BROWNRUDNICK

TS-CLEARWIRE-034-091120

THOMAS J. REGAN
Direct Dial: (860) 509-6522
tregan@brownrudnick.com

CityPlace I
185 Asylum
Street
Hartford
Connecticut
06103
tel 860.509.6500
fax 860.509.6501

ORIGINAL

*Via Hand Delivery*



November 20, 2009

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**RE: Clearwire Corporation – Tower Sharing Applications**

Dear Mr. Caruso:

On behalf of Clearwire Corporation, enclosed for filing you will find an original and twenty (20) copies a *"Tower Sharing Application"*, for each of the following :

1. Danbury @ 52 Stadley Rough Road
2. Shelton @ 308 River Road (Rt. 110)

Please note, a signed and sealed Structural Analysis Report regarding the tower located at 308 River Road in Shelton will be submitted to the Connecticut Siting Council in a later filing.

I have also enclosed a copy of this transmittal letter which I would like to have date-stamped and returned to the courier delivering this package.

Also enclosed are two (2) checks in the amount of $500.00 each to cover the filing fee. If you have any questions, please feel free to contact me.

Very truly yours,

**BROWN RUDNICK LLP**

By: _____
Thomas J. Regan

TJR/bh
Enclosures

# 40266761 v1 - REGANTJ - 025064/0017

cc/encls: via 1st Class Mail:

City of Danbury
City Hall
Mayor Mark D. Boughton
155 Deer Hill Avenue
Danbury, CT 06810

City of Shelton
Mayor Mark A. Lauretti
City Hall
54 Hill Street
Shelton, CT 06484

TS-CLEARWIRE-034-091120

**CONNECTICUT**

In re:
Request of Clearwire Corporation for the Approval of the Shared Use of a Tower to be Located at 52 Stadley Rough Road, Danbury, Connecticut. : November 20, 2009



**TOWER SHARING APPLICATION**



Clearwire Corporation ("Clearwire") proposes herein to share a telecommunications tower (the "Tower") to be located at 52 Stadley Rough Road in Danbury, Connecticut (the "Facility"). Optasite Towers LLC was issued a Certificate of Environmental Compatibility and Public Need from the Connecticut Siting Council (the "Council") for the Tower on April 23, 2009 in Docket No. 366. Pursuant to Connecticut General Statutes §16-50aa (the "Statute"), Clearwire requests a finding from the Council that the shared use of this Facility is technically, legally, environmentally, and economically feasible, will meet public safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. Clearwire further requests an order approving the shared use of this Facility.

The purpose of this request is to utilize a telecommunications tower that has been Certified by the Council to develop Clearwire's 4G wireless broadband network to provide high-speed wireless data and to develop VoIP service within the State of Connecticut and in this area of Danbury. Therefore, this application avoids the construction of an additional tower in Danbury.

A. The Facility

The Facility is located at a latitude of 41° 25' 59.17" N and longitude of 73° 25' 54.9" W. The Tower is a 140-foot monopole. Pursuant to the Structural Report, multiple carriers plan to locate on the Tower. A site plan is attached.

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

B. Proposed Project

Clearwire will install three (3) WiMAX antennas (Model No. LLPX310R), two (2) Dragonwave dishes (Model No. A-ANT-32G-2-C) and three (3) Samsung Remote Radio Heads (Model No. FDD-R6-RHH BTS). Clearwire plans to mount the antennas on 3 proposed pipe mounts with a centerline of 107 feet. Six cables, 5/16" in diameter, will run to the new WiMAX antennas (two per panel). Additionally, 2 coax cables, ½" in diameter, will run to the new dishes (one per dish).

Clearwire plans to lease a 10-foot by 10-foot (approximately) area within the previously proposed fenced compound. Clearwire proposes to locate its equipment cabinet on a proposed 6-foot by 7-foot (approximately) concrete slab within its leased area. A proposed ice bridge will connect the equipment to the Tower. The proposed power and telephone conduits will be routed from the pull box, previously proposed, to Clearwire's proposed equipment cabinets. No upgrades to the access road or parking area will be necessary.

C. Technical Feasibility

Consistent with the requirements of the Statute, it is technically feasible for Clearwire to collocate at this Facility. To analyze whether the Tower can support Clearwire's proposed modifications, Clearwire commissioned FDH Engineering, Inc. to perform a structural analysis of the Tower with Clearwire's proposed antennas. The structural analysis is attached. According to the Structural Analysis Report, dated September 25, 2009, "... the foundation should have the necessary capacity to support both the proposed and existing loading" (Page 3, Structural Analysis Report).

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

D. Legal Feasibility

The Council has the authority, pursuant to the Statute, to issue an order approving the shared use of this Tower. By issuing an order approving Clearwire's use of the Tower, Clearwire

will be able to proceed with obtaining a building permit for its proposed installation on the Tower. Therefore, consistent with the Statute, Clearwire's proposal is legally feasible.

