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

November 2, 2012

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

RE: **EM-CING-141-121011** – New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 720 Quinebaug Road, Thompson, 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:

- 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 October 11, 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 Larry Groh, First Selectman, Town of Thompson
John E. Mahon, Jr., Zoning Enforcement Officer, Town of Thompson

EM-CING-141-121011

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

October 11, 2012

Town of Thompson
815 Riverside Drive
North Grosvenordale, CT 06255

Re: Notice of Exempt Modification – Existing Telecommunications Facility at 720 Quinebaug Road, Thompson, CT 06262

Dear Lawrence K. Groh, Jr. – First Selectman of Thompson

New Cingular Wireless PCS, LLC ("AT&T") intends to add telecommunications antennas and associated equipment at an existing telecommunications tower, owned and operated by AT&T Towers, 5405 Windward Parkway, #1291B, Alpharetta, GA 30004.

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 Thompson 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 AT&T's 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, Real Estate Consultant for AT&T, 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

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

October 11, 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 Telecommunications Facility at 720 Quinebaug Road, Thompson, CT 06262

Dear Chairman Stein and Members of the Council:

New Cingular Wireless PCS, LLC ("AT&T") intends to modify their existing telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower located at 720 Quinebaug Road in Thompson, CT. AT&T operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Windham 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 First Selectman of Thompson, Lawrence K. Groh, Jr.

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 Thompson facility is located at 120 Quinebaug Road on the south side of Route 131 and Route 197. Site coordinates (NAD83) are N42° 01' 22.2" and W71° 56' 57.2".

The facility is owned by AT&T Towers, 5405 Windward Parkway, #1291B, Alpharetta, GA 30004.

The existing facility consists of a 130' monopole tower with an existing chain link fence around the tower compound. AT&T currently operates wireless communications equipment at the facility and has six antennas mounted on the tower at a centerline of 130'.

Statutory Considerations

The changes to the Thompson 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).

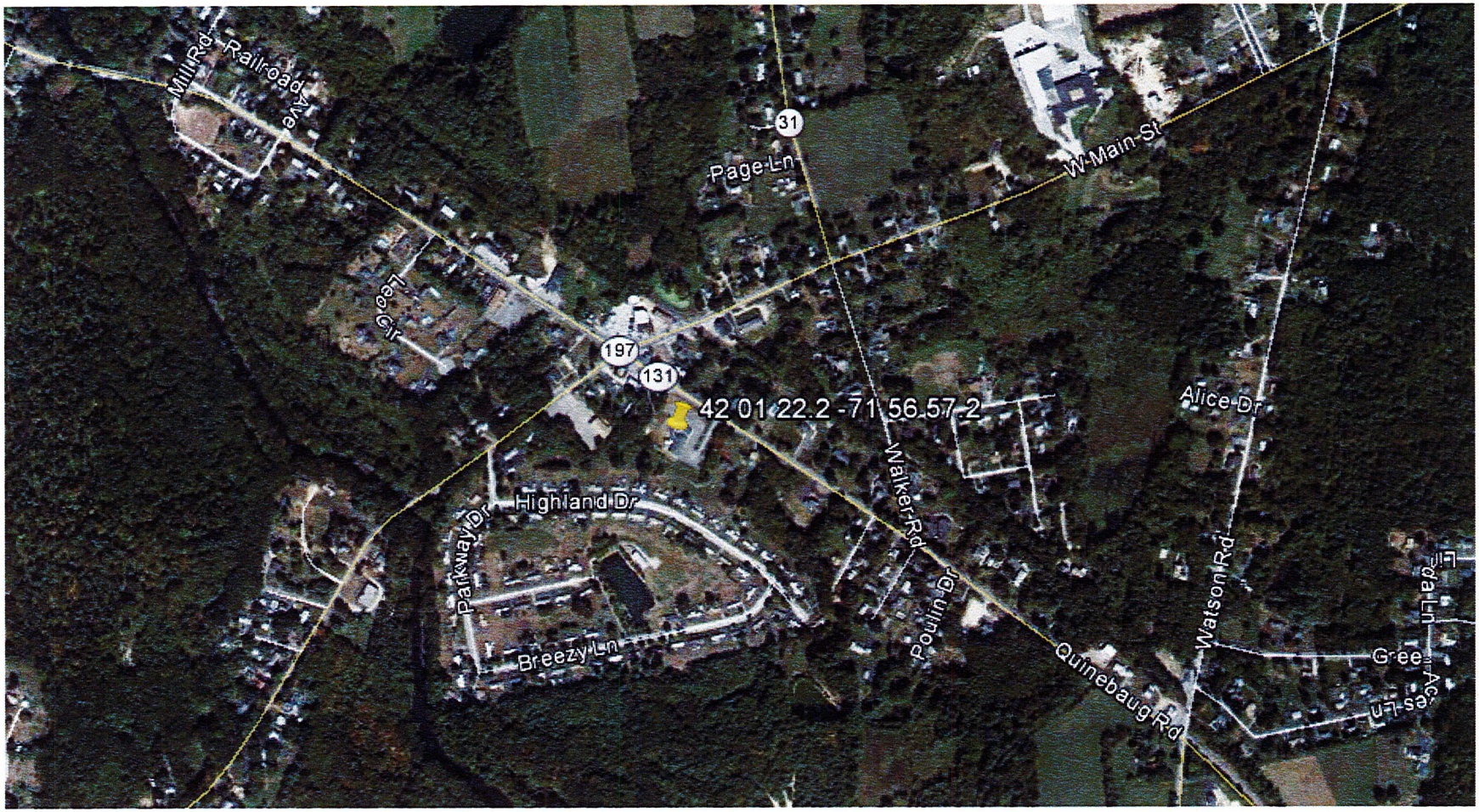
Respectfully yours,

Peter LaMontagne
Real Estate Consultant

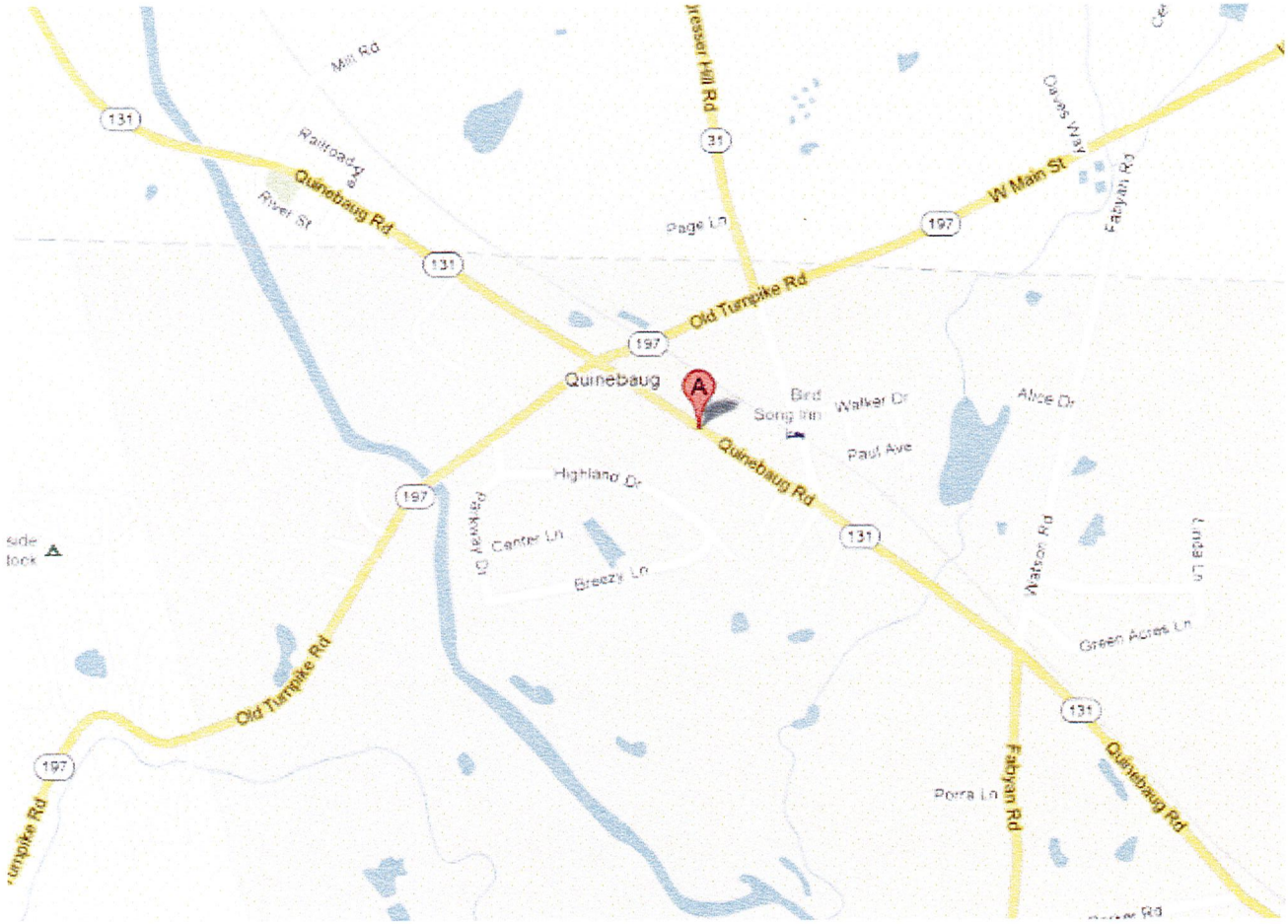
Enclosures: Lawrence K. Groh, Jr. – First Selectman of Thompson

CT1088 / Thompson / 720 Quinebaug Road, Thompson, CT 06262

Aerial Location Map



Street Location Map



C Squared Systems, LLC
65 Dartmouth Drive, Unit A3
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Calculated Radio Frequency Emissions

CT1088

(Thompson Quinebaug Road)

720 Quinebaug Road, Thompson, CT 06262

October 10, 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 720 Quinebaug Road in Thompson, CT. The coordinates of the tower are 42° 1' 22.2" N, 71° 56' 57.2" W.

