



EM-CING-011-120720A

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July 20, 2012

Honorable Robert Stein, Chairman,  
and Members of the Connecticut Siting Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

ORIGINAL

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JUL 20 2012  
CONNECTICUT  
SITING COUNCIL

**Re: Notice of Exempt Modification – Existing AT&T Tower Facility at 12 Burr Road,  
Bloomfield, CT 06002**

Dear Chairman Stein and Members of the Council:

New Cingular Wireless PCS, LLC (“AT&T”) intends to modify the existing telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 12 Burr Road in Bloomfield, Connecticut. AT&T operates under licenses issued by the Federal Communications Commission (“FCC”) to provide cellular and PCS mobile telephone service in Hartford County, which includes the area to be served by AT&T’s proposed installation.

In order to accommodate technological changes, implement Long Term Evolution (“LTE”) capabilities, and enhance system performance in the State of Connecticut, New Cingular Wireless PCS, LLC (“AT&T”) plans to modify the equipment configurations at many of its existing cell sites. LTE is a new high-performance air interface for cellular mobile communications. It is designed to increase the capacity and speed of mobile telephone networks.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to the Louie Chapman, Town Manager for the Town of Bloomfield.

Attached is a summary of the planned modifications, including power density calculations, reflecting the change in AT&T’s operations at the facility. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

### **Existing Facility**

The Bloomfield facility is located at 12 Burr Road on the west side of Route 185. Site coordinates (NAD83) are N41° 49' 4.29" and W72° 45' 52.24".

The facility is owned by SBA Properties, Inc of 5900 Broken Sound Parkway, N.W, Boca Raton, Florida 33487-2797.

The existing facility consists of a one hundred and thirty foot (130') monopole, with ten foot (1') extension, tower located within a fenced in compound surrounded by a chain link fence. AT&T currently operates wireless communications equipment at the facility.

### **Statutory Considerations**

The changes to the Bloomfield tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.
2. The proposed changes will not affect the property boundaries. All new construction will take place inside the existing fenced compound.
3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.
4. LTE will utilize additional radio frequencies newly licensed by the FCC for cellular mobile communications. However, the changes will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, New Cingular Wireless respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A Section §16-50j-72(b)(2).

Respectfully yours,



Peter LaMontagne  
Real Estate Consultant

Enclosures:  
Louie Chapman, Town Manager for Town of Bloomfield



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July , 2012

Louie Chapman, Jr  
Town Manager, Bloomfield, CT  
800 Bloomfield Avenue  
Bloomfield, CT 06002

**Re: Notice of Exempt Modification – Existing Telecommunications Facility at 12 Burr Road, Bloomfield, CT 06002**

Dear Louie Chapman, Bloomfield Town Manager,

New Cingular Wireless PCS, LLC (“AT&T”) intends to replace telecommunications antennas and associated equipment at an existing telecommunications tower, owned by SBA Properties, Inc and situated at 12 Burr Road in Bloomfield, Connecticut.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies (“R.C.S.A.”) Section 16-50j-73. Please accept this letter as notification to the Town of Bloomfield under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the AT&T proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council’s procedures, please contact Peter LaMontagne at (508) 341-7854 or Linda Roberts, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

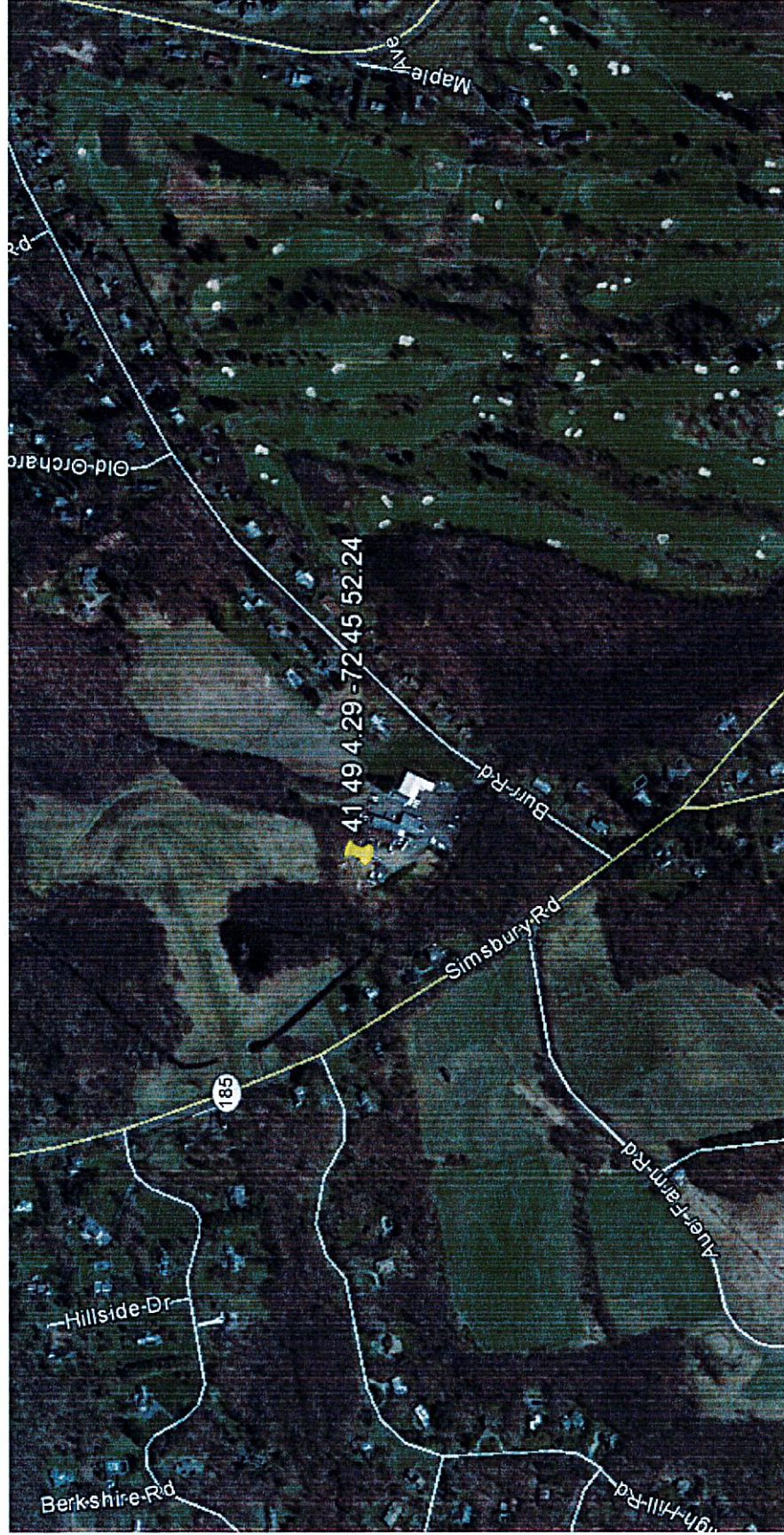
Peter LaMontagne  
Real Estate Consultant