E. Economic Feasibility

Clearwire is a wireless telecommunications provider licensed by the Federal Communications Commission to provide service in areas of Connecticut, including but not limited to Fairfield County. Clearwire has entered into a lease with SBA for the purpose of locating its antennas and associated equipment at the Facility so that it may provide wireless telecommunications service to this area of Dambury. A redacted copy of the Letter of Authorization is attached. Therefore, the shared use of this Facility is economically feasible.

F. Environmental Feasibility

Pursuant to the Statute, the proposal will be environmentally feasible for the following reasons:

- The overall impact on the City of Danbury will be decreased with the sharing of a single tower versus the proliferation of towers.
- The proposal will not increase the height of the Tower.
- There will be little increase in the visibility of the Tower with the addition of Clearwire's antennas, Remote Radio Heads and dishes.
- There will be no impact on any wetlands or water resources as a result of Clearwire's modifications.
- There will be no increased impact on air quality because no air pollutants will be generated during the normal operation of the Facility.

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

- There will only be a brief, slight increase in noise pollution while the antennas are attached and the equipment buildings are installed.

- During construction, the proposed project will generate a small amount of traffic as workers arrive and depart and materials are delivered. Upon completion, traffic will be limited to an average of one monthly maintenance/inspection visit.

G. Public Safety Concerns / Benefits

There will be no adverse impact to the health and safety of the surrounding community or the workers at the Facility due to the addition of Clearwire's antennas to the Tower. Clearwire performed an analysis of the radio frequency fields emanating from the transmitting antennas on the Tower to ensure compliance with the National Council on Radiation Protection and Measurements' ("NCRP") standard for maximum permissible exposure (MPE) adopted by the Federal Communications Commission ("FCC"). The analysis, dated October 14, 2009, indicates that Clearwire's antennas will emit .000090% of the NCRP's standard for maximum permissible exposure. A cumulative power density analysis indicates that together, all of the antennas on the Tower will cumulatively emit 2.48% of the NCRP's standard for maximum permissible exposure. The power density analysis is attached. Therefore, the analysis demonstrates that the maximum level of radio-frequency energy emitted from the Tower will be well below the FCC's mandated radio frequency exposure limits.

Moreover, Clearwire expects to enhance safety in the Danbury area by improving wireless communications for local residents and travelers. Clearwire is currently developing its 4G wireless broadband network to provide high-speed wireless data and its VoIP service within the State of Connecticut. Clearwire's 4G service leverages the WiMAX technology to enable enhanced wireless data communications. In order to provide reliable coverage to residents and

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

travelers in this area of Danbury and fulfill their coverage goals to comply with their FCC license, this site is a necessary part of Clearwire's network development.

Specifically, this proposal is designed to provide reliable wireless coverage along Stadley Rough Road, along approximately 1 mile of Great Plain Road and along approximately 0.8 miles of Corn Tassle Road. Clearwire's proposal will also provide a reliable signal level in and around the surrounding commercial and residential areas within close proximity to the site.

Conclusion

For the reasons stated above, the attachment of Clearwire's antennas, Remote Radio Heads and dishes to the Tower would meet all the requirements set forth in the Statute. This proposal is technically, legally, environmentally and economically feasible and meets all public safety concerns. Therefore, Clearwire respectfully requests that the Council approve this request for the shared use of the Tower located at 52 Stadley Rough Road in Danbury, Connecticut.

Clearwire Corporation

By: _____

Thomas J. Regan
Brown Rudnick LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Email - tregan@brownrudnick.com
Phone - 860.509.6522
Fax - 860.509.6622