AT&T is proposing the following modifications:

1) Install three multi-band (750/850/1900/2100 MHz) antennas for their LTE network (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 patterns 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	*130*	*880*	*6*	*296*	*0.0378*	*0.5867*	*6.44%*
Cingular	*130*	*1930*	*3*	*427*	*0.0273*	*1.0000*	*2.73%*
Quinebaug FD	133	155	1	100	0.0020	0.2000	1.02%
Quinebaug FD	90	465	1	100	0.0044	0.3100	1.43%
Quinebaug FD	70	33.9	1	100	0.0073	0.2000	3.67%
Verizon cellular	120	869	9	268	0.0602	0.5793	10.40%
Verizon PCS	120	1970	11	267	0.0733	1.0000	7.33%
Verizon AWS	120	2145	1	665	0.0166	1.0000	1.66%
Verizon LTE	120	698	1	872	0.0218	0.4653	4.68%
AT&T UMTS	130	880	2	565	0.0024	0.5867	0.41%
AT&T UMTS	130	1900	2	875	0.0037	1.0000	0.37%
AT&T LTE	130	734	1	1771	0.0038	0.4893	0.77%
AT&T GSM	130	880	1	283	0.0006	0.5867	0.10%
AT&T GSM	130	1900	4	525	0.0045	1.0000	0.45%
						Total	**32.29%**

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 7/26/2012. 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 Hudson Design Group Structural Analysis dated October 8, 2012.

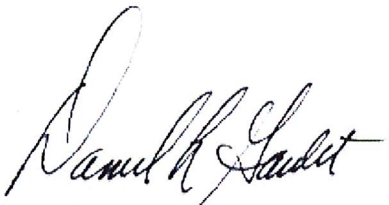
5. Conclusion

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 **32.29% 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

October 10, 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.

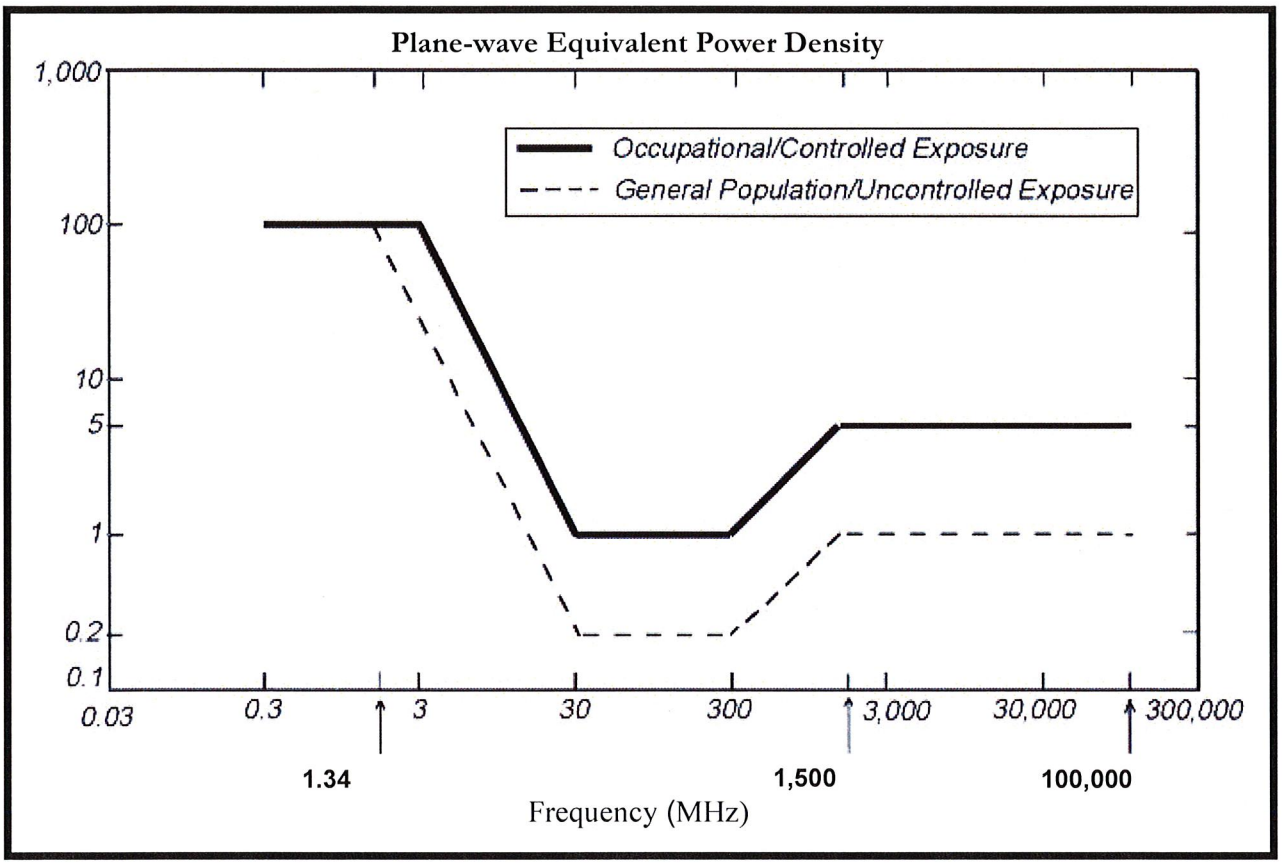
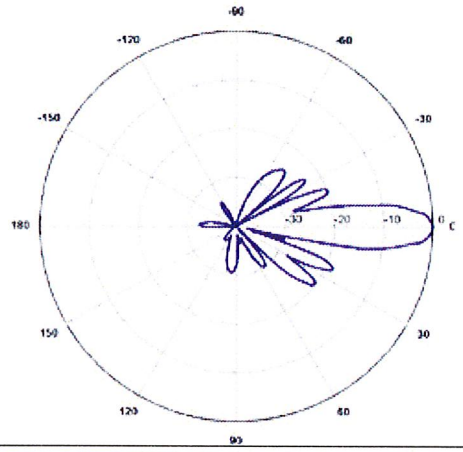


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

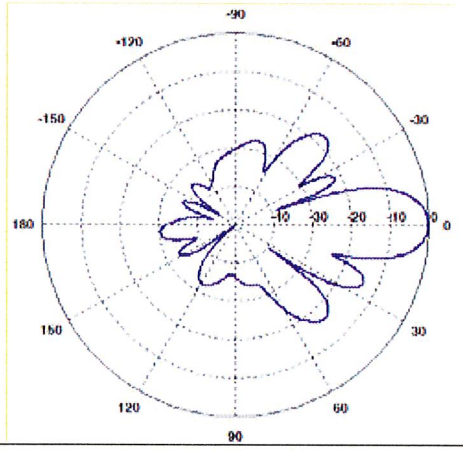
700 MHz

Manufacturer:	KMW
Model #:	AM-X-CD-17-65-00T-RET
Frequency Band:	698-806 MHz
Gain:	14.7 dBd
Vertical Beamwidth:	10°
Horizontal Beamwidth:	66°
Polarization:	Dual Slant ± 45°
Size L x W x D:	96.0" x 11.8" x 6.0"



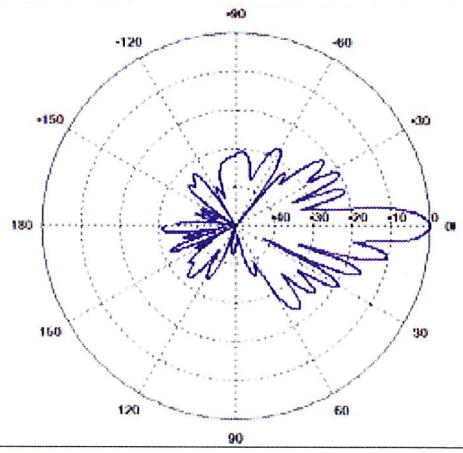
850 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	824-896 MHz
Gain:	11.5 dBd
Vertical Beamwidth:	15°
Horizontal Beamwidth:	82°
Polarization:	Dual Linear ± 45°
Size L x W x D:	55" x 11.0" x 5.0"



1900 MHz

Manufacturer:	Powerwave
Model #:	7770.00
Frequency Band:	1850-1990 MHz
Gain:	13.4 dBd
Vertical Beamwidth:	7°
Horizontal Beamwidth:	86°
Polarization:	± 45°
Size L x W x D:	55" x 11.0" x 5.0"



STRUCTURAL ANALYSIS REPORT

For

CT1088
THOMPSON QUINEBAUG ROAD

720 QUINEBAUG ROAD
THOMPSON, CT 06262

Antennas Mounted to the Monopole

Prepared for:

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

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

Dated: October 8, 2012

Prepared by:

Hudson Design Group LLC

STATE OF CONNECTICUT
GI KAI WANG
No. 28220
LICENSED PROFESSIONAL ENGINEER
Gi Kai Wang 10/9/12

1600 Osgood Street Building 20 North, Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
www.hudsondesigngroupllc.com

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the 130' monopole supporting the proposed AT&T antennas located at elevation 130' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's existing and proposed antennas listed below.

Record drawings of the existing monopole prepared by Valmont dated January 31, 2006 were available and obtained for our use. Also used for reference was an existing structural analysis report prepared by Centek Engineering dated March 7, 2012.

These offices conducted an on-site visual survey on May 30, 2012 to record data and prepare photos from the ground. Attendees included Pierre Gagnon (HDG – Sr. Field Technician).

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole, base plate and foundation **are in conformance** with the ANSI/TIA-222-F Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at **97.8%** - (Pole (L3) EL. 0' to EL. 39.417' - Controlling).

Hudson Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	4- Bay Dipole	130'	Low Profile Platform
	20' x 3" Whip	130'	Low Profile Platform
	8.2' x 1.5" Whip	130'	Low Profile Platform
	8' x ¾" Lightning Rod	130'	Low Profile Platform
AT&T	(6) Powerwave 7770 Antennas	130'	Low Profile Platform
AT&T	(6) LGP 21400 TMA	130'	Low Profile Platform
AT&T	(6) LGP 1900	130'	Low Profile Platform
AT&T	***(1) KMW AM-X-CD-17-65-00T***	130'	Low Profile Platform
AT&T	***(1) Kathrein 80010764***	130'	Low Profile Platform
AT&T	***(1) Kathrein 80010766***	130'	Low Profile Platform
AT&T	***(6) RRHs***	129'	Ring Mount
AT&T	***Surge Arrestor DC6-48-60-18-8F***	129'	Ring Mount
	(6) LPA 80080-6CF Antennas	120'	Low Profile Platform
	(6) Antel 80090-6CF Antennas	120'	Low Profile Platform

Proposed AT&T Appurtenances shown in Bold.

AT&T EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
AT&T	(12) 1 5/8" Cables	130'	Inside Monopole
AT&T	***Fiber Cable***	130'	Inside Monopole
AT&T	***(2) DC Power Cables***	130'	Inside Monopole

Proposed AT&T Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	90.4 %	85.5 – 130	PASS	
Pole Section-L2	86.4 %	39.42 – 85.5	PASS	
Pole Section-L3	**97.8 %**	**0.0 – 39.42**	**PASS**	**Controlling**
Base Plate	87.8 %	Base Plate	PASS	

FOUNDATION ANALYSIS; COMPARE ACTUAL AND ALLOWABLE LOADING:

	Actual	Allowable	Results
Moment	24,312 in-k	< 27,532 in-k	O.K.
Shear	22.7 k	< 23.57 k	O.K.
Axial	21.8 k	< 23.30 k	O.K.