Enclosure  
Honorable Robert Stein, Chairmen of the Connecticut Siting Council



# CT11255 – Bloomfield – 12 Burr Road, Bloomfield, CT

Aerial Location Map



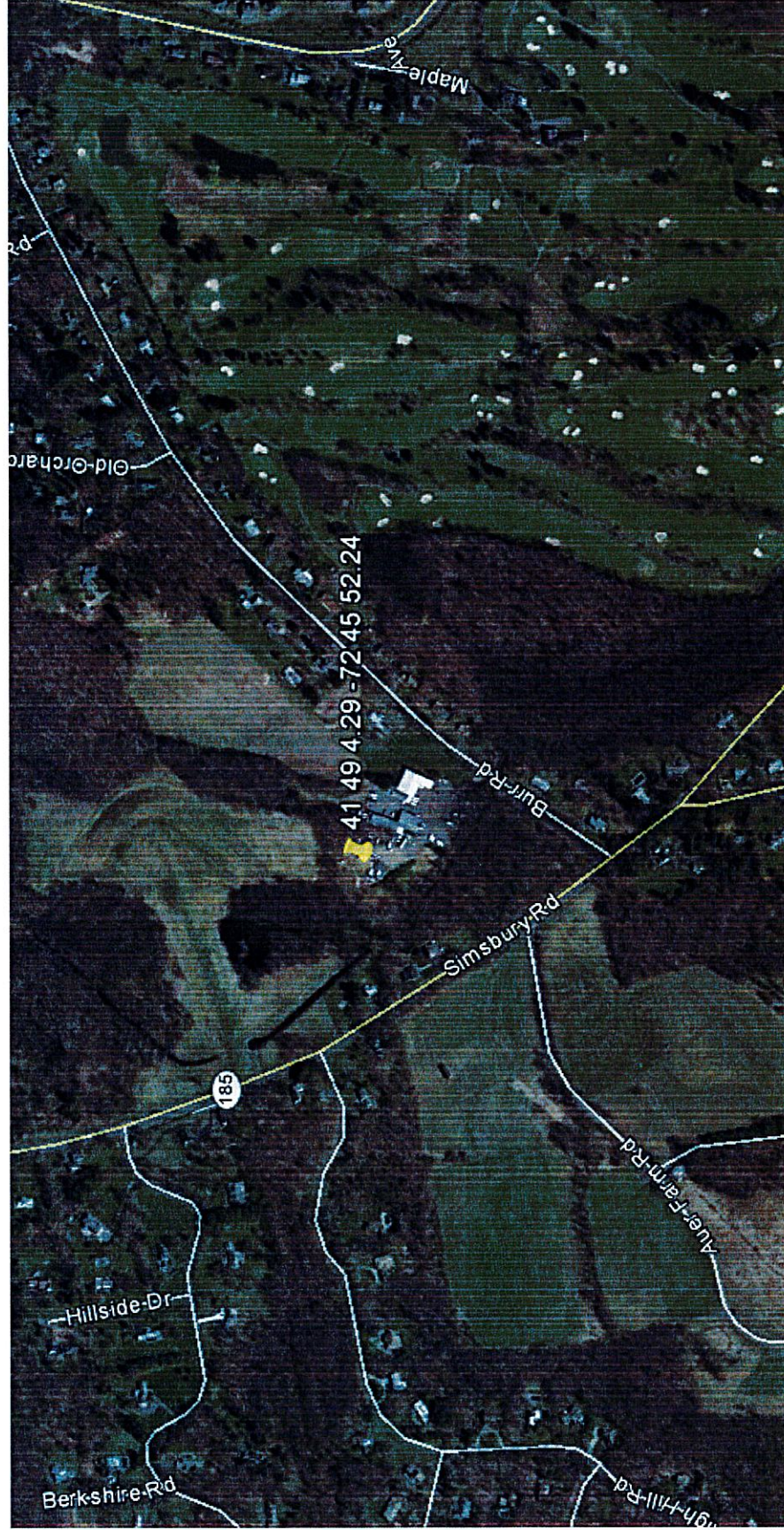


**Street Location Map**



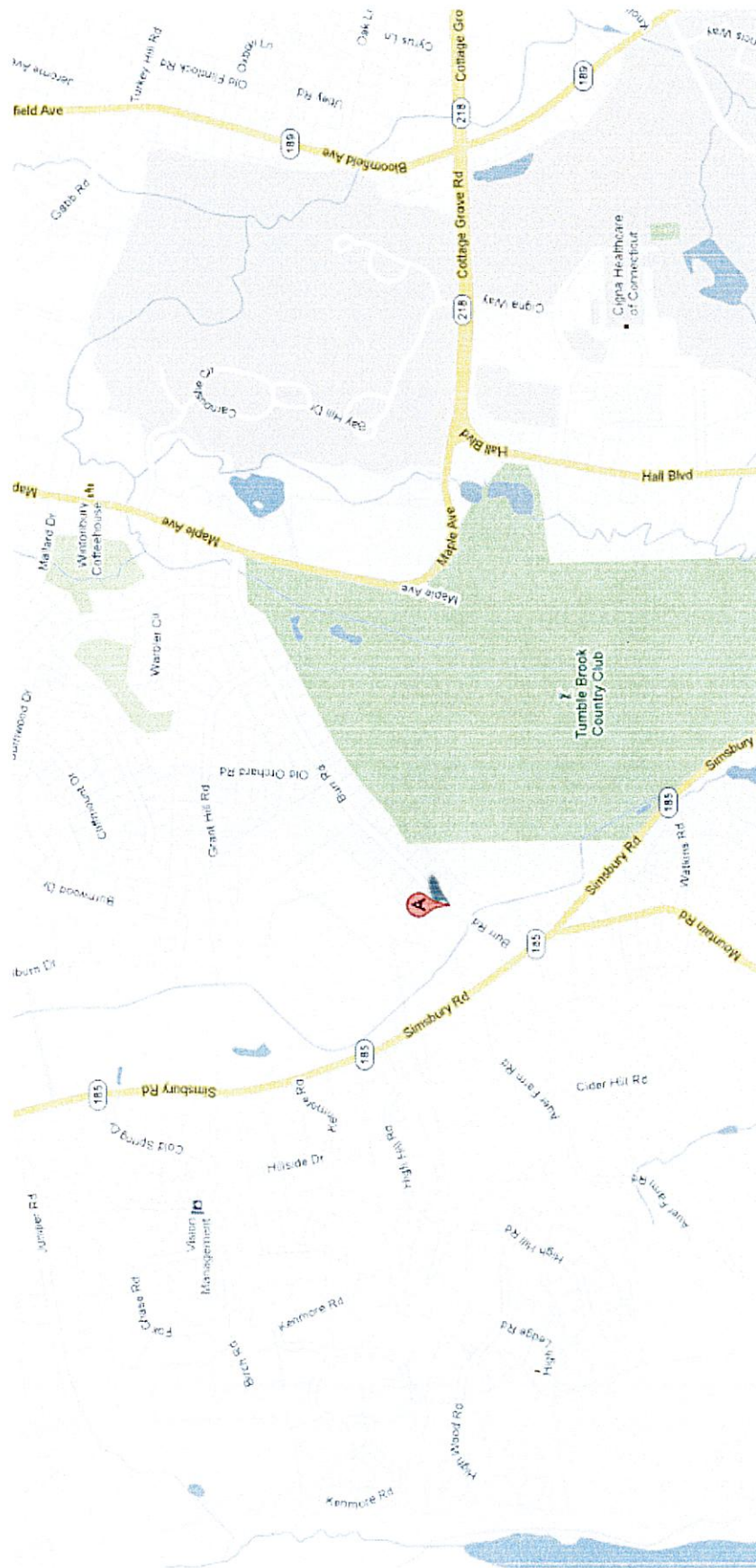
**CT11255 – Bloomfield – 12 Burr Road, Bloomfield, CT**

**Aerial Location Map**





## Street Location Map





C Squared Systems, LLC  
65 Dartmouth Drive, Unit A3  
Auburn, NH 03032  
(603) 644-2800  
[support@csquaredsystems.com](mailto:support@csquaredsystems.com)

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## Calculated Radio Frequency Emissions



CT1255 (Bloomfield - Burr Road)

12 Burr Rd, Bloomfield, CT 06770

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July 13, 2012



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## 1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modifications to the existing AT&T antenna arrays mounted on the monopole tower located at 12 Burr Rd in Bloomfield, CT. The coordinates of the tower are 41-49-4.42 N, 72-45-52.38 W.

AT&T is proposing the following modifications:

- 1) Remove three existing dual-band (850/1900 MHz) antennas (one per sector);
- 2) Install three 700 MHz LTE antennas (one per sector);
- 3) Install three 700 MHz LTE Remote Radio Units (RRUs).

## 2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.



### 3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left( \frac{1.6^2 \times EIRP}{4\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance =  $\sqrt{H^2 + V^2}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the finished modifications.

#### 4. Calculation Results

Table 1 below outlines the power density information for the site. Because the proposed AT&T antennas are directional in nature, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm <sup>2</sup> )	Limit	%MPE
AT&T GSM	107	880	3	296	0.0279	0.5867	4.78%
AT&T GSM	107	1900	1	42	0.0134	1.0000	1.31%
AT&T UMTS	107	880	1	500	0.015	0.5867	2.65%
AT&T UMTS	107	1900	1	300	0.013	1.0000	1.37%
T-Mobile	121	1945	8	158	0.0310	1.0000	3.10%
Verizon cellular	117	1970	3	526	0.0415	1.0000	4.15%
Verizon PCS	117	869	9	426	0.1007	0.5793	17.37%
Verizon 700 MHz	117	746	1	867	0.0228	0.4973	4.58%
Clearwire	97	2496	2	153	0.0117	1.0000	1.17%
Clearwire	97	11000	1	211	0.0081	1.0000	0.81%
MetroPCS	137	2140	3	727	0.0418	1.0000	4.18%
AT&T UMTS	107	880	2	565	0.0035	0.5867	0.60%
AT&T UMTS	107	1900	2	875	0.0055	1.0000	0.55%
AT&T LTE	107	734	1	1615	0.0051	0.4893	1.04%
AT&T GSM	107	880	1	283	0.0009	0.5867	0.15%
AT&T GSM	107	1900	4	525	0.0066	1.0000	0.66%
						<b>Total</b>	<b>38.36%</b>

Table 1: Carrier Information<sup>1 2 3</sup>

<sup>1</sup> The existing CSC filing for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 3/29/2012. Please note that %MPE values listed are rounded to two decimal points. The total %MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not reflect the total value listed in the table.

<sup>2</sup> In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain was used for the calculations.

<sup>3</sup> Antenna height listed for AT&T is in reference to the B&T Engineering, Inc Structural Analysis dated July 11, 2012.



## 5. Conclusion

The above analysis verifies that emissions from the existing site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Even when using conservative methods, the cumulative power density from the proposed transmit antennas at the existing facility is well below the limits for the general public. The highest expected percent of Maximum Permissible Exposure at ground level is **38.36% of the FCC limit**.