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

## Certificate of Service

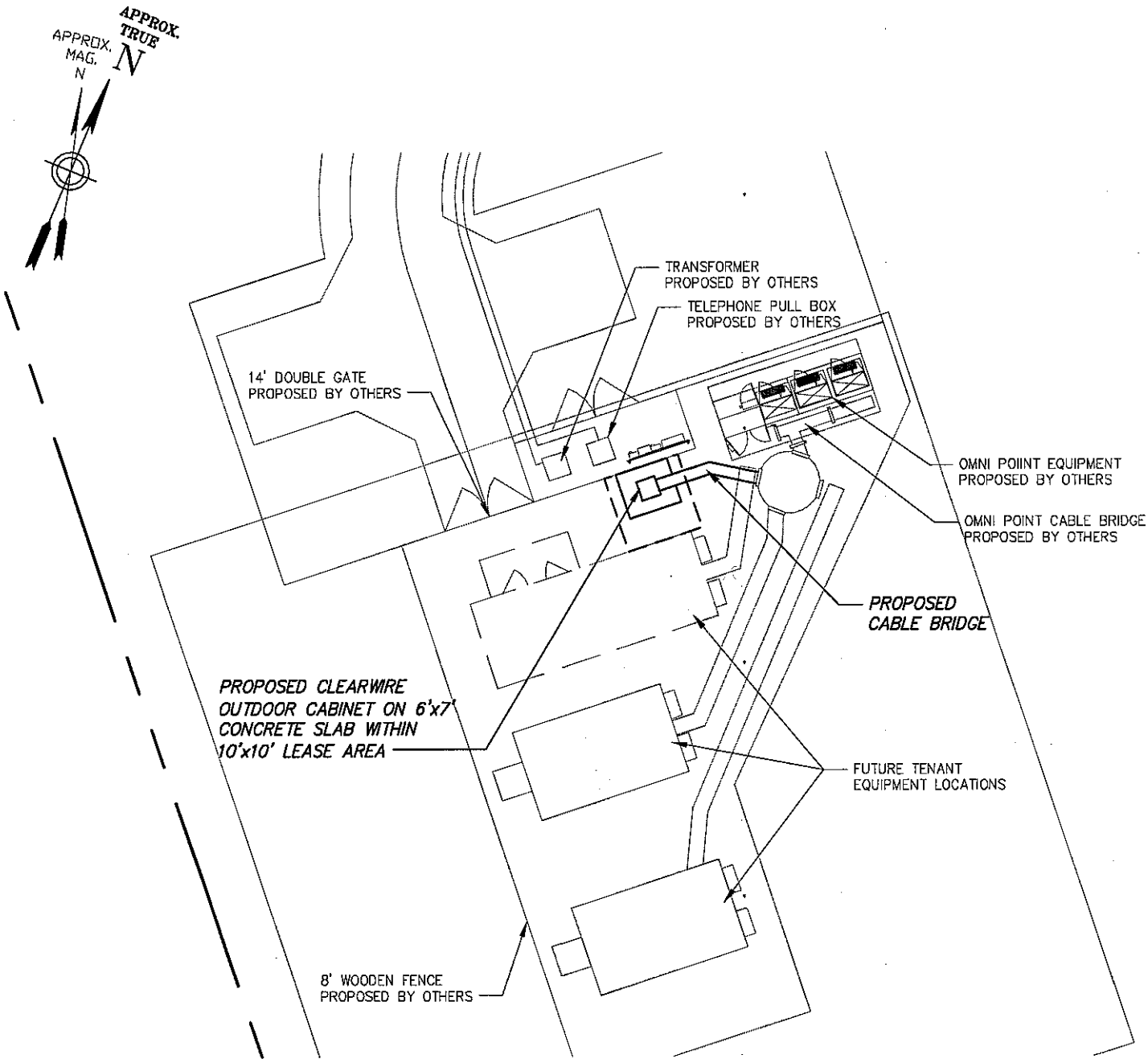
This is to certify that on this 20th day of November, 2009, the foregoing Tower Sharing Proposal was sent, via first class mail, to the following:

City of Danbury
City Hall
Mayor Mark D. Boughton
155 Deer Hill Avenue
Danbury, CT 06810

