STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

August 10, 2012

Peter LaMontagne
New Cingular Wireless PCS, LLC
95 Ryan Drive, Suite #1
Raynham, MA 02767

RE: **EM-CING-004-120720** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 10 Redwood Lane, Avon, Connecticut.

Dear Mr. LaMontagne:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- The proposed coax and auxiliary equipment be installed in accordance with the recommendations made in the Structural Analysis Report prepared by FDH Engineering dated July 3, 2012 and stamped by Christopher Murphy; and
- Following the installation of the proposed equipment, AT&T shall provide documentation certifying that the installation complied with the engineer's recommendation.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated July 20, 2012. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

LRoberts

Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Mark W. Zacchio, Chairman Town Council, Town of Avon
Brandon Robertson, Town Manager, Town of Avon
Steven V. Kushner, Town Planner, Town of Avon

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
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July 23, 2012

The Honorable Mark W. Zacchio
Chairman Town Council
Town of Avon
60 West Main Street
Avon, CT 06001-3743

RE: **EM-CING-004-120720** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 10 Redwood Lane, Avon, Connecticut.

Dear Chairman Town Council Zacchio:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by August 6, 2012.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/cm

Enclosure: Notice of Intent

c: Brandon Robertson, Town Manager, Town of Avon
Steven V. Kushner, Town Planner, Town of Avon

EM-CING-004-120720

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067

Peter LaMontagne
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (508)341-7854
plamontagne@clinellc.com

July 20, 2012

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

Re: Notice of Exempt Modification – Existing AT&T Tower Facility at 10 Redwood Lane, Avon, CT

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 10 Redwood Lane in Avon, 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 Brandon Robertson, Town Manager of Avon.

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

Existing Facility

The Avon facility is located at 10 Redwood Lane on the east side of Route 177. Site coordinates (NAD83) are N41° 46' 19.9" and W72° 53' 48".

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

The existing facility consists of a one hundred an five foot (105') monopole 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 Avon 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:
Brandon Robertson, Town Manager – Avon, CT

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067

Peter LaMontagne
Real Estate Consultant
95 Ryan Drive, Suite #1
Raynham, MA 02767
Phone: (508)341-7854
plamontagne@clinellc.com

July , 2012

Brandon Robertson
Town Manager
Town of Avon
60 West Main Street
Avon, CT 06001

Re: Notice of Exempt Modification – Existing Telecommunications Facility at 10 Redwood Lane, Avon, CT 06001

Dear Brandon Robertson, Town Manager of Avon,

New Cingular Wireless PCS, LLC ("AT&T") intends to replace telecommunications antennas and associated equipment at an existing telecommunications tower, owned by SBA Towers and situated at 10 Redwood Lane in Avon.

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 East Avon 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.