As noted previously, obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. As a result, the predicted signal levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

## 6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet  
C Squared Systems, LLC

July 13, 2012

Date

### **Attachment A: References**

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

## Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

### (A) Limits for Occupational/Controlled Exposure<sup>4</sup>

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

### (B) Limits for General Population/Uncontrolled Exposure<sup>5</sup>

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz \* Plane-wave equivalent power density

**Table 2: FCC Limits for Maximum Permissible Exposure (MPE)**

<sup>4</sup> Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

<sup>5</sup> General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure



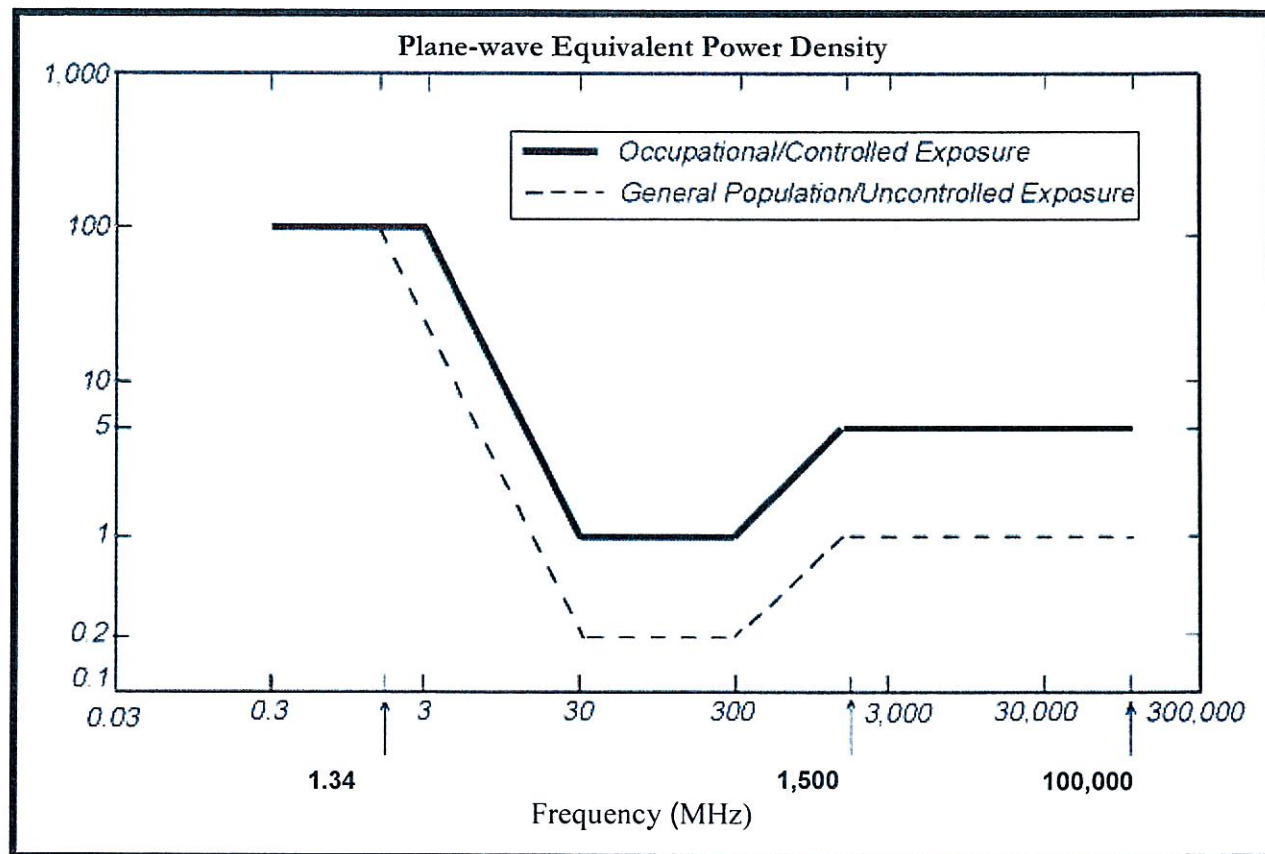
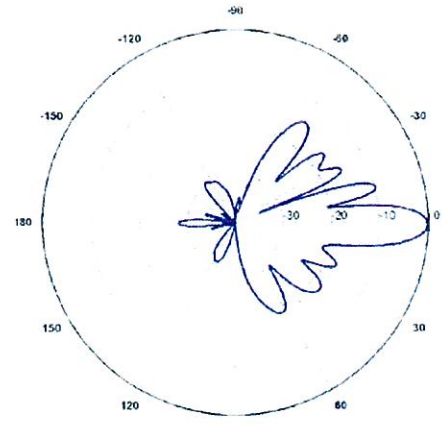
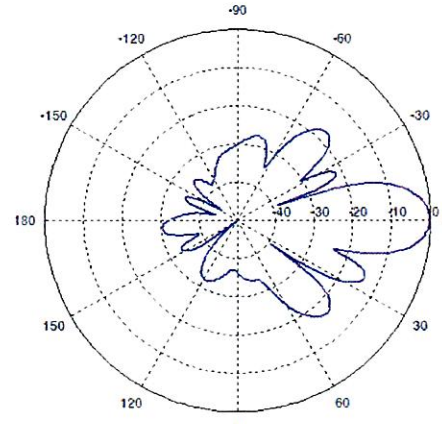
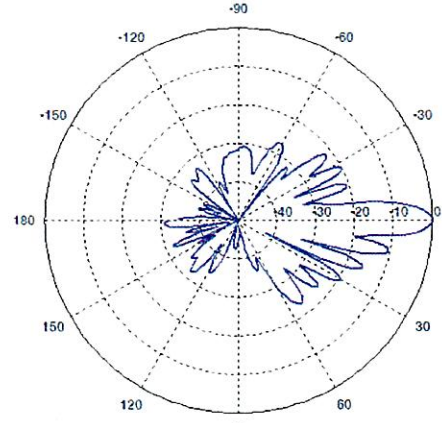


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

### Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

<p><b>700 MHz</b></p> <p>Manufacturer: Powerwave  Model #: P65-17-XLH-RR  Frequency Band: 698-806 MHz  Gain: 14.3 dBd  Vertical Beamwidth: 8.4°  Horizontal Beamwidth: 70°  Polarization: Dual Linear <math>\pm 45^\circ</math>  Size L x W x D: 96.0" x 12.0" x 6.0"</p>	
<p><b>850 MHz</b></p> <p>Manufacturer: Powerwave  Model #: 7770.00  Frequency Band: 824-896 MHz  Gain: 11.4 dBd  Vertical Beamwidth: 15°  Horizontal Beamwidth: 85°  Polarization: Dual Linear <math>\pm 45^\circ</math>  Size L x W x D: 55.0" x 11.0" x 5.0"</p>	
<p><b>1900 MHz</b></p> <p>Manufacturer: Powerwave  Model #: 7770.00  Frequency Band: 1850-1990 MHz  Gain: 13.4 dBd  Vertical Beamwidth: 7°  Horizontal Beamwidth: 90°  Polarization: Dual Linear <math>\pm 45^\circ</math>  Size L x W x D: 55.0" x 11.0" x 5.0"</p>	





FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

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

**130' Monopole Tower w/ 10' Extension**

**SBA Site Name: Bloomfield 4  
SBA Site ID: CT13548-S  
AT&T Site ID: CT1255  
AT&T Site Name: Bloomfield CT Burr Road**

**FDH Project Number 12-02719E S2**

**Analysis Results**

Tower Components	98.6 %	Sufficient
Foundation	100.0 %	Sufficient

Prepared By:

Jonathan C. Holmes, EI  
Project Engineer

Reviewed By:

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

**FDH Engineering, Inc.**  
6521 Meridien Drive  
Raleigh, NC 27616  
(919) 755-1012  
info@fdh-inc.com



July 11, 2012

*Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and 2005 Connecticut State Building Code*

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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole 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* and the *2005 Connecticut State Building Code (CSBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- ☐ FDH Engineering, Inc. (Project No. 11-10353E S2) Tower Top Mapping Report dated November 16, 2011
- ☐ Rohn Products, LLC (File No. 0606820) original design drawings dated February 4, 2010
- ☐ TEP, Inc. (Project No. 093184.01) Subsurface Exploration Report Rev. 1 dated March 1, 2010
- ☐ FDH Engineering, Inc. (Project No. 12-02719E S1) Extension Drawings For A 130' Monopole dated June 26, 2012
- ☐ SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CSBC* is 80 mph without ice and 38 mph with 1 - 1/4" radial ice. Ice is considered to increase in thickness with height.

## Conclusions

With the existing and proposed antennas from AT&T in place at 106 ft and 107 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CSBC* provided the **Recommendation** listed below is satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Rohn Products, LLC File No. 0606820), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

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

## Recommendation

To ensure the requirements of the *TIA/EIA-222-F* standards and the *2005 CSBC* are met with the existing and proposed loading in place, we have the following recommendation:

1. The proposed coax should be installed inside the pole shaft, but may be installed outside the pole shaft inside the proposed 3" flex conduit.