Allowable Loads based on original Valmont foundation design reactions

DESIGN CRITERIA:

1. Connecticut State Building Code

2. EIA/TIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   City/Town: Thompson
   County: Windham
   Wind Load: 85 mph (fastest mile)
   105 mph (3 second gust)
   Nominal Ice Thickness: 1/2 inch

3. Approximate height above grade to proposed antennas: 130'

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.

2. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

3. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

Hudson Design Group LLC

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas be mounted on the existing steel platform supported by the monopole; the proposed RRHs and surge arrestor be mounted on the proposed mount pipes.

Reference HDG's Latest Construction Drawings for all component and connection requirements (attached).

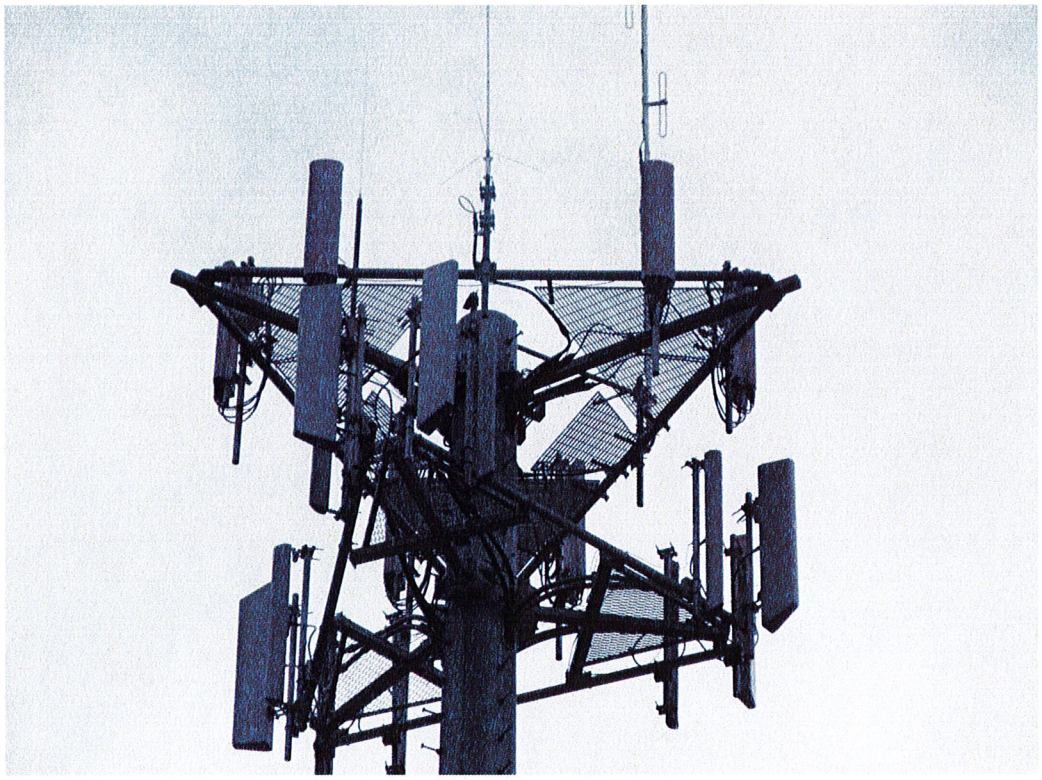
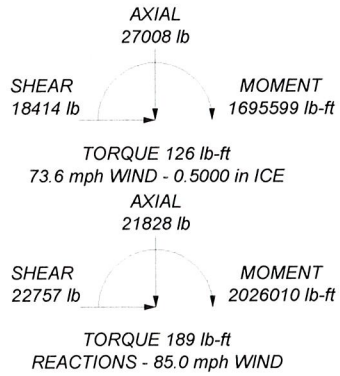


Photo 1: Photo illustrating the monopole with Appurtenances shown.

Hudson Design Group LLC

CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	44.50	12	0.1880	4.50	19.9400	29.7300		2259.3
2	50.58	12	0.2810	5.58	28.3640	39.3900	A572-65	5232.3
3	45.00	12	0.3130		37.6110	47.6000		6527.0
								14018.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
14' Low Profile Platform	130	(2) Powerwave LGP1900 (ATT - existing)	130
4-Bay Dipole	130	ATT-KMW AM-X-CD-17-65-00T (ATT - proposed)	130
20' x 3" Whip	130	Kathrein 80010764 (ATT - proposed)	130
8.5' x 1.5" Whip	130	Kathrein 80010766 (ATT - proposed)	130
Lightning Rod 8' x 3/4"	130	(2) ATT - RRUS 11 (ATT - proposed)	129
(2) ATT Powerwave 7770 (ATT Existing)	130	(2) ATT - RRUS 11 (ATT - proposed)	129
(2) ATT Powerwave 7770 (ATT Existing)	130	(2) ATT - RRUS 11 (ATT - proposed)	129
(2) ATT Powerwave 7770 (ATT Existing)	130	ATT (Surge Suppressor)-DC-48-60-18-8F (ATT - proposed)	129
(2) Powerwave TMA LGP2140X (ATT - existing)	130	Ring Mount (ATT - proposed)	129
(2) Powerwave TMA LGP2140X (ATT - existing)	130	14' Low Profile Platform (Verizon)	120
(2) Powerwave TMA LGP2140X (ATT - existing)	130	(2) LPA - 80080-6CF	120
(2) Powerwave LGP1900 (ATT - existing)	130	(2) LPA - 80080-6CF	120
(2) Powerwave LGP1900 (ATT - existing)	130	(2) LPA - 80080-6CF	120
		(2) Antel 80090-6CF	120
		(2) Antel 80090-6CF	120
		(2) Antel 80090-6CF	120

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for a 85.0 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 73.6 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50.0 mph wind.
5. TOWER RATING: 97.8%

Hudson Design Group LLC
1600 Osgood Street, Bldg. 20N Suite 2-101
North Andover, MA 01845
Consulting Engineers and Planners
Phone: (978) 557-5553
FAX: (978) 945-5958

Job: ***CT 1088 Thompson CT***		
Project: ***130 FT Monopole***		
Client: AT&T	Drawn by: Michael Cabral	App'd:
Code: TIA/EIA-222-F	Date: 10/09/12	Scale: NTS
Path: R:\STRUCTURAL DEPT\Analysis Software\TnxTower\Tnx Projects\AT&T\CT\CT 1088 - MP\CT 1088.eri		Dwg No. E-1

tnxTower	Job: CT 1088 Thompson CT	Page: 1 of 10
Hudson Design Group LLC 1600 Osgood Street, Bldg. 20N Suite 2-101 North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 945-5958	Project: 130 FT Monopole	Date: 10:08:38 10/09/12
	Client: AT&T	Designed by: Michael Cabral

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Windham County, Connecticut.
Basic wind speed of 85.0 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56.0 pcf.
A wind speed of 73.6 mph is used in combination with ice.
Temperature drop of 50.0 °F.
Deflections calculated using a wind speed of 50.0 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	130.00-85.50	44.50	4.50	12	19.9400	29.7300	0.1880	0.7500	A572-65 (65 ksi)
L2	85.50-39.42	50.58	5.58	12	28.3640	39.3900	0.2810	1.1250	A572-65 (65 ksi)
L3	39.42-0.00	45.00		12	37.6110	47.6000	0.3130	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	20.6434	11.9571	595.4330	7.0712	10.3289	57.6472	1206.5087	5.8849	4.8412	25.751
	30.7788	17.8835	1992.1377	10.5760	15.4001	129.3584	4036.6111	8.8017	7.4649	39.707
L2	30.3801	25.4101	2557.8710	10.0537	14.6926	174.0930	5182.9402	12.5061	6.8485	24.372
	40.7795	35.3866	6908.4127	14.0010	20.4040	338.5810	13998.3172	17.4162	9.8034	34.888
L3	40.2208	37.5912	6674.8841	13.3527	19.4825	342.6090	13525.1248	18.5012	9.2420	29.527
	49.2791	47.6587	13602.2717	16.9287	24.6568	551.6641	27561.8903	23.4562	11.9190	38.08

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 130.00-85.50				1	1	1		
L2 85.50-39.42				1	1	1		
L3 39.42-0.00				1	1	1		

Monopole Base Plate Data

Base Plate Data	
Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	12
Embedment length	60.0000 in
f'_c	4.0 ksi
Grout space	3.2500 in
Base plate grade	A572-60
Base plate thickness	2.2500 in
Bolt circle diameter	55.0300 in
Outer diameter	59.0000 in
Inner diameter	47.7500 in
Base plate type	Plain Plate

Feed Line/Linear Appurtenances - Entered As Area

Description	*Face or Leg*	*Allow Shield*	*Component Type*	*Placement* *ft*	*Total Number*		C_AA_A *ft²/ft*	*Weight* *plf*
7/8	A	No	Inside Pole	130.00 - 7.00	3	No Ice	0.00	0.54
(Town - Existing)						1/2" Ice	0.00	0.54
1 5/8	A	No	Inside Pole	130.00 - 7.00	12	No Ice	0.00	1.04
(AT&T - Existing)						1/2" Ice	0.00	1.04
1 5/8	A	No	Inside Pole	120.00 - 7.00	12	No Ice	0.00	1.04
(Verizon - Existing)						1/2" Ice	0.00	1.04
**********								
ATT 8 AWG 2 Power Cable	C	No	Inside Pole	130.00 - 7.00	2	No Ice	0.00	0.31
(AT&T - proposed)						1/2" Ice	0.00	0.31
ATT Fiber	C	No	Inside Pole	130.00 - 7.00	1	No Ice	0.00	0.10
(AT&T - proposed)						1/2" Ice	0.00	0.10

Feed Line/Linear Appurtenances Section Areas

Tower Section	*Tower Elevation* *ft*	*Face*	A_R *ft²*	A_F *ft²*	C_AA_A *In Face* *ft²*	C_AA_A *Out Face* *ft²*	*Weight* *lb*
L1	130.00-85.50	A	0.000	0.000	0.000	0.000	1058.01
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	31.59
L2	85.50-39.42	A	0.000	0.000	0.000	0.000	1224.89
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	32.72
L3	39.42-0.00	A	0.000	0.000	0.000	0.000	861.64
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	23.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	130.00-85.50	A	0.500	0.000	0.000	0.000	0.000	1058.01
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	31.59
L2	85.50-39.42	A	0.500	0.000	0.000	0.000	0.000	1224.89
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	32.72
L3	39.42-0.00	A	0.500	0.000	0.000	0.000	0.000	861.64
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	23.02