By: _____
Thomas J. Regan

# 40266594 v1 - 025064/0017

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




## SITE PLAN

GRAPHIC SCALE

20 0 10 20

IN FEET

# LEASE EXHIBIT

SCALE: 1" = 20'
NOVEMBER 18, 2009

1 OF 3

REVISION NUMBER 2

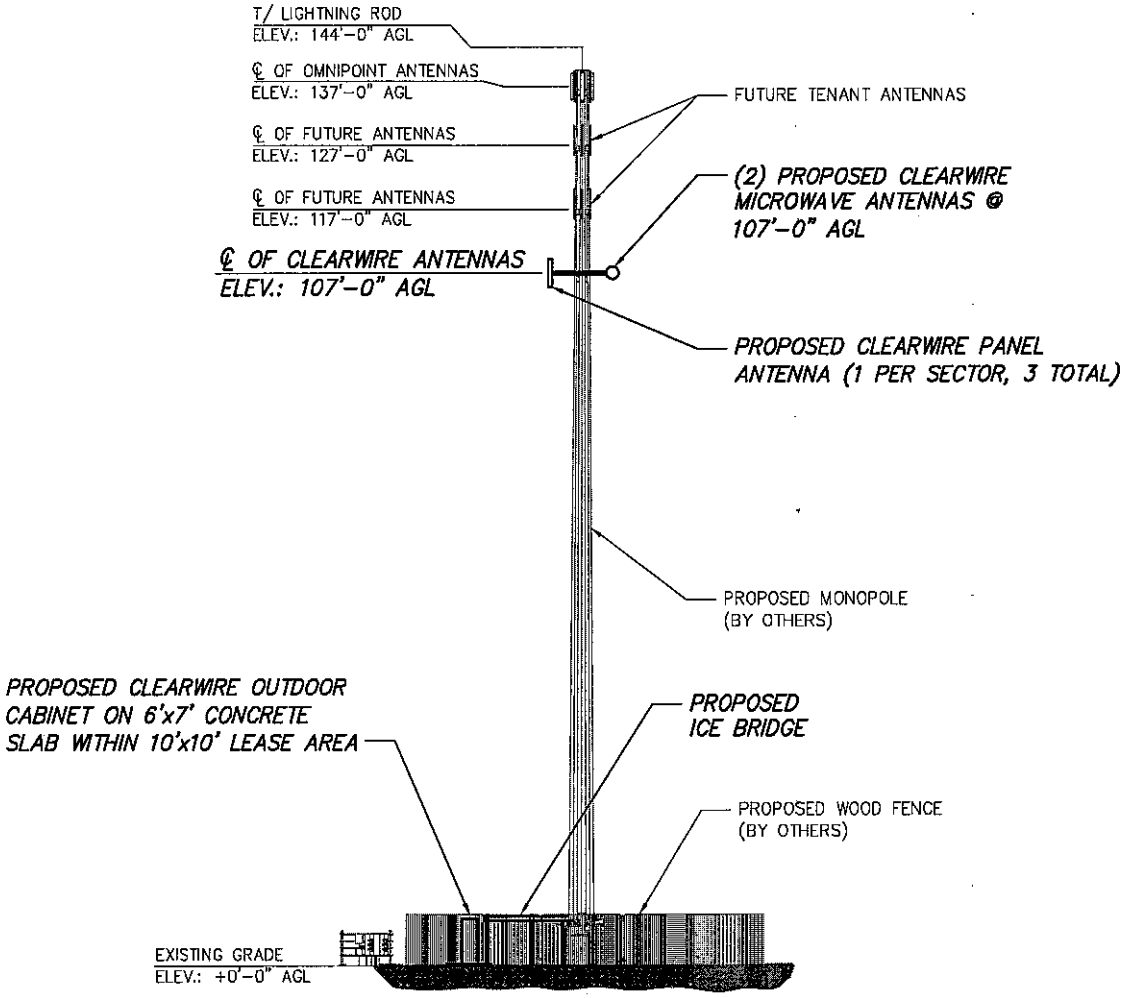


CHA
III Winners Circle, PO Box 5269 - Albany, NY 12205-0269
Main: (518) 453-4500 • www.chacompanies.com

clearwire®
TECHNOLOGIES, INC.
5808 LAKE WASHINGTON BLVD. NE STE. 300
KIRKLAND, WA 98033
OFFICE: (425) 216-7600
FAX: (425) 216-7900

