099	T1100	T1101	T1102	T1103	T1104	T1105	T1106	T1107	T1108	T1109	T1110	T1111	T1112	T1113	T1114	T1115	T1116	T1117	T1118	T1119	T1120	T1121	T1122	T1123	T1124	T1125	T1126	T1127	T1128	T1129	T1130	T1131	T1132	T1133	T1134	T1135	T1136	T1137	T1138	T1139	T1140	T1141	T1142	T1143	T1144	T1145	T1146	T1147	T1148	T1149	T1150	T1151	T1152	T1153	T1154	T1155	T1156	T1157	T1158	T1159	T1160	T1161	T1162	T1163	T1164	T1165	T1166	T1167	T1168	T1169	T1170	T1171	T1172	T1173	T1174	T1175	T1176	T1177	T1178	T1179	T1180	T1181	T1182	T1183	T1184	T1185	T1186	T1187	T1188	T1189	T1190	T1191	T1192	T1193	T1194	T1195	T1196	T1197	T1198	T1199	T1200	T1201	T1202	T1203	T1204	T1205	T1206	T1207	T1208	T1209	T1210	T1211	T1212	T1213	T1214	T1215	T1216	T1217	T1218	T1219	T1220	T1221	T1222	T1223	T1224	T1225	T1226	T1227	T1228	T1229	T1230	T1231	T1232	T1233	T1234	T1235	T1236	T1237	T1238	T1239	T1240	T1241	T1242	T1243	T1244	T1245	T1246	T1247	T1248	T1249	T1250	T1251	T1252	T1253	T1254	T1255	T1256	T1257	T1258	T1259	T1260	T1261	T1262	T1263	T1264	T1265	T1266	T1267	T1268	T1269	T1270	T1271	T1272	T1273	T1274	T1275	T1276	T1277	T1278	T1279	T1280	T1281	T1282	T1283	T1284	T1285	T1286	T1287	T1288	T1289	T1290	T1291	T1292	T1293	T1294	T1295	T1296	T1297	T1298	T1299	T1300	T1301	T1302	T1303	T1304	T1305	T1306	T1307	T1308	T1309	T1310	T1311	T1312	T1313	T1314	T1315	T1316	T1317	T1318	T1319	T1320	T1321	T1322	T1323	T1324	T1325	T1326	T1327	T1328	T1329	T1330	T1331	T1332	T1333	T1334	T1335	T1336	T1337	T1338	T1339	T1340	T1341	T1342	T1343	T1344	T1345	T1346	T1347	T1348	T1349	T1350	T1351	T1352	T1353	T1354	T1355	T1356	T1357	T1358	T1359	T1360	T1361	T1362	T1363	T1364	T1365	T1366	T1367	T1368	T1369	T1370	T1371	T1372	T1373	T1374	T1375	T1376	T1377	T1378	T1379	T1380	T1381	T1382	T1383	T1384	T1385	T1386	T1387	T1388	T1389	T1390	T1391	T1392	T1393	T1394	T1395	T1396	T1397	T1398	T1399	T1400	T1401	T1402	T1403	T1404	T1405	T1406	T1407	T1408	T1409	T1410	T1411	T1412	T1413	T1414	T1415	T1416	T1417	T1418	T1419	T1420	T1421	T1422	T1423	T1424	T1425	T1426	T1427	T1428	T1429	T1430	T1431	T1432	T1433	T1434	T1435	T1436	T1437	T1438	T1439	T1440	T1441	T1442	T1443	T1444	T1445	T1446	T1447	T1448	T1449	T1450	T1451	T1452	T1453	T1454	T1455	T1456	T1457	T1458	T1459	T1460	T1461	T1462	T1463	T1464	T1465	T1466	T1467	T1468	T1469	T1470	T1471	T1472	T1473	T1474	T1475	T1476	T1477	T1478	T1479	T1480	T1481	T1482	T1483	T1484	T1485	T1486	T1487	T1488	T1489	T1490	T1491	T1492	T1493	T1494	T1495</
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To: Maxton  
From: Frantz Pierre – Radio Frequency Engineer  
Cc: Micah Hawthorne  
Subject: Power Density Report for CT-HFD0024  
Date: March 11, 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 Self Support Tower at 1021 Blue Hills Ave. Bloomfield, 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 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 VHLP2-11 with 24" Diameter.
- 5) The Clearwire Panel antenna centerline is 150 feet.
- 6) The Clearwire Microwave dish centerline is 150 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 Steel Monopole at 1657 Wilbur Cross Hwy, Berlin, CT, is 0.003587 mW/cm<sup>2</sup>. This value represents 0.38% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm<sup>2</sup>) 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 73.9333%. The combined Power Density for this site is 74.2933% of the M.P.E. standard.