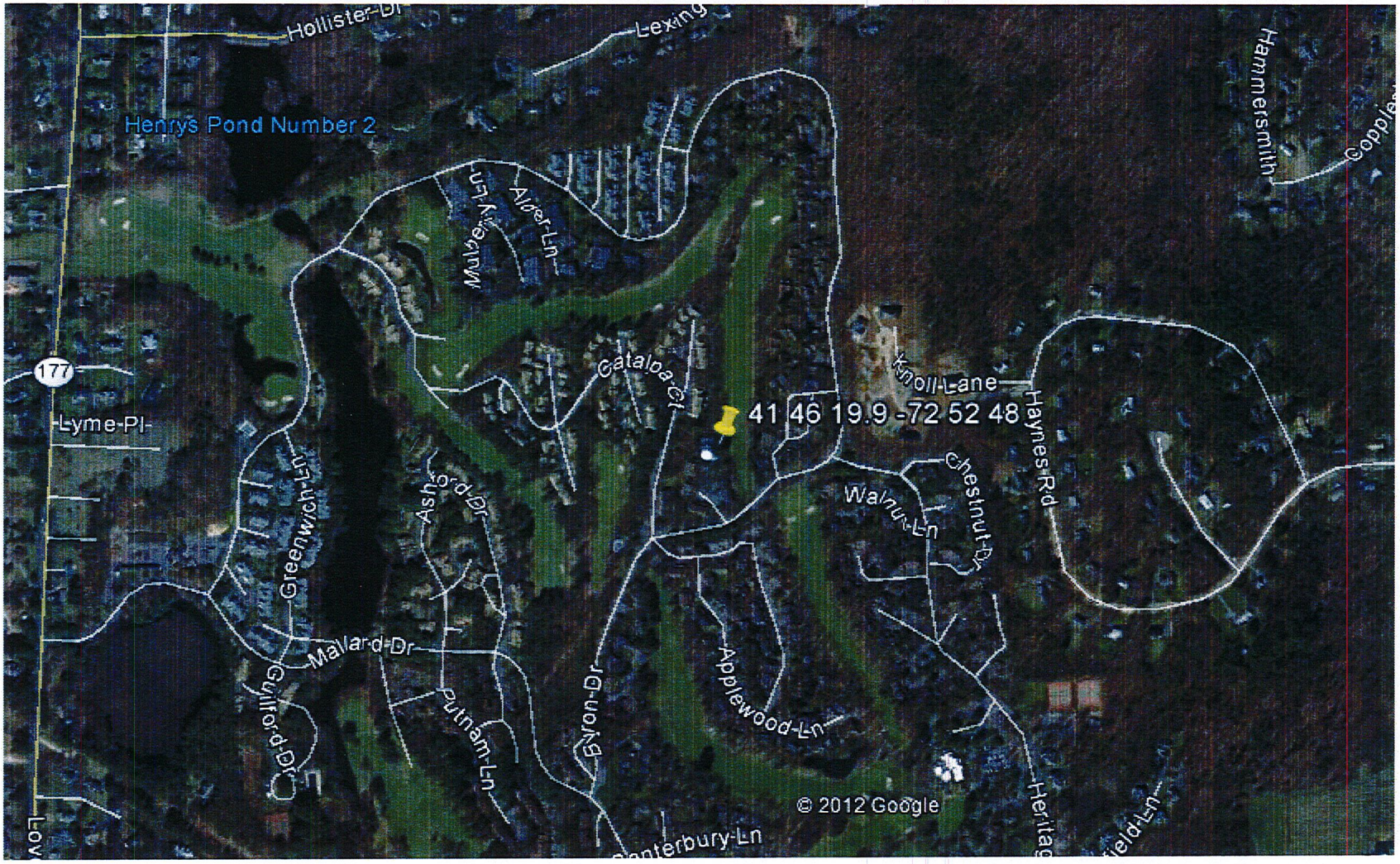
Sincerely,

Peter LaMontagne
Real Estate Consultant

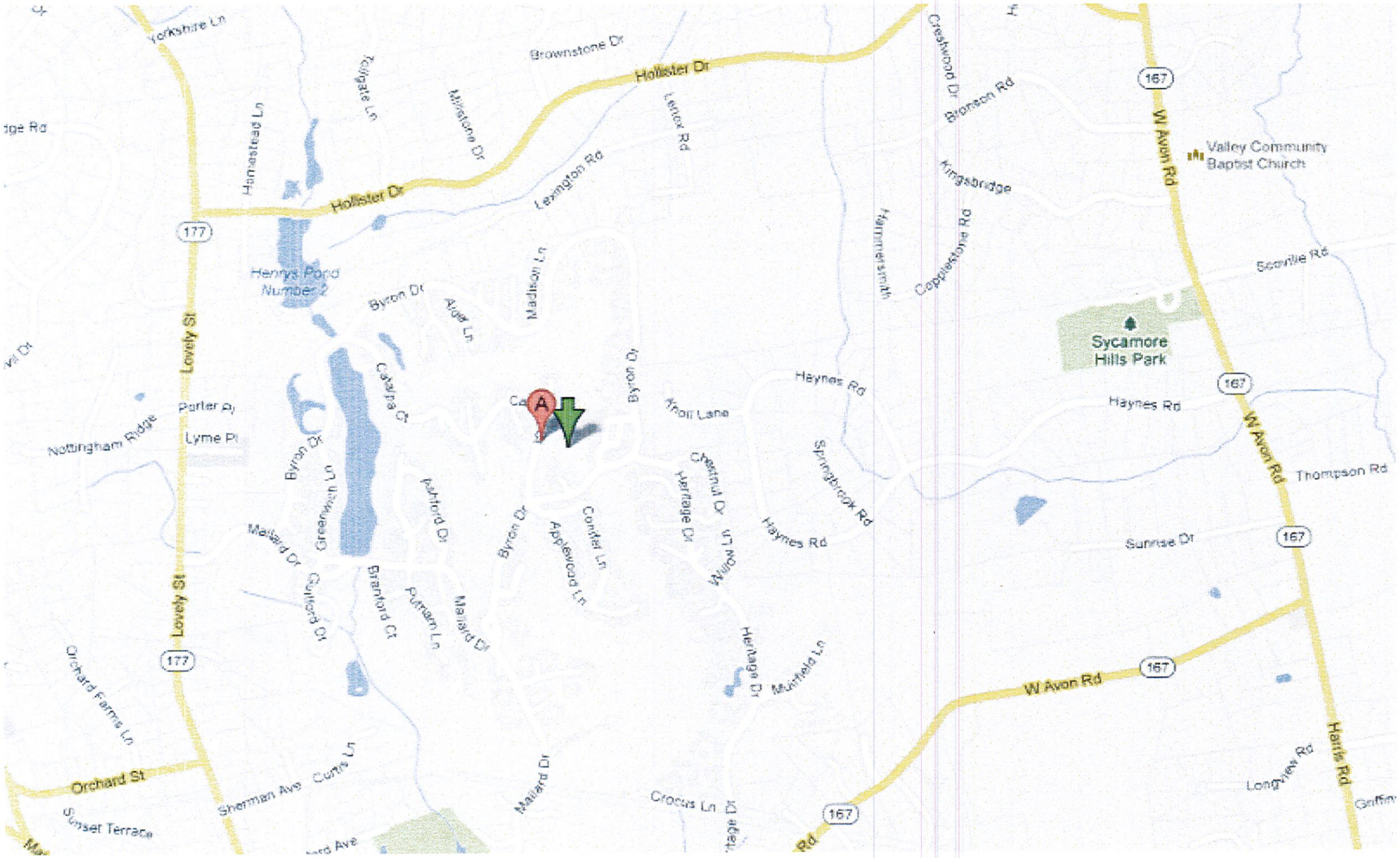
Enclosure
Honorable Robert Stein, Chairmen of the Connecticut Siting Council

CT5289 – AVON – 10 Redwood Lane, Avon, 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

Calculated Radio Frequency Emissions

at&t

CT5289

(Avon South West)

10 Redwood Lane, Avon, CT 06001

July 11, 2012

Table of Contents

List of Tables

List of Figures

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 10 Redwood Ln in Avon, CT. The coordinates of the tower are 41-46-20.04 N, 72-52-48.32 W.

AT&T is proposing the following modifications:

1) Install three 700 MHz LTE antennas (one per sector).

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 (mW/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:

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

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^2)	Limit	%MPE
Cingular GSM	*98*	*1900*	*2*	*464*	*0.0347*	*1.0000*	*3.47%*
Cingular UMTS	*98*	*880*	*1*	*500*	*0.0187*	*0.5867*	*3.19%*
Pocket	77	2130	3	631	0.1148	1.0000	11.48%
T-Mobile GSM	106	1945	8	134	0.0343	1.0000	3.43%
T-Mobile UMTS	106	2100	2	758	0.0485	1.0000	4.85%
Clearwire	91	2496	2	153	0.0133	1.0000	1.33%
Clearwire	91	11000	1	211	0.0092	1.0000	0.92%
Sprint	90	1962.5	11	122	0.0596	1.0000	5.96%
Farm. Woods	115.5	155	2	400	0.0216	0.2000	10.78%
AT&T UMTS	97	880	2	565	0.0043	0.5867	0.74%
AT&T UMTS	97	1900	2	1077	0.0082	1.0000	0.82%
AT&T LTE	97	734	1	1313	0.0050	0.4893	1.03%
AT&T GSM	97	880	1	283	0.0011	0.5867	0.18%
AT&T GSM	97	1900	4	646	0.0099	1.0000	0.99%
						Total	**42.50%**

Table 1: Carrier Information[1] [2] [3]

[1] The existing CSC filing for Cingular 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.

[2] 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 to present a worse-case scenario.

[3] Antenna height listed for AT&T is in reference to the FDH Engineering, Inc Structural Analysis Report dated July 3, 2012.

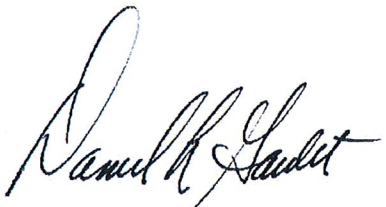
5. Conclusion

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 **42.5% 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 11, 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[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	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[5]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	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)

[4] 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

[5] 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

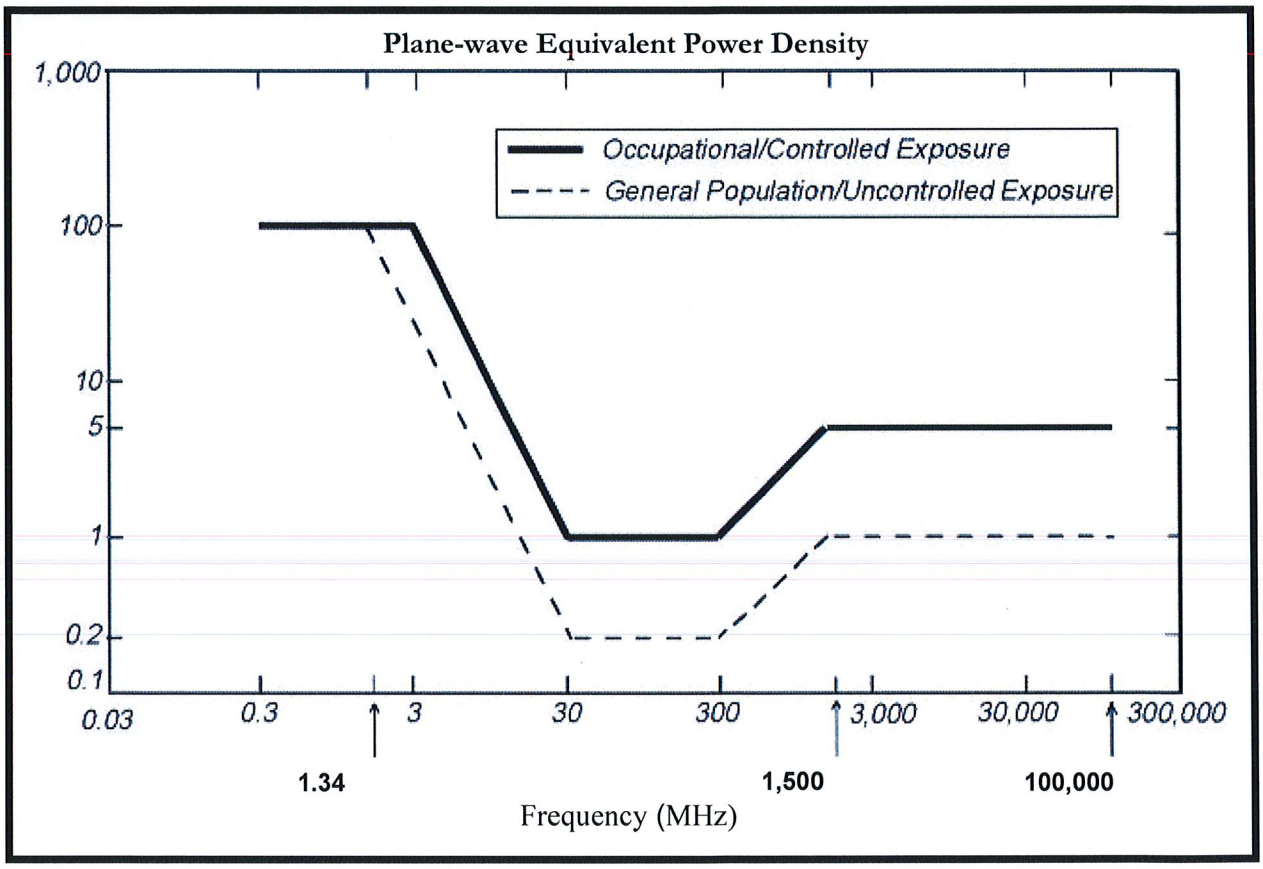
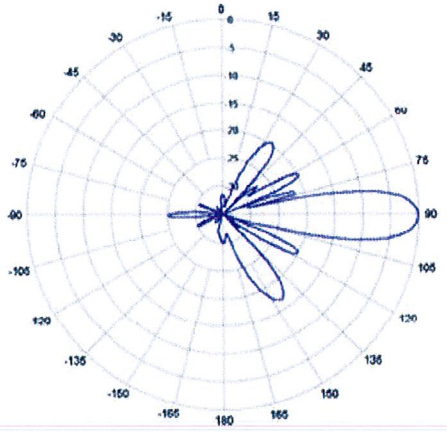