## 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 the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

**Table 1 - Appurtenance Loading**

### Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
137	(6) Andrew HBX-6516DS-VTM (6) Andrew ATM200-A20 RETs	(12) 1-5/8" (1) 3/8"	Metro PCS	137	(3) 12.5' T-Arms (Max Total EPA = 11.4 ft²)
127	(9) RFS APXV18-209014-C (6) TMAs	(18) 1-5/8"	T-Mobile	127	(1) 12' Platform w/ Handrails
117	(6) Antel LPA-80063/6CF (6) Antel LPA-185063/12CF (3) Antel BXA-70063/6CF	(18) 1-5/8"	Verizon	117	(1) 12' Platform w/ Handrails
107	(12) Powerwave 7750.00 (12) Powerwave TT08-19DB111-001 TMAs (12) Powerwave 7020.00 RETs	(12) 1-5/8" (1) 1/2"	AT&T	107	(1) 12' Platform w/ Handrails
97	(3) Argus LLPX310R (3) BTS 26"x14"x9" (1) Andrew VHLP2-11 Dish (1) Andrew VHLP2.5-11 Dish	(1) 5/16" (2) 1/2" (3) 5/8" (3) 1/4"	Clearwire	97	(3) Standoff w/ Pipe Mount
87	(1) 6' Dish w/ Radome	(1) 1-5/8"	Future	87	Direct

### Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
107	(9) Powerwave P65-16-XLH-RR (1) Powerwave P65-17-XLH-RR (1) Andrew SBNH-1D6565C (1) KMW AM-X-CD-16-65-00T-RET (12) Powerwave TT08-19DB111-001 TMAs (12) Powerwave 7020.00 RETs	(12) 1-5/8" (1) 1/2" (1) 3" Flex Conduit (1) Fiber	AT&T	107	(1) 12' Platform w/ Handrails
106	(6) Andrew RRUS11 RRUs (1) Raycap DC6-48-60-18-8-F	(2) DC Cables		105	(1) Valmont LWRM Ring Mount

## RESULTS

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

**Table 2 - Material Strength**

Member Type	Yield Strength
Tower Shaft Sections	65 ksi & 42 ksi (extension)
Flange Plate	50 ksi
Flange Bolts	92 ksi
Base Plate	50 ksi
Anchor Bolts	105 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 105% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

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

See the **Appendix** for detailed modeling information

**Table 3 - Summary of Working Percentage of Structural Components**

Section No.	Elevation ft	Component Type	Size	% Capacity	Pass Fail
L1	140 - 130.5	Pole	TP20x20x0.25	6.0	Pass
		Flange Bolts	(8) 1"Ø w/ BC = 24.25"Ø	6.4	Pass
		Flange Plate	27.25"Ø x 1.5" thk.	3.0	Pass
L2	130.5 - 130	Pole	TP20.603x20x0.25	4.5	Pass
L3	130 - 86.25	Pole	TP31.992x20.603x0.25	65.7	Pass
L4	86.25 - 42.4167	Pole	TP42.743x30.4073x0.3125	86.5	Pass
L5	42.4167 - 0	Pole	TP53x40.6831x0.375	81.3	Pass
		Anchor Bolts	(24) 1.5"Ø w/ BC = 58.125"Ø	98.6	Pass
		Base Plate	62"Ø PL x 2" thk.	69.6	Pass

**Table 4 - Maximum Base Reactions**

Base Reactions	Current Analysis (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Axial	37 k	51 k
Shear	29 k	27 k
Moment	2,828 k-ft	2,826 k-ft



## GENERAL COMMENTS

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

## LIMITATIONS

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

## **APPENDIX**



## DESIGNED APPURTENANCE LOADING

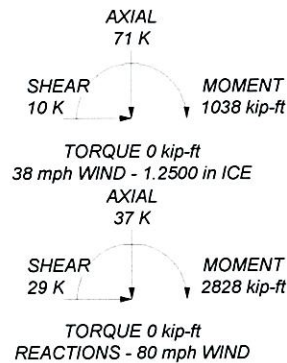
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4'	140	(1) 12' Platform w/ Handrails (Verizon)	117
(2) Andrew HBX-6516DS-VTM w/ Mount Pipe (Metro PCS)	137	(3) Powerwave P65-16-XLH-RR w/Mount Pipe (ATT)	107
(2) Andrew HBX-6516DS-VTM w/ Mount Pipe (Metro PCS)	137	(3) Powerwave P65-16-XLH-RR w/Mount Pipe (ATT)	107
(2) Andrew HBX-6516DS-VTM w/ Mount Pipe (Metro PCS)	137	(3) Powerwave P65-16-XLH-RR w/Mount Pipe (ATT)	107
(2) Andrew ATM200-A20 RET (Metro PCS)	137	Andrew SBNH-1D6565C w/ Mount Pipe (ATT)	107
(2) Andrew ATM200-A20 RET (Metro PCS)	137	KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATT)	107
(2) Andrew ATM200-A20 RET (Metro PCS)	137	Powerwave P65-17-XLH-RR w/Mount Pipe (ATT)	107
(3) 12.5' T-Arms (Metro PCS)	137	(4) Powerwave TT08-19DB111-001 TMA (ATT)	107
(3) RFS APXV18-209014-C w/ Mount Pipe (T-Mobile)	127	(4) Powerwave TT08-19DB111-001 TMA (ATT)	107
(3) RFS APXV18-209014-C w/ Mount Pipe (T-Mobile)	127	(4) Powerwave TT08-19DB111-001 TMA (ATT)	107
(3) RFS APXV18-209014-C w/ Mount Pipe (T-Mobile)	127	(4) Powerwave 7020 RET (ATT)	107
(2) TMAs (T-Mobile)	127	(4) Powerwave 7020 RET (ATT)	107
(2) TMAs (T-Mobile)	127	(4) Powerwave 7020 RET (ATT)	107
(2) TMAs (T-Mobile)	127	(1) 12' Platform w/ Handrails (ATT)	107
(1) 12' Platform w/ Handrails (T-Mobile)	127	(2) RRUS 11 (ATT)	105
(2) LPA-80063/6CF w/ Mount Pipe (Verizon)	117	Raycap DC6-48-60-18-8F (ATT)	105
(2) LPA-80063/6CF w/ Mount Pipe (Verizon)	117	(1) Valmont LWRM Ring Mount mnt (ATT)	105
(2) LPA-80063/6CF w/ Mount Pipe (Verizon)	117	(2) RRUS 11 (ATT)	105
(2) LPA-80063/6CF w/ Mount Pipe (Verizon)	117	(2) RRUS 11 (ATT)	105
(2) LPA-185063/12CF W/Mount Pipe (Verizon)	117	LLPX310R w/Mount Pipe (Clearwire)	97
(2) LPA-185063/12CF W/Mount Pipe (Verizon)	117	LLPX310R w/Mount Pipe (Clearwire)	97
(2) LPA-185063/12CF W/Mount Pipe (Verizon)	117	LLPX310R w/Mount Pipe (Clearwire)	97
(2) LPA-185063/12CF W/Mount Pipe (Verizon)	117	BTS 26"x14"x9" (Clearwire)	97
(2) LPA-185063/12CF W/Mount Pipe (Verizon)	117	BTS 26"x14"x9" (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	BTS 26"x14"x9" (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	(1) Side Mount Standoff (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	(1) Side Mount Standoff (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	(1) Side Mount Standoff (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	VHLP2-11 (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	VHLP2-5-11 (Clearwire)	97
BXA-70063/6CF W/Mount Pipe (Verizon)	117	6' Dish w/Radome (Future)	87


## MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-42	42 ksi	60 ksi	A572-65	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 1.25 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 86.5%



 <b>FDH Engineering, Inc.</b> 6521 Meridien Drive Raleigh, NC 27616 Phone: (919)-755-1012 FAX: (919)-755-1031	<b>Job: Bloomfield 4, CT13548-S</b>			
	<b>Project: 12-02719E S2</b>			
	Client: SBA Network Services, Inc.	Drawn by: Jonathan Holmes	App'd:	
	Code: TIA/EIA-222-F	Date: 07/11/12	Scale: NTS	
	Path:	Dwg No. E-1		



PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS  
SITE ADDRESS: 12 BURR ROAD  
BLOOMFIELD, CT 06002  
LATITUDE: 41.81785833 N 41° 49' 4.29" N  
LONGITUDE: 72.76451111 W 72° 45' 52.24" W  
JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES  
CURRENT USE: TELECOMMUNICATIONS FACILITY  
PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT1255  
SITE NAME: BLOOMFIELD CT BURR ROAD