## CT-BDR0011
## 52 STADLEY ROUGH ROAD
## DANBURY, CT 06811

CHA PROJ. NO. – 20592.1053.1101




## SOUTH ELEVATION

NO SCALE

# LEASE EXHIBIT

| NO SCALE NOVEMBER 18, 2009 | 2 OF 3 | REVISION NUMBER 2 |
|---|---|---|

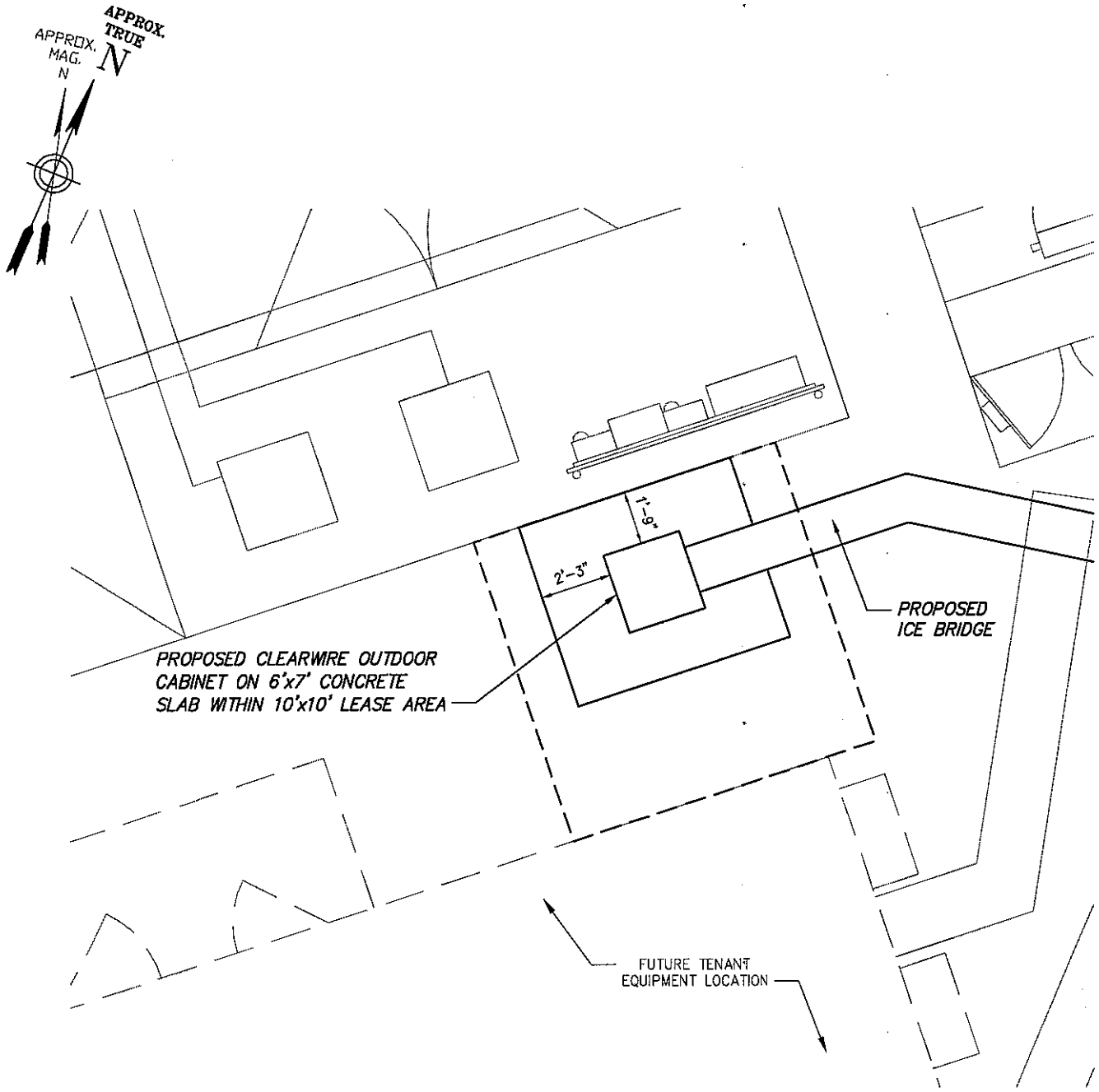


CHA
III Winners Circle, PO Box 5269 - Albany, NY 12205-0269
Main: (518) 453-4500 · www.chacompanies.com

clearwire
TECHNOLOGIES, INC.
5808 LAKE WASHINGTON BLVD. NE STE. 300
KIRKLAND, WA 98033
OFFICE: (425) 216-7600
FAX: (425) 216-7900

# CT-BDR0011
# 52 STADLEY ROUGH ROAD
# DANBURY, CT 06811

CHA PROJ. NO. - 20592.1053.1101




## EQUIPMENT LAYOUT

GRAPHIC SCALE

5 0 2.5 5

IN FEET

# LEASE EXHIBIT

SCALE: 1" = 5'
NOVEMBER 18, 2009

3 OF 3

REVISION NUMBER 2



CHA
111 Winners Circle, PO Box 5269 - Albany, NY 12205-0269
Main: (518) 453-4500 - www.chacompanies.com

clearwire
TECHNOLOGIES, INC.
5808 LAKE WASHINGTON BLVD. NE STE. 300
KIRKLAND, WA 98033
OFFICE: (425) 216-7600
FAX: (425) 216-7900

## CT-BDR0011
## 52 STADLEY ROUGH ROAD
## DANBURY, CT 06811

CHA PROJ. NO. - 20592.1053.1101

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

**140' Monopole**

**Site Name: Danbury 1**
**Site ID: CT13549-S**

FDH Project Number 09-06165E S2

Prepared By:

Blake A. Bartok, EI
Project Engineer

Reviewed By:

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


September 25, 2009

*Prepared pursuant to ANSI/TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas*

## TABLE OF CONTENTS





2730 Rowland Rd., Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Danbury, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads, pursuant to the *Structural Standard for Antenna Supporting Structures and Antennas, ANSI/TIA-222-G.* Information pertaining to the existing/proposed antenna loading, current tower geometry, and the member sizes was obtained from the Rohn Products LLC (Eng. File No. 060-6274) original design drawings dated June 1, 2009, and SBA Network Services, Inc.

The *basic design wind speed* per *ANSI/TIA-222-G* standards is 110 mph without ice and 50 mph with 3/4" radial ice. Ice is considered to increase in thickness with height. Furthermore, the tower is analyzed as a Class II structure in Exposure Category B.

### Conclusions

With the existing and proposed antennas from Clearwire in place 107 ft, the tower meets the requirements of the *ANSI/TIA-222-G* standards provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (See Rohn Eng. File No. 060-6274), the foundation should have the necessary capacity to support both the proposed and existing 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 will be properly erected and maintained per the original design drawings.

### Recommendations

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

1. The proposed coax should be installed inside the pole's shaft.
2. The proposed BTSs should be installed directly behind the proposed panel antennas.