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

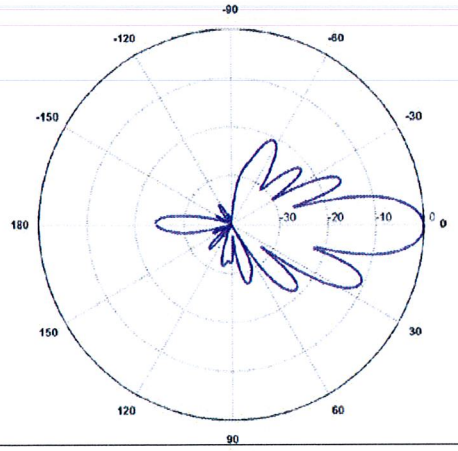
700 MHz

Manufacturer:	KMW Communications
Model #:	AM-X-CD-16-65
Frequency Band:	698-894 MHz
Gain:	11.9 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	65°
Polarization:	Dual Slant ± 45°
Size L x W x D:	54.0" x 12.6" x 7.87"



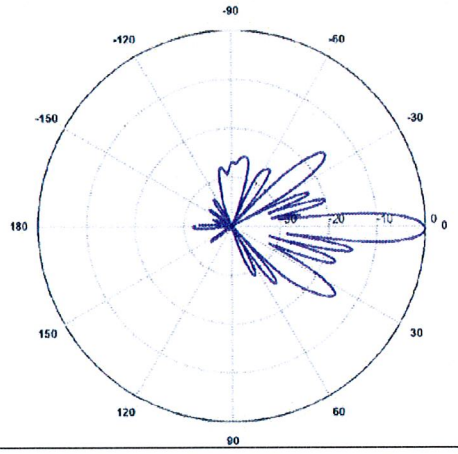
850 MHz

Manufacturer:	Kathrein-Scala
Model #:	80010121
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	14.5°
Horizontal Beamwidth:	86°
Polarization:	±45°
Size L x W x D:	54.5" x 10.3" x 5.9"



1900 MHz

Manufacturer:	Kathrein-Scala
Model #:	80010121
Frequency Band:	1850-1990 MHz
Gain:	14.3 dBd
Vertical Beamwidth:	6.6°
Horizontal Beamwidth:	85°
Polarization:	±45°
Size L x W x D:	54.5" x 10.3" x 5.9"



FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012, Fax 919.755.1031

Structural Analysis for SBA Network Services, Inc.

105 ft Monopole

Site Name: Avon
Site ID: CT01498-S
AT&T Site Name: Avon South West
AT&T Site ID: CT5289

FDH Project Number 12-06919E S1

Analysis Results

Tower Components	96.8%	Sufficient
Foundation	56.1%	Sufficient

Prepared By:

Michael Brennan, 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 3, 2012

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Avon, 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, TIA/EIA-222-F and 2005 Connecticut State Building Code*. Information pertaining to the existing/proposed antenna loading, current tower geometry, and member sizes was obtained from:

- Pirod, Inc. (Eng. File No. A-117586) original design drawings dated September 26, 2000
- SBA Network Services Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standard and *2005 Connecticut State Building Code* is 100 mph without ice and 50 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the current and proposed antennas from AT&T at 97 ft and 98 ft., the tower meets the requirements of the *TIA/EIA-222-F* standard and *2005 Connecticut State Building Code* provided the **Recommendations** below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Pirod Eng. File No. A-117586), 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.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standard *and 2005 Connecticut State Building Code* are met with the existing and proposed loading in place, we have the following recommendations:

1. Proposed coax should be installed inside the monopole's shaft unless otherwise noted.
2. Proposed TMAs should be installed directly behind the proposed panel antennas.

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 Elevation (ft)	Description	Coax and Lines [1]	Carrier	Mount Elevation (ft)	Mount Type
116	(1) 20' Omni	(1) 7/8"	Farmington Woods	106	(1) Low Profile Platform
106	(3) EMS RR901702DP w/ Mount Pipe (3) RFS APX16PV-16PVL-C w/ Mount Pipe (6) Allen FE15501P77-75 TMAs (6) Andrew ETW200VA12UB TMAs	(12) 1-5/8"	T-Mobile		
97	(9) Allgon 7250 w/ Mount Pipe (3) Powerwave 7770 panels w/ Mount Pipe (6) Powerwave LGP 21401 TMAs	(12) 1-5/8"	AT&T	97	(1) Low Profile Platform
91	(3) Andrew VHLP2.5 Dishes (3) Samsung RRU Radios (3) Horizon DUO Radio	(12) 1-5/8" (6) 5/16" (3) 1/2"	Clearwire/ Sprint	87	(1) Low Profile Platform
87	(9) Decibel DB980H90E-XY w/ Mount Pipe (3) Kathrein 840-10054 w/ Mount Pipe				
77[2]	(6) Kathrein 742-213 w/ Mount Pipe	(6) 1-5/8"	Pocket	77	(1) Low Profile Platform (assumed)
75	(1) GPS	(1) 1/2"	Sprint	75	Standoff

1 The existing coax is located inside the pole's shaft, unless otherwise noted.
2 The coax for Pocket is installed outside the monopole shaft in a single row.

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
97	(3) KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe (3) Kathrein 800-10121 w/ Mount Pipe (6) KMW AM-X-CD-16-65-00T-RET w/ Mount Pipe (6) Powerwave LGP 21401 TMAs (6) Kathrein 860-10035 RETs (6) Kathrein 782-10250 Diplexers	(12) 1-5/8" (1) 3" (1) 10mm Fiber	AT&T	97	(1) Low Profile Platform
98	(6) Ericsson RRUS-11 RRUs (1) Raycap DC2-48-60-18-8F Surge Arrestor			98	(3) Standoff Arms

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	42 ksi
Base Plate	36 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 100% 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	105 - 80	Pole	P36x3/8	19.2	Pass
		Flange Bolts	(28) 1" ø Bolts on a 39" BC	15.7	Pass
		Flange Plate	1.25" thick	20.7	Pass
L2	80 - 60	Pole	P42x3/8	35.9	Pass
		Flange Bolts	(32) 1" ø Bolts on a 45" BC	30.5	Pass
		Flange Plate	1.25" thick	39.0	Pass
L3	60 - 40	Pole	P48x3/8	47.3	Pass
		Flange Bolts	(36) 1" ø Bolts on a 51" BC	40.6	Pass
		Flange Plate	1.25" thick	51.3	Pass
L4	40 - 20	Pole	P54x3/8	55.2	Pass
		Flange Bolts	(48) 1" ø Bolts on a 57" BC	39.5	Pass
		Flange Plate	1.25" thick	59.8	Pass
L5	20 - 0	Pole	P60x3/8	61.0	Pass
		Anchor Bolts	(48) 1" Bolts on a 63" BC	42.6	Pass
		Base Plate	1" thick x 66.125" round	96.8	Pass