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	130.00-85.50	0.0000	0.0000	0.0000	0.0000
L2	85.50-39.42	0.0000	0.0000	0.0000	0.0000
L3	39.42-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
14' Low Profile Platform	A	None		0.0000	130.00	No Ice	17.30	17.30	1500.00
						1/2" Ice	22.10	22.10	2030.00
4-Bay Dipole	A	From Face	3.50 0.00 10.00	0.0000	130.00	No Ice 1/2" Ice	0.40 0.81	0.40 0.81	32.00 35.77
20' x 3" Whip	B	From Face	3.50 0.00 10.00	0.0000	130.00	No Ice 1/2" Ice	6.00 8.03	6.00 8.03	10.00 53.17
8.5' x 1.5" Whip	C	From Face	3.50 0.00 5.00	0.0000	130.00	No Ice 1/2" Ice	1.27 2.15	1.27 2.15	2.00 12.54
Lightning Rod 8' x 3/4"	C	From Face	3.50 0.00 4.00	0.0000	130.00	No Ice 1/2" Ice	0.60 1.41	0.60 1.41	14.00 20.19
(2) ATT Powerwave 7770 (AT&T Existing)	A	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	58.25 102.14
(2) ATT Powerwave 7770 (AT&T Existing)	B	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	5.98 6.44	4.12 4.77	58.25 102.14
(2) ATT Powerwave 7770	C	From Face	3.50	0.0000	130.00	No Ice	5.98	4.12	58.25

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(AT&T Existing)			0.00 0.00			1/2" Ice	6.44	4.77	102.14
**********									
(2) Powerwave TMA LGP2140X (AT&T - existing)	A	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	1.28 1.45	0.59 0.81	24.87 35.15
(2) Powerwave TMA LGP2140X (AT&T - existing)	B	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	1.28 1.45	0.59 0.81	24.87 35.15
(2) Powerwave TMA LGP2140X (AT&T - existing)	C	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	1.28 1.45	0.59 0.81	24.87 35.15
(2) Powerwave LGP1900 (AT&T - existing)	A	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	0.63 0.74	0.41 0.57	13.04 19.46
(2) Powerwave LGP1900 (AT&T - existing)	B	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	0.63 0.74	0.41 0.57	13.04 19.46
(2) Powerwave LGP1900 (AT&T - existing)	C	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	0.63 0.74	0.41 0.57	13.04 19.46
**********									
ATT-KMW AM-X-CD-17-65-00T (AT&T - proposed)	A	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	11.31 11.93	8.62 10.03	89.20 168.11
Kathrein 80010764 (AT&T - proposed)	B	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	6.31 6.75	3.37 3.72	42.00 78.41
Kathrein 80010766 (AT&T - proposed)	C	From Face	3.50 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	11.31 11.93	6.80 7.38	62.00 123.39
(2) ATT - RRUS 11 (AT&T - proposed)	A	From Face	1.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice	3.03 3.29	1.59 1.89	62.30 86.25
(2) ATT - RRUS 11 (AT&T - proposed)	B	From Face	1.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice	3.03 3.29	1.59 1.89	62.30 86.25
(2) ATT - RRUS 11 (AT&T - proposed)	C	From Face	1.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice	3.03 3.29	1.59 1.89	62.30 86.25
ATT (Surge Suppressor)- DC-48-60-18-8F (AT&T - proposed)	A	From Face	1.00 0.00 0.00	0.0000	129.00	No Ice 1/2" Ice	1.61 1.93	1.61 1.93	27.30 47.05
Ring Mount (AT&T - proposed)	A	None		0.0000	129.00	No Ice 1/2" Ice	1.40 2.40	1.40 2.40	90.00 130.00
**********									
14' Low Profile Platform (Verizon)	A	None		0.0000	120.00	No Ice 1/2" Ice	17.30 22.10	17.30 22.10	1500.00 2030.00
(2) LPA - 80080-6CF	A	From Leg	3.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.32 4.76	9.10 9.65	23.00 71.26
(2) LPA - 80080-6CF	B	From Leg	3.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.32 4.76	9.10 9.65	23.00 71.26
(2) LPA - 80080-6CF	C	From Leg	3.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.32 4.76	9.10 9.65	23.00 71.26

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(2) Antel 80090-6CF	A	From Leg	3.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.32 4.76	6.56 7.02	20.00 58.72
(2) Antel 80090-6CF	B	From Leg	3.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.32 4.76	6.56 7.02	20.00 58.72
(2) Antel 80090-6CF	C	From Leg	3.50 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.32 4.76	6.56 7.02	20.00 58.72
**********									

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service

Comb. No.	Description
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	15	27007.95	-16.98	18413.50
	Max. H_x	11	21827.66	22678.45	-4.95
	Max. H_z	2	21827.66	-4.95	22757.01
	Max. M_x	2	2026010.03	-4.95	22757.01
	Max. M_z	5	2015118.34	-22678.45	4.95
	Max. Torsion	4	186.92	-19642.58	11382.79
	Min. Vert	1	21827.66	0.00	0.00
	Min. H_x	5	21827.66	-22678.45	4.95
	Min. H_z	8	21827.66	4.95	-22757.01
	Min. M_x	8	-2025878.91	4.95	-22757.01
	Min. M_z	11	-2015756.78	22678.45	-4.95
	Min. Torsion	10	-189.39	19642.58	-11382.79

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	21827.66	0.00	0.00	-62.36	303.04	0.00
Dead+Wind 0 deg - No Ice	21827.66	4.95	-22757.01	-2026010.03	-342.67	-59.17
Dead+Wind 30 deg - No Ice	21827.66	11343.51	-19710.62	-1754925.07	-1007960.34	-141.60
Dead+Wind 60 deg - No Ice	21827.66	19642.58	-11382.79	-1013625.98	-1745425.23	-186.92
Dead+Wind 90 deg - No Ice	21827.66	22678.45	-4.95	-728.41	-2015118.34	-183.05
Dead+Wind 120 deg - No Ice	21827.66	19637.64	11374.22	1012348.49	-1744764.04	-130.23
Dead+Wind 150 deg - No Ice	21827.66	11334.94	19705.67	1754134.00	-1006811.90	-41.76
Dead+Wind 180 deg - No Ice	21827.66	-4.95	22757.01	2025878.91	984.73	58.83
Dead+Wind 210 deg - No Ice	21827.66	-11343.51	19710.62	1754792.79	1008600.73	143.77
Dead+Wind 240 deg - No Ice	21827.66	-19642.58	11382.79	1013494.57	1746063.80	189.39
Dead+Wind 270 deg - No Ice	21827.66	-22678.45	4.95	599.02	2015756.78	183.38
Dead+Wind 300 deg - No Ice	21827.66	-19637.64	-11374.22	-1012476.72	1745404.15	128.08
Dead+Wind 330 deg - No Ice	21827.66	-11334.94	-19705.67	-1754263.09	1007453.83	39.24
Dead+Ice+Temp	27007.95	0.00	0.00	-93.56	346.14	0.00
Dead+Wind 0 deg+Ice+Temp	27007.95	16.98	-18413.50	-1695597.50	-1931.74	12.39
Dead+Wind 30 deg+Ice+Temp	27007.95	9185.30	-15955.05	-1469599.64	-844458.08	-50.34
Dead+Wind 60 deg+Ice+Temp	27007.95	15892.43	-9221.45	-849854.93	-1460622.76	-100.26
Dead+Wind 90 deg+Ice+Temp	27007.95	18341.19	-16.98	-2408.07	-1685318.63	-124.37
Dead+Wind 120 deg+Ice+Temp	27007.95	15875.45	9192.05	845661.85	-1458323.05	-115.61
Dead+Wind 150 deg+Ice+Temp	27007.95	9155.89	15938.07	1467099.01	-840465.43	-75.30
Dead+Wind 180 deg+Ice+Temp	27007.95	-16.98	18413.50	1695395.68	2683.64	-13.67
Dead+Wind 210 deg+Ice+Temp	27007.95	-9185.30	15955.05	1469396.29	845208.40	52.08
Dead+Wind 240 deg+Ice+Temp	27007.95	-15892.43	9221.45	849652.16	1461370.99	103.20
Dead+Wind 270 deg+Ice+Temp	27007.95	-18341.19	16.98	2207.41	1686066.34	125.63
Dead+Wind 300 deg+Ice+Temp	27007.95	-15875.45	-9192.05	-845860.98	1459072.33	113.93
Dead+Wind 330 deg+Ice+Temp	27007.95	-9155.89	-15938.07	-1467298.72	841216.80	72.27
Dead+Wind 0 deg - Service	21827.66	1.71	-7874.40	-701913.19	91.65	-20.63
Dead+Wind 30 deg - Service	21827.66	3925.09	-6820.28	-607998.85	-348974.58	-49.73
Dead+Wind 60 deg - Service	21827.66	6796.74	-3938.68	-351189.41	-604447.81	-65.62

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 90 deg - Service	21827.66	7847.21	-1.71	-296.05	-697873.58	-64.04
Dead+Wind 120 deg - Service	21827.66	6795.03	3935.72	350658.97	-604217.83	-45.31
Dead+Wind 150 deg - Service	21827.66	3922.12	6818.57	607636.76	-348576.16	-14.35
Dead+Wind 180 deg - Service	21827.66	-1.71	7874.40	701780.93	551.69	20.59
Dead+Wind 210 deg - Service	21827.66	-3925.09	6820.28	607866.45	349617.71	50.02
Dead+Wind 240 deg - Service	21827.66	-6796.74	3938.68	351057.11	605090.73	65.93
Dead+Wind 270 deg - Service	21827.66	-7847.21	1.71	163.99	698516.48	64.08
Dead+Wind 300 deg - Service	21827.66	-6795.03	-3935.72	-350790.89	604860.94	45.03
Dead+Wind 330 deg - Service	21827.66	-3922.12	-6818.57	-607768.78	349219.48	14.01

