



EM-CING-073-130207

New Cingular Wireless PCS, LLC
154 General Patton Dr.
Naugatuck, CT 06770
Phone: (203)-217-6200
Christopher Bisson
Real Estate Consultant

February 6, 2013

Hand Delivered

Ms. Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RECEIVED
FEB - 7 2013
CONNECTICUT
SITING COUNCIL

RE: New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 20 Mell Road, Lisbon, CT 06351, know to AT&T as site CT2058.

Dear Ms. Roberts:

In order to accommodate technological changes, implement Uniform Mobile Telecommunications System (“UMTS”) and/or 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. Please accept this letter and attachments as notification, 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 and its attachments is being sent to the chief elected official of the municipality in which affected cell site is located.

UMTS offers services to mobile computer and phone users anywhere in the world. Based on the Global System for Mobile (“GSM”) communication standard, UMTS is the planned worldwide standard for mobile users. UMTS, fully implemented, gives computer and phone users high-speed access to the internet as they travel. They have the same capabilities even when they roam, through both terrestrial wireless and satellite transmissions.

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.

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 based on the supplied structural modification plan dated 4/26/2012 requiring the restacking of the existing coaxial cables.

The changes to the facility do not constitute modification as defined Connecticut General Statues ("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 the R.C.S.A. Section 16-50j-72(b)(2).

1. The height of the overall structure will not be affected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound as all proposed equipment will be located in the existing AT&T equipment shelter.
3. The proposed changes will not increase the noise level at the existing facility by 6 decibels or more.
4. Radio Frequency power density may increase due to the use of one or more GSM channels for UMTS transmissions. Moreover, 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 PCS, LLC respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at (203)-217-6200 or email
CBisson@Transcendwireless.com with questions concerning this matter.
Thank you for your consideration.

Sincerely,

Christopher Bisson
Real Estate Consultant



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

Calculated Radio Frequency Emissions



CT2058

(Lisbon)

20 Mell Road, Lisbon, CT 06351

(a.k.a. Lisbon - 20 Mel Road)

January 29, 2013

Table of Contents

1. Introduction.....	1
2. FCC Guidelines for Evaluating RF Radiation Exposure Limits.....	1
3. RF Exposure Prediction Methods.....	2
4. Calculation Results	3
5. Conclusion	4
6. Statement of Certification.....	4
Attachment A: References	5
Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)	6
Attachment C: AT&T Antenna Data Sheets and Electrical Patterns.....	8

List of Tables

Table 1: Carrier Information	3
Table 2: FCC Limits for Maximum Permissible Exposure (MPE)	6

List of Figures

Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE).....	7
---	---



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 20 Mell Road in Lisbon, CT. The coordinates of the tower are 41° 35' 26.70" N, 71° 1' 0.80" W.

AT&T is proposing the following modifications:

- 1) Install three multi-band (700/850/1900/2100 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:

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

Where:

EIRP = Effective Isotropic Radiated Power

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

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
AT&T UMTS	187	880	1	500	0.0051	0.5867	0.88%
AT&T GSM	187	880	4	296	0.0122	0.5867	2.08%
AT&T GSM	187	1900	2	427	0.0088	1.0000	0.88%
AT&T UMTS	184	880	2	565	0.0012	0.5867	0.20%
AT&T UMTS	184	1900	2	875	0.0019	1.0000	0.19%
AT&T LTE	184	734	1	1615	0.0017	0.4893	0.35%
AT&T GSM	184	880	1	283	0.0003	0.5867	0.05%
AT&T GSM	184	1900	4	525	0.0022	1.0000	0.22%
					Total	1.02%	

Table 1: Carrier Information^{1 2 3}

¹ The existing CSC filing for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for carriers other than AT&T was taken directly from the CSC database dated 1/14/2013. 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 American Tower Corp. Structural Analysis dated September 13, 2012.

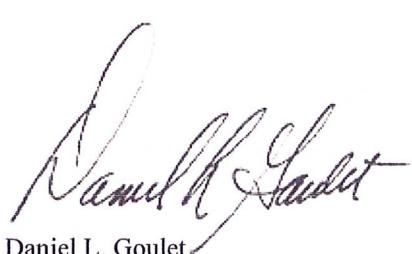
5. Conclusion

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 **1.02% 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

January 29, 2013

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 Exposure⁴

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 Exposure⁵

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.

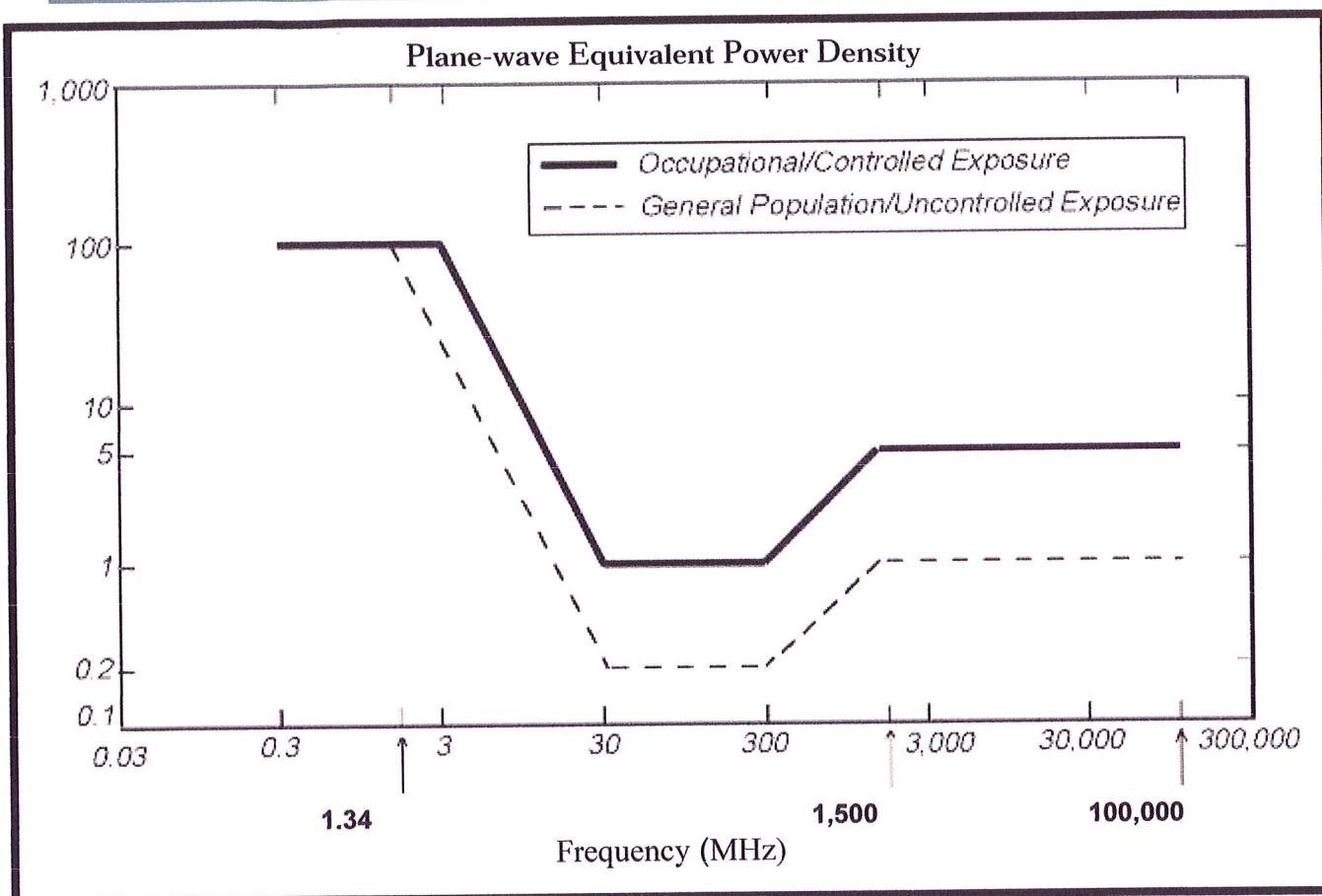
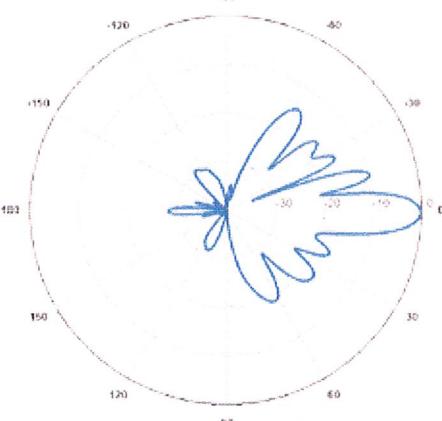
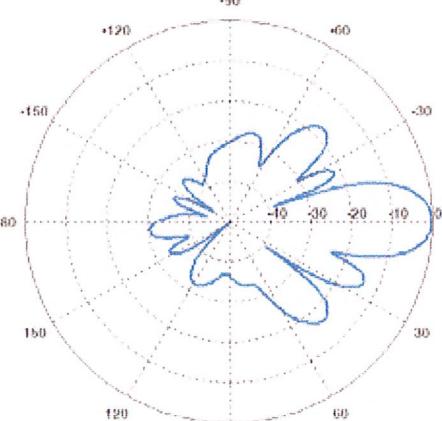
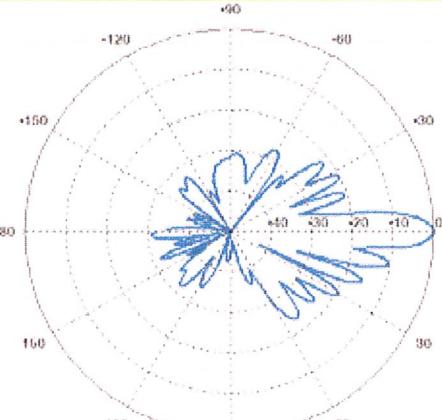


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

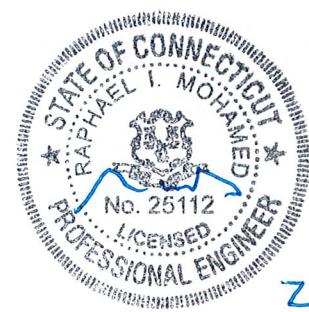
700 MHz <p> Manufacturer: Powerwave Model #: P65-17-XLH-RR Frequency Band: 698-806 MHz Gain: 14.3 dBi Vertical Beamwidth: 8.4° Horizontal Beamwidth: 70° Polarization: Dual Linear ± 45° Size L x W x D: 96.0" x 12.0" x 6.0" </p>	
850 MHz <p> Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 824-896 MHz Gain: 11.5 dBi Vertical Beamwidth: 15° Horizontal Beamwidth: 82° Polarization: Dual Linear ± 45° Size L x W x D: 55.0" x 11.0" x 5.0" </p>	
1900 MHz <p> Manufacturer: Powerwave Model #: 7770.00 Frequency Band: 1850-1990 MHz Gain: 13.4 dBi Vertical Beamwidth: 7° Horizontal Beamwidth: 86° Polarization: Dual Linear ± 45° Size L x W x D: 55.0" x 11.0" x 5.0" </p>	



Structural Analysis Report

Structure : 180.4 ft Monopole
ATC Site Name : Lisbon CT 3, CT
ATC Site Number : 302503
Engineering Number : 50406821
Proposed Carrier : AT&T Mobility
Carrier Site Name : Lisbon
Carrier Site Number : CT2058 / 10035006
Site Location : 20 Mel Road
Jewett City, CT 06351-3017
41.590833,-72.016900
County : New London
Date : September 13, 2012
Max Usage : 118%
Result : Fail

Christopher Jolly
Project Engineer



2/5/13



AMERICAN TOWER®
CORPORATION

Eng. Number 50406821
September 13, 2012

Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Proposed Equipment	2
Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached



Eng. Number 50406821
September 13, 2012
Page 1

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180.4 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	HTS Mapping Project # HTS011509, dated January 13, 2009
Foundation Drawing	SNET Drawing # 3C255, dated August 8, 1990
Modifications	ATC Project 42728432, dated January 28, 2009

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/EIA-222.

Basic Wind Speed:	85 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	74 mph (Fastest Mile) w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

Based on the analysis results, the structure does not meet the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report after the modifications listed below are completed:

- Extend reinforcement on tower to 150'
- Reinforce foundation

If you have any questions or require additional information, please contact me via email at christopher.jolly@americantower.com or call 919-466-5007.



Eng. Number 50406821
 September 13, 2012
 Page 2

Existing and Reserved Equipment

Mount Elev. ¹ (ft)	Qty.	Antenna	Mount Type	Coax (in)	Carrier
180.4	1	6' Omni	Platform w/ Handrails	(1) 1 5/8	USA Mobility
	6	Powerwave 7770.00		(12) 1 5/8	AT&T Mobility
	6	Powerwave LGP21401			
	6	Powerwave LGP21903			
13.0	1	Channel Master Type 120	Pipe	(1) RG6	USA Mobility

Proposed Equipment

Elevation ¹ (ft)	Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	RAD				
180.4	184.0	6	Platform w/ Handrails	(2) 8 AWG 2C	AT&T Mobility
		1			
		2		(1) Type I Hybrid	
		1			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.



Eng. Number 50406821
September 13, 2012
Page 3

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	97%	Pass
Shaft	118%	Fail
Base Plate	96%	Pass
Flanges	54%	Pass
Reinforcement	92%	Fail

Foundations

Reaction Component	Analysis Reactions
Moment (Kips-Ft)	2,864.3
Axial (Kips)	34.8
Shear (Kips)	27.1

The structure foundation was found to be inadequate through analysis based on geotechnical and foundation information. Modification or reinforcement of the foundation will be required.

The foundation and anchorages for this tower were analyzed with required safety factors exceeding 2.0 with respect to wind.

Deflection and Sway*

Antenna Elevation (ft)	Deflection (ft)	Sway (Rotation) (°)
180.4	4.784	-3.298

*Deflection and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.



Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited, to:

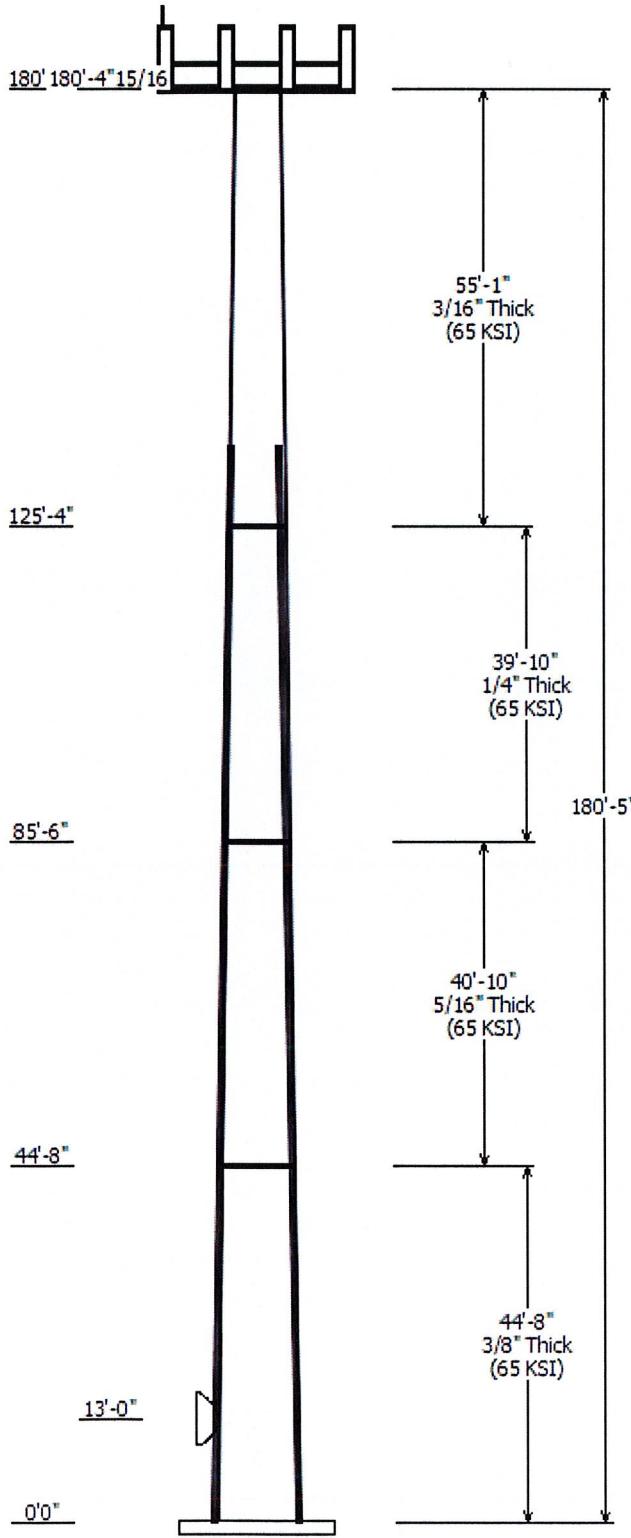
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to ATC Engineering Services and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Engineering Services is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Job Information					
Pole : 302503	Code: TIA/EIA-222 Rev F				
Description : 180'-5" Mapped Monopole					
Client : AT&T Mobility					
Location : Lisbon CT 3, CT					
Shape : 12 Sides					
Height : 180.42 (ft)					
Base Elev (ft): 0.00					
Taper: 0.14776(in/ft)					

Sections Properties						
Shaft Section	Length (ft)	Diameter (in) Across Flats	Thick Top	Joint Type	Overlap Length (in)	Steel Taper (in/ft) Grade
1	44.667	35.09	41.69	0.375	0.000	0.147760 65
2	40.833	29.06	35.09	0.313 Butt Joint	0.000	0.147760 65
3	39.833	23.17	29.06	0.250 Butt Joint	0.000	0.147760 65
4	55.083	15.04	23.17	0.188 Butt Joint	0.000	0.147760 65

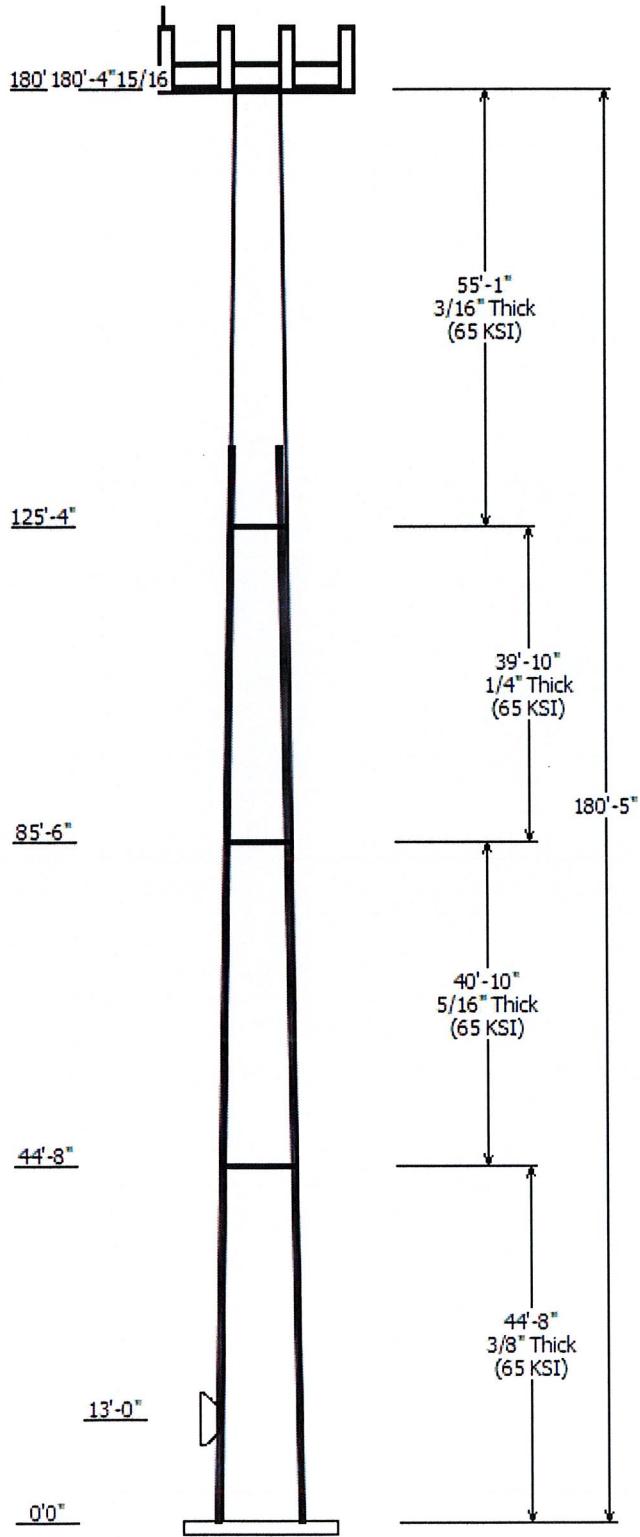
Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.410	184.000	6	Powerwave LGP21903
180.410	184.000	6	Powerwave LGP21401
180.410	184.000	6	Powerwave 7770.00
180.410	180.410	1	Flat Platform w/ Handrails
180.410	192.000	1	6' Omni
180.410	184.000	1	Raycap DC6-48-60-18-8F
180.410	184.000	2	Powerwave P65-17-XLH-RR
180.410	184.000	1	KMW AM-X-CD-16-65-00T-RET
180.410	184.000	6	Ericsson RRUS-11 800 MHz
13.000	13.000	1	Channel Master Type 120

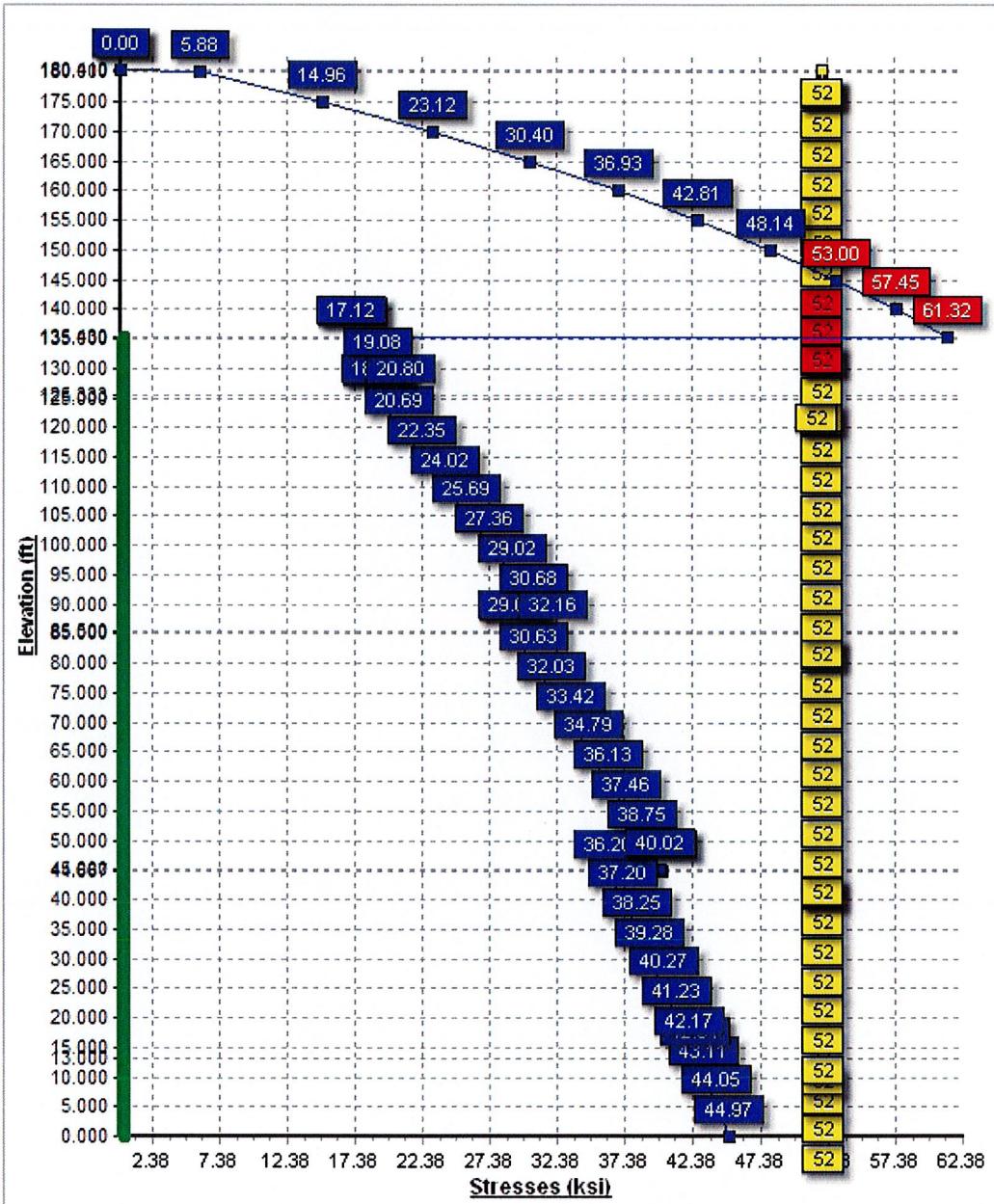
Linear Appurtenance			
Elev (ft) From	Elev (ft) To	Exposed Description	To Wind
0.000	13.000	RG6	Yes
0.000	140.0	#20 Dyw dag Bars	Yes
0.000	180.4	1 5/8" Coax	No
0.000	180.4	1 5/8" Coax	No
0.000	180.4	8 AWG 2C	No
0.000	180.4	Type I Hybrid	No

Load Cases			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	85.00 mph Wind with No Ice		
Ice	73.61 mph Wind with Ice		
Twist/Sway	50.00 mph Wind with No Ice		

Reactions			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
No Ice		2864.32	27.10
Ice		2391.92	22.34
Twist/Sway		993.30	34.83
			30.59

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Twist/Sway	13.00	0.295	0.215





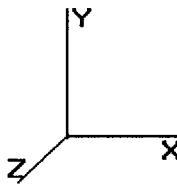
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
 Page: 1

Base Elev : 0.000 (ft)

Copyright © 2007- 2011 by American Tower Corporation. All rights reserved.



Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip Joint		Weight (lb)	Bottom				Top				Taper (in/ft)				
				Type	Joint Len (in)		Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	Wt/Ratio	D/t Ratio	Dia (in)	Elev (ft)					
1-12	44.667	0.3750	65		0.00	6,978	41.69	0.00	49.90	10875.9	27.12	111.20	35.09	44.67	41.93	6452.8	22.40	93.60	0.147760
2-12	40.833	0.3125	65	Butt	0.00	4,442	35.09	44.67	35.00	5406.4	27.42	112.32	29.06	85.50	28.93	3052.9	22.24	93.01	0.147760
3-12	39.833	0.2500	65	Butt	0.00	2,823	29.06	85.50	23.20	2458.3	28.47	116.26	23.17	125.33	18.46	1238.7	22.16	92.72	0.147760
4-12	55.083	0.1875	65	Butt	0.00	2,141	23.17	125.33	13.88	936.6	30.45	123.62	15.04	180.42	8.97	252.5	18.81	80.21	0.147760
				Shaft Weight		16,385													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice CaAa (sf)	CaAa Factor	Weight (lb)	Ice CaAa (sf)	CaAa Factor	Distance From Face (ft)	Vert Ecc (ft)
180.41	6' Omni	1	25.00	1.760	1.00	38.24	2.130	1.00	0.000	11.590
180.41	Ericsson RRUS-11 800 MHz	6	54.00	2.940	0.50	75.64	3.290	0.50	0.000	3.590
180.41	Flat Platform w/ Handrails	1	2000.00	42.400	0.90	2,450.00	48.400	0.90	0.000	0.000
180.41	KMW AM-X-CD-16-65-00T-	1	33.00	6.620	0.72	33.00	7.270	0.72	0.000	3.590
180.41	Powerwave 7770.00	6	35.00	5.880	0.64	68.00	6.430	0.64	0.000	3.590
180.41	Powerwave LGP21401	6	14.10	1.290	0.33	21.26	1.530	0.33	0.000	3.590
180.41	Powerwave LGP21903	6	5.50	0.270	0.33	7.90	0.380	0.33	0.000	3.590
180.41	Powerwave P65-17-XLH-RR	2	59.00	11.460	0.85	121.00	12.390	0.85	0.000	3.590
180.41	Raycap DC6-48-60-18-8F	1	20.00	1.260	1.00	35.10	1.460	1.00	0.000	3.590
13.00	Channel Master Type 120	1	126.00	20.190	1.00	185.00	21.050	1.00	0.000	0.000
Totals		31	2973.60			4,020.14			Number of Loadings : 10	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Weight (lb/ft)	No Ice CaAa (sf/ft)	Weight (lb/ft)	Ice CaAa (sf/ft)	Exposed To Wind
0.00	180.41	(12) 1 5/8" Coax	9.84	0.00	0.00	0.00	N
0.00	180.41	(1) 1 5/8" Coax	0.82	0.00	0.00	0.00	N
0.00	180.41	(2) 8 AWG 2C	0.62	0.00	0.00	0.00	N
0.00	180.41	(1) Type I Hybrid	0.87	0.00	0.00	0.00	N
0.00	140.00	(4) #20 Dywdag Bars	0.00	0.75	0.00	1.00	Y
0.00	13.00	(1) RG6	0.03	0.03	0.51	0.13	Y
Total Weight			2,192.34 (lb)		6.58 (lb)		

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	— Intermediate Connections —				Continuation?		
				Fy (ksi)	Offset (in)	Description	Spacing (in)			
0.00	135.4	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

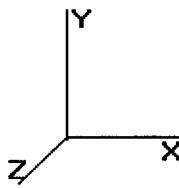
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
Page: 2

Base Elev : 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Segment Properties (Max Len : 5 ft)

Seg Top Elev (ft)	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)	Area (in^2)	Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	41.699	49.898	10,875.9	27.12	111.20	65	52	0.0	19.64	5,801 0.0
5.00		0.3750	40.960	49.006	10,302.9	26.59	109.23	65	52	841.4	19.64	5,626 334.0
10.00		0.3750	40.221	48.114	9,750.4	26.06	107.26	65	52	826.2	19.64	5,454 334.0
13.00		0.3750	39.778	47.579	9,428.6	25.74	106.07	65	52	488.4	19.64	5,352 200.4
15.00		0.3750	39.482	47.222	9,218.1	25.53	105.29	65	52	322.6	19.64	5,284 133.6
20.00		0.3750	38.743	46.330	8,705.4	25.00	103.32	65	52	795.8	19.64	5,117 334.0
25.00		0.3750	38.004	45.438	8,212.2	24.48	101.35	65	52	780.7	19.64	4,953 334.0
30.00		0.3750	37.266	44.546	7,737.9	23.95	99.38	65	52	765.5	19.64	4,792 334.0
35.00		0.3750	36.527	43.653	7,282.3	23.42	97.41	65	52	750.3	19.64	4,633 334.0
40.00		0.3750	35.788	42.761	6,844.9	22.89	95.43	65	52	735.1	19.64	4,477 334.0
44.67	Top - Section 1	0.3750	35.099	41.929	6,452.8	22.40	93.60	65	52	672.4	19.64	4,333 311.7
44.67	Bot - Section 2	0.3125	35.099	35.003	5,406.4	27.42	112.32	65	52		19.64	4,333
45.00		0.3125	35.049	34.954	5,383.5	27.37	112.16	65	52	39.7	19.64	4,323 22.3
50.00		0.3125	34.310	34.210	5,047.2	26.74	109.79	65	52	588.4	19.64	4,173 334.0
55.00		0.3125	33.572	33.467	4,725.3	26.11	107.43	65	52	575.7	19.64	4,024 334.0
60.00		0.3125	32.833	32.724	4,417.3	25.47	105.07	65	52	563.1	19.64	3,879 334.0
65.00		0.3125	32.094	31.980	4,123.0	24.84	102.70	65	52	550.4	19.64	3,736 334.0
70.00		0.3125	31.355	31.237	3,842.1	24.21	100.34	65	52	537.8	19.64	3,596 334.0
75.00		0.3125	30.616	30.493	3,574.3	23.57	97.97	65	52	525.1	19.64	3,459 334.0
80.00		0.3125	29.878	29.750	3,319.2	22.94	95.61	65	52	512.5	19.64	3,324 334.0
85.00		0.3125	29.139	29.007	3,076.5	22.31	93.24	65	52	499.8	19.64	3,192 334.0
85.50	Top - Section 2	0.3125	29.065	28.932	3,052.9	22.24	93.01	65	52	49.3	19.64	3,179 33.4
85.50	Bot - Section 3	0.2500	29.065	23.196	2,458.3	28.47	116.26	65	52		19.64	3,179
90.00		0.2500	28.400	22.661	2,292.0	27.76	113.60	65	52	351.1	19.64	3,063 300.6
95.00		0.2500	27.661	22.066	2,116.3	26.97	110.65	65	52	380.5	19.64	2,936 334.0
100.0		0.2500	26.922	21.471	1,949.7	26.18	107.69	65	52	370.4	19.64	2,812 334.0
105.0		0.2500	26.184	20.877	1,792.1	25.38	104.73	65	52	360.3	19.64	2,691 334.0
110.0		0.2500	25.445	20.282	1,643.3	24.59	101.78	65	52	350.1	19.64	2,572 334.0
115.0		0.2500	24.706	19.687	1,502.9	23.80	98.82	65	52	340.0	19.64	2,457 334.0
120.0		0.2500	23.967	19.092	1,370.8	23.01	95.87	65	52	329.9	19.64	2,343 334.0
125.0		0.2500	23.228	18.498	1,246.7	22.22	92.91	65	52	319.8	19.64	2,233 334.0
125.3	Top - Section 3	0.2500	23.179	18.458	1,238.7	22.16	92.72	65	52	21.0	19.64	2,225 22.3
125.3	Bot - Section 4	0.1875	23.179	13.881	936.6	30.45	123.62	65	52		19.64	2,225
130.0		0.1875	22.490	13.465	854.8	29.46	119.94	65	52	217.1	19.64	2,125 311.7
135.0		0.1875	21.751	13.019	772.7	28.40	116.00	65	52	225.3	19.64	2,020 334.0
135.4	Reinf. Top	0.1875	21.687	12.981	765.9	28.31	115.67	65	52	19.0	19.64	2,011 28.7
140.0		0.1875	21.012	12.573	695.9	27.35	112.06	65	52		198.7	
145.0		0.1875	20.273	12.127	624.5	26.29	108.12	65	52		210.1	
150.0		0.1875	19.534	11.681	558.1	25.24	104.18	65	52		202.5	
155.0		0.1875	18.796	11.235	496.5	24.18	100.24	65	52		194.9	
160.0		0.1875	18.057	10.789	439.7	23.12	96.30	65	52		187.4	
165.0		0.1875	17.318	10.343	387.4	22.07	92.36	65	52		179.8	
170.0		0.1875	16.579	9.897	339.4	21.01	88.42	65	52		172.2	
175.0		0.1875	15.840	9.450	295.6	19.96	84.48	65	52		164.6	
180.0		0.1875	15.102	9.004	255.6	18.90	80.54	65	52		157.0	
180.4		0.1875	15.041	8.968	252.5	18.82	80.22	65	52		12.5	
180.4		0.1875	15.040	8.967	252.5	18.81	80.21	65	52	0.2		

16,384.5

9,046.7

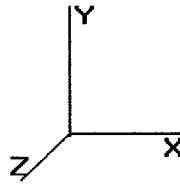
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
 Page: 3

Base Elev : 0.000 (ft)

Copyright © 2007- 2011 by American Tower Corporation. All rights reserved.



Load Case:	No Ice	85.00 mph Wind with No Ice	30 Iterations
Gust Response Factor :	1.69		
Dead Load Factor :	1.00		
Wind Load Factor :	1.00		

Shaft Segment Forces

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice			CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
							Thick (in)	Tributary (ft)	Aa (sf)				
0.00		0.00	1.00	18.496	31.25	295.36	1.030	0.000	0.00	0.000	0.0	0.0	0.0
5.00		0.00	1.00	18.496	31.25	290.13	1.030	0.000	5.00	17.220	17.74	554.4	0.0
10.00		0.00	1.00	18.496	31.25	284.89	1.030	0.000	5.00	16.913	17.42	544.5	0.0
13.00	Appertunance(s)	0.00	1.00	18.496	31.25	281.75	1.030	0.000	3.00	10.000	10.30	322.0	0.0
15.00		0.00	1.00	18.496	31.25	279.66	1.030	0.000	2.00	6.605	6.80	212.7	0.0
20.00		0.00	1.00	18.496	31.25	274.43	1.030	0.000	5.00	16.297	16.79	524.7	0.0
25.00		0.00	1.00	18.496	31.25	269.19	1.030	0.000	5.00	15.989	16.47	514.8	0.0
30.00		0.00	1.00	18.496	31.25	263.96	1.030	0.000	5.00	15.681	16.15	504.9	0.0
35.00		0.00	1.01	18.810	31.78	260.91	1.030	0.000	5.00	15.373	15.83	503.4	0.0
40.00		0.00	1.05	19.541	33.02	260.56	1.030	0.000	5.00	15.066	15.52	512.5	0.0
44.67	Top - Section 1	0.00	1.09	20.167	34.08	259.60	1.030	0.000	4.67	13.783	14.20	483.9	0.0
45.00		0.00	1.09	20.210	34.15	259.51	1.030	0.000	0.33	0.974	1.00	34.3	0.0
50.00		0.00	1.12	20.827	35.19	257.89	1.030	0.000	5.00	14.450	14.88	523.9	0.0
55.00		0.00	1.15	21.402	36.17	255.80	1.030	0.000	5.00	14.142	14.57	526.9	0.0
60.00		0.00	1.18	21.941	37.08	253.30	1.030	0.000	5.00	13.834	14.25	528.4	0.0
65.00		0.00	1.21	22.449	37.93	250.44	1.030	0.000	5.00	13.526	13.93	528.6	0.0
70.00		0.00	1.24	22.929	38.75	247.28	1.030	0.000	5.00	13.219	13.62	527.6	0.0
75.00		0.00	1.26	23.386	39.52	243.85	1.030	0.000	5.00	12.911	13.30	525.6	0.0
80.00		0.00	1.28	23.821	40.25	240.17	1.030	0.000	5.00	12.603	12.98	522.6	0.0
85.00		0.00	1.31	24.237	40.96	236.27	1.030	0.000	5.00	12.295	12.66	518.7	0.0
85.50	Top - Section 2	0.00	1.31	24.278	41.02	235.87	1.030	0.000	0.50	1.212	1.25	51.2	0.0
90.00		0.00	1.33	24.636	41.63	232.16	1.030	0.000	4.50	10.775	11.10	462.1	0.0
95.00		0.00	1.35	25.020	42.28	227.88	1.030	0.000	5.00	11.679	12.03	508.7	0.0
100.0		0.00	1.37	25.389	42.90	223.42	1.030	0.000	5.00	11.372	11.71	502.6	0.0
105.0		0.00	1.39	25.745	43.51	218.81	1.030	0.000	5.00	11.064	11.40	495.8	0.0
110.0		0.00	1.41	26.090	44.09	214.06	1.030	0.000	5.00	10.756	11.08	488.5	0.0
115.0		0.00	1.42	26.423	44.65	209.16	1.030	0.000	5.00	10.448	10.76	480.6	0.0
120.0		0.00	1.44	26.747	45.20	204.15	1.030	0.000	5.00	10.140	10.44	472.1	0.0
125.0		0.00	1.46	27.060	45.73	199.01	1.030	0.000	5.00	9.832	10.13	463.1	0.0
125.3	Top - Section 3	0.00	1.46	27.081	45.76	198.66	1.030	0.000	0.33	0.644	0.66	30.4	0.0
130.0		0.00	1.48	27.365	46.24	193.76	1.030	0.000	4.67	8.880	9.15	423.0	0.0
135.0		0.00	1.49	27.662	46.74	188.41	1.030	0.000	5.00	9.217	9.49	443.8	0.0
135.4	Reinf. Top	0.00	1.49	27.687	46.79	187.95	1.030	0.000	0.43	0.778	0.80	37.5	0.0
140.0		0.00	1.51	27.951	47.23	182.96	1.030	0.000	4.57	8.131	8.37	395.6	0.0
145.0		0.00	1.52	28.233	47.71	177.41	1.030	0.000	5.00	8.601	8.86	422.7	0.0
150.0		0.00	1.54	28.507	48.17	171.78	1.030	0.000	5.00	8.293	8.54	411.5	0.0
155.0		0.00	1.55	28.776	48.63	166.06	1.030	0.000	5.00	7.985	8.22	400.0	0.0
160.0		0.00	1.57	29.038	49.07	160.25	1.030	0.000	5.00	7.678	7.91	388.1	0.0
165.0		0.00	1.58	29.294	49.50	154.37	1.030	0.000	5.00	7.370	7.59	375.8	0.0
170.0		0.00	1.59	29.545	49.93	148.42	1.030	0.000	5.00	7.062	7.27	363.2	0.0
175.0		0.00	1.61	29.791	50.34	142.39	1.030	0.000	5.00	6.754	6.96	350.2	0.0
180.0		0.00	1.62	30.032	50.75	136.30	1.030	0.000	5.00	6.446	6.64	337.0	0.0
180.4	Appertunance(s)	0.00	1.62	30.051	50.78	135.80	1.030	0.000	0.41	0.515	0.53	26.9	0.0
180.4		0.00	1.62	30.052	50.78	135.79	1.030	0.000	0.01	0.008	0.01	0.4	0.2

Totals: 180.42 17,244.8 0.0 25,431.2

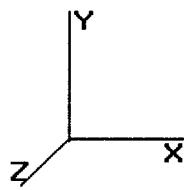
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
Page: 4

Base Elev : 0.000 (ft)

Copyright © 2007- 2011 by American Tower Corporation. All rights reserved.