Table 4 – Maximum Base Reactions

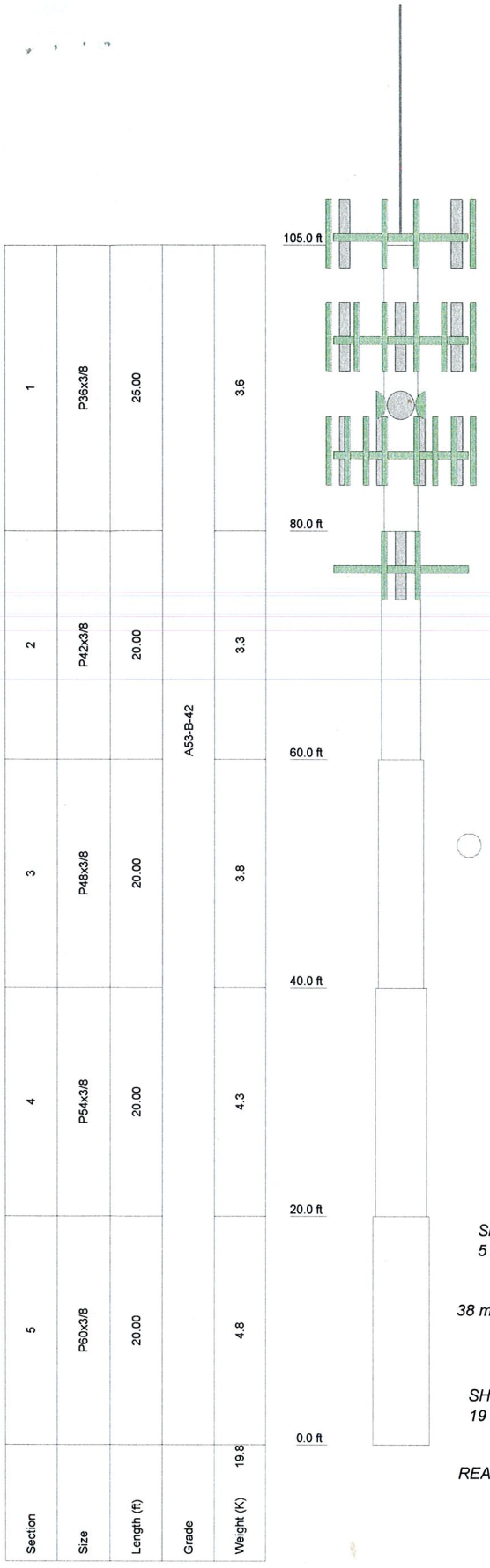
Base Reactions	Current Analysis *((TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial	32 k	41 k
Shear	19 k	31 k
Moment	1,433 k-ft	2,555 k-ft

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.



Section	Size	Length (ft)	Grade	Weight (K)
1	P36x3/8	25.00	A53-B-42	3.6
2	P42x3/8	20.00		3.3
3	P48x3/8	20.00		3.8
4	P54x3/8	20.00		4.3
5	P60x3/8	20.00		4.8
				19.8

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' Omni (Farmintgon Woods)	106	(2) TMA - Powerwave LGP21401 (ATT)	97
RR90-17-02DP w/Mount Pipe (T-Mobile)	106	(2) TMA - Powerwave LGP21401 (ATT)	97
RR90-17-02DP w/Mount Pipe (T-Mobile)	106	(2) 860 10025 (ATT)	97
RR90-17-02DP w/Mount Pipe (T-Mobile)	106	(2) 860 10025 (ATT)	97
RFS APX16PV-16PVL w/ Mount Pipe (T-Mobile)	106	(2) 860 10025 (ATT)	97
RFS APX16PV-16PVL w/ Mount Pipe (T-Mobile)	106	(2) 782 10250 Combiner (ATT)	97
RFS APX16PV-16PVL w/ Mount Pipe (T-Mobile)	106	(2) 782 10250 Combiner (ATT)	97
(2) Allen FE15501P77-75 TMA (T-Mobile)	106	(2) 782 10250 Combiner (ATT)	97
(2) Allen FE15501P77-75 TMA (T-Mobile)	106	Low Profile Platform (ATT)	97
(2) Allen FE15501P77-75 TMA (T-Mobile)	106	Samsung RRU (Clearwire/Sprint)	91
(2) ETW200VA12UB TMA (T-Mobile)	106	Samsung RRU (Clearwire/Sprint)	91
(2) ETW200VA12UB TMA (T-Mobile)	106	Dragonwave Horizon Duo ODU (Clearwire/Sprint)	91
(2) ETW200VA12UB TMA (T-Mobile)	106	Dragonwave Horizon Duo ODU (Clearwire/Sprint)	91
Low Profile Platform (T-Mobile)	106	Dragonwave Horizon Duo ODU (Clearwire/Sprint)	91
(2) RRUS-11 (ATT)	98	Samsung RRU (Clearwire/Sprint)	91
(2) RRUS-11 (ATT)	98	VHLP2.5 (Clearwire/Sprint)	91
(2) RRUS-11 (ATT)	98	VHLP2.5 (Clearwire/Sprint)	91
DC6-48-60-18-8F Surge Arrestor (ATT)	98	VHLP2.5 (Clearwire/Sprint)	91
(3) Standoffs (ATT)	98	Kathrein 840-10054 w/ Mount Pipe (Clearwire/Sprint)	87
AM-X-CD-16-65-00T w/ Mount Pipe (ATT)	97	(3) DB980H90E-XY w/Mount Pipe (Clearwire/Sprint)	87
AM-X-CD-16-65-00T w/ Mount Pipe (ATT)	97	(3) DB980H90E-XY w/Mount Pipe (Clearwire/Sprint)	87
AM-X-CD-16-65-00T w/ Mount Pipe (ATT)	97	(3) DB980H90E-XY w/Mount Pipe (Clearwire/Sprint)	87
800 10121 w/ Mount Pipe (ATT)	97	Low Profile Platform (Clearwire/Sprint)	87
800 10121 w/ Mount Pipe (ATT)	97	Kathrein 840-10054 w/ Mount Pipe (Clearwire/Sprint)	87
800 10121 w/ Mount Pipe (ATT)	97	Kathrein 840-10054 w/ Mount Pipe (Clearwire/Sprint)	87
(2) AM-X-CD-16-65-00T w/ Mount Pipe (ATT)	97	(2) Kathrein 742-213 w/ Mount Pipe (Pocket)	77
(2) AM-X-CD-16-65-00T w/ Mount Pipe (ATT)	97	(2) Kathrein 742-213 w/ Mount Pipe (Pocket)	77
(2) AM-X-CD-16-65-00T w/ Mount Pipe (ATT)	97	(2) Kathrein 742-213 w/ Mount Pipe (Pocket)	77
(2) TMA - Powerwave LGP21401 (ATT)	97	Low Profile Platform (Pocket)	77
		Side Mount Standoff (1) (Sprint)	75
		GPS (Sprint)	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 61.0%

FDH Engineering, Inc.
6521 Meridien Dr.
Raleigh, NC 27616
Phone: (919) 755-1012
FAX: (919) 755-1031

Job:	***Avon, CT01498-S***
Project:	***12-06919E S1***
Client: SBA Network Services, Inc	Drawn by: Michael Brennan — App'd:
Code: TIA/EIA-222-F	Date: 07/03/12 — Scale: NTS
Path: C:\Users\FDH User\Desktop\Avon, CT\Analysis\Avon, CT01498-S.eri	Dwg No. E-1