2730 Rowland Rd., Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

## APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coaxlines 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) | Coax and Lines (in) [1] | Carrier | Mount | Description |
|---|---|---|---|---|---|
| 1-6 | 137 [2] | (12) 1-5/8 | T-Mobile | Direct Mount | (6) RFS APX16PV-16VL-E |
| 7-12 | 127 [3] | (12) 1-5/8 | Sprint/Nextel | Direct Mount | (6) Decibel DB848H90E-XY |
| 13-18 | 117 [4] | (12) 1-5/8 | Metro PCS | Direct Mount | (3) Kathrein 80010504<br>(3) Kathrein 742-351 |

1 Coax is installed inside the pole's shaft, unless otherwise noted.
2 Currently T-Mobile has no loading installed at 137 ft. According to information provided by SBA, T-Mobile may install up to (6) RFS APX16PV-16VL-E antennas and (12) 1-5/8" coax. Analysis performed with leased loading in place.
3 Currently Sprint/Nextel has no loading installed at 127 ft. According to information provided by SBA, Sprint/Nextel may install up to (6) Decibel DB848H90E-XY antennas and (12) 1-5/8" coax. Analysis performed with leased loading in place.
4 Currently MetroPCS has no loading installed at 117 ft. According to information provided by SBA, MetroPCS may install up to (3) Kathrein 80010504 antennas, (3) Kathrein 742-351 antennas, and (12) 1-5/8" coax. Analysis performed with leased loading in place.

### Proposed Loading:

| Antenna No. | Centerline Elevation (ft) | Coax and Lines (in) | Carrier | Mount | Description |
|---|---|---|---|---|---|
| 1-5 | 107 | (6) 5/16<br>(2) 1/2 | Clearwire | (3) 4" Dia. x 8'-6" Pipe Mounts | (3) Argus LLPX310R<br>(3) Samsung FDD-R6-RRH BTSs<br>(2) Dragonwave A-ANT-23G-2-C Dishes |



2730 Rowland Rd., Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

## 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 |
| Base Plate | 50 ksi |
| Anchor Bolts | 105 ksi |

**Table 3** displays 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. **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 **Pole Profile** and **Base Level Drawing** for detailed modeling information.

### Table 3 – Summary of Working Percentage of Structural Components

| Section No. | Elevation ft | Component Type | Size | % Capacity | Pass Fail |
|---|---|---|---|---|---|
| L1 | 140 - 111.92 | Pole | TP23.763x18x0.1875 | 25.8 | Pass |
| L2 | 111.92 - 87.92 | Pole | TP28.153x22.7723x0.1875 | 60.5 | Pass |
| L3 | 87.92 - 43.42 | Pole | TP36.75x27.0805x0.25 | 72.7 | Pass |
| L4 | 43.42 - 0 | Pole | TP45x35.3267x0.3125 | 70.0 | Pass |
| | | Anchor Bolts | (16) 1.5" Dia., 49.75" Dia. BC | 73.0 | Pass |
| | | Base Plate | 1.5" thick x 53.75" Dia. | 69.8 | Pass |

### Table 4 – Maximum Base Reactions

| Load Type | Current Analysis *(ANSI/TIA-222-G)* | Original Design *(ANSI/TIA-222-G)* |
|---|---|---|
| Axial | 23 k | 58 k |
| Shear | 18 k | 23 k |
| Moment | 1,646 k-ft | 2,301 k-ft |



2730 Rowland Rd., Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

## GENERAL COMMENTS

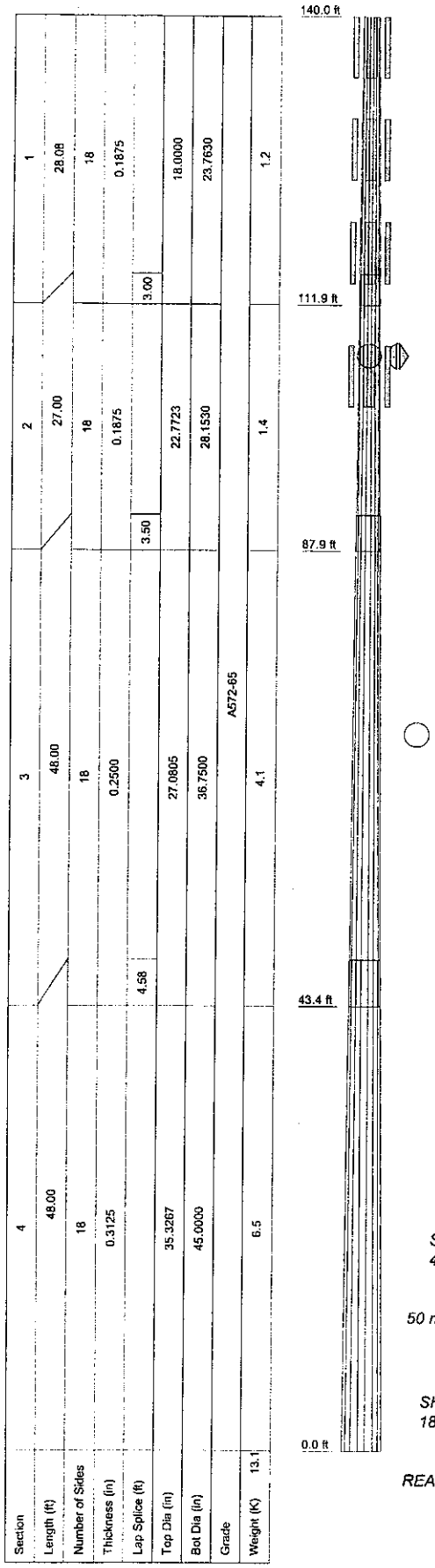
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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.