Load Case: No Ice	85.00 mph Wind with No Ice	30 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

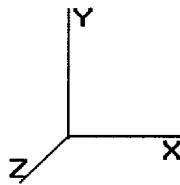
Discrete Appurtenance Segment Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
13.00	Channel Master Type	1	18.496	31.258	1.00	20.19	0.000	0.000	631.10	0.00	0.00	126.00
180.4	6' Omni	1	30.591	51.698	1.00	1.76	0.000	11.590	90.99	0.00	1,054.56	25.00
180.4	Ericsson RRUS-11 800	6	30.221	51.073	0.50	8.82	0.000	3.590	450.47	0.00	1,617.18	324.00
180.4	Flat Platform w/ Han	1	30.051	50.787	0.90	38.16	0.000	0.000	1,938.01	0.00	0.00	2,000.00
180.4	KMW AM-X-CD-16-65-	1	30.221	51.073	0.72	4.77	0.000	3.590	243.44	0.00	873.94	33.00
180.4	Powerwave 7770.00	6	30.221	51.073	0.64	22.58	0.000	3.590	1,153.19	0.00	4,139.97	210.00
180.4	Powerwave LGP21401	6	30.221	51.073	0.33	2.55	0.000	3.590	130.45	0.00	468.32	84.60
180.4	Powerwave LGP21903	6	30.221	51.073	0.33	0.53	0.000	3.590	27.30	0.00	98.02	33.00
180.4	Powerwave P65-17-	2	30.221	51.073	0.85	19.48	0.000	3.590	995.01	0.00	3,572.09	118.00
180.4	Raycap DC6-48-60-18-	1	30.221	51.073	1.00	1.26	0.000	3.590	64.35	0.00	231.03	20.00
										5,724.32		2,973.60

Pole : 302503
 Location: Lisbon CT 3, CT
 Height: 180.4 (ft)
 Base Dia: 41.69 (in)
 Top Dia: 15.04 (in)
 Shape: 12 Sides
 Taper: 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
 Page: 5



Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.

Load Case: No Ice

85.00 mph Wind with No Ice

30 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Linear Appurtenance Segment Forces

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	18.496	117.22	0.00
5.00	(1) RG6	Yes	5.00	0.03	0.03	18.496	4.38	0.14
10.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	18.496	117.22	0.00
10.00	(1) RG6	Yes	5.00	0.03	0.03	18.496	4.38	0.14
13.00	(4) #20 Dywdag Bars	Yes	3.00	0.00	0.75	18.496	70.33	0.00
13.00	(1) RG6	Yes	3.00	0.03	0.03	18.496	2.63	0.09
15.00	(4) #20 Dywdag Bars	Yes	2.00	0.00	0.75	18.496	46.89	0.00
20.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	18.496	117.22	0.00
25.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	18.496	117.22	0.00
30.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	18.496	117.22	0.00
35.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	18.810	119.21	0.00
40.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	19.541	123.84	0.00
44.67	(4) #20 Dywdag Bars	Yes	4.67	0.00	0.75	20.167	119.29	0.00
45.00	(4) #20 Dywdag Bars	Yes	0.33	0.00	0.75	20.210	8.54	0.00
50.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	20.827	131.99	0.00
55.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	21.402	135.64	0.00
60.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	21.941	139.05	0.00
65.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	22.449	142.27	0.00
70.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	22.929	145.31	0.00
75.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	23.386	148.21	0.00
80.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	23.821	150.96	0.00
85.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	24.237	153.60	0.00
85.50	(4) #20 Dywdag Bars	Yes	0.50	0.00	0.75	24.278	15.38	0.00
90.00	(4) #20 Dywdag Bars	Yes	4.50	0.00	0.75	24.636	140.52	0.00
95.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	25.020	158.56	0.00
100.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	25.389	160.90	0.00
105.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	25.745	163.16	0.00
110.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	26.090	165.34	0.00
115.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	26.423	167.46	0.00
120.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	26.747	169.51	0.00
125.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	27.060	171.50	0.00
125.3	(4) #20 Dywdag Bars	Yes	0.33	0.00	0.75	27.081	11.44	0.00
130.0	(4) #20 Dywdag Bars	Yes	4.67	0.00	0.75	27.365	161.87	0.00
135.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	27.662	175.31	0.00
135.4	(4) #20 Dywdag Bars	Yes	0.43	0.00	0.75	27.687	15.09	0.00
140.0	(4) #20 Dywdag Bars	Yes	4.57	0.00	0.75	27.951	161.91	0.00
Totals:							4,070.55	0.38

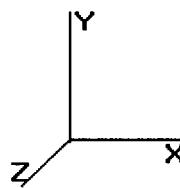
Pole : 302503
 Location: Lisbon CT 3, CT
 Height: 180.4 (ft)
 Base Dia: 41.69 (in)
 Top Dia: 15.04 (in)
 Shape: 12 Sides
 Taper: 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
Page: 6

Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Load Case: No Ice

85.00 mph Wind with No Ice

30 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	676.02	1,236.26	0.00	0.00
10.00	666.11	1,221.09	0.00	0.00
13.00	1,026.01	851.37	0.00	0.00
15.00	259.54	480.48	0.00	0.00
20.00	641.92	1,190.59	0.00	0.00
25.00	632.00	1,175.41	0.00	0.00
30.00	622.09	1,160.23	0.00	0.00
35.00	622.56	1,145.05	0.00	0.00
40.00	636.30	1,129.87	0.00	0.00
44.67	603.14	1,040.84	0.00	0.00
45.00	42.82	66.00	0.00	0.00
50.00	655.87	983.12	0.00	0.00
55.00	662.51	970.48	0.00	0.00
60.00	667.43	957.83	0.00	0.00
65.00	670.84	945.18	0.00	0.00
70.00	672.90	932.53	0.00	0.00
75.00	673.77	919.88	0.00	0.00
80.00	673.54	907.23	0.00	0.00
85.00	672.33	894.59	0.00	0.00
85.50	66.62	88.75	0.00	0.00
90.00	602.59	706.38	0.00	0.00
95.00	667.22	775.24	0.00	0.00
100.0	663.47	765.12	0.00	0.00
105.0	658.98	755.00	0.00	0.00
110.0	653.82	744.88	0.00	0.00
115.0	648.02	734.76	0.00	0.00
120.0	641.62	724.64	0.00	0.00
125.0	634.64	714.52	0.00	0.00
125.3	41.81	47.26	0.00	0.00
130.0	584.88	585.57	0.00	0.00
135.0	619.11	620.04	0.00	0.00
135.4	52.60	52.97	0.00	0.00
140.0	557.50	254.21	0.00	0.00
145.0	422.70	270.87	0.00	0.00
150.0	411.54	263.28	0.00	0.00
155.0	399.99	255.69	0.00	0.00
160.0	388.07	248.10	0.00	0.00
165.0	375.80	240.51	0.00	0.00
170.0	363.19	232.92	0.00	0.00
175.0	350.25	225.33	0.00	0.00
180.0	336.99	217.74	0.00	0.00
180.4	5,120.15	2,865.12	0.00	12,055.10
180.4	0.43	0.20	0.00	0.00
Totals:		27,039.70	30,597.13	0.00
				12,055.10

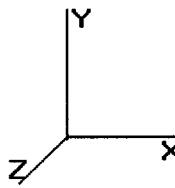
Pole : 302503
 Location: Lisbon CT 3, CT
 Height: 180.4 (ft)
 Base Dia: 41.69 (in)
 Top Dia: 15.04 (in)
 Shape: 12 Sides
 Taper: 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
 Page: 7

Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Load Case: No Ice

85.00 mph Wind with No Ice

30 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

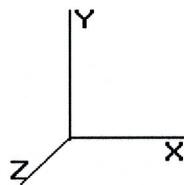
Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-27.104	-30.539	0.000	0.000	0.000	-2,864.322	0.000	0.000	0.000	0.000
5.00	-26.547	-29.194	0.000	0.000	0.000	-2,728.802	-0.128	0.000	0.128	-0.239
10.00	-25.966	-27.892	0.000	0.000	0.000	-2,596.067	-0.506	0.000	0.506	-0.476
13.00	-24.988	-26.998	0.000	0.000	0.000	-2,518.170	-0.852	0.000	0.852	-0.620
15.00	-24.800	-26.448	0.000	0.000	0.000	-2,468.193	-1.132	0.000	1.132	-0.716
20.00	-24.245	-25.168	0.000	0.000	0.000	-2,344.193	-2.009	0.000	2.009	-0.952
25.00	-23.689	-23.908	0.000	0.000	0.000	-2,222.970	-3.132	0.000	3.132	-1.187
30.00	-23.133	-22.668	0.000	0.000	0.000	-2,104.527	-4.500	0.000	4.500	-1.421
35.00	-22.567	-21.449	0.000	0.000	0.000	-1,988.864	-6.113	0.000	6.113	-1.653
40.00	-21.975	-20.255	0.000	0.000	0.000	-1,876.032	-7.967	0.000	7.967	-1.884
44.67	-21.374	-19.193	0.000	0.000	0.000	-1,773.486	-9.915	0.000	9.915	-2.098
45.00	-21.374	-19.078	0.000	0.000	0.000	-1,766.360	-10.063	0.000	10.063	-2.113
50.00	-20.758	-18.031	0.000	0.000	0.000	-1,659.494	-12.410	0.000	12.410	-2.364
55.00	-20.128	-17.004	0.000	0.000	0.000	-1,555.703	-15.019	0.000	15.019	-2.612
60.00	-19.483	-15.997	0.000	0.000	0.000	-1,455.066	-17.886	0.000	17.886	-2.857
65.00	-18.827	-15.009	0.000	0.000	0.000	-1,357.651	-21.006	0.000	21.006	-3.098
70.00	-18.160	-14.042	0.000	0.000	0.000	-1,263.518	-24.377	0.000	24.377	-3.335
75.00	-17.485	-13.094	0.000	0.000	0.000	-1,172.716	-27.993	0.000	27.993	-3.568
80.00	-16.803	-12.166	0.000	0.000	0.000	-1,085.291	-31.851	0.000	31.851	-3.797
85.00	-16.095	-11.285	0.000	0.000	0.000	-1,001.277	-35.944	0.000	35.944	-4.020
85.50	-16.044	-11.170	0.000	0.000	0.000	-993.231	-36.366	0.000	36.366	-4.043
90.00	-15.432	-10.451	0.000	0.000	0.000	-921.031	-40.269	0.000	40.269	-4.239
95.00	-14.746	-9.669	0.000	0.000	0.000	-843.874	-44.831	0.000	44.831	-4.474
100.0	-14.059	-8.905	0.000	0.000	0.000	-770.142	-49.634	0.000	49.634	-4.701
105.0	-13.369	-8.158	0.000	0.000	0.000	-699.849	-54.670	0.000	54.670	-4.920
110.0	-12.680	-7.427	0.000	0.000	0.000	-633.003	-59.931	0.000	59.931	-5.132
115.0	-11.991	-6.713	0.000	0.000	0.000	-569.604	-65.408	0.000	65.408	-5.335
120.0	-11.303	-6.015	0.000	0.000	0.000	-509.651	-71.092	0.000	71.092	-5.528
125.0	-10.611	-5.349	0.000	0.000	0.000	-453.135	-76.973	0.000	76.973	-5.713
125.3	-10.573	-5.289	0.000	0.000	0.000	-449.600	-77.371	0.000	77.371	-5.725
130.0	-9.946	-4.736	0.000	0.000	0.000	-400.260	-83.041	0.000	83.041	-5.888
135.0	-9.272	-4.169	0.000	0.000	0.000	-350.531	-89.294	0.000	89.294	-6.067
135.4	-9.221	-4.108	0.000	0.000	0.000	-346.544	-89.840	0.000	89.840	-6.082
140.0	-8.664	-3.859	0.000	0.000	0.000	-304.406	-95.728	0.000	95.728	-6.235
145.0	-8.249	-3.557	0.000	0.000	0.000	-261.086	-102.555	0.000	102.555	-6.813
150.0	-7.839	-3.274	0.000	0.000	0.000	-219.842	-109.968	0.000	109.968	-7.361
155.0	-7.434	-3.011	0.000	0.000	0.000	-180.650	-117.931	0.000	117.931	-7.871
160.0	-7.036	-2.766	0.000	0.000	0.000	-143.480	-126.401	0.000	126.401	-8.335
165.0	-6.645	-2.541	0.000	0.000	0.000	-108.300	-135.322	0.000	135.322	-8.743
170.0	-6.263	-2.335	0.000	0.000	0.000	-75.073	-144.629	0.000	144.629	-9.079
175.0	-5.888	-2.149	0.000	0.000	0.000	-43.760	-154.239	0.000	154.239	-9.328
180.0	-5.522	-1.983	0.000	0.000	0.000	-14.319	-164.052	0.000	164.052	-9.468
180.4	0.000	0.000	0.000	0.000	0.000	0.000	-164.861	0.000	164.861	-9.474
180.4	0.000	0.000	0.000	0.000	0.000	0.000	-164.874	0.000	164.874	-9.474

Pole : 302503
Location : Lisbon CT 3, CT
Height : 180.4 (ft)
Base Dia : 41.69 (in)
Top Dia : 15.04 (in)
Shape : 12 Sides
Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
Page: 8



Base Elev : 0.000 (ft)

Copyright © 2007-2011 by American Tower Corporation. All rights reserved.