PROJECT INFORMATION

SCOPE OF WORK:	UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS
SITE ADDRESS:	10 REDWOOD LANE AVON, CT 06001
LATITUDE:	41.772200 N 41° 46' 19.9" N
LONGITUDE:	72.880000 W 72° 52' 48" W
JURISDICTION:	NATIONAL, STATE & LOCAL CODES OR ORDINANCES
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

at&t

SITE NUMBER: CT5289
SITE NAME: AVON SOUTH WEST

DRAWING INDEX

DRAWING INDEX		REV
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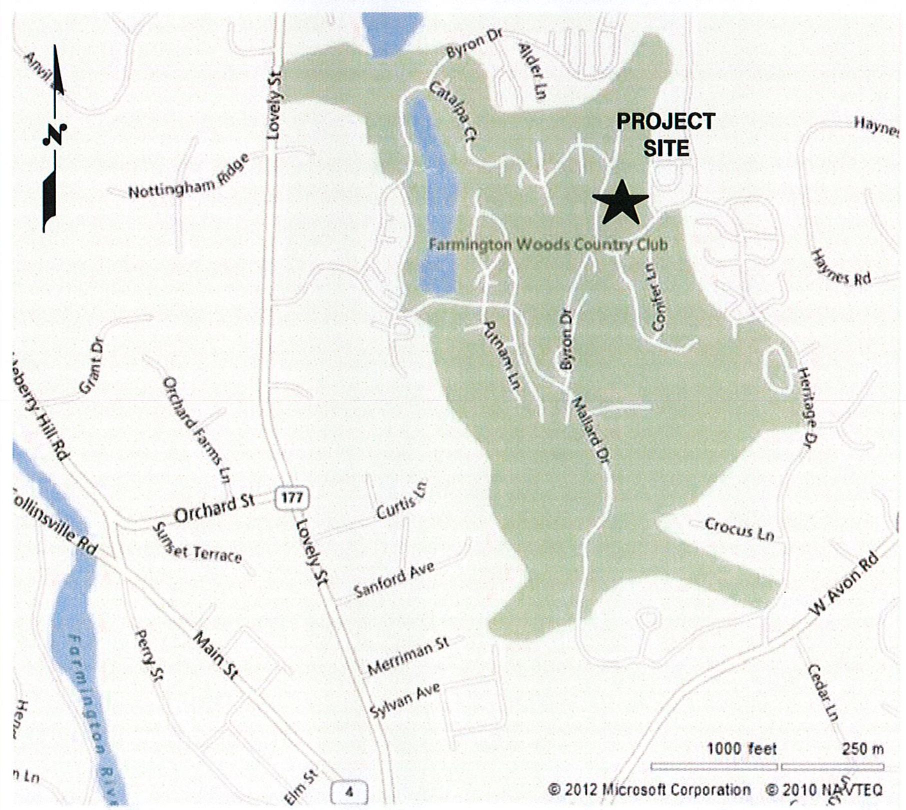
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	ANTENNA LAYOUT PLAN & ELEVATION	1
A-3	DETAILS	1
G-1	PLUMBING DIAGRAM & GROUNDING DETAILS	1

VICINITY MAP

DIRECTIONS:
START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.3 MI. TURN LEFT ONTO WEST ST. 0.3 MI. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. IF YOU REACH CORPORATE PL YOU'VE GONE A LITTLE TOO FAR 1.7 MI. MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN. 11.1 MI. MERGE ONTO I-84 W/US-6 W VIA EXIT 32 ON THE LEFT TOWARD WATERBURY/CT-4. 1.2 MI. MERGE ONTO CT-4 W/FARMINGTON AVE VIA EXIT 39 TOWARD FARMINGTON. 5.6 MI 8. TURN RIGHT ONTO W AVON RD/CT-167. W AVON RD IS 0.2 MILES PAST WALNUT ST. 0.5 MI. TAKE THE 2ND LEFT ONTO MALLARD DR. MALLARD DR IS 0.4 MILES PAST COTTAGE ST. IF YOU REACH CEDAR LN YOU'VE GONE A LITTLE TOO FAR. 0.06 MI. TURN RIGHT ONTO HERITAGE DR. 0.7 MI. TURN LEFT ONTO BYRON DR. 0.06 MI. TAKE THE 1ST RIGHT ONTO REDWOOD LN. 0.01 MI. 10 REDWOOD LN.



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.

CALL

BEFORE YOU DIG

CALL TOLL FREE 800-922-4455

UNDERGROUND SERVICE ALERT

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HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	03/09/12	ISSUED FOR REVIEW	NB	DC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: NB

STATE OF CONNECTICUT · DANIEL P. HAMM · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5289.01	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) LIGHTING 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-OF-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 HAVING 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

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – NEXLINK
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

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.

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.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

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.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

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.

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.

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.

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.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

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.

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.

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

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.

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.

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.

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 & 2009 CT AMENDMENTS
ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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.

ABBREVIATIONS

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'D	REQUIRED		

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

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

SITE NUMBER: CT5289
SITE NAME: AVON SOUTH WEST
10 REDWOOD LANE
AVON, CT 06001
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/10/12	ISSUED FOR CONSTRUCTION	HC	DPH	
0	03/09/12	ISSUED FOR REVIEW	NB	DPH	

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: NB

STATE OF CONNECTICUT · DANIEL P. HAMM · LICENSED PROFESSIONAL ENGINEER · No. 24178

AT&T

GENERAL NOTES (LTE)

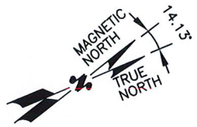
JOB NUMBER	DRAWING NUMBER	REV
5289.01	GN-1	1

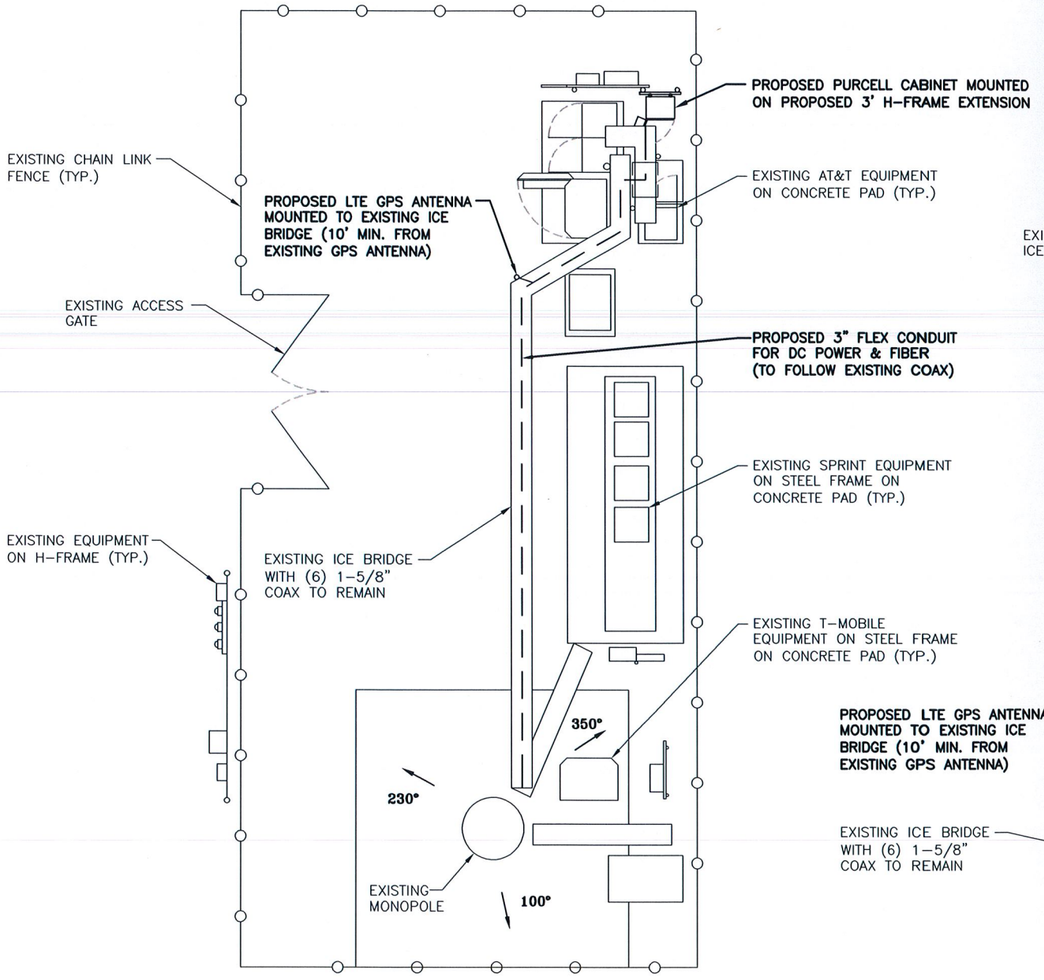
NOTE:

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.