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-21827.66	0.00	0.00	21827.66	0.00	0.000%
2	4.95	-21827.66	-22757.01	-4.95	21827.66	22757.01	0.000%
3	11343.51	-21827.66	-19710.62	-11343.51	21827.66	19710.62	0.000%
4	19642.58	-21827.66	-11382.79	-19642.58	21827.66	11382.79	0.000%
5	22678.45	-21827.66	-4.95	-22678.45	21827.66	4.95	0.000%
6	19637.64	-21827.66	11374.22	-19637.64	21827.66	-11374.22	0.000%
7	11334.94	-21827.66	19705.67	-11334.94	21827.66	-19705.67	0.000%
8	-4.95	-21827.66	22757.01	4.95	21827.66	-22757.01	0.000%
9	-11343.51	-21827.66	19710.62	11343.51	21827.66	-19710.62	0.000%
10	-19642.58	-21827.66	11382.79	19642.58	21827.66	-11382.79	0.000%
11	-22678.45	-21827.66	4.95	22678.45	21827.66	-4.95	0.000%
12	-19637.64	-21827.66	-11374.22	19637.64	21827.66	11374.22	0.000%
13	-11334.94	-21827.66	-19705.67	11334.94	21827.66	19705.67	0.000%
14	0.00	-27007.95	0.00	0.00	27007.95	0.00	0.000%
15	16.98	-27007.95	-18413.49	-16.98	27007.95	18413.50	0.000%
16	9185.30	-27007.95	-15955.04	-9185.30	27007.95	15955.05	0.000%
17	15892.42	-27007.95	-9221.45	-15892.43	27007.95	9221.45	0.000%
18	18341.19	-27007.95	-16.98	-18341.19	27007.95	16.98	0.000%
19	15875.44	-27007.95	9192.04	-15875.45	27007.95	-9192.05	0.000%
20	9155.89	-27007.95	15938.06	-9155.89	27007.95	-15938.07	0.000%
21	-16.98	-27007.95	18413.49	16.98	27007.95	-18413.50	0.000%
22	-9185.30	-27007.95	15955.04	9185.30	27007.95	-15955.05	0.000%
23	-15892.42	-27007.95	9221.45	15892.43	27007.95	-9221.45	0.000%
24	-18341.19	-27007.95	16.98	18341.19	27007.95	-16.98	0.000%
25	-15875.44	-27007.95	-9192.04	15875.45	27007.95	9192.05	0.000%
26	-9155.89	-27007.95	-15938.06	9155.89	27007.95	15938.07	0.000%
27	1.71	-21827.66	-7874.40	-1.71	21827.66	7874.40	0.000%
28	3925.09	-21827.66	-6820.28	-3925.09	21827.66	6820.28	0.000%
29	6796.74	-21827.66	-3938.68	-6796.74	21827.66	3938.68	0.000%
30	7847.21	-21827.66	-1.71	-7847.21	21827.66	1.71	0.000%
31	6795.03	-21827.66	3935.72	-6795.03	21827.66	-3935.72	0.000%
32	3922.12	-21827.66	6818.57	-3922.12	21827.66	-6818.57	0.000%
33	-1.71	-21827.66	7874.40	1.71	21827.66	-7874.40	0.000%
34	-3925.09	-21827.66	6820.28	3925.09	21827.66	-6820.28	0.000%
35	-6796.74	-21827.66	3938.68	6796.74	21827.66	-3938.68	0.000%
36	-7847.21	-21827.66	1.71	7847.21	21827.66	-1.71	0.000%
37	-6795.03	-21827.66	-3935.72	6795.03	21827.66	3935.72	0.000%
38	-3922.12	-21827.66	-6818.57	3922.12	21827.66	6818.57	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00006839
3	Yes	5	0.00000001	0.00021299
4	Yes	5	0.00000001	0.00021512
5	Yes	4	0.00000001	0.00010228
6	Yes	5	0.00000001	0.00021237
7	Yes	5	0.00000001	0.00021403
8	Yes	4	0.00000001	0.00007335
9	Yes	5	0.00000001	0.00021537
10	Yes	5	0.00000001	0.00021257
11	Yes	4	0.00000001	0.00009308
12	Yes	5	0.00000001	0.00021471
13	Yes	5	0.00000001	0.00021371
14	Yes	4	0.00000001	0.00000001
15	Yes	5	0.00000001	0.00011752
16	Yes	5	0.00000001	0.00048842
17	Yes	5	0.00000001	0.00048996
18	Yes	5	0.00000001	0.00011724
19	Yes	5	0.00000001	0.00048330
20	Yes	5	0.00000001	0.00048655
21	Yes	5	0.00000001	0.00011750
22	Yes	5	0.00000001	0.00049060
23	Yes	5	0.00000001	0.00048783
24	Yes	5	0.00000001	0.00011724
25	Yes	5	0.00000001	0.00048767
26	Yes	5	0.00000001	0.00048563
27	Yes	4	0.00000001	0.00002425
28	Yes	4	0.00000001	0.00049778
29	Yes	4	0.00000001	0.00050877
30	Yes	4	0.00000001	0.00002785
31	Yes	4	0.00000001	0.00049494
32	Yes	4	0.00000001	0.00050304
33	Yes	4	0.00000001	0.00002443
34	Yes	4	0.00000001	0.00051096
35	Yes	4	0.00000001	0.00049674
36	Yes	4	0.00000001	0.00002748
37	Yes	4	0.00000001	0.00050804
38	Yes	4	0.00000001	0.00050312

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 85.5	27.7459	27	1.9442	0.0012
L2	90 - 39.417	13.0949	27	1.4004	0.0004
L3	45 - 0	3.2200	27	0.6575	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	14' Low Profile Platform	27	27.7459	1.9442	0.0012	23158
129.00	(2) ATT - RRUS 11	27	27.3519	1.9315	0.0012	23158
120.00	14' Low Profile Platform	27	23.8236	1.8163	0.0010	11579

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	130 - 85.5	79.9428	2	5.6029	0.0037
L2	90 - 39.417	37.7606	2	4.0382	0.0011
L3	45 - 0	9.2911	2	1.8972	0.0003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
130.00	14' Low Profile Platform	2	79.9428	5.6029	0.0037	8162
129.00	(2) ATT - RRUS 11	2	78.8088	5.5662	0.0037	8162
120.00	14' Low Profile Platform	2	68.6523	5.2349	0.0030	4080

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
2.2500	12	2.2500	145448.35 131210.58 1.11	149083.37 217809.56 0.68	52.674 45.000 1.17		Plate	1.17 ✓

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
L1	130 - 85.5 (1)	TP29.73x19.94x0.188	44.50	0.00	0.0	34.027	17.2842	-6621.15	588130.00	0.011
L2	85.5 - 39.417 (2)	TP39.39x28.364x0.281	50.58	0.00	0.0	36.714	34.2855	-12996.00	1258750.00	0.010
L3	39.417 - 0 (3)	TP47.6x37.611x0.313	45.00	0.00	0.0	34.154	47.6587	-21810.10	1627720.00	0.013

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x lb-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y lb-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	130 - 85.5 (1)	TP29.73x19.94x0.188	409125.83	-40.639	34.027	1.194	0.00	0.000	34.027	0.000
L2	85.5 - 39.417 (2)	TP39.39x28.364x0.281	1109733.33	-41.908	36.714	1.141	0.00	0.000	36.714	0.000
L3	39.417 - 0 (3)	TP47.6x37.611x0.313	2026008.33	-44.071	34.154	1.290	0.00	0.000	34.154	0.000

Pole Interaction Design Data

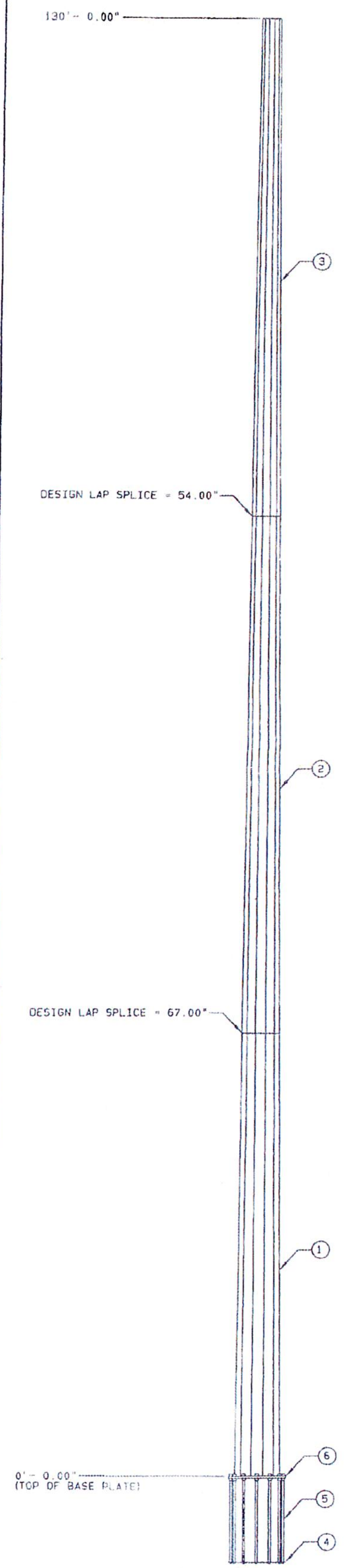
Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	130 - 85.5 (1)	TP29.73x19.94x0.188	0.011	1.194	0.000	1.206 ✓	1.333	H1-3 ✓
L2	85.5 - 39.417 (2)	TP39.39x28.364x0.281	0.010	1.141	0.000	1.152 ✓	1.333	H1-3 ✓
L3	39.417 - 0 (3)	TP47.6x37.611x0.313	0.013	1.290	0.000	1.304 ✓	1.333	H1-3 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
L1	130 - 85.5	Pole	TP29.73x19.94x0.188	1	-6621.15	783977.26	90.4	Pass
L2	85.5 - 39.417	Pole	TP39.39x28.364x0.281	2	-12996.00	1677913.68	86.4	Pass
L3	39.417 - 0	Pole	TP47.6x37.611x0.313	3	-21810.10	2169750.67	97.8	Pass
							Summary	
						Pole (L3)	97.8	Pass
						Base Plate	87.8	Pass
						RATING =	**97.8**	**Pass**

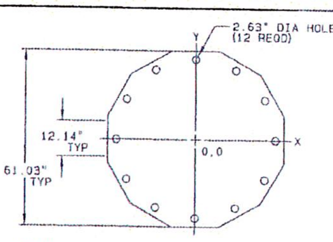
Hudson Design Group LLC

REFERENCE DOCUMENTS



ITEM ID	NO. REQD	FEATURES	WEIGHT (LBS)
1	1	SECTION A	6,442
2	1	SECTION B	5,176
3	1	SECTION C	2,224
4	1	BOTTOM CAGE PLATE	111
5	12	2.25"-4.5 UNC-2A ANCHOR BOLT, LENGTH = 8.00'	1,536
6	1	BASE PLATE	1,655
	1	TOP CAGE PLATE (REMOVE BEFORE SETTING POLE)	146
	1	SAFETY CLIMBING CABLE (LENGTH = 120.00')	97
	2	GROUNDING LUG	2
		GALVANIZING	364
	143	STEP AND CLIP (VALMONT STANDARD)	1
	4	HAND HOLE (9" x 24")	56
	1	HAND HOLE (5" x 8")	17
	12	HAND HOLE (6" x 18") (TUBE)	12
	1	POLE CAP	30