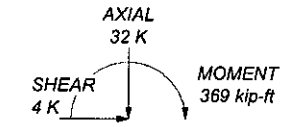


2730 Rowland Rd., Raleigh, NC 27615 Ph: (919)-755-1012 Fax: (919)-755-1031 info@fdh-inc.com

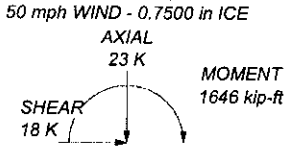



| Section | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Length (ft) | 28.08 | 27.00 | 48.00 | 48.00 |
| Number of Sides | 18 | 18 | 18 | 18 |
| Thickness (in) | 0.1875 | 0.1875 | 0.2500 | 0.3125 |
| Lap Splice (ft) | 3.00 | 3.50 | 4.58 | |
| Top Dia (in) | 18.0000 | 22.7723 | 27.0805 | 35.3267 |
| Bot Dia (in) | 23.7630 | 28.1530 | 36.7500 | 45.0000 |
| Grade | A572-65 | | | |
| Weight (K) | 1.2 | 1.4 | 4.1 | 6.5 |

13.1




TORQUE 0 kip-ft
50 mph WIND - 0.7500 in ICE




TORQUE 0 kip-ft
REACTIONS - 110 mph WIND

## DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|---|---|---|
| (2) RFS - APX16PV-16VL-E w/ mount pipe (T-Mobile) | 137 | Kathrein - 742 351 w/ mount pipe (Metro PCS) | 117 |
| (2) RFS - APX16PV-16VL-E w/ mount pipe (T-Mobile) | 137 | Kathrein - 742 351 w/ mount pipe (Metro PCS) | 117 |
| (2) RFS - APX16PV-16VL-E w/ mount pipe (T-Mobile) | 137 | Argus - LLPX310R (Clearwire) | 107 |
| (2) DB848H90E-XY w/Mount Pipe (Sprint/Nextel) | 127 | Argus - LLPX310R (Clearwire) | 107 |
| (2) DB848H90E-XY w/Mount Pipe (Sprint/Nextel) | 127 | Argus - LLPX310R (Clearwire) | 107 |
| (2) DB848H90E-XY w/Mount Pipe (Sprint/Nextel) | 127 | Samsung - FDD-R6-RRH BTS (Clearwire) | 107 |
| Kathrein - 800-10504 w/ mount pipe (Metro PCS) | 117 | Samsung - FDD-R6-RRH BTS (Clearwire) | 107 |
| Kathrein - 800-10504 w/ mount pipe (Metro PCS) | 117 | Samsung - FDD-R6-RRH BTS (Clearwire) | 107 |
| Kathrein - 800-10504 w/ mount pipe (Metro PCS) | 117 | Pipe Mount - 4" x 8'-6" (Clearwire) | 107 |
| Kathrein - 742 351 w/ mount pipe (Metro PCS) | 117 | Pipe Mount - 4" x 8'-6" (Clearwire) | 107 |
| | | Pipe Mount - 4" x 8'-6" (Clearwire) | 107 |
| | | Dragonwave - A-ANT-23G-2-C (Clearwire) | 107 |
| | | Dragonwave - A-ANT-23G-2-C (Clearwire) | 107 |

## MATERIAL STRENGTH

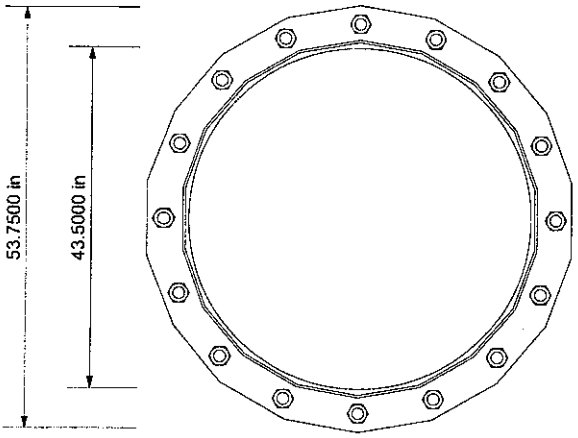
| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---|---|---|---|---|---|
| A572-65 | 65 ksi | 80 ksi | | | |