DRAWING INDEX

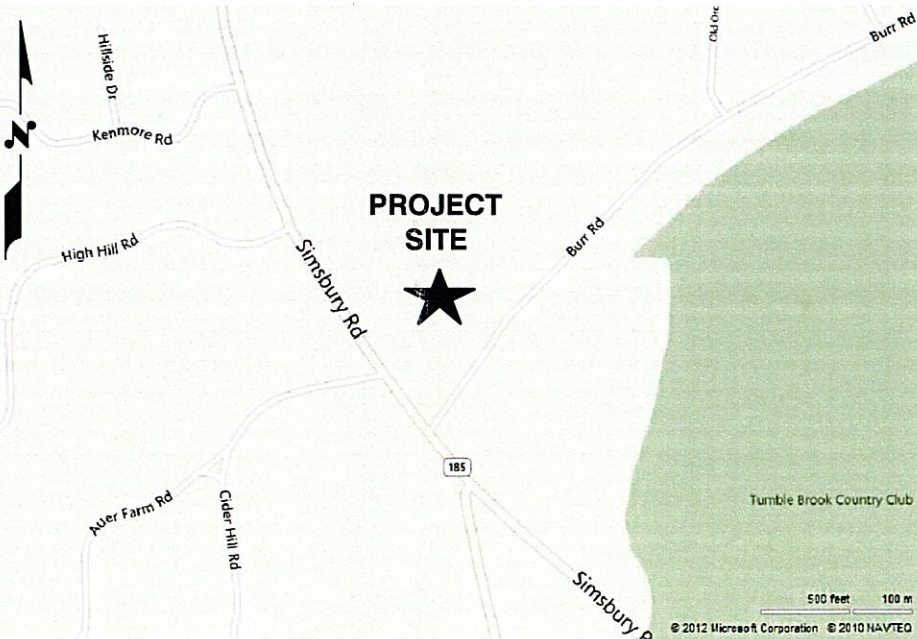
REV

T-1 TITLE SHEET  
GN-1 GENERAL NOTES  
A-1 COMPOUND & EQUIPMENT PLAN  
A-2 ANTENNA LAYOUT & ELEVATION  
A-3 DETAILS  
G-1 PLUMBING DIAGRAM & GROUNDING DETAILS

1  
1  
1  
1  
1  
1

VICINITY MAP

DIRECTIONS TO SITE:  
HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. 0.3 MI TURN LEFT ONTO CAPITAL BLVD. 0.3 MI TURN LEFT ONTO WEST ST. 0.2 MI TURN LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD. 8.7 MI TAKE EXIT 32B ON THE LEFT TO MERGE ONTO TRUMBULL ST. 1.1 MI TURN RIGHT ONTO MAIN ST. 0.2 MI CONTINUE ONTO ALBANY AVE. 2.1 MI TURN RIGHT ONTO BLOOMFIELD AVE. 0.8 MI SLIGHT LEFT ONTO CT-185 WEST. 2.6 MI TURN RIGHT ONTO BURR RD.



GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

72 HOURS



BEFORE YOU DIG



CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT

Hudson  
Design Group, LLC

1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586



a UniTek GLOBAL SERVICES company  
800 MARSHALL PHELPS ROAD UNIT#: 2A  
WINDSOR, CT 06095

SITE NUMBER: CT1255  
SITE NAME: BLOOMFIELD CT  
BURR ROAD  
12 BURR ROAD  
BLOOMFIELD, CT 06002  
HARTFORD COUNTY



500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

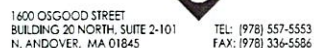
								AT&T	
1		04/09/12		ISSUED FOR CONSTRUCTION		PN		DC	
0		03/07/12		ISSUED FOR REVIEW		SF		DC	
NO.		DATE		REVISIONS		BY		CHK	
SCALE: AS SHOWN		DESIGNED BY: HC		DRAWN BY: SF		PROJECT NUMBER		DRAWING NUMBER	
						00		T-1	
								1	



## GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OFF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING EXCEEDING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

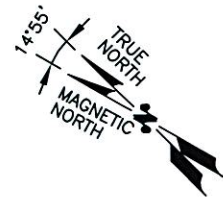
GENERAL NOTES																																															
<p>1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:</p> <p>CONTRACTOR – NEXLINK SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION) OWNER – AT&amp;T MOBILITY</p> <p>2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.</p> <p>3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.</p> <p>4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.</p> <p>5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.</p> <p>6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.</p> <p>7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.</p> <p>8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.</p> <p>9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.</p> <p>10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.</p> <p>11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.</p> <p>12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.</p> <p>13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.</p> <p>14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.</p>			<p>15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.</p> <p>16. CONSTRUCTION SHALL COMPLY WITH UMS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&amp;T MOBILITY SITES."</p> <p>17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.</p> <p>18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.</p> <p>19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.</p> <p>20. APPLICABLE BUILDING CODES: SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN. BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT &amp; 2009 CT AMENDMENTS ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS</p> <p>SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:</p> <p>AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;</p> <p>AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)</p> <p>MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;</p> <p>TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL</p> <p>ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.</p> <p>FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.</p>																																												
<p style="text-align: center;"><b>ABBREVIATIONS</b></p> <table> <tr> <td>AGL</td><td>ABOVE GRADE LEVEL</td><td>G.C.</td><td>GENERAL CONTRACTOR</td><td>RF</td><td>RADIO FREQUENCY</td></tr> <tr> <td>AWG</td><td>AMERICAN WIRE GAUGE</td><td>MGB</td><td>MASTER GROUND BUS</td><td></td><td></td></tr> <tr> <td>BCW</td><td>BARE COPPER WIRE</td><td>MIN</td><td>MINIMUM</td><td>TBD</td><td>TO BE DETERMINED</td></tr> <tr> <td>BTS</td><td>BASE TRANSCEIVER STATION</td><td>PROPOSED</td><td>NEW</td><td>TBR</td><td>TO BE REMOVED</td></tr> <tr> <td>EXISTING</td><td>EXISTING</td><td>N.T.S.</td><td>NOT TO SCALE</td><td>TBRR</td><td>TO BE REMOVED AND REPLACED</td></tr> <tr> <td>EG</td><td>EQUIPMENT GROUND</td><td>REF</td><td>REFERENCE</td><td>TYP</td><td>TYPICAL</td></tr> <tr> <td>EGR</td><td>EQUIPMENT GROUND RING</td><td>REQ</td><td>REQUIRED</td><td></td><td></td></tr> </table>						AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY	AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS			BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED	BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED	EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED	EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL	EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		
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EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL																																										
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED																																												



500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

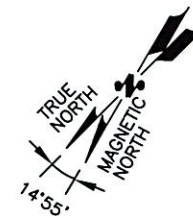
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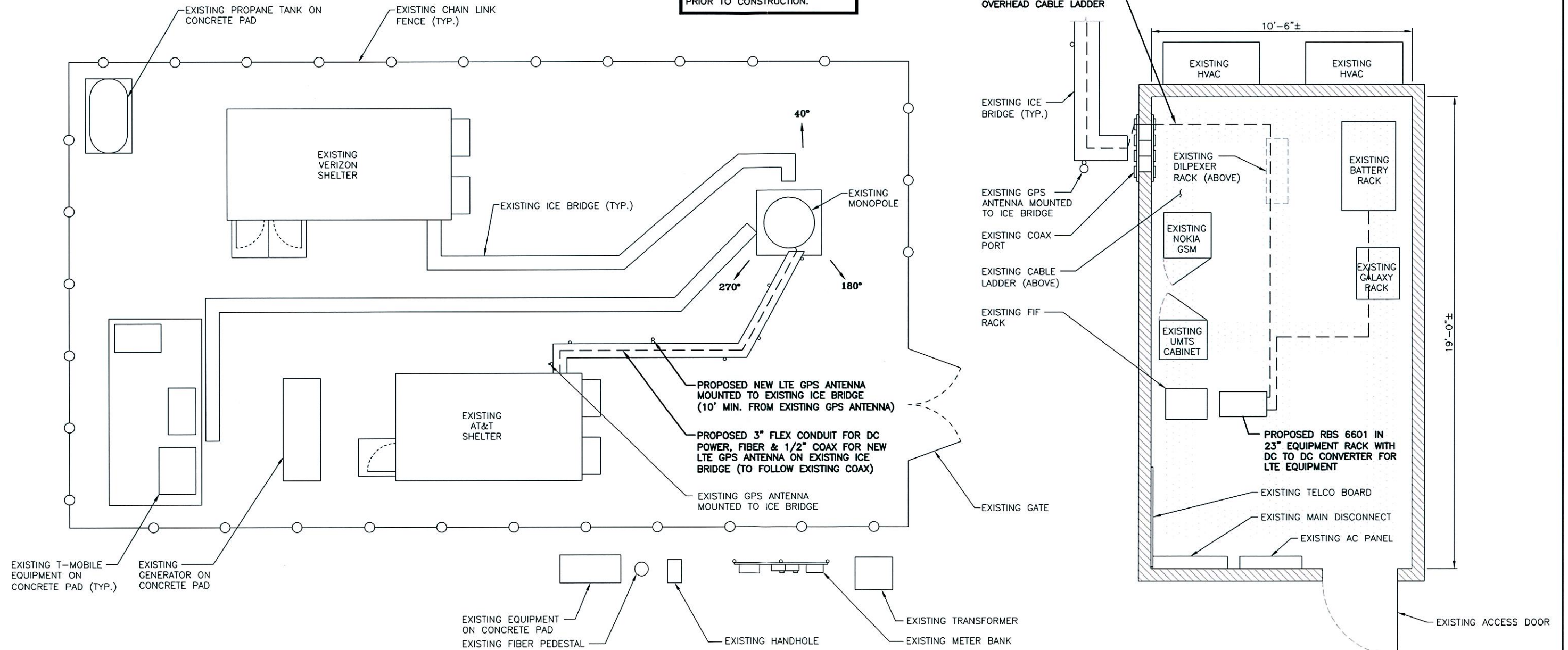