Load Case: No Ice

85.00 mph Wind with No Ice

30 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Stress Ratio	
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.44	1.10	0.00	0.00	0.00	44.49	44.97	52.0	0.0	0.865
5.00	0.43	1.10	0.00	0.00	0.00	43.59	44.05	52.0	0.0	0.847
10.00	0.41	1.10	0.00	0.00	0.00	42.66	43.11	52.0	0.0	0.829
13.00	0.40	1.07	0.00	0.00	0.00	42.10	42.54	52.0	0.0	0.818
15.00	0.40	1.07	0.00	0.00	0.00	41.74	42.17	52.0	0.0	0.811
20.00	0.38	1.06	0.00	0.00	0.00	40.81	41.23	52.0	0.0	0.793
25.00	0.37	1.06	0.00	0.00	0.00	39.86	40.27	52.0	0.0	0.774
30.00	0.35	1.06	0.00	0.00	0.00	38.88	39.28	52.0	0.0	0.755
35.00	0.34	1.05	0.00	0.00	0.00	37.87	38.25	52.0	0.0	0.736
40.00	0.32	1.04	0.00	0.00	0.00	36.84	37.20	52.0	0.0	0.715
44.67	0.31	1.04	0.00	0.00	0.00	35.85	36.20	52.0	0.0	0.696
44.67	0.35	1.24	0.00	0.00	0.00	39.70	40.11	52.0	0.0	0.771
45.00	0.35	1.24	0.00	0.00	0.00	39.62	40.02	52.0	0.0	0.770
50.00	0.33	1.23	0.00	0.00	0.00	38.36	38.75	52.0	0.0	0.745
55.00	0.32	1.22	0.00	0.00	0.00	37.08	37.46	52.0	0.0	0.720
60.00	0.31	1.21	0.00	0.00	0.00	35.77	36.13	52.0	0.0	0.695
65.00	0.29	1.20	0.00	0.00	0.00	34.44	34.79	52.0	0.0	0.669
70.00	0.28	1.18	0.00	0.00	0.00	33.08	33.42	52.0	0.0	0.643
75.00	0.26	1.17	0.00	0.00	0.00	31.71	32.03	52.0	0.0	0.616
80.00	0.25	1.15	0.00	0.00	0.00	30.32	30.63	52.0	0.0	0.589
85.00	0.23	1.13	0.00	0.00	0.00	28.91	29.21	52.0	0.0	0.562
85.50	0.23	1.13	0.00	0.00	0.00	28.77	29.07	52.0	0.0	0.559
85.50	0.26	1.41	0.00	0.00	0.00	31.81	32.16	52.0	0.0	0.618
90.00	0.25	1.38	0.00	0.00	0.00	30.34	30.68	52.0	0.0	0.590
95.00	0.23	1.36	0.00	0.00	0.00	28.70	29.02	52.0	0.0	0.558
100.00	0.22	1.33	0.00	0.00	0.00	27.04	27.36	52.0	0.0	0.526
105.00	0.20	1.30	0.00	0.00	0.00	25.39	25.69	52.0	0.0	0.494
110.00	0.19	1.27	0.00	0.00	0.00	23.73	24.02	52.0	0.0	0.462
115.00	0.17	1.24	0.00	0.00	0.00	22.07	22.35	52.0	0.0	0.430
120.00	0.16	1.20	0.00	0.00	0.00	20.43	20.69	52.0	0.0	0.398
125.00	0.14	1.17	0.00	0.00	0.00	18.79	19.04	52.0	0.0	0.366
125.33	0.14	1.16	0.00	0.00	0.00	18.68	18.93	52.0	0.0	0.364
125.33	0.16	1.55	0.00	0.00	0.00	20.47	20.80	51.5	0.0	0.404
130.00	0.14	1.50	0.00	0.00	0.00	18.76	19.08	52.0	0.0	0.367
135.00	0.13	1.45	0.00	0.00	0.00	16.96	17.27	52.0	0.0	0.332
135.43	0.13	1.44	0.00	0.00	0.00	16.81	17.12	52.0	0.0	0.329
135.43	0.32	1.44	0.00	0.00	0.00	60.96	61.32	52.0	0.0	1.179
140.00	0.31	1.40	0.00	0.00	0.00	57.09	57.45	52.0	0.0	1.105
145.00	0.29	1.38	0.00	0.00	0.00	52.65	53.00	52.0	0.0	1.019
150.00	0.28	1.36	0.00	0.00	0.00	47.80	48.14	52.0	0.0	0.926
155.00	0.27	1.34	0.00	0.00	0.00	42.48	42.81	52.0	0.0	0.823
160.00	0.26	1.33	0.00	0.00	0.00	36.60	36.93	52.0	0.0	0.710
165.00	0.25	1.31	0.00	0.00	0.00	30.07	30.40	52.0	0.0	0.585
170.00	0.24	1.29	0.00	0.00	0.00	22.78	23.12	52.0	0.0	0.445
175.00	0.23	1.27	0.00	0.00	0.00	14.57	14.96	52.0	0.0	0.288
180.00	0.22	1.25	0.00	0.00	0.00	5.25	5.88	52.0	0.0	0.113
180.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

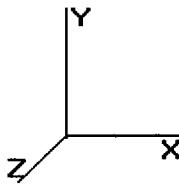
Pole : 302503
 Location: Lisbon CT 3, CT
 Height: 180.4 (ft)
 Base Dia: 41.69 (in)
 Top Dia: 15.04 (in)
 Shape: 12 Sides
 Taper: 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
Page: 9

Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Load Case: Ice

73.61 mph Wind with Ice

30 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Shaft Segment Forces

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice			Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
							Thick (in)	Tributary (ft)	Aa (sf)			
0.00		0.00	1.00	13.871	23.44	255.78	1.030	0.500	0.00	0.000	0.00	0.0
5.00		0.00	1.00	13.871	23.44	251.25	1.030	0.500	5.00	17.637	18.17	425.9
10.00		0.00	1.00	13.871	23.44	246.72	1.030	0.500	5.00	17.329	17.85	418.4
13.00	Appertunance(s)	0.00	1.00	13.871	23.44	244.00	1.030	0.500	3.00	10.250	10.56	247.5
15.00		0.00	1.00	13.871	23.44	242.19	1.030	0.500	2.00	6.772	6.97	163.5
20.00		0.00	1.00	13.871	23.44	237.65	1.030	0.500	5.00	16.714	17.22	403.6
25.00		0.00	1.00	13.871	23.44	233.12	1.030	0.500	5.00	16.406	16.90	396.1
30.00		0.00	1.00	13.871	23.44	228.59	1.030	0.500	5.00	16.098	16.58	388.7
35.00		0.00	1.01	14.106	23.84	225.95	1.030	0.500	5.00	15.790	16.26	387.7
40.00		0.00	1.05	14.655	24.76	225.64	1.030	0.500	5.00	15.482	15.95	395.0
44.67	Top - Section 1	0.00	1.09	15.124	25.56	224.81	1.030	0.500	4.67	14.172	14.60	373.1
45.00		0.00	1.09	15.156	25.61	224.73	1.030	0.500	0.33	1.002	1.03	26.4
50.00		0.00	1.12	15.620	26.39	223.33	1.030	0.500	5.00	14.867	15.31	404.2
55.00		0.00	1.15	16.051	27.12	221.52	1.030	0.500	5.00	14.559	15.00	406.8
60.00		0.00	1.18	16.455	27.80	219.35	1.030	0.500	5.00	14.251	14.68	408.2
65.00		0.00	1.21	16.836	28.45	216.88	1.030	0.500	5.00	13.943	14.36	408.6
70.00		0.00	1.24	17.196	29.06	214.15	1.030	0.500	5.00	13.635	14.04	408.1
75.00		0.00	1.26	17.538	29.64	211.17	1.030	0.500	5.00	13.327	13.73	406.9
80.00		0.00	1.28	17.865	30.19	207.99	1.030	0.500	5.00	13.020	13.41	404.9
85.00		0.00	1.31	18.177	30.71	204.61	1.030	0.500	5.00	12.712	13.09	402.2
85.50	Top - Section 2	0.00	1.31	18.207	30.77	204.26	1.030	0.500	0.50	1.254	1.29	39.7
90.00		0.00	1.33	18.476	31.22	201.05	1.030	0.500	4.50	11.150	11.48	358.6
95.00		0.00	1.35	18.764	31.71	197.34	1.030	0.500	5.00	12.096	12.46	395.1
100.0		0.00	1.37	19.041	32.17	193.48	1.030	0.500	5.00	11.788	12.14	390.7
105.0		0.00	1.39	19.308	32.63	189.49	1.030	0.500	5.00	11.480	11.82	385.8
110.0		0.00	1.41	19.566	33.06	185.37	1.030	0.500	5.00	11.173	11.51	380.5
115.0		0.00	1.42	19.816	33.49	181.14	1.030	0.500	5.00	10.865	11.19	374.8
120.0		0.00	1.44	20.059	33.89	176.79	1.030	0.500	5.00	10.557	10.87	368.6
125.0		0.00	1.46	20.294	34.29	172.34	1.030	0.500	5.00	10.249	10.56	362.1
125.3	Top - Section 3	0.00	1.46	20.310	34.32	172.04	1.030	0.500	0.33	0.672	0.69	23.8
130.0		0.00	1.48	20.523	34.68	167.80	1.030	0.500	4.67	9.269	9.55	331.1
135.0		0.00	1.49	20.745	35.06	163.16	1.030	0.500	5.00	9.633	9.92	347.9
135.4	Reinf. Top	0.00	1.49	20.764	35.09	162.76	1.030	0.500	0.43	0.814	0.84	29.4
140.0		0.00	1.51	20.962	35.42	158.44	1.030	0.500	4.57	8.512	8.77	310.6
145.0		0.00	1.52	21.173	35.78	153.64	1.030	0.500	5.00	9.018	9.29	332.4
150.0		0.00	1.54	21.379	36.13	148.76	1.030	0.500	5.00	8.710	8.97	324.1
155.0		0.00	1.55	21.581	36.47	143.80	1.030	0.500	5.00	8.402	8.65	315.6
160.0		0.00	1.57	21.777	36.80	138.78	1.030	0.500	5.00	8.094	8.34	306.8
165.0		0.00	1.58	21.969	37.12	133.69	1.030	0.500	5.00	7.786	8.02	297.8
170.0		0.00	1.59	22.158	37.44	128.53	1.030	0.500	5.00	7.479	7.70	288.4
175.0		0.00	1.61	22.342	37.75	123.31	1.030	0.500	5.00	7.171	7.39	278.9
180.0		0.00	1.62	22.522	38.06	118.04	1.030	0.500	5.00	6.863	7.07	269.1
180.4	Appertunance(s)	0.00	1.62	22.537	38.08	117.60	1.030	0.500	0.41	0.549	0.57	21.5
180.4		0.00	1.62	22.537	38.08	117.59	1.030	0.500	0.01	0.009	0.01	0.3

Totals:

180.42

13,409.5

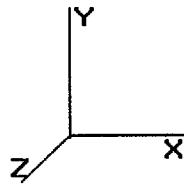
3,220.7

28,651.9

Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
 Page: 10



Base Elev : 0.000 (ft) Copyright © 2007- 2011 by American Tower Corporation. All rights reserved.

Load Case: Ice

73.61 mph Wind with Ice

30 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Discrete Appurtenance Segment Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
13.00	Channel Master Type	1	13.871	23.442	1.00	21.05	0.000	0.000	493.46	0.00	0.00	185.00
180.4	6' Omni	1	22.942	38.771	1.00	2.13	0.000	11.590	82.58	0.00	957.14	38.24
180.4	Ericsson RRUS-11 800	6	22.664	38.303	0.50	9.87	0.000	3.590	378.05	0.00	1,357.19	453.84
180.4	Flat Platform w/ Han	1	22.537	38.088	0.90	43.56	0.000	0.000	1,659.10	0.00	0.00	2,450.00
180.4	KMW AM-X-CD-16-65-	1	22.664	38.303	0.72	5.23	0.000	3.590	200.49	0.00	719.77	33.00
180.4	Powerwave 7770.00	6	22.664	38.303	0.64	24.69	0.000	3.590	945.74	0.00	3,395.21	408.00
180.4	Powerwave LGP21401	6	22.664	38.303	0.33	3.03	0.000	3.590	116.03	0.00	416.56	127.56
180.4	Powerwave LGP21903	6	22.664	38.303	0.33	0.75	0.000	3.590	28.82	0.00	103.46	47.40
180.4	Powerwave P65-17-	2	22.664	38.303	0.85	21.06	0.000	3.590	806.77	0.00	2,896.31	242.00
180.4	Raycap DC6-48-60-18-	1	22.664	38.303	1.00	1.46	0.000	3.590	55.92	0.00	200.76	35.10
										4,766.97		4,020.14

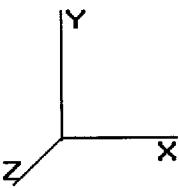
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.