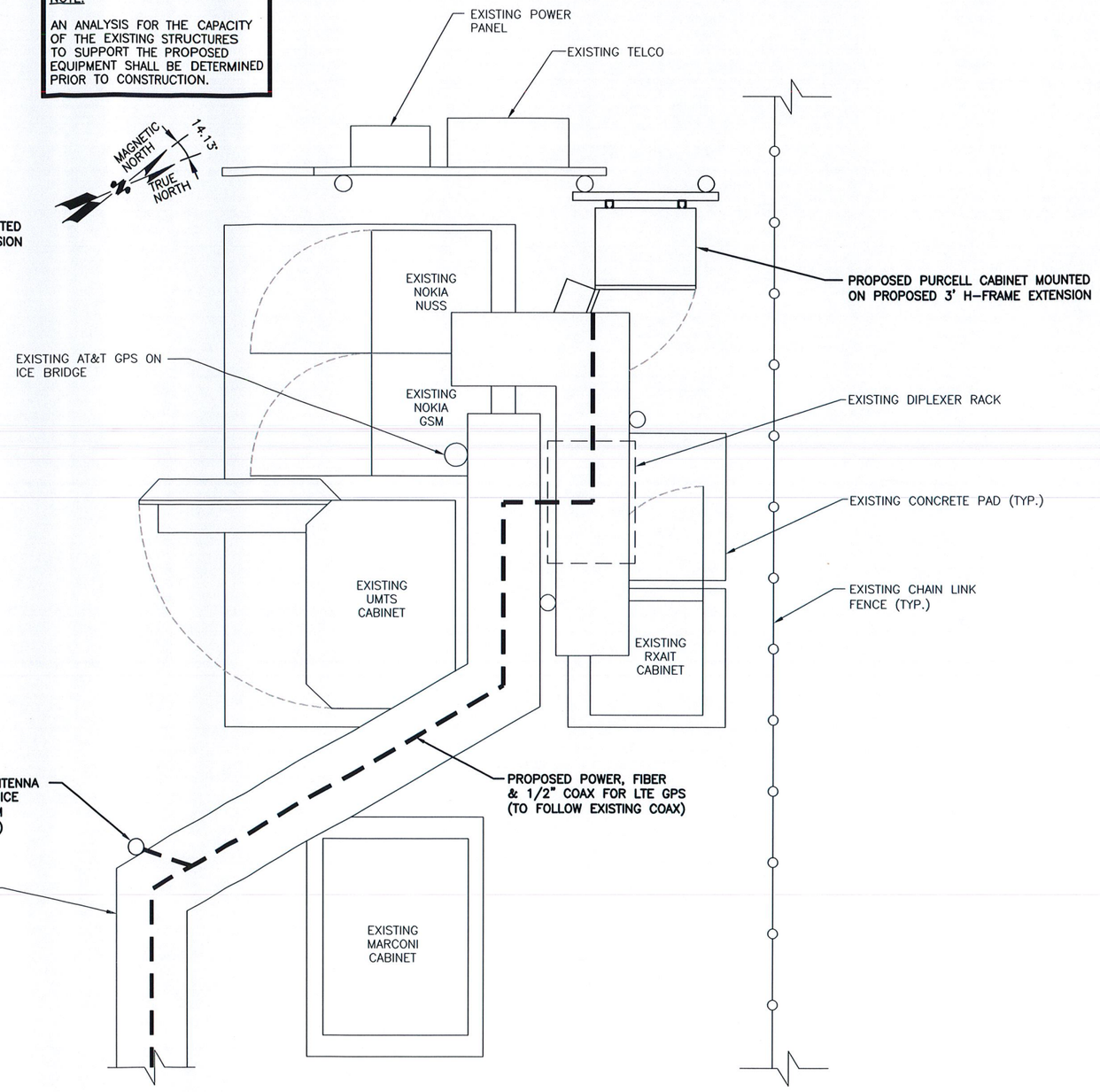




COMPOUND PLAN

SCALE: 3/16"=1'-0"

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



EQUIPMENT PLAN

SCALE: 3/4"=1'-0"

0 0'-8" 1'-4" 2'-8" 4'-0"

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BUILDING 20 NORTH, SUITE 2-101
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0	03/09/12	ISSUED FOR REVIEW	NB	DC	DPH

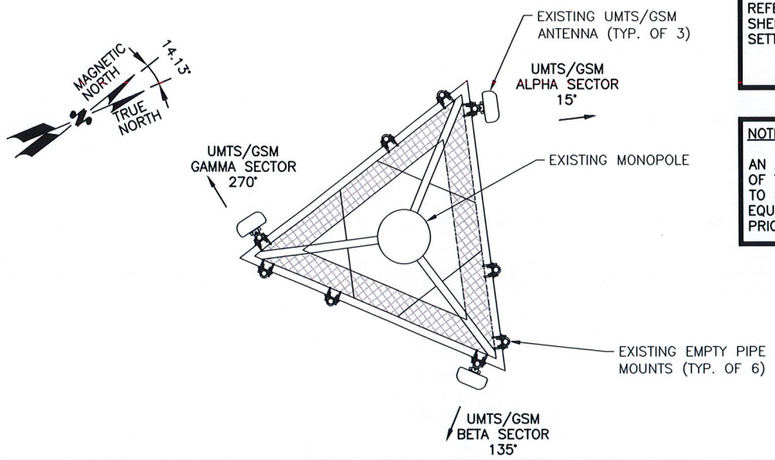
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: NB

STATE OF CONNECTION
DANIEL P. HARMA
NO. 24173
LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5289.01	A-1	1



EXISTING UMTS/GSM ANTENNA PLAN

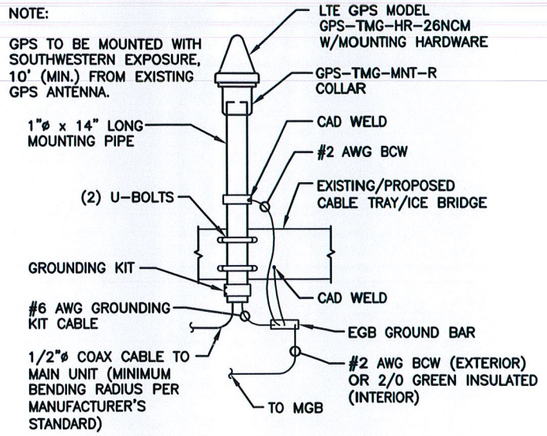
SCALE: N.T.S.