**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



PROPOSED DC, FIBER & 1/2" COAX FOR GPS ANTENNA TO RUN ALONG OVERHEAD CABLE LADDER



**COMPOUND PLAN**  
SCALE: 3/16"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"

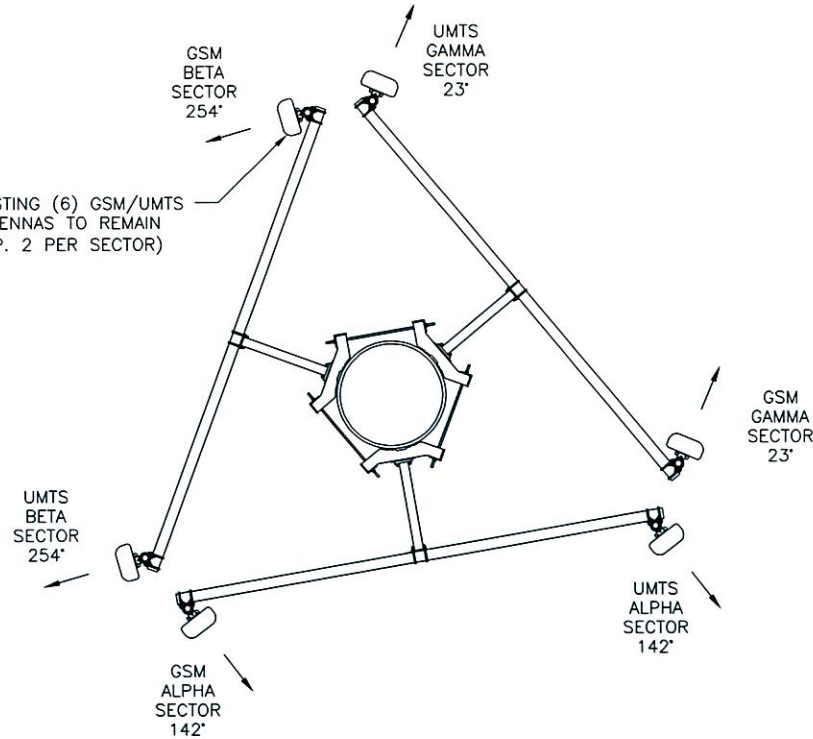
**EQUIPMENT PLAN**  
SCALE: 1/2"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"



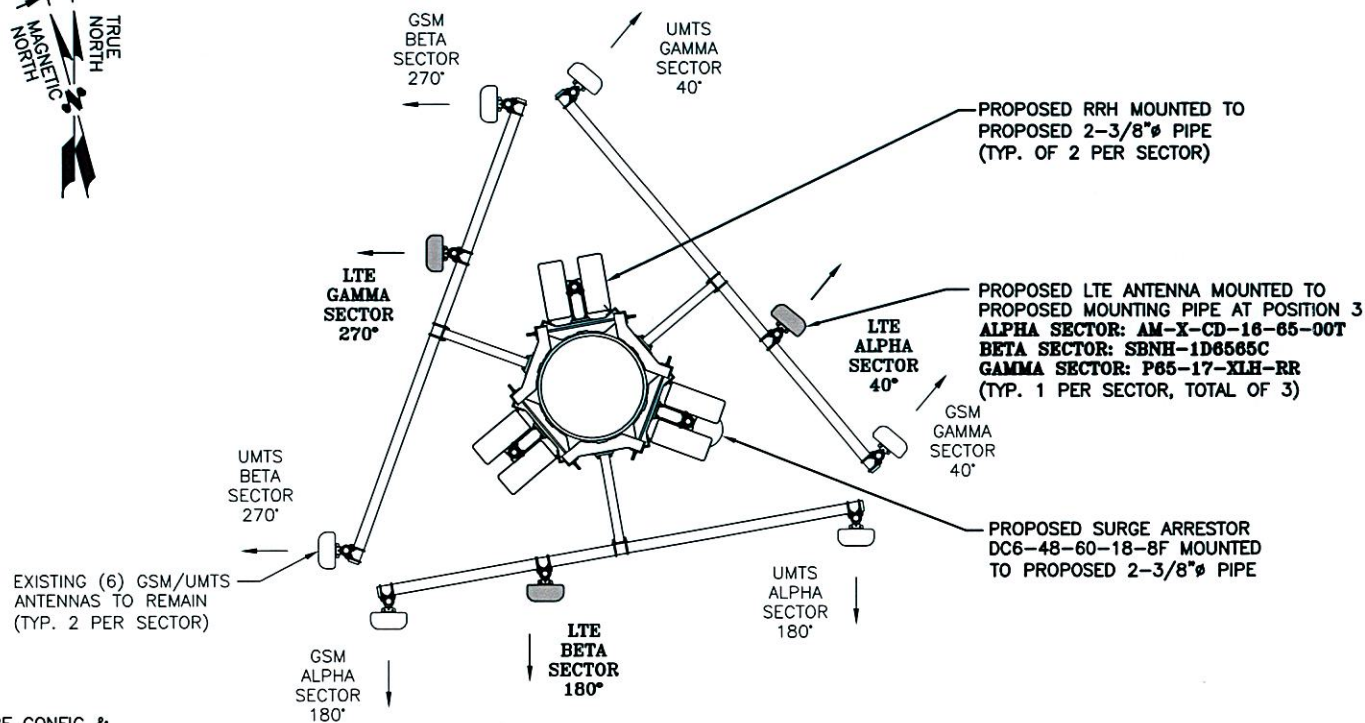


EXISTING (6) GSM/UMTS ANTENNAS TO REMAIN (TYP. 2 PER SECTOR)



### EXISTING GSM/UMTS ANTENNA PLAN

SCALE: N.T.S.



### PROPOSED LTE ANTENNA PLAN

SCALE: N.T.S.

#### NOTES:

1. REFER TO RF CONFIG & SECTOR SCHEMATICS FOR QUANTITY REQUIRED PER SECTOR

#### NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

#### NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

#### NOTE:

PROPOSED ANTENNAS, RRH'S & SURGE ARRESTOR TO BE PAINTED TO MATCH EXISTING CONDITIONS.

EXISTING ANTENNA (BY OTHERS) (TYP.)

CL OF EXISTING ANTENNAS & TOP OF MONOPOLE  
ELEV. 130'-0"± (AGL)

PROPOSED RRH MOUNTED TO PROPOSED 2-3/8" PIPE (TYP. OF 2 PER SECTOR)

CENTER OF PROPOSED AT&T ANTENNAS, RRH & SURGE ARRESTOR (LTE)  
ELEV. 106'-0"± (AGL)

EXISTING AT&T GSM/UMTS ANTENNA (TYP. OF 6)

PROPOSED LTE ANTENNA MOUNTED TO PROPOSED MOUNTING PIPE AT POSITION 3  
ALPHA SECTOR: AM-X-CD-16-65-00T  
BETA SECTOR: SBNH-1D6565C  
GAMMA SECTOR: P65-17-XLH-RR  
(TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED SURGE ARRESTOR DC6-48-60-18-8F MOUNTED TO PROPOSED 2-3/8" PIPE

EXISTING 130'± MONOPOLE

PROPOSED 3" FLEX CONDUIT FOR DC POWER & FIBER (TO FOLLOW EXISTING COAX)

PROPOSED LTE GPS ANTENNA MOUNTED TO EXISTING ICE BRIDGE (10' MIN. FROM EXISTING GPS ANTENNA)

EXISTING GPS ANTENNA MOUNTED TO ICE BRIDGE

EXISTING AT&T EQUIPMENT SHELTER

EXISTING ICE BRIDGE (TYP.)

EXISTING GENERATOR

EXISTING EQUIPMENT ON CONCRETE PAD (BY OTHERS) (TYP.)

EXISTING CHAIN LINK FENCE (TYP.)

GROUND LEVEL  
ELEV. 0'-0"± (AGL)

### SOUTH ELEVATION

SCALE: 3/32"=1'-0"

0 5'-4" 10'-8" 21'-4" 32'-0"

Hudson  
Design Group, Inc.