9/17/2012 4:32:50 PM
 Page: 11



Load Case: Ice

73.61 mph Wind with Ice

30 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Linear Appurtenance Segment Forces

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	13.871	117.21	0.00
5.00	(1) RG6	Yes	5.00	0.51	0.13	13.871	15.00	2.53
10.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	13.871	117.21	0.00
10.00	(1) RG6	Yes	5.00	0.51	0.13	13.871	15.00	2.53
13.00	(4) #20 Dywdag Bars	Yes	3.00	0.00	1.00	13.871	70.33	0.00
13.00	(1) RG6	Yes	3.00	0.51	0.13	13.871	9.00	1.52
15.00	(4) #20 Dywdag Bars	Yes	2.00	0.00	1.00	13.871	46.88	0.00
20.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	13.871	117.21	0.00
25.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	13.871	117.21	0.00
30.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	13.871	117.21	0.00
35.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	14.106	119.20	0.00
40.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	14.655	123.83	0.00
44.67	(4) #20 Dywdag Bars	Yes	4.67	0.00	1.00	15.124	119.28	0.00
45.00	(4) #20 Dywdag Bars	Yes	0.33	0.00	1.00	15.156	8.54	0.00
50.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	15.620	131.99	0.00
55.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	16.051	135.63	0.00
60.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	16.455	139.04	0.00
65.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	16.836	142.26	0.00
70.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	17.196	145.30	0.00
75.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	17.538	148.20	0.00
80.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	17.865	150.96	0.00
85.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	18.177	153.59	0.00
85.50	(4) #20 Dywdag Bars	Yes	0.50	0.00	1.00	18.207	15.38	0.00
90.00	(4) #20 Dywdag Bars	Yes	4.50	0.00	1.00	18.476	140.51	0.00
95.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	18.764	158.55	0.00
100.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	19.041	160.89	0.00
105.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	19.308	163.15	0.00
110.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	19.566	165.33	0.00
115.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	19.816	167.45	0.00
120.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	20.059	169.50	0.00
125.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	20.294	171.49	0.00
125.3	(4) #20 Dywdag Bars	Yes	0.33	0.00	1.00	20.310	11.44	0.00
130.0	(4) #20 Dywdag Bars	Yes	4.67	0.00	1.00	20.523	161.86	0.00
135.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	1.00	20.745	175.30	0.00
135.4	(4) #20 Dywdag Bars	Yes	0.43	0.00	1.00	20.764	15.09	0.00
140.0	(4) #20 Dywdag Bars	Yes	4.57	0.00	1.00	20.962	161.90	0.00
Totals:							4,097.94	6.58

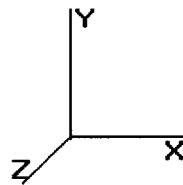
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.

9/17/2012 4:32:50 PM
Page: 12



Load Case: Ice

73.61 mph Wind with Ice

30 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	558.07	1,368.44	0.00	0.00
10.00	550.64	1,350.95	0.00	0.00
13.00	820.28	987.45	0.00	0.00
15.00	210.39	530.55	0.00	0.00
20.00	520.77	1,313.44	0.00	0.00
25.00	513.34	1,295.95	0.00	0.00
30.00	505.91	1,278.46	0.00	0.00
35.00	506.92	1,260.97	0.00	0.00
40.00	518.78	1,243.47	0.00	0.00
44.67	492.39	1,144.85	0.00	0.00
45.00	34.98	73.43	0.00	0.00
50.00	536.20	1,092.10	0.00	0.00
55.00	542.40	1,077.14	0.00	0.00
60.00	547.24	1,062.18	0.00	0.00
65.00	550.87	1,047.22	0.00	0.00
70.00	553.45	1,032.26	0.00	0.00
75.00	555.07	1,017.29	0.00	0.00
80.00	555.82	1,002.33	0.00	0.00
85.00	555.80	987.37	0.00	0.00
85.50	55.13	98.00	0.00	0.00
90.00	499.11	787.81	0.00	0.00
95.00	553.63	863.40	0.00	0.00
100.0	551.60	850.97	0.00	0.00
105.0	549.00	838.53	0.00	0.00
110.0	545.86	826.10	0.00	0.00
115.0	542.22	813.67	0.00	0.00
120.0	538.11	801.24	0.00	0.00
125.0	533.54	788.81	0.00	0.00
125.3	35.20	52.20	0.00	0.00
130.0	492.99	652.74	0.00	0.00
135.0	523.17	689.70	0.00	0.00
135.4	44.51	58.94	0.00	0.00
140.0	472.47	315.76	0.00	0.00
145.0	332.36	335.90	0.00	0.00
150.0	324.14	326.00	0.00	0.00
155.0	315.63	316.10	0.00	0.00
160.0	306.83	306.19	0.00	0.00
165.0	297.77	296.29	0.00	0.00
170.0	288.45	286.39	0.00	0.00
175.0	278.88	276.49	0.00	0.00
180.0	269.06	266.59	0.00	0.00
180.4	4,295.05	3,856.65	0.00	10,046.40
180.4	0.35	0.27	0.00	0.00
Totals:		22,274.38	34,870.57	0.00
				10,046.40

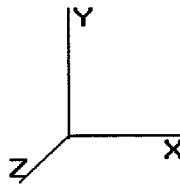
Pole : 302503
 Location: Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
 Page: 13

Base Elev : 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Load Case: Ice

73.61 mph Wind with Ice

30 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-22.336	-34.831	0.000	0.000	0.000	-2,391.922	0.000	0.000	0.000	0.000
5.00	-21.892	-33.387	0.000	0.000	0.000	-2,280.244	-0.107	0.000	0.107	-0.199
10.00	-21.423	-31.980	0.000	0.000	0.000	-2,170.787	-0.422	0.000	0.422	-0.398
13.00	-20.649	-30.963	0.000	0.000	0.000	-2,106.520	-0.712	0.000	0.712	-0.518
15.00	-20.507	-30.385	0.000	0.000	0.000	-2,065.224	-0.946	0.000	0.946	-0.598
20.00	-20.070	-29.009	0.000	0.000	0.000	-1,962.690	-1.679	0.000	1.679	-0.796
25.00	-19.632	-27.654	0.000	0.000	0.000	-1,862.340	-2.618	0.000	2.618	-0.993
30.00	-19.191	-26.320	0.000	0.000	0.000	-1,764.184	-3.763	0.000	3.763	-1.189
35.00	-18.741	-25.008	0.000	0.000	0.000	-1,668.229	-5.112	0.000	5.112	-1.383
40.00	-18.268	-23.719	0.000	0.000	0.000	-1,574.525	-6.665	0.000	6.665	-1.577
44.67	-17.780	-22.559	0.000	0.000	0.000	-1,489.279	-8.296	0.000	8.296	-1.757
45.00	-17.787	-22.452	0.000	0.000	0.000	-1,483.351	-8.419	0.000	8.419	-1.770
50.00	-17.293	-21.315	0.000	0.000	0.000	-1,394.418	-10.386	0.000	10.386	-1.981
55.00	-16.785	-20.197	0.000	0.000	0.000	-1,307.953	-12.572	0.000	12.572	-2.189
60.00	-16.264	-19.100	0.000	0.000	0.000	-1,224.029	-14.975	0.000	14.975	-2.395
65.00	-15.731	-18.023	0.000	0.000	0.000	-1,142.710	-17.591	0.000	17.591	-2.598
70.00	-15.189	-16.965	0.000	0.000	0.000	-1,064.054	-20.418	0.000	20.418	-2.797
75.00	-14.637	-15.928	0.000	0.000	0.000	-988.111	-23.452	0.000	23.452	-2.994
80.00	-14.078	-14.910	0.000	0.000	0.000	-914.927	-26.690	0.000	26.690	-3.186
85.00	-13.491	-13.932	0.000	0.000	0.000	-844.541	-30.126	0.000	30.126	-3.374
85.50	-13.453	-13.816	0.000	0.000	0.000	-837.797	-30.481	0.000	30.481	-3.394
90.00	-12.948	-13.018	0.000	0.000	0.000	-777.259	-33.758	0.000	33.758	-3.559
95.00	-12.382	-12.150	0.000	0.000	0.000	-712.518	-37.590	0.000	37.590	-3.757
100.0	-11.812	-11.299	0.000	0.000	0.000	-650.608	-41.626	0.000	41.626	-3.949
105.0	-11.238	-10.466	0.000	0.000	0.000	-591.549	-45.859	0.000	45.859	-4.135
110.0	-10.663	-9.650	0.000	0.000	0.000	-535.358	-50.282	0.000	50.282	-4.313
115.0	-10.086	-8.851	0.000	0.000	0.000	-482.046	-54.888	0.000	54.888	-4.485
120.0	-9.508	-8.068	0.000	0.000	0.000	-431.619	-59.670	0.000	59.670	-4.649
125.0	-8.922	-7.314	0.000	0.000	0.000	-384.080	-64.618	0.000	64.618	-4.805
125.3	-8.892	-7.253	0.000	0.000	0.000	-381.107	-64.953	0.000	64.953	-4.816
130.0	-8.362	-6.623	0.000	0.000	0.000	-339.612	-69.725	0.000	69.725	-4.954
135.0	-7.789	-5.971	0.000	0.000	0.000	-297.804	-74.990	0.000	74.990	-5.106
135.4	-7.746	-5.906	0.000	0.000	0.000	-294.455	-75.450	0.000	75.450	-5.119
140.0	-7.278	-5.595	0.000	0.000	0.000	-259.053	-80.409	0.000	80.409	-5.249
145.0	-6.959	-5.234	0.000	0.000	0.000	-222.662	-86.163	0.000	86.163	-5.741
150.0	-6.642	-4.891	0.000	0.000	0.000	-187.866	-92.417	0.000	92.417	-6.208
155.0	-6.326	-4.567	0.000	0.000	0.000	-154.657	-99.143	0.000	99.143	-6.645
160.0	-6.013	-4.260	0.000	0.000	0.000	-123.025	-106.303	0.000	106.303	-7.043
165.0	-5.703	-3.972	0.000	0.000	0.000	-92.960	-113.851	0.000	113.851	-7.392
170.0	-5.396	-3.702	0.000	0.000	0.000	-64.447	-121.732	0.000	121.732	-7.681
175.0	-5.092	-3.451	0.000	0.000	0.000	-37.470	-129.875	0.000	129.875	-7.895
180.0	-4.791	-3.220	0.000	0.000	0.000	-12.011	-138.190	0.000	138.190	-8.014
180.4	0.000	0.000	0.000	0.000	0.000	0.000	-138.877	0.000	138.877	-8.019
180.4	0.000	0.000	0.000	0.000	0.000	0.000	-138.888	0.000	138.888	-8.019

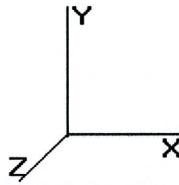
Pole : 302503
Location : Lisbon CT 3, CT
Height : 180.4 (ft)
Base Dia : 41.69 (in)
Top Dia : 15.04 (in)
Shape : 12 Sides
Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:50 PM
Page: 14

Base Elev : 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Load Case: Ice

73.61 mph Wind with Ice

30 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Stress Ratio	
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.50	0.91	0.00	0.00	0.00	37.15	37.68	52.0	0.0	0.725
5.00	0.49	0.91	0.00	0.00	0.00	36.42	36.94	52.0	0.0	0.710
10.00	0.47	0.90	0.00	0.00	0.00	35.67	36.18	52.0	0.0	0.696
13.00	0.46	0.88	0.00	0.00	0.00	35.21	35.71	52.0	0.0	0.687
15.00	0.45	0.88	0.00	0.00	0.00	34.92	35.41	52.0	0.0	0.681
20.00	0.44	0.88	0.00	0.00	0.00	34.17	34.64	52.0	0.0	0.666
25.00	0.42	0.88	0.00	0.00	0.00	33.39	33.85	52.0	0.0	0.651
30.00	0.41	0.88	0.00	0.00	0.00	32.59	33.04	52.0	0.0	0.635
35.00	0.40	0.87	0.00	0.00	0.00	31.77	32.20	52.0	0.0	0.619
40.00	0.38	0.87	0.00	0.00	0.00	30.92	31.33	52.0	0.0	0.603
44.67	0.37	0.86	0.00	0.00	0.00	30.10	30.50	52.0	0.0	0.587
44.67	0.41	1.03	0.00	0.00	0.00	33.34	33.80	52.0	0.0	0.650
45.00	0.41	1.03	0.00	0.00	0.00	33.27	33.73	52.0	0.0	0.649
50.00	0.40	1.03	0.00	0.00	0.00	32.23	32.68	52.0	0.0	0.628
55.00	0.38	1.02	0.00	0.00	0.00	31.17	31.60	52.0	0.0	0.608
60.00	0.36	1.01	0.00	0.00	0.00	30.09	30.50	52.0	0.0	0.587
65.00	0.35	1.00	0.00	0.00	0.00	28.98	29.38	52.0	0.0	0.565
70.00	0.33	0.99	0.00	0.00	0.00	27.86	28.24	52.0	0.0	0.543
75.00	0.32	0.98	0.00	0.00	0.00	26.72	27.09	52.0	0.0	0.521
80.00	0.30	0.96	0.00	0.00	0.00	25.56	25.91	52.0	0.0	0.498
85.00	0.29	0.95	0.00	0.00	0.00	24.38	24.72	52.0	0.0	0.475
85.50	0.28	0.94	0.00	0.00	0.00	24.27	24.61	52.0	0.0	0.473
85.50	0.32	1.18	0.00	0.00	0.00	26.83	27.23	52.0	0.0	0.524
90.00	0.31	1.16	0.00	0.00	0.00	25.60	25.99	52.0	0.0	0.500
95.00	0.29	1.14	0.00	0.00	0.00	24.23	24.60	52.0	0.0	0.473
100.00	0.27	1.12	0.00	0.00	0.00	22.85	23.20	52.0	0.0	0.446
105.00	0.26	1.09	0.00	0.00	0.00	21.46	21.80	52.0	0.0	0.419
110.00	0.24	1.07	0.00	0.00	0.00	20.07	20.40	52.0	0.0	0.392
115.00	0.23	1.04	0.00	0.00	0.00	18.68	18.99	52.0	0.0	0.365
120.00	0.21	1.01	0.00	0.00	0.00	17.30	17.59	52.0	0.0	0.338
125.00	0.19	0.98	0.00	0.00	0.00	15.93	16.21	52.0	0.0	0.312
125.33	0.19	0.98	0.00	0.00	0.00	15.84	16.12	52.0	0.0	0.310
125.33	0.22	1.30	0.00	0.00	0.00	17.35	17.71	51.5	0.0	0.344
130.00	0.20	1.26	0.00	0.00	0.00	15.92	16.27	52.0	0.0	0.313
135.00	0.18	1.22	0.00	0.00	0.00	14.41	14.74	52.0	0.0	0.283
135.43	0.18	1.21	0.00	0.00	0.00	14.28	14.62	52.0	0.0	0.281
135.43	0.46	1.21	0.00	0.00	0.00	51.79	52.29	52.0	0.0	1.006
140.00	0.44	1.18	0.00	0.00	0.00	48.58	49.07	52.0	0.0	0.944
145.00	0.43	1.17	0.00	0.00	0.00	44.90	45.38	52.0	0.0	0.873
150.00	0.42	1.16	0.00	0.00	0.00	40.85	41.32	52.0	0.0	0.795
155.00	0.41	1.14	0.00	0.00	0.00	36.36	36.82	52.0	0.0	0.708
160.00	0.39	1.13	0.00	0.00	0.00	31.38	31.84	52.0	0.0	0.612
165.00	0.38	1.12	0.00	0.00	0.00	25.81	26.27	52.0	0.0	0.505
170.00	0.37	1.11	0.00	0.00	0.00	19.55	20.02	52.0	0.0	0.385
175.00	0.37	1.09	0.00	0.00	0.00	12.47	12.98	52.0	0.0	0.250
180.00	0.36	1.08	0.00	0.00	0.00	4.41	5.12	52.0	0.0	0.098
180.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

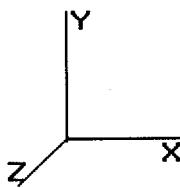
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev: 0.000 (ft)

Copyright © 2007- 2011 by American Tower Corporation. All rights reserved.