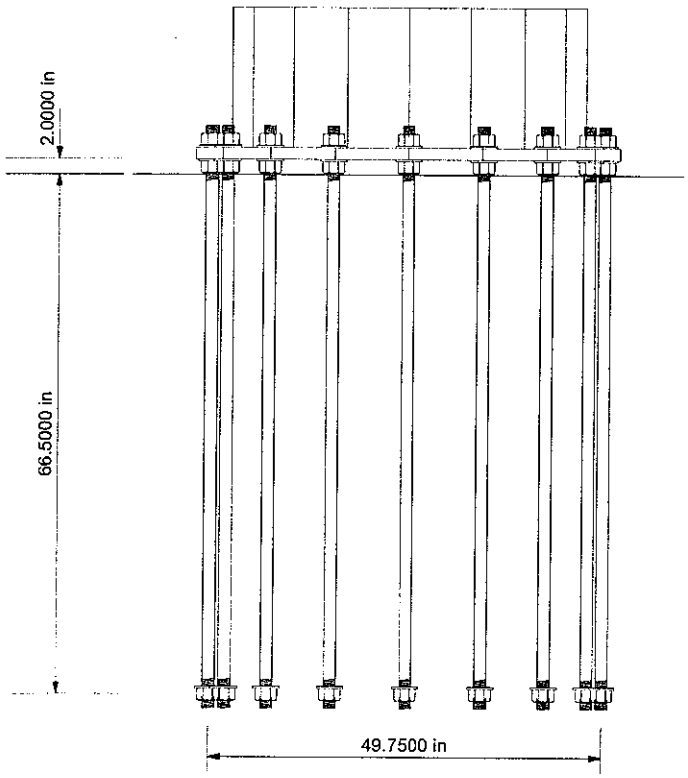
## TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 110 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.


**FDH Engineering, Inc.**
2730 Rowland Road
Raleigh, North Carolina
Phone: (919) 755-1012
FAX: (919) 755-1031


| | |
|---|---|
| Job: | Danbury 1, CT CT13549-S |
| Project: | 09-06165E S2 |
| Client: | SBA Network Services, Inc. |
| Drawn by: | Scott Hilgoe |
| App'd: | |
| Code: | TIA-222-G |
| Date: | 09/25/09 |
| Scale: | NTS |
| Path: | |
| Dwg No. | E-1 |




**FOUNDATION NOTES**

1. Plate thickness is 1.5000 in.
2. Plate grade is A572-50.
3. Anchor bolt grade is F1554-105.
4. f'c is 4 ksi.

*FDH Engineering, Inc.*
2730 Rowland Road
Raleigh, North Carolina
Phone: (919) 755-1012
FAX: (919) 755-1031

| | | | |
|---|---|---|---|
| Job: ***Danbury 1, CT CT13549-S*** | | | |
| Project: ***09-06165E S2*** | | | |
| Client: SBA Network Services, Inc. | Drawn by: Scott Hilgoe | App'd: | |
| Code: TIA-222-G | Date: 09/25/09 | Scale: NTS | |
| Path: | | Dwg No. F-1 | |

# LETTER OF AUTHORIZATION

**Date:** November 11, 2009

**SBA Site ID:** CT13549-S-04/Danbury 1

**Property Located at: 52 Stadley Rough Road, Danbury, CT 06811**

---

**THE CITY/COUNTY OF: DANBURY / FAIRFIELD**

## APPLICATION FOR ZONING/USE/BUILDING PERMIT

To Whom It May Concern:

This letter authorizes Clearwire and it's authorized agents to file for all necessary zoning, planning and building permits (local, state and federal) for the purposes of installing, operating and maintaining a telecommunications facility at the site/property referenced above on behalf of Candlewood Baptist Church.

All approval conditions that may be granted to Clearwire in connection with this facility relating to this specific application are the sole responsibility of Clearwire.

Thank you,

SBA Towers II LLC

By: _____

Name: Jason Silberstein

Its: Sr. VP, Property Management

Date: 11 / 11 / 2009

Sworn and subscribed this 11th day of November, 2009

Wendy Carrick
NOTARY PUBLIC

NOTARY PUBLIC-STATE OF FLORIDA
Wendy Carrick
Commission # DD495151
Expires: NOV. 30, 2009
Bonded Thru Atlantic Bonding Co., Inc.

CLEAR™

4400 Carillon Point
Kirkland, WA 98033

To: HPC
From: Julius De La Cruz – Radio Frequency Engineer
Cc: Cameron Syme
Subject: Power Density Report for CT-BDR0011
Date: October 14, 2009

---

**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 52 Stadley Rough Road, Danbury, CT 06811. 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 VHLP2.5-11 with 24" Diameter.
5) The Clearwire Panel antenna centerline is 107 feet.
6) The Clearwire Microwave dish centerline is 107 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 Self Support Tower at 52 Stadley Rough Road, Danbury, CT 06811 is 0.0000009 $mW/cm^2$. This value represents 0.000090% 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 2.48 %. The combined Power Density for this site is 2.48009% of the M.P.E. standard.