NOTE:

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

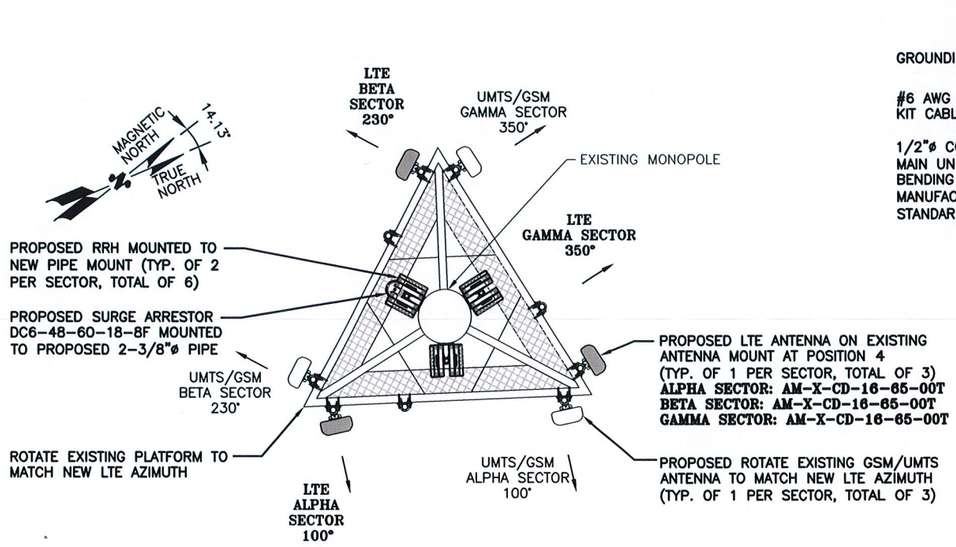
NOTE:

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



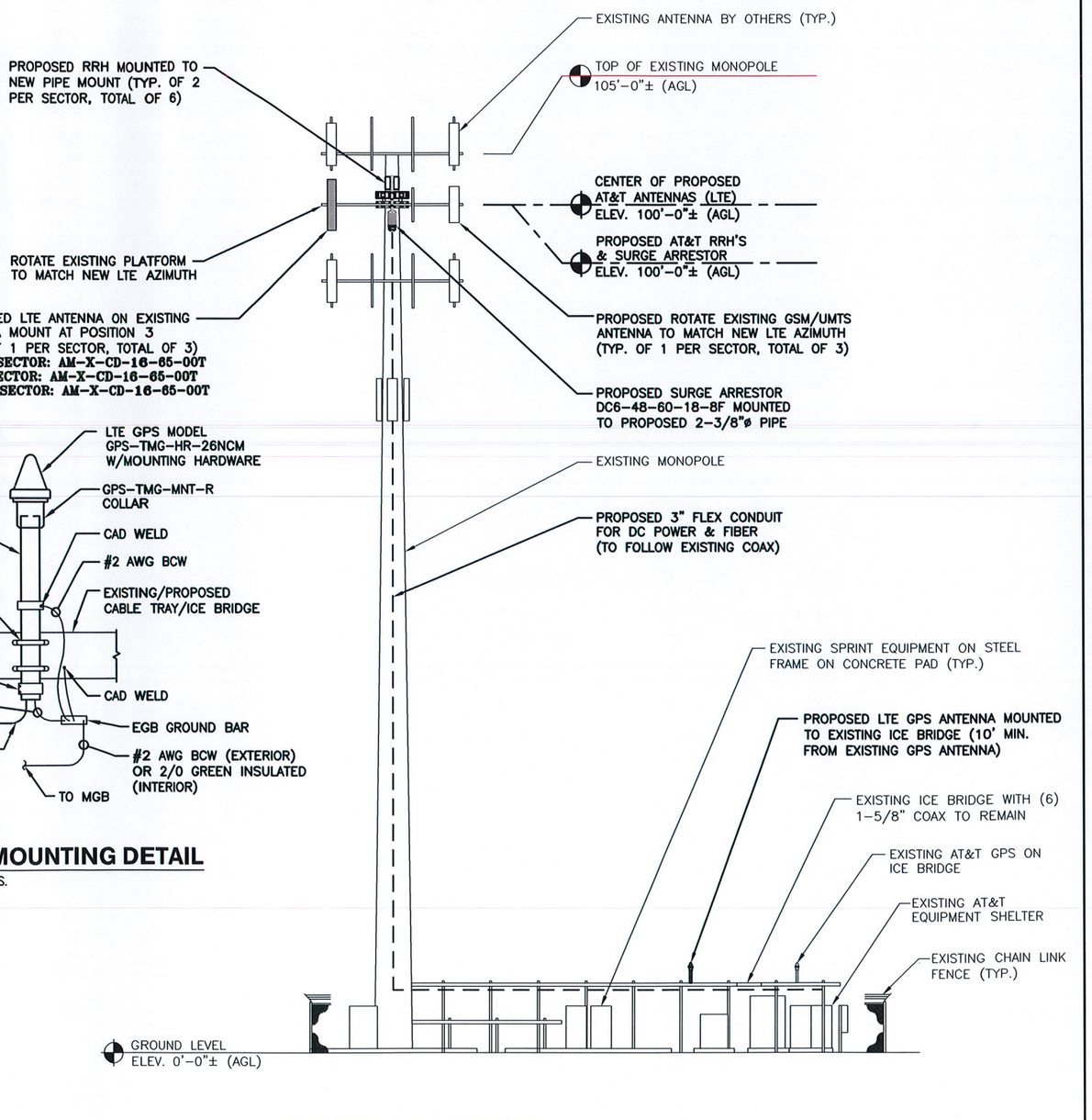
GPS MOUNTING DETAIL

SCALE: N.T.S.



PROPOSED LTE ANTENNA PLAN

SCALE: N.T.S.



NORTHEAST ELEVATION

SCALE: 1/8"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"

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WINDSOR, CT 06095

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SITE NAME: AVON SOUTH WEST
10 REDWOOD LANE
AVON, CT 06001
HARTFORD COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/10/12	ISSUED FOR CONSTRUCTION	HC	DG	DRH
0	03/09/12	ISSUED FOR REVIEW	NB	DG	DRH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: NB

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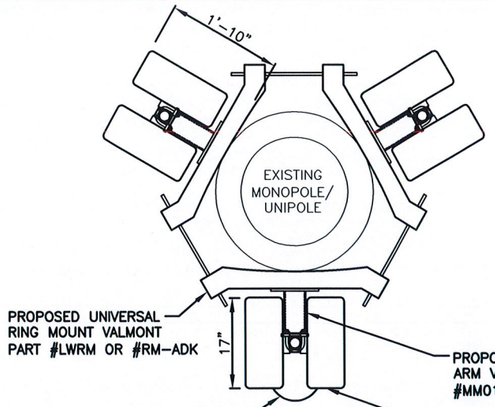
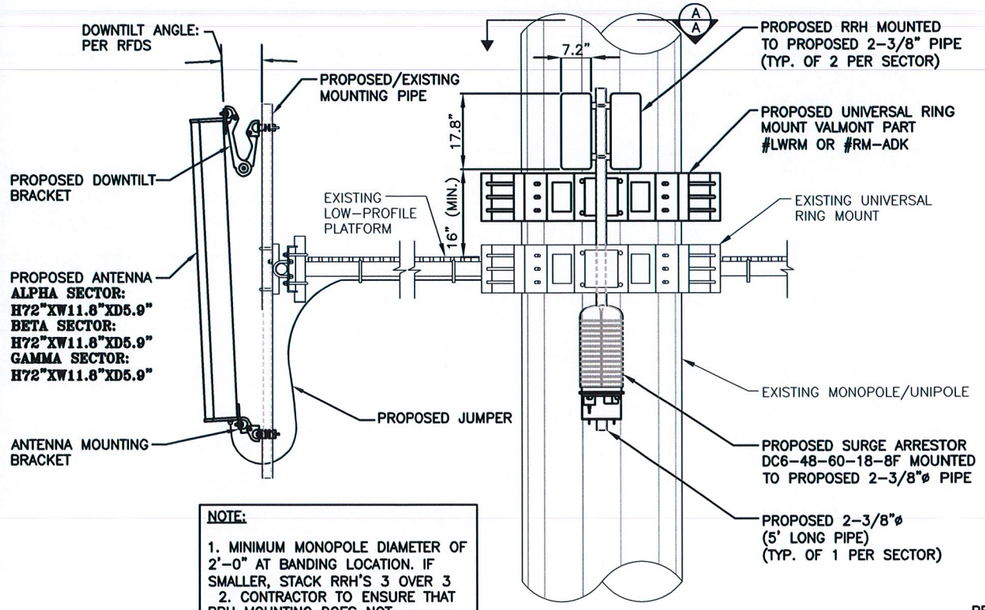
ANTENNA LAYOUT PLAN & ELEVATION (LTE)

JOB NUMBER	DRAWING NUMBER	REV
15289.01	A-2	1



SECTION A-A



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

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

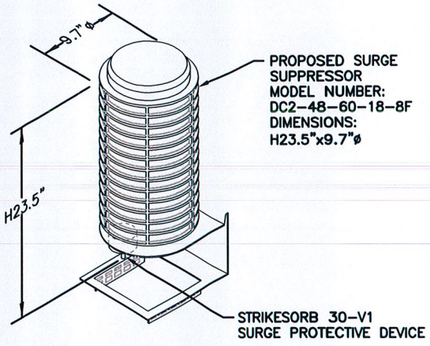
NOTES:
1. REFER TO RFDS & SECTOR SCHEMATICS FOR ANTENNA MODEL, TYPE & QUANTITY REQUIRED PER SECTOR

PROPOSED RRH & SURGE ARRESTOR MOUNTING DETAIL

SCALE: N.T.S.