1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 2-101  
N. ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586



a UniTek GLOBAL SERVICES company  
800 MARSHALL PHELPS ROAD UNIT#: 2A  
WINDSOR, CT 06095

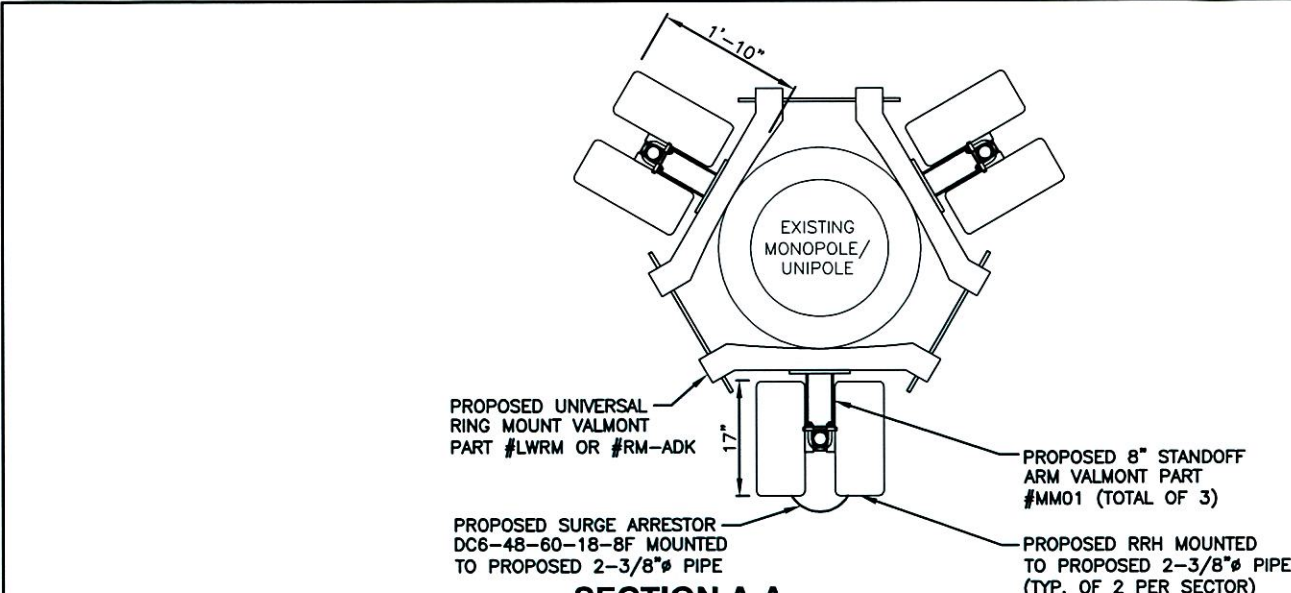
SITE NUMBER: CT1255  
SITE NAME: BLOOMFIELD CT  
BURR ROAD  
12 BURR ROAD  
BLOOMFIELD, CT 06002  
HARTFORD COUNTY



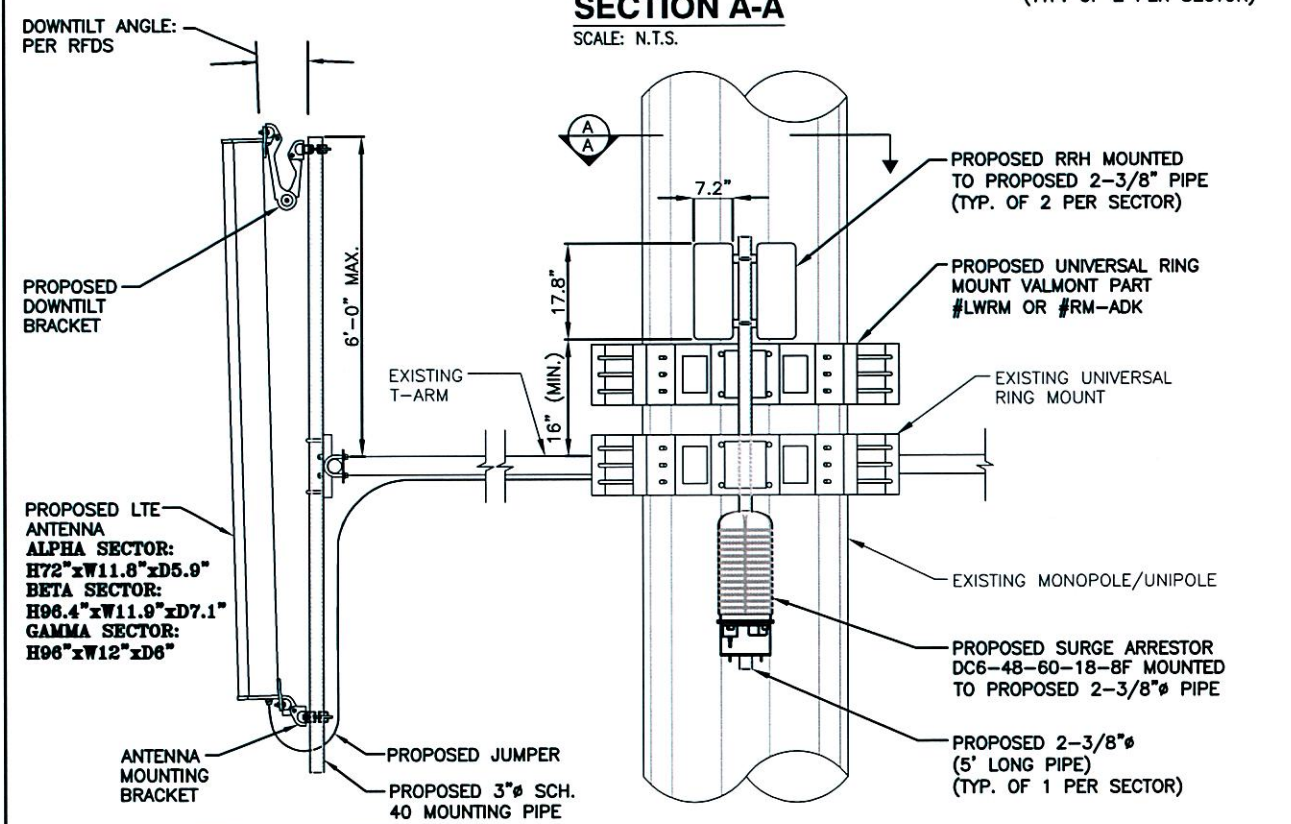
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

AT&T				ANTENNA LAYOUT & ELEVATION (LTE)			
1	04/09/12	ISSUED FOR CONSTRUCTION	PN	DC	BY	24173	
0	03/07/12	ISSUED FOR REVIEW	SE	DC	BY		
NO.	DATE	REVISIONS	BY	CHK	APP	JOB NUMBER	DRAWING NUMBER
SCALE:	AS SHOWN	DESIGNED BY: HC	DRAWN BY: S			1255.00	A-2
							1





**SECTION A-A**  
SCALE: N.T.S.



**NOTE:**

1. MINIMUM MONOPOLE DIAMETER OF 2'-0" AT BANDING LOCATION. IF SMALLER, STACK RRH'S 3 OVER 3

2. CONTRACTOR TO ENSURE THAT RRH MOUNTING DOES NOT INTERFERE WITH CLIMBING LADDER

**PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL**  
SCALE: N.T.S.

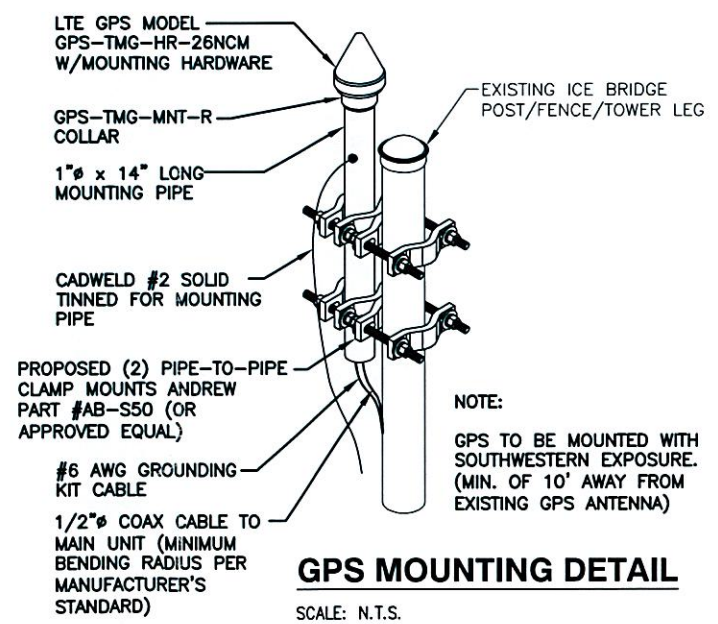
PART #	VMI PART #	SIZE RANGE
LWRM	801068	12"-45"
RM-ADK	157286	36"-60" ADAPTER KIT

**NOTE:**

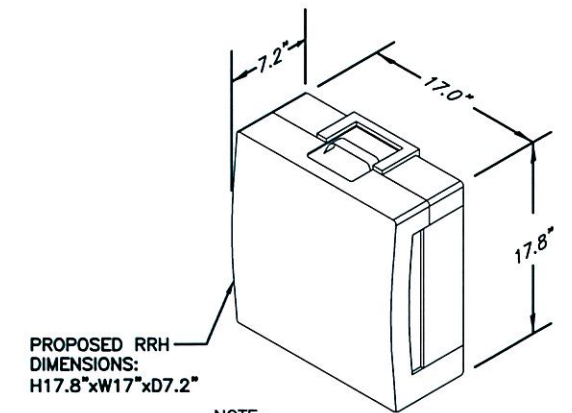
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**