HOLE COORDS (INCHES)	
X-COORD	Y-COORD
27.52	0.00
23.83	13.76
13.76	23.83
0.00	27.52



NOTES:
1. BASE PLATE THICKNESS = 2.250"
2. BASE PLATE ALLOWABLE STRESS (KSI) = 60
3. VENT AND DRAIN HOLES PROVIDED
4. MAXIMUM BOLT CIRCLE DIAMETER = 55.03"
5. MAXIMUM TEMPLATE DIAMETER = 61.03"

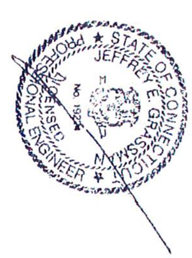
BASE PLATE / ANCHORAGE CHARACTERISTICS

NOTES:

1. REACTIONS FOR FOUNDATION DESIGN.
   MOMENT = 27,532 IN-KIPS
   SHEAR = 23,575 #
   VERTICAL = 23,309 #
2. GALVANIZED PER ASTM A-123
3. DESIGN CRITERIA: EIA/TIA 222-F
4. THIS STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADING:
   A CASE 1: WIND = 85 MPH
   B CASE 2: WIND = 74 MPH, ICE = 0.50 INCH
   C EQUIPMENT

DESCRIPTION	MTG HT. (FT)	CENTROID HT. (FT)	CENTROID ECC (FT)	WITHOUT ICE EPA (FT**2)	WITHOUT ICE WT (LBS)	WITH ICE EPA (FT**2)	WITH ICE WT (LBS)
12-5' x 1' Panel	130.00	130.00	0.00	42.00	360	45.60	672
24-Tower Top Amp (TTA	130.00	130.00	0.00	60.72	1080	67.44	1416
1-Platform, PiRod w/	130.00	130.00	0.00	15.70	1300	20.10	1765
12-5' x 1' Panel	120.00	120.00	0.00	42.00	360	45.60	672
1-Platform, PiRod w/	120.00	120.00	0.00	15.70	1300	20.10	1765
12-5' x 1' Panel	110.00	110.00	0.00	42.00	360	45.60	672
1-Platform, PiRod w/	110.00	110.00	0.00	15.70	1300	20.10	1765
12-5' x 1' Panel	100.00	100.00	0.00	42.00	360	45.60	672
1-Platform, PiRod w/	100.00	100.00	0.00	15.70	1300	20.10	1765
2-DB404	130.00	134.70	0.00	6.84	34	13.56	86
1-SD110	80.00	84.80	0.00	7.60	21	10.68	118
1-Lightning Rod, 8'	130.00	134.00	0.00	1.12	37	1.77	45

5 FEEDLINES ARE PLACED INTERIOR TO POLE SHAFT (UNLESS NOTED OTHERWISE).



EXPIRES ON
JAN 31 2006

SECTION INFORMATION					
ITEM ID	LENGTH	BASE OD	TOP OD	THK	MATL
1	45' - 0.00"	47.60"	37.70"	0.313"	S-22
2	50' - 7.00"	39.49"	28.36"	0.281"	S-22
3	44' - 6.00"	29.73"	19.94"	0.188"	S-22

ORDER	PROJECT	FILE ID	SCALE	DATE	ENGR
18435-65	QU12139	130_85	NONE	08/04/05	ALA

DESCRIPTION
MAGUIRE GROUP 130' POLE, SITE: QUINEBAUG FIRE STATION

VALMONT

PROJECT INFORMATION

SCOPE OF WORK: TELECOMMUNICATIONS FACILITY UPGRADE (LTE):
1. INSTALL (3) NEW LTE ANTENNAS, (6) RRH'S, (1) SURGE ARRESTOR, (1) FIBER LINE, (2) DC POWER LINES & (1) GPS ANTENNA
2. INSTALL (1) LTE 6601 CABINET

SITE ADDRESS: 720 QUINEBAUG ROAD
THOMPSON, CT 06262

LATITUDE: 42.02284 N 42° 01' 22.2" N
LONGITUDE: 71.94922 W 71° 56' 57.2" W

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY

at&t

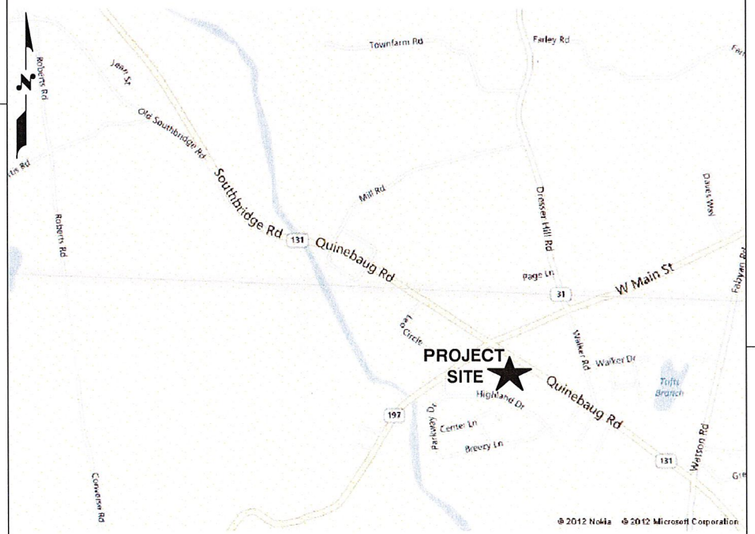
SITE NUMBER: CT1088
SITE NAME: THOMPSON QUINEBAUG ROAD

DRAWING INDEX

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. 0.3 MI. TURN LEFT ONTO CAPITOL BLVD 0.2 MI. TURN LEFT ONTO WEST ST 0.2 MI. TAKE RAMP LEFT FOR I-91 N 7.8 MI. AT EXIT 29, TAKE RAMP RIGHT FOR US-5 NORTH / CT-15 NORTH TOWARD BOSTON / E. HARTFORD 0.6 MI. KEEP STRAIGHT ONTO CT-15 N 1.5 MI. KEEP STRAIGHT ONTO I-84 E / US-6 E 28.2 MI. AT EXIT 73, TAKE RAMP RIGHT FOR CT-190 TOWARD UNION 0.4 MI TURN RIGHT ONTO CT-190 / BUCKLEY HWY 1.9 MI. TURN RIGHT ONTO CT-171 / BIGELOW HOLLOW RD 2.3 MI. BEAR LEFT ONTO CT-197 / LAWSON RD 10.6 MI. BEAR RIGHT ONTO CT-131 / QUINEBAUG RD 0.2 MI. ARRIVE AT 720 QUINEBAUG RD, THOMPSON, CT. SITE ENTRANCE WILL BE ON THE RIGHT.



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 OR DIAL 811

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

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

SITE NUMBER: CT1088
SITE NAME: THOMPSON QUINEBAUG ROAD
720 QUINEBAUG ROAD
THOMPSON, CT 06262
WINDHAM COUNTY

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

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

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

AT&T

TITLE SHEET
(LTE)

JOB NUMBER	DRAWING NUMBER	REV
1088.01	T-1	0

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	REQUIRED		

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GENERAL NOTES (LTE)

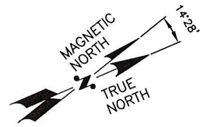
JOB NUMBER	DRAWING NUMBER	REV
1088.01	GN-1	0

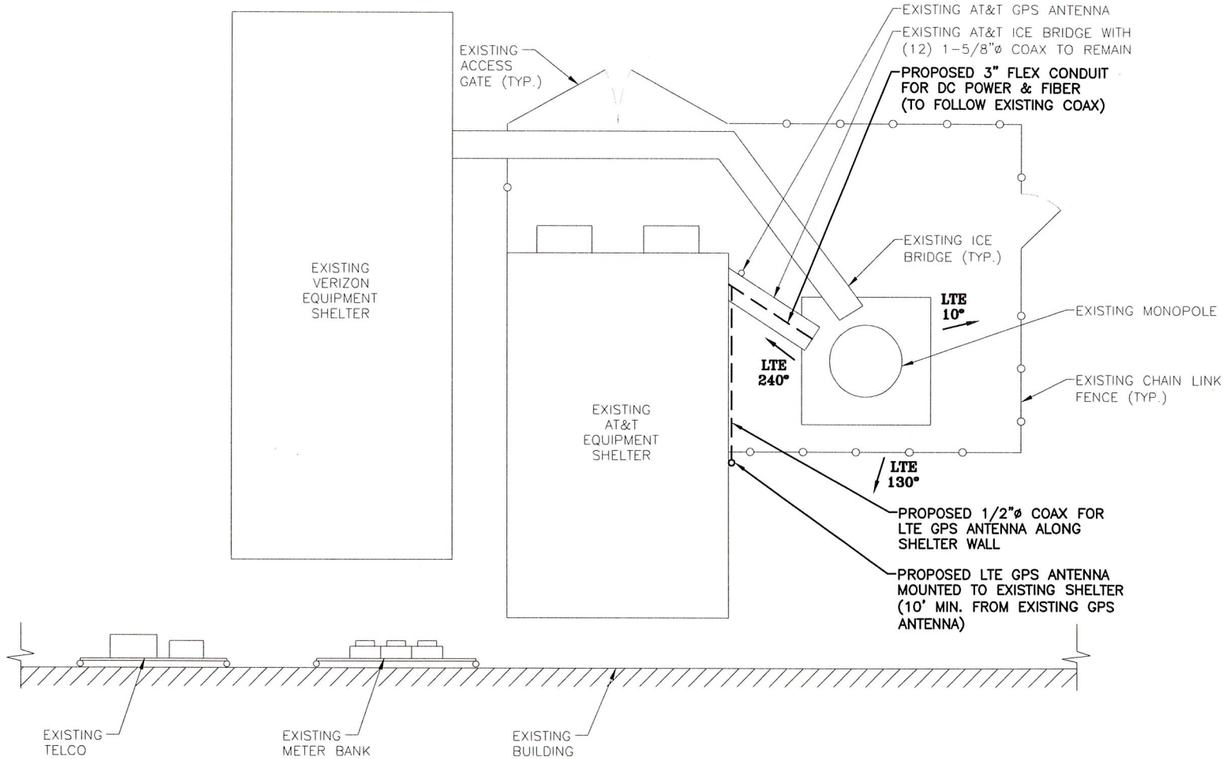
NOTE:

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.