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

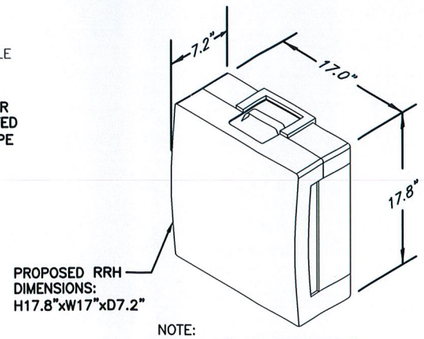
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

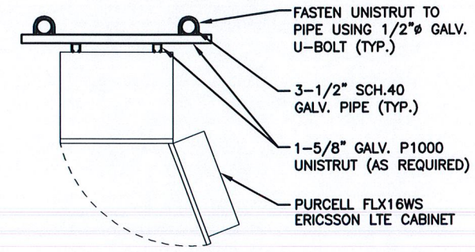
SCALE: N.T.S.

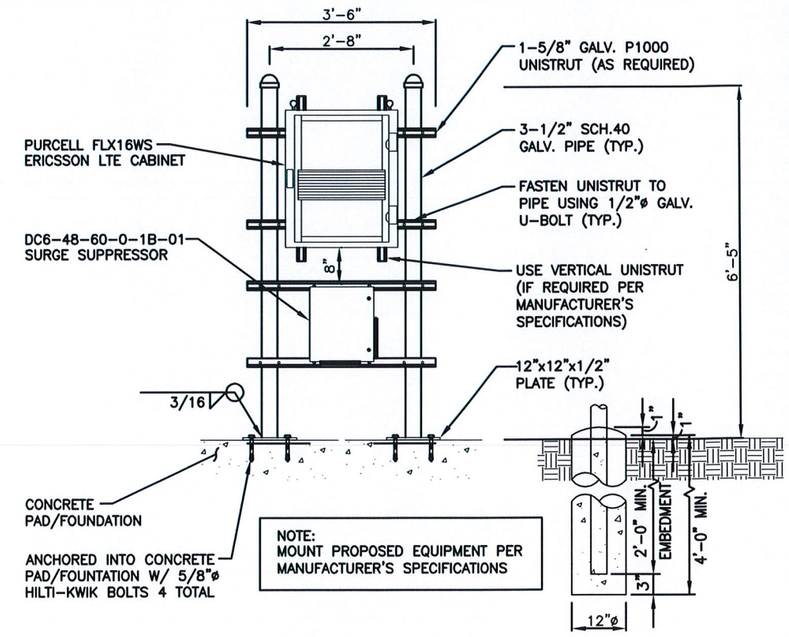


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRH DETAIL

SCALE: N.T.S.





NOTE:
MOUNT PROPOSED EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS

PROPOSED EQUIPMENT MOUNTING DETAIL

SCALE: N.T.S.

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0	03/09/12	ISSUED FOR REVIEW	NB	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: NB

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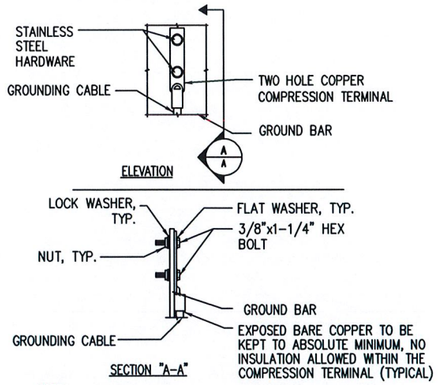
DETAILS (LTE)

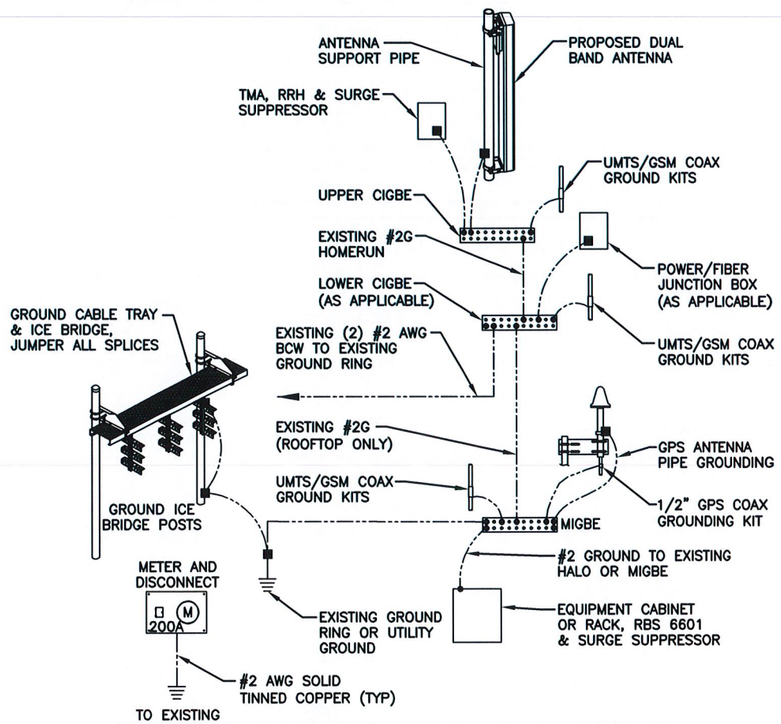
JOB NUMBER	DRAWING NUMBER	REV
15289.01	A-3	1



NOTE:
1. "DOUBLING UP" OR "STACKING " OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

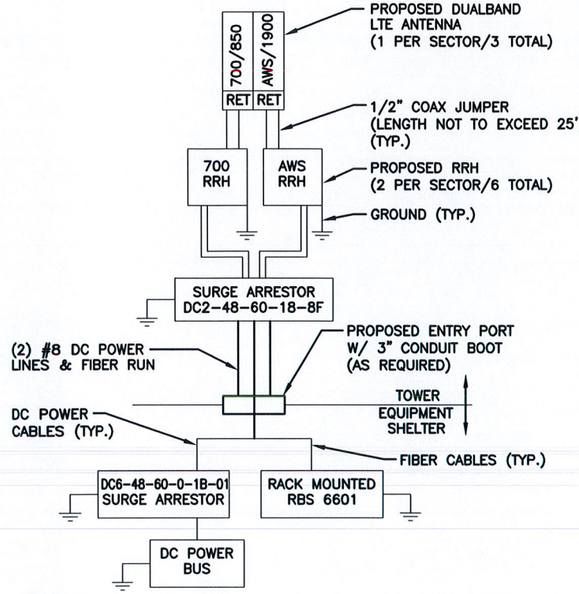
TYPICAL GROUND BAR CONNECTION DETAIL

2 — N.T.S.



GROUNDING RISER DIAGRAM

1 — N.T.S.



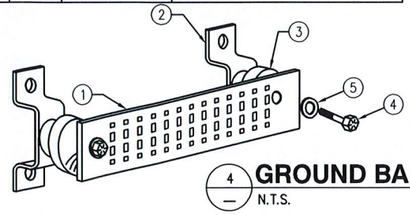
NOTES:

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

PLUMBING DIAGRAM

3 — N.T.S.

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



GROUND BAR - DETAIL

4 — 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)

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LICENSED PROFESSIONAL ENGINEER

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PLUMBING DIAGRAM & GROUNDING DETAILS (LTE)

JOB NUMBER	DRAWING NUMBER	REV
5289.01	G-1	1