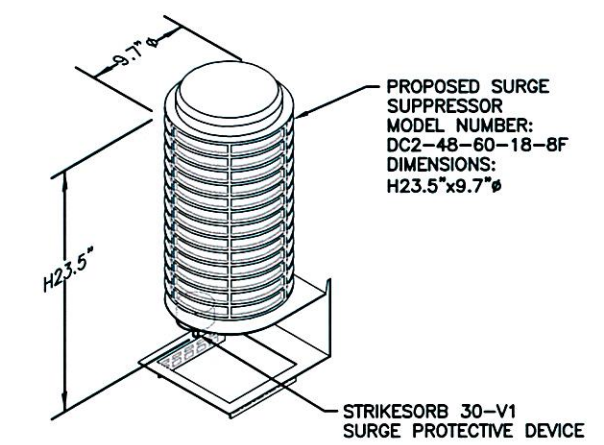
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



**GPS MOUNTING DETAIL**  
SCALE: N.T.S.



**RRH DETAIL**  
SCALE: N.T.S.



**DC SURGE SUPPRESSOR DETAIL**  
SCALE: N.T.S.

**Hudson**  
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**NEXLINK**  
GLOBAL SERVICES

a UniTek GLOBAL SERVICES company

800 MARSHALL PHELPS ROAD UNIT#: 2A  
WINDSOR, CT 06095

**SITE NUMBER: CT1255**  
**SITE NAME: BLOOMFIELD CT BURR ROAD**

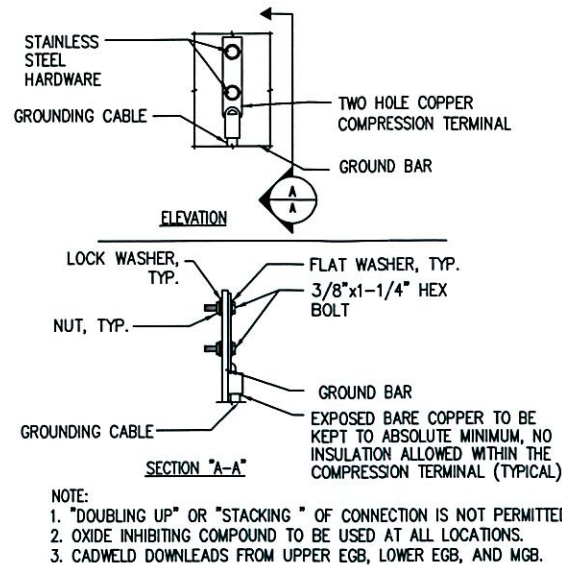
12 BURR ROAD  
BLOOMFIELD, CT 06002  
HARTFORD COUNTY

**at&t**

500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

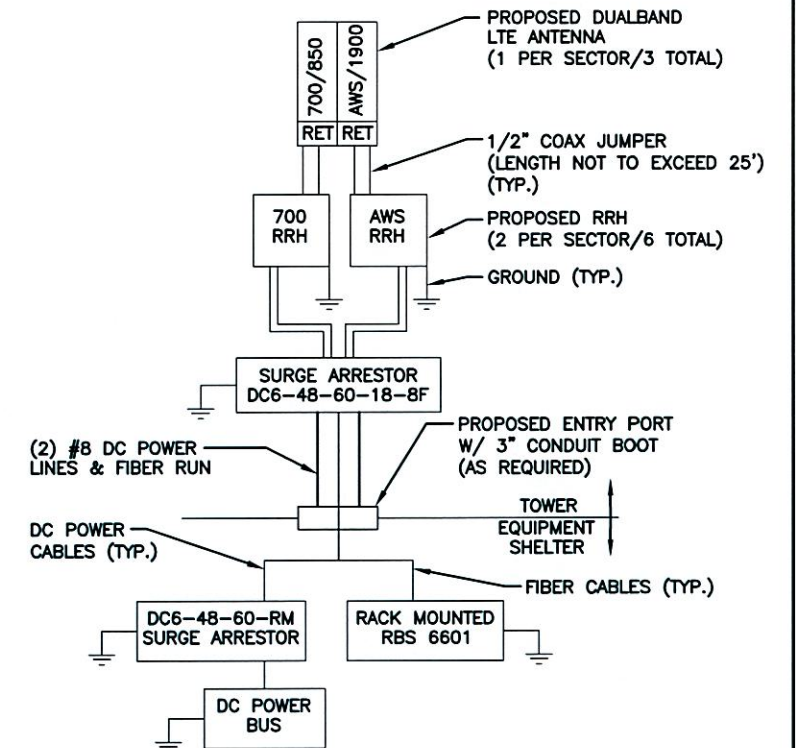
										AT&T	
										DETAILS (LTE)	
NO.	DATE	REVISIONS				BY	CHK	APP	JOB NUMBER	DRAWING NUMBER	REV
1	04/09/12	ISSUED FOR CONSTRUCTION				PH	DC	DPH			
0	03/07/12	ISSUED FOR REVIEW				AF	DC	DPH			
SCALE: AS SHOWN		DESIGNED BY: HC		DRAWN BY: SF				1255.00		A-3	1





### TYPICAL GROUND BAR CONNECTION DETAIL

2  
—  
N.T.S.



### NOTES:

- CONTRACTOR TO CONFIRM ALL PARTS.
- INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.

### 3 PLUMBING DIAGRAM — N.T.S.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

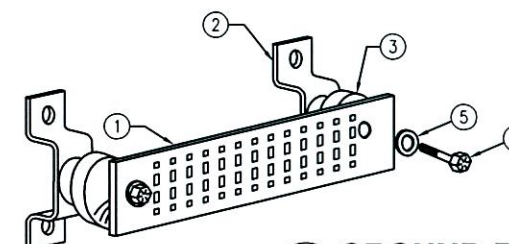
### SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

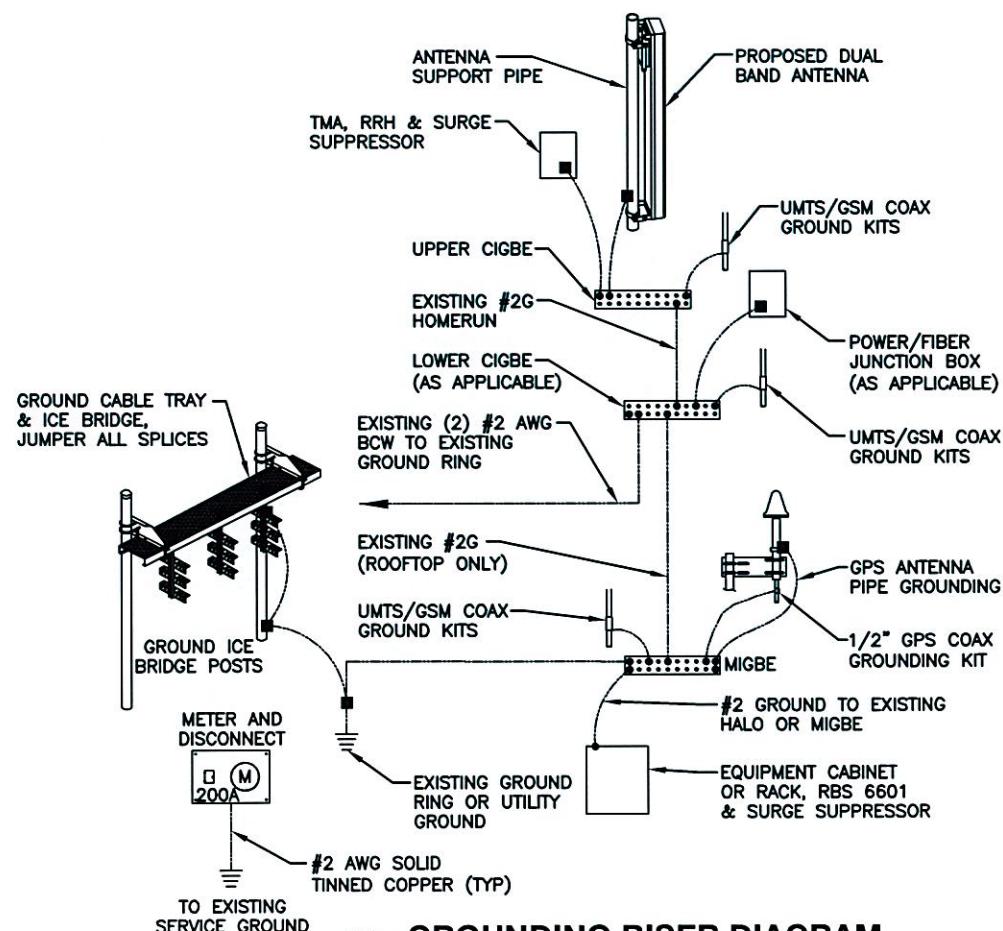
### SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

WIRELESS SOLUTIONS INC.			
NO.	REQ.	PART NO.	DESCRIPTION
①	1	HLGB-0420-IS	SOLID GND. BAR (20"x4"x1/4")
②	2	—	WALL MTG. BRKT.
③	2	—	INSULATORS
④	4	—	5/8"-11x1" H.H.C.S.
⑤	4	—	5/8 LOCKWASHER



### 4 GROUND BAR - DETAIL — N.T.S.



### 1 GROUNDING RISER DIAGRAM — N.T.S.

**Hudson**  
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NO.	DATE	REVISIONS	BY
SCALE:	AS SHOWN	DESIGNED BY: HC	DRAWN BY: SF
JOB NUMBER	1255.00	DRAWING NUMBER	G-1
REV	1		