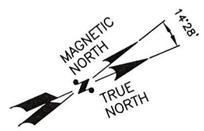


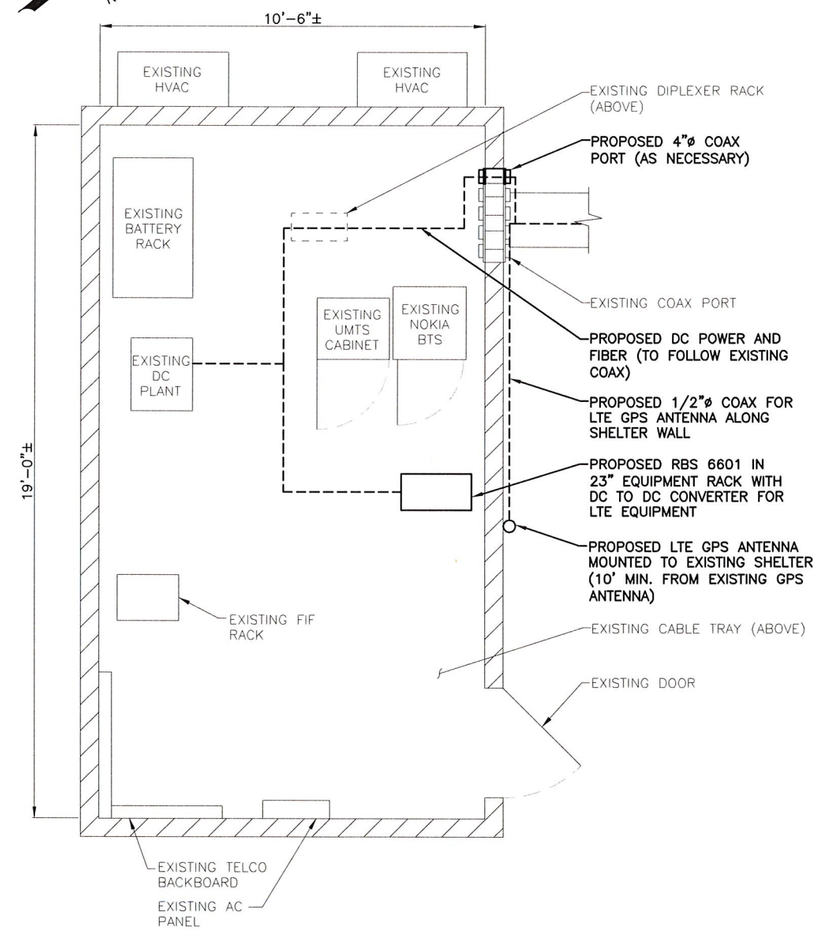


COMPOUND PLAN

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

0 2'-0" 4'-0" 8'-0" 12'-0"





EQUIPMENT PLAN

SCALE: 1/2"=1'-0"

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

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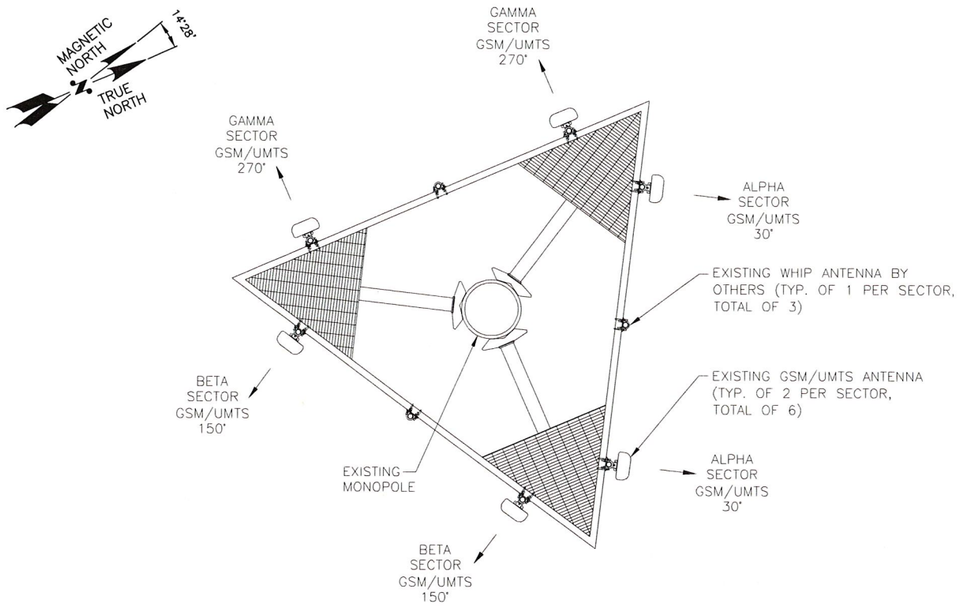
COMPOUND PLAN & EQUIPMENT PLAN (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1088.01	A-1	0



EXISTING GSM/UMTS ANTENNA PLAN

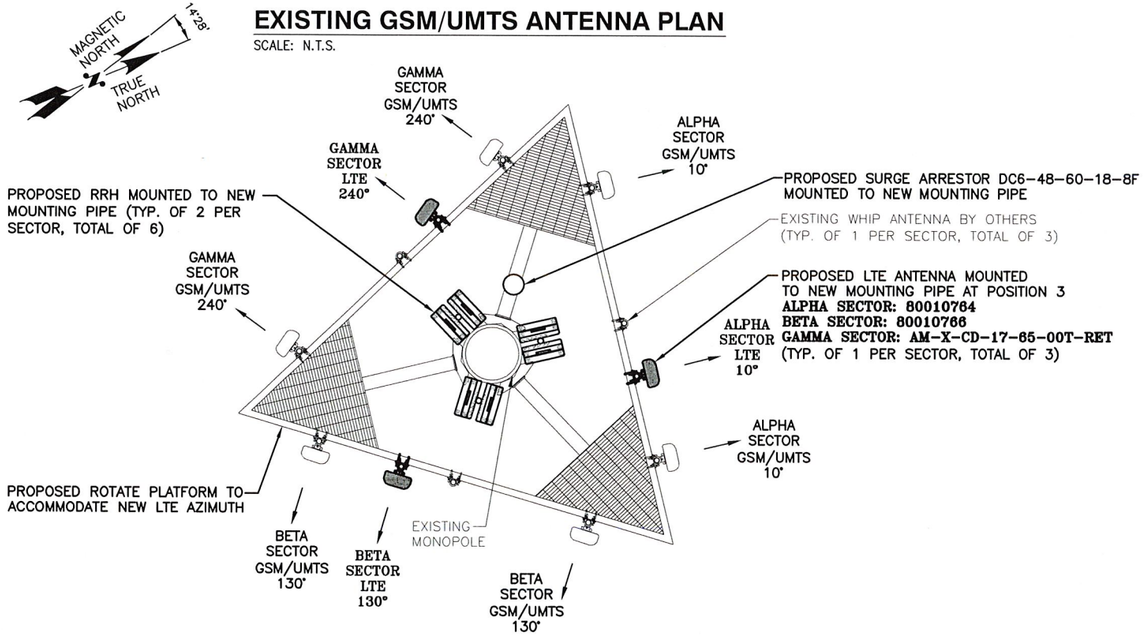
SCALE: N.T.S.

NOTE:

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

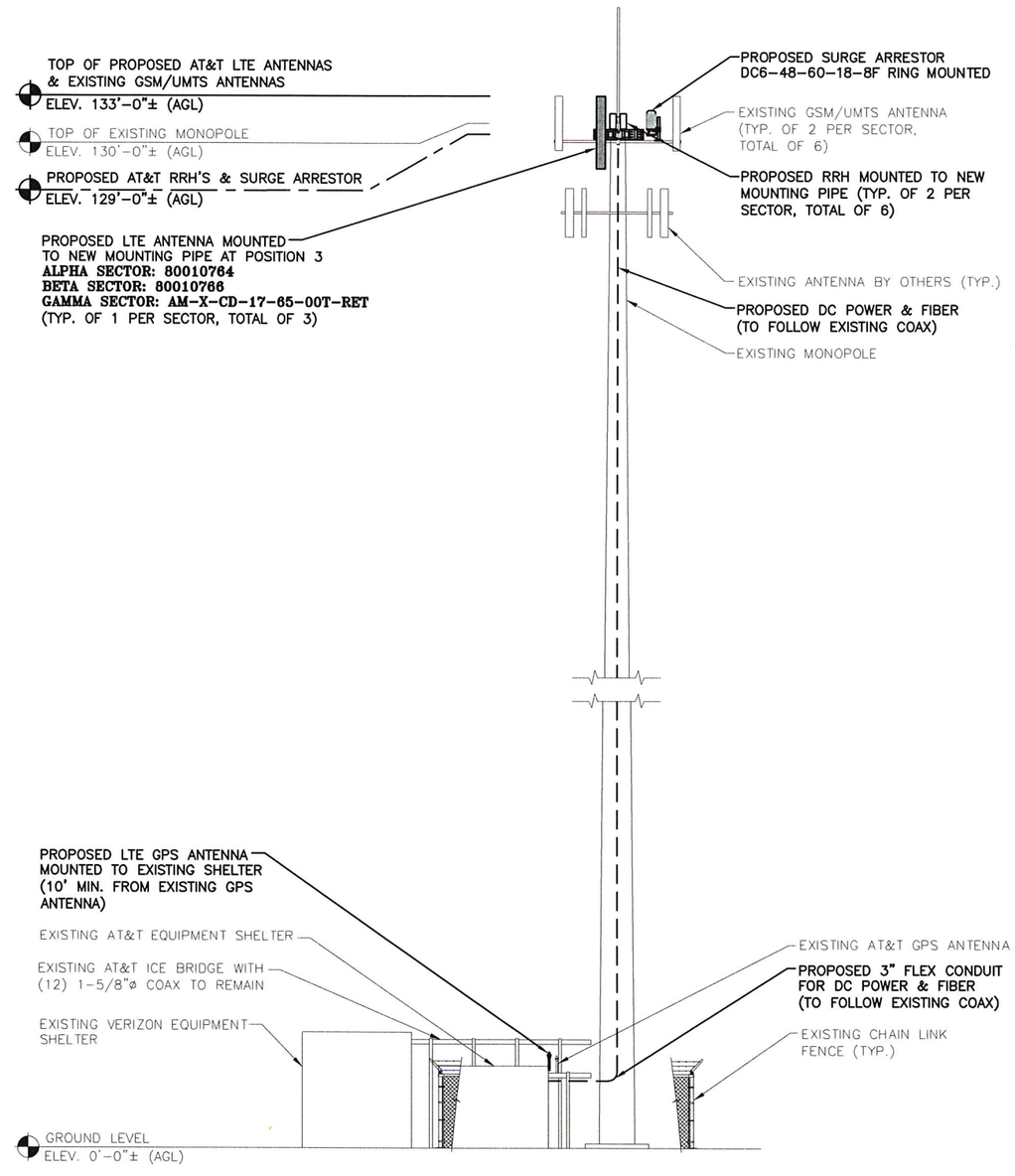
NOTE:

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



PROPOSED LTE ANTENNA PLAN

SCALE: N.T.S.