9/17/2012 4:32:50 PM
 Page: 15



Load Case: Twist/Sway

50.00 mph Wind with No Ice

29 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Shaft Segment Forces

Seg Top Elev (ft)	Description	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.81	173.74	1.030	0.000	0.00	0.000	0.0	0.0	0.0
5.00		0.00	1.00	6.400	10.81	170.66	1.030	0.000	5.00	17.220	17.74	191.8	0.0
10.00		0.00	1.00	6.400	10.81	167.54	1.030	0.000	5.00	16.913	17.42	188.4	0.0
13.00	Appertunance(s)	0.00	1.00	6.400	10.81	165.74	1.030	0.000	3.00	10.000	10.30	111.4	0.0
15.00		0.00	1.00	6.400	10.81	164.50	1.030	0.000	2.00	6.605	6.80	73.6	0.0
20.00		0.00	1.00	6.400	10.81	161.43	1.030	0.000	5.00	16.297	16.79	181.6	0.0
25.00		0.00	1.00	6.400	10.81	158.35	1.030	0.000	5.00	15.989	16.47	178.1	0.0
30.00		0.00	1.00	6.400	10.81	155.27	1.030	0.000	5.00	15.681	16.15	174.7	0.0
35.00		0.00	1.01	6.509	10.99	153.48	1.030	0.000	5.00	15.373	15.83	174.2	0.0
40.00		0.00	1.05	6.762	11.42	153.27	1.030	0.000	5.00	15.066	15.52	177.3	0.0
44.67	Top - Section 1	0.00	1.09	6.978	11.79	152.70	1.030	0.000	4.67	13.783	14.20	167.4	0.0
45.00		0.00	1.09	6.993	11.81	152.65	1.030	0.000	0.33	0.974	1.00	11.9	0.0
50.00		0.00	1.12	7.207	12.17	151.70	1.030	0.000	5.00	14.450	14.88	181.3	0.0
55.00		0.00	1.15	7.406	12.51	150.47	1.030	0.000	5.00	14.142	14.57	182.3	0.0
60.00		0.00	1.18	7.592	12.83	149.00	1.030	0.000	5.00	13.834	14.25	182.8	0.0
65.00		0.00	1.21	7.768	13.12	147.32	1.030	0.000	5.00	13.526	13.93	182.9	0.0
70.00		0.00	1.24	7.934	13.40	145.46	1.030	0.000	5.00	13.219	13.62	182.6	0.0
75.00		0.00	1.26	8.092	13.67	143.44	1.030	0.000	5.00	12.911	13.30	181.9	0.0
80.00		0.00	1.28	8.242	13.93	141.27	1.030	0.000	5.00	12.603	12.98	180.8	0.0
85.00		0.00	1.31	8.387	14.17	138.98	1.030	0.000	5.00	12.295	12.66	179.5	0.0
85.50	Top - Section 2	0.00	1.31	8.401	14.19	138.74	1.030	0.000	0.50	1.212	1.25	17.7	0.0
90.00		0.00	1.33	8.525	14.40	136.57	1.030	0.000	4.50	10.775	11.10	159.9	0.0
95.00		0.00	1.35	8.657	14.63	134.04	1.030	0.000	5.00	11.679	12.03	176.0	0.0
100.0		0.00	1.37	8.785	14.84	131.42	1.030	0.000	5.00	11.372	11.71	173.9	0.0
105.0		0.00	1.39	8.908	15.05	128.71	1.030	0.000	5.00	11.064	11.40	171.6	0.0
110.0		0.00	1.41	9.028	15.25	125.91	1.030	0.000	5.00	10.756	11.08	169.0	0.0
115.0		0.00	1.42	9.143	15.45	123.04	1.030	0.000	5.00	10.448	10.76	166.3	0.0
120.0		0.00	1.44	9.255	15.64	120.08	1.030	0.000	5.00	10.140	10.44	163.4	0.0
125.0		0.00	1.46	9.363	15.82	117.06	1.030	0.000	5.00	9.832	10.13	160.3	0.0
125.3	Top - Section 3	0.00	1.46	9.371	15.83	116.86	1.030	0.000	0.33	0.644	0.66	10.5	0.0
130.0		0.00	1.48	9.469	16.00	113.98	1.030	0.000	4.67	8.880	9.15	146.4	0.0
135.0		0.00	1.49	9.572	16.17	110.83	1.030	0.000	5.00	9.217	9.49	153.6	0.0
135.4	Reinf. Top	0.00	1.49	9.580	16.19	110.55	1.030	0.000	0.43	0.778	0.80	13.0	0.0
140.0		0.00	1.51	9.672	16.34	107.62	1.030	0.000	4.57	8.131	8.37	136.9	0.0
145.0		0.00	1.52	9.769	16.51	104.36	1.030	0.000	5.00	8.601	8.86	146.3	0.0
150.0		0.00	1.54	9.864	16.67	101.04	1.030	0.000	5.00	8.293	8.54	142.4	0.0
155.0		0.00	1.55	9.957	16.82	97.683	1.030	0.000	5.00	7.985	8.22	138.4	0.0
160.0		0.00	1.57	10.048	16.98	94.270	1.030	0.000	5.00	7.678	7.91	134.3	0.0
165.0		0.00	1.58	10.136	17.13	90.811	1.030	0.000	5.00	7.370	7.59	130.0	0.0
170.0		0.00	1.59	10.223	17.27	87.309	1.030	0.000	5.00	7.062	7.27	125.7	0.0
175.0		0.00	1.61	10.308	17.42	83.764	1.030	0.000	5.00	6.754	6.96	121.2	0.0
180.0		0.00	1.62	10.392	17.56	80.180	1.030	0.000	5.00	6.446	6.64	116.6	0.0
180.4	Appertunance(s)	0.00	1.62	10.398	17.57	79.884	1.030	0.000	0.41	0.515	0.53	9.3	0.0
180.4		0.00	1.62	10.398	17.57	79.879	1.030	0.000	0.01	0.008	0.01	0.1	0.2

Totals: 180.42 5,967.1 0.0 25,431.2

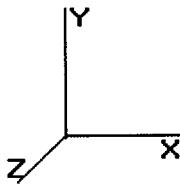
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev: 0.000 (ft)

Copyright © 2007-2011 by American Tower Corporation. All rights reserved.

9/17/2012 4:32:51 PM
 Page: 16



Load Case: Twist/Sway

50.00 mph Wind with No Ice

29 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Discrete Appurtenance Segment Forces

Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	Dead Load (lb)
13.00	Channel Master Type	1	6.400	10.816	1.00	20.19	0.000	0.000	218.38	0.00	0.00	126.00
180.4	6' Omni	1	10.585	17.889	1.00	1.76	0.000	11.590	31.48	0.00	364.90	25.00
180.4	Ericsson RRUS-11 800	6	10.457	17.672	0.50	8.82	0.000	3.590	155.87	0.00	559.58	324.00
180.4	Flat Platform w/ Han	1	10.398	17.573	0.90	38.16	0.000	0.000	670.59	0.00	0.00	2,000.00
180.4	KMW AM-X-CD-16-65-	1	10.457	17.672	0.72	4.77	0.000	3.590	84.23	0.00	302.40	33.00
180.4	Powerwave 7770.00	6	10.457	17.672	0.64	22.58	0.000	3.590	399.03	0.00	1,432.52	210.00
180.4	Powerwave LGP21401	6	10.457	17.672	0.33	2.55	0.000	3.590	45.14	0.00	162.05	84.60
180.4	Powerwave LGP21903	6	10.457	17.672	0.33	0.53	0.000	3.590	9.45	0.00	33.92	33.00
180.4	Powerwave P65-17-	2	10.457	17.672	0.85	19.48	0.000	3.590	344.29	0.00	1,236.02	118.00
180.4	Raycap DC6-48-60-18-	1	10.457	17.672	1.00	1.26	0.000	3.590	22.27	0.00	79.94	20.00
											1,980.73	2,973.60

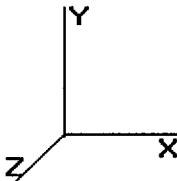
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.

9/17/2012 4:32:51 PM
 Page: 17



Load Case: Twist/Sway

50.00 mph Wind with No Ice

29 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Linear Appurtenance Segment Forces

Seg Top Elev (ft)	Description	Exposed To Wind	Length (ft)	Weight (lb/ft)	CaAa (sf/ft)	qz (psf)	FX (lb)	Dead Load (lb)
5.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.400	40.56	0.00
5.00	(1) RG6	Yes	5.00	0.03	0.03	6.400	1.51	0.14
10.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.400	40.56	0.00
10.00	(1) RG6	Yes	5.00	0.03	0.03	6.400	1.51	0.14
13.00	(4) #20 Dywdag Bars	Yes	3.00	0.00	0.75	6.400	24.34	0.00
13.00	(1) RG6	Yes	3.00	0.03	0.03	6.400	0.91	0.09
15.00	(4) #20 Dywdag Bars	Yes	2.00	0.00	0.75	6.400	16.22	0.00
20.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.400	40.56	0.00
25.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.400	40.56	0.00
30.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.400	40.56	0.00
35.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.509	41.25	0.00
40.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	6.762	42.85	0.00
44.67	(4) #20 Dywdag Bars	Yes	4.67	0.00	0.75	6.978	41.28	0.00
45.00	(4) #20 Dywdag Bars	Yes	0.33	0.00	0.75	6.993	2.96	0.00
50.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	7.207	45.67	0.00
55.00	(4) #20 Dywdaq Bars	Yes	5.00	0.00	0.75	7.406	46.93	0.00
60.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	7.592	48.11	0.00
65.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	7.768	49.23	0.00
70.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	7.934	50.28	0.00
75.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	8.092	51.28	0.00
80.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	8.242	52.24	0.00
85.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	8.387	53.15	0.00
85.50	(4) #20 Dywdaq Bars	Yes	0.50	0.00	0.75	8.401	5.32	0.00
90.00	(4) #20 Dywdag Bars	Yes	4.50	0.00	0.75	8.525	48.62	0.00
95.00	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	8.657	54.87	0.00
100.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	8.785	55.68	0.00
105.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	8.908	56.46	0.00
110.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	9.028	57.21	0.00
115.0	(4) #20 Dywdaq Bars	Yes	5.00	0.00	0.75	9.143	57.94	0.00
120.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	9.255	58.65	0.00
125.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	9.363	59.34	0.00
125.3	(4) #20 Dywdag Bars	Yes	0.33	0.00	0.75	9.371	3.96	0.00
130.0	(4) #20 Dywdag Bars	Yes	4.67	0.00	0.75	9.469	56.01	0.00
135.0	(4) #20 Dywdag Bars	Yes	5.00	0.00	0.75	9.572	60.66	0.00
135.4	(4) #20 Dywdag Bars	Yes	0.43	0.00	0.75	9.580	5.22	0.00
140.0	(4) #20 Dywdag Bars	Yes	4.57	0.00	0.75	9.672	56.02	0.00
Totals:							1,408.49	0.38

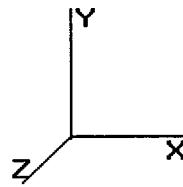
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

Base Elev : 0.000 (ft)

Copyright © 2007- 2011 by American Tower Corporation. All rights reserved.