EAST ELEVATION

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

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

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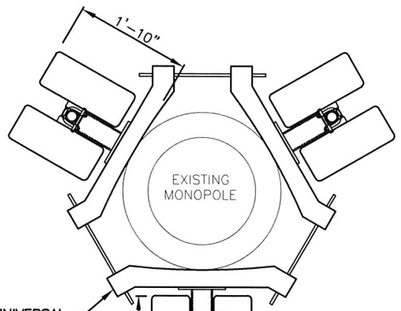
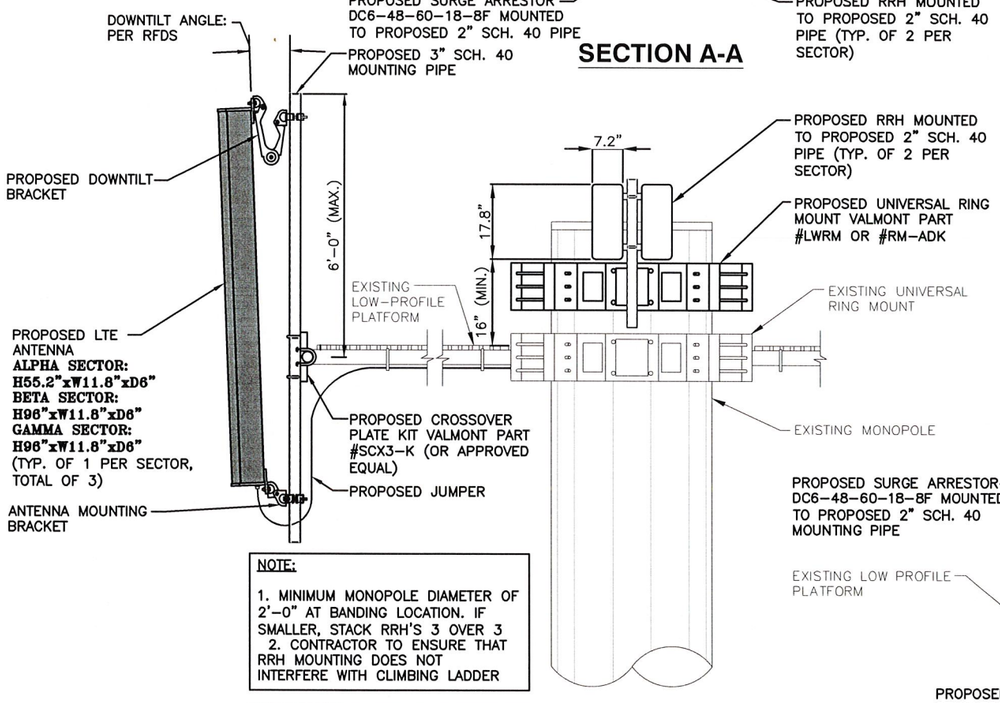
ANTENNA PLAN & ELEVATION (LTE)

JOB NUMBER	DRAWING NUMBER	REV
1088.01	A-2	0



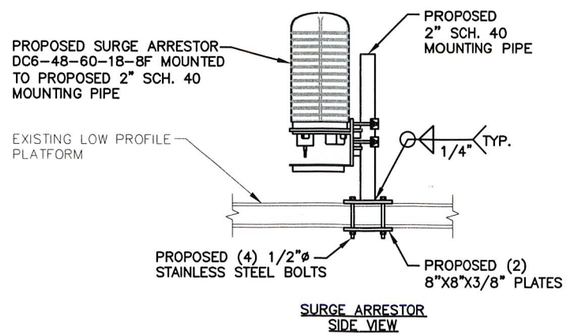
SECTION A-A



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



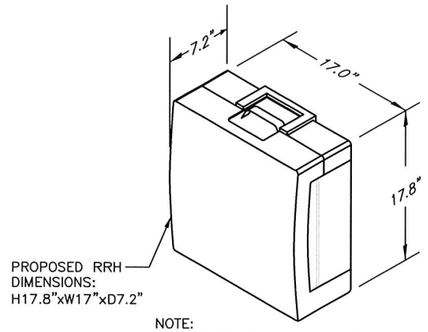
SURGE ARRESTOR SIDE VIEW

PROPOSED LTE ANTENNA 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.

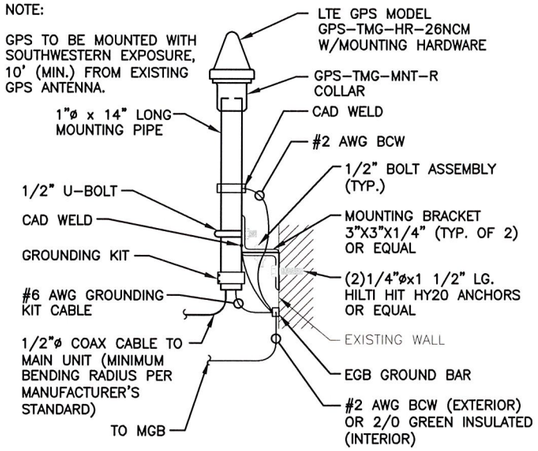


NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRH DETAIL

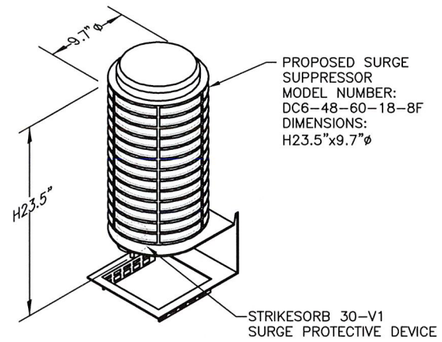
SCALE: N.T.S.

NOTE:
GPS TO BE MOUNTED WITH SOUTHWESTERN EXPOSURE, 10' (MIN.) FROM EXISTING GPS ANTENNA.



GPS MOUNTING DETAIL

SCALE: N.T.S.



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.

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DETAILS (LTE)

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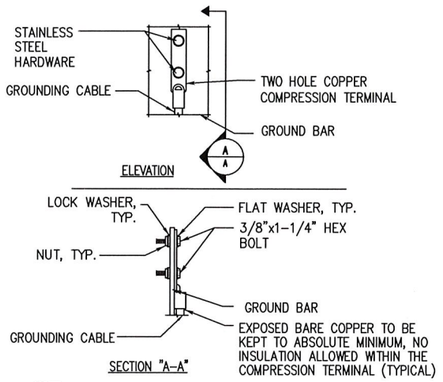
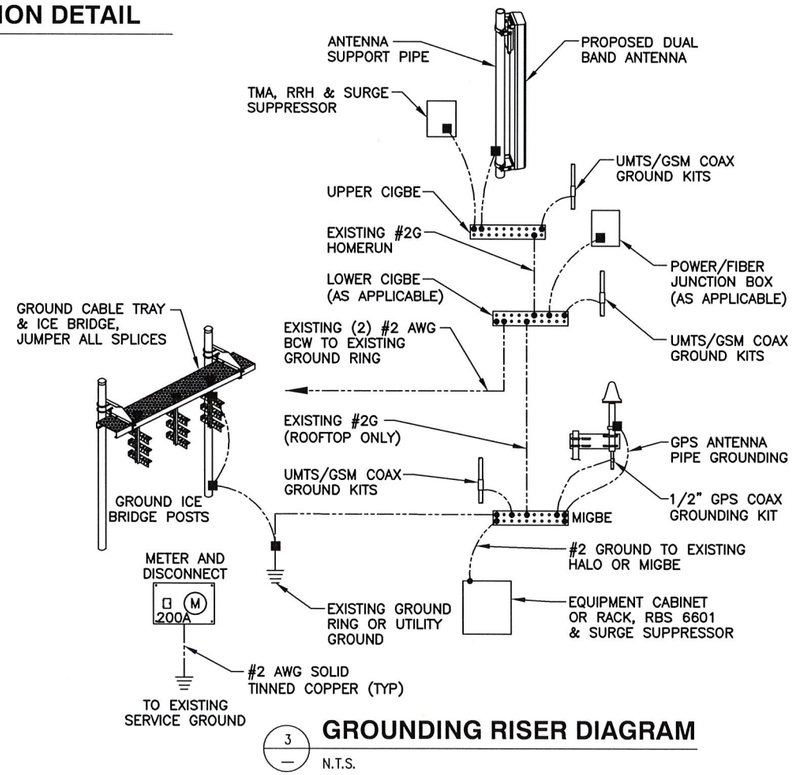
1088.01	A-3	0



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.

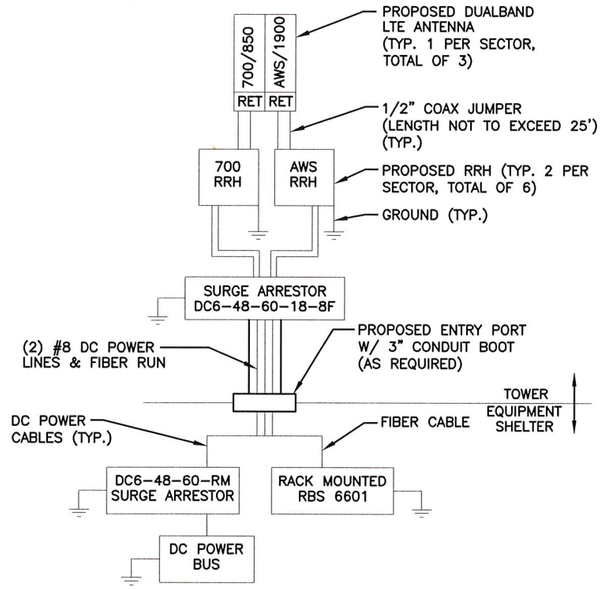
1 TYPICAL GROUND BAR CONNECTION DETAIL

N.T.S.



3 GROUNDING RISER DIAGRAM

N.T.S.



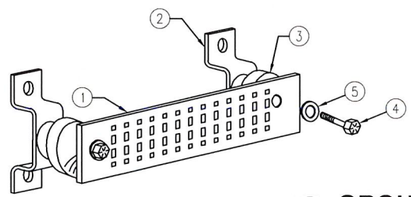
NOTE:

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

2 PLUMBING DIAGRAM

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



4 GROUND BAR DETAIL

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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PLUMBING DIAGRAM & GROUNDING DETAILS (LTE)

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