9/17/2012 4:32:51 PM
 Page: 18



Load Case: Twist/Sway

50.00 mph Wind with No Ice

29 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00	0.00	0.00	0.00	0.00
5.00	233.92	1,236.26	0.00	0.00
10.00	230.49	1,221.09	0.00	0.00
13.00	355.02	851.37	0.00	0.00
15.00	89.81	480.48	0.00	0.00
20.00	222.12	1,190.59	0.00	0.00
25.00	218.69	1,175.41	0.00	0.00
30.00	215.26	1,160.23	0.00	0.00
35.00	215.42	1,145.05	0.00	0.00
40.00	220.17	1,129.87	0.00	0.00
44.67	208.70	1,040.84	0.00	0.00
45.00	14.82	66.00	0.00	0.00
50.00	226.94	983.12	0.00	0.00
55.00	229.24	970.48	0.00	0.00
60.00	230.94	957.83	0.00	0.00
65.00	232.12	945.18	0.00	0.00
70.00	232.84	932.53	0.00	0.00
75.00	233.14	919.88	0.00	0.00
80.00	233.06	907.23	0.00	0.00
85.00	232.64	894.59	0.00	0.00
85.50	23.05	88.75	0.00	0.00
90.00	208.51	706.38	0.00	0.00
95.00	230.87	775.24	0.00	0.00
100.0	229.57	765.12	0.00	0.00
105.0	228.02	755.00	0.00	0.00
110.0	226.24	744.88	0.00	0.00
115.0	224.23	734.76	0.00	0.00
120.0	222.01	724.64	0.00	0.00
125.0	219.60	714.52	0.00	0.00
125.3	14.47	47.26	0.00	0.00
130.0	202.38	585.57	0.00	0.00
135.0	214.22	620.04	0.00	0.00
135.4	18.20	52.97	0.00	0.00
140.0	192.91	254.21	0.00	0.00
145.0	146.26	270.87	0.00	0.00
150.0	142.40	263.28	0.00	0.00
155.0	138.40	255.69	0.00	0.00
160.0	134.28	248.10	0.00	0.00
165.0	130.04	240.51	0.00	0.00
170.0	125.67	232.92	0.00	0.00
175.0	121.19	225.33	0.00	0.00
180.0	116.60	217.74	0.00	0.00
180.4	1,771.68	2,865.12	0.00	4,171.31
180.4	0.15	0.20	0.00	0.00
Totals:		9,356.30	30,597.13	0.00
				4,171.31

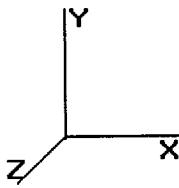
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:51 PM
 Page: 19

Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Load Case: Twist/Sway

50.00 mph Wind with No Ice

29 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-9.378	-30.590	0.000	0.000	0.000	-993.296	0.000	0.000	0.000	0.000
5.00	-9.186	-29.341	0.000	0.000	0.000	-946.405	-0.044	0.000	0.044	-0.083
10.00	-8.985	-28.110	0.000	0.000	0.000	-900.476	-0.175	0.000	0.175	-0.165
13.00	-8.647	-27.254	0.000	0.000	0.000	-873.521	-0.295	0.000	0.295	-0.215
15.00	-8.582	-26.765	0.000	0.000	0.000	-856.227	-0.393	0.000	0.393	-0.248
20.00	-8.391	-25.563	0.000	0.000	0.000	-813.317	-0.697	0.000	0.697	-0.330
25.00	-8.199	-24.378	0.000	0.000	0.000	-771.365	-1.086	0.000	1.086	-0.412
30.00	-8.007	-23.208	0.000	0.000	0.000	-730.371	-1.561	0.000	1.561	-0.493
35.00	-7.812	-22.054	0.000	0.000	0.000	-690.335	-2.120	0.000	2.120	-0.573
40.00	-7.608	-20.916	0.000	0.000	0.000	-651.275	-2.764	0.000	2.764	-0.654
44.67	-7.400	-19.873	0.000	0.000	0.000	-615.773	-3.440	0.000	3.440	-0.728
45.00	-7.401	-19.801	0.000	0.000	0.000	-613.305	-3.491	0.000	3.491	-0.733
50.00	-7.189	-18.810	0.000	0.000	0.000	-576.301	-4.306	0.000	4.306	-0.820
55.00	-6.972	-17.833	0.000	0.000	0.000	-540.356	-5.211	0.000	5.211	-0.907
60.00	-6.750	-16.869	0.000	0.000	0.000	-505.497	-6.207	0.000	6.207	-0.992
65.00	-6.524	-15.919	0.000	0.000	0.000	-471.747	-7.290	0.000	7.290	-1.075
70.00	-6.294	-14.982	0.000	0.000	0.000	-439.128	-8.461	0.000	8.461	-1.158
75.00	-6.062	-14.059	0.000	0.000	0.000	-407.656	-9.717	0.000	9.717	-1.239
80.00	-5.826	-13.149	0.000	0.000	0.000	-377.348	-11.057	0.000	11.057	-1.318
85.00	-5.582	-12.256	0.000	0.000	0.000	-348.217	-12.479	0.000	12.479	-1.396
85.50	-5.565	-12.164	0.000	0.000	0.000	-345.426	-12.626	0.000	12.626	-1.404
90.00	-5.354	-11.456	0.000	0.000	0.000	-320.385	-13.982	0.000	13.982	-1.472
95.00	-5.117	-10.680	0.000	0.000	0.000	-293.617	-15.567	0.000	15.567	-1.554
100.0	-4.880	-9.915	0.000	0.000	0.000	-268.031	-17.237	0.000	17.237	-1.633
105.0	-4.642	-9.161	0.000	0.000	0.000	-243.632	-18.988	0.000	18.988	-1.709
110.0	-4.404	-8.418	0.000	0.000	0.000	-220.422	-20.818	0.000	20.818	-1.783
115.0	-4.166	-7.686	0.000	0.000	0.000	-198.403	-22.723	0.000	22.723	-1.853
120.0	-3.928	-6.964	0.000	0.000	0.000	-177.575	-24.700	0.000	24.700	-1.921
125.0	-3.688	-6.256	0.000	0.000	0.000	-157.936	-26.746	0.000	26.746	-1.985
125.3	-3.675	-6.207	0.000	0.000	0.000	-156.707	-26.885	0.000	26.885	-1.989
130.0	-3.458	-5.625	0.000	0.000	0.000	-139.557	-28.858	0.000	28.858	-2.046
135.0	-3.224	-5.011	0.000	0.000	0.000	-122.267	-31.035	0.000	31.035	-2.109
135.4	-3.207	-4.958	0.000	0.000	0.000	-120.880	-31.225	0.000	31.225	-2.114
140.0	-3.015	-4.704	0.000	0.000	0.000	-106.225	-33.275	0.000	33.275	-2.167
145.0	-2.874	-4.429	0.000	0.000	0.000	-91.150	-35.653	0.000	35.653	-2.369
150.0	-2.733	-4.164	0.000	0.000	0.000	-76.782	-38.237	0.000	38.237	-2.560
155.0	-2.595	-3.907	0.000	0.000	0.000	-63.115	-41.014	0.000	41.014	-2.738
160.0	-2.458	-3.659	0.000	0.000	0.000	-50.140	-43.969	0.000	43.969	-2.901
165.0	-2.324	-3.420	0.000	0.000	0.000	-37.848	-47.084	0.000	47.084	-3.043
170.0	-2.192	-3.191	0.000	0.000	0.000	-26.229	-50.336	0.000	50.336	-3.161
175.0	-2.061	-2.970	0.000	0.000	0.000	-15.271	-53.694	0.000	53.694	-3.248
180.0	-1.934	-2.759	0.000	0.000	0.000	-4.964	-57.124	0.000	57.124	-3.296
180.4	0.000	0.000	0.000	0.000	0.000	0.000	-57.407	0.000	57.407	-3.298
180.4	0.000	0.000	0.000	0.000	0.000	0.000	-57.412	0.000	57.412	-3.298

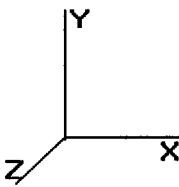
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:51 PM
 Page: 20

Base Elev : 0.000 (ft)

Copyright © 2007-2011 by American Tower Corporation. All rights reserved.



Load Case: Twist/Sway

50.00 mph Wind with No Ice

29 Iterations

Gust Response Factor : 1.69
 Dead Load Factor : 1.00
 Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses						Allowable Stress (Fb) (ksi)	Stress Ratio		
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)				
0.00	0.44	0.38	0.00	0.00	0.00	15.43	15.88	0.0	0.305	
5.00	0.43	0.38	0.00	0.00	0.00	15.12	15.56	52.0	0.0	0.299
10.00	0.41	0.38	0.00	0.00	0.00	14.80	15.23	52.0	0.0	0.293
13.00	0.41	0.37	0.00	0.00	0.00	14.60	15.02	52.0	0.0	0.289
15.00	0.40	0.37	0.00	0.00	0.00	14.48	14.89	52.0	0.0	0.286
20.00	0.39	0.37	0.00	0.00	0.00	14.16	14.56	52.0	0.0	0.280
25.00	0.37	0.37	0.00	0.00	0.00	13.83	14.22	52.0	0.0	0.273
30.00	0.36	0.37	0.00	0.00	0.00	13.49	13.87	52.0	0.0	0.267
35.00	0.35	0.36	0.00	0.00	0.00	13.15	13.51	52.0	0.0	0.260
40.00	0.34	0.36	0.00	0.00	0.00	12.79	13.14	52.0	0.0	0.253
44.67	0.32	0.36	0.00	0.00	0.00	12.45	12.78	52.0	0.0	0.246
44.67	0.36	0.43	0.00	0.00	0.00	13.78	14.17	52.0	0.0	0.272
45.00	0.36	0.43	0.00	0.00	0.00	13.76	14.14	52.0	0.0	0.272
50.00	0.35	0.43	0.00	0.00	0.00	13.32	13.69	52.0	0.0	0.263
55.00	0.34	0.42	0.00	0.00	0.00	12.88	13.23	52.0	0.0	0.255
60.00	0.32	0.42	0.00	0.00	0.00	12.43	12.77	52.0	0.0	0.246
65.00	0.31	0.41	0.00	0.00	0.00	11.97	12.29	52.0	0.0	0.236
70.00	0.29	0.41	0.00	0.00	0.00	11.50	11.81	52.0	0.0	0.227
75.00	0.28	0.40	0.00	0.00	0.00	11.02	11.32	52.0	0.0	0.218
80.00	0.27	0.40	0.00	0.00	0.00	10.54	10.83	52.0	0.0	0.208
85.00	0.25	0.39	0.00	0.00	0.00	10.05	10.33	52.0	0.0	0.199
85.50	0.25	0.39	0.00	0.00	0.00	10.01	10.28	52.0	0.0	0.198
85.50	0.28	0.49	0.00	0.00	0.00	11.06	11.38	52.0	0.0	0.219
90.00	0.27	0.48	0.00	0.00	0.00	10.55	10.86	52.0	0.0	0.209
95.00	0.26	0.47	0.00	0.00	0.00	9.98	10.27	52.0	0.0	0.198
100.00	0.24	0.46	0.00	0.00	0.00	9.41	9.69	52.0	0.0	0.186
105.00	0.23	0.45	0.00	0.00	0.00	8.84	9.10	52.0	0.0	0.175
110.00	0.21	0.44	0.00	0.00	0.00	8.26	8.51	52.0	0.0	0.164
115.00	0.20	0.43	0.00	0.00	0.00	7.69	7.92	52.0	0.0	0.152
120.00	0.18	0.42	0.00	0.00	0.00	7.12	7.33	52.0	0.0	0.141
125.00	0.16	0.41	0.00	0.00	0.00	6.55	6.75	52.0	0.0	0.130
125.33	0.16	0.40	0.00	0.00	0.00	6.51	6.71	52.0	0.0	0.129
125.33	0.19	0.54	0.00	0.00	0.00	7.13	7.38	51.5	0.0	0.143
130.00	0.17	0.52	0.00	0.00	0.00	6.54	6.77	52.0	0.0	0.130
135.00	0.15	0.50	0.00	0.00	0.00	5.92	6.13	52.0	0.0	0.118
135.43	0.15	0.50	0.00	0.00	0.00	5.86	6.08	52.0	0.0	0.117
135.43	0.38	0.50	0.00	0.00	0.00	21.26	21.66	52.0	0.0	0.417
140.00	0.37	0.49	0.00	0.00	0.00	19.92	20.31	52.0	0.0	0.391
145.00	0.37	0.48	0.00	0.00	0.00	18.38	18.77	52.0	0.0	0.361
150.00	0.36	0.48	0.00	0.00	0.00	16.70	17.07	52.0	0.0	0.328
155.00	0.35	0.47	0.00	0.00	0.00	14.84	15.21	52.0	0.0	0.293
160.00	0.34	0.46	0.00	0.00	0.00	12.79	13.15	52.0	0.0	0.253
165.00	0.33	0.46	0.00	0.00	0.00	10.51	10.87	52.0	0.0	0.209
170.00	0.32	0.45	0.00	0.00	0.00	7.96	8.32	52.0	0.0	0.160
175.00	0.31	0.44	0.00	0.00	0.00	5.08	5.45	52.0	0.0	0.105
180.00	0.31	0.44	0.00	0.00	0.00	1.82	2.26	52.0	0.0	0.043
180.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
180.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

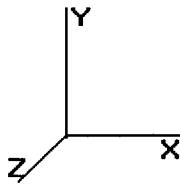
Pole : 302503
 Location : Lisbon CT 3, CT
 Height : 180.4 (ft)
 Base Dia : 41.69 (in)
 Top Dia : 15.04 (in)
 Shape : 12 Sides
 Taper : 0.147760 (in/ft)

Code: TIA/EIA-222 Rev F

9/17/2012 4:32:51 PM
 Page: 21

Base Elev: 0.000 (ft)

Copyright © 2007 - 2011 by American Tower Corporation. All rights reserved.



Analysis Summary

Load Case	Reactions						Max Stresses			
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	27.1	0.00	30.54	0.00	0.00	2864.32	61.32	52.0	135.43	1.179
Ice	22.3	0.00	34.83	0.00	0.00	2391.92	52.29	52.0	135.43	1.006
Twist/Sway	9.4	0.00	30.59	0.00	0.00	993.30	21.66	52.0	135.43	0.417

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
			Shear VQ/I (lb/in)	Shear Applied (kips)	Shear Allow (kips)	MQ/I (kips)	Allow (kips)	Num Req'd	Num Actual	MQ/I (kips)	Allow (kips)	Num Req'd	Num Actual	fb (ksi)	Fb (ksi)	Ratio
0.00	135. (4) SOL-#20 All Thre		249.6	7.5	12.9	105.0	8.1	13	12	0.0	8.1	0	0	53.1	57.8	0.918

Base/Flange Plate	Plate Type	Baseplate
	Pole Diameter	41.699 in
	Pole Thickness	in
	Plate Diameter	53.699 in
	Plate Thickness	2.5 in
	Plate Fy	60 ksi
	Weld Length	0.25 in
	Allowable	341.15 k-in
	Applied	327.98 k-in

Code Rev.	F	Date	9/12/2012
A.S.I.	1.00	Engineer	CLJ
Moment	2864.3 k-ft	Site #	302503
Axial	30.5 k	Carrier	AT&T Mobility

Bolts	#	12
	Bolt Circle (R)radial / (S)square	48.699 in
		R
	● Diameter	2.25 in
	Hole Diameter	2.625 in
	Type	A615-75
	Fy	75 ksi
	Fu	100 ksi
	Allowable	174.95 k
	Applied	169.28 k
Reinforcement	#	4
	DYW. Circle	48.574 in
	Offset Angle	15 °
	Type	#20
	Diameter	2.5 in
	Fu	100 ksi
Extra Bolts O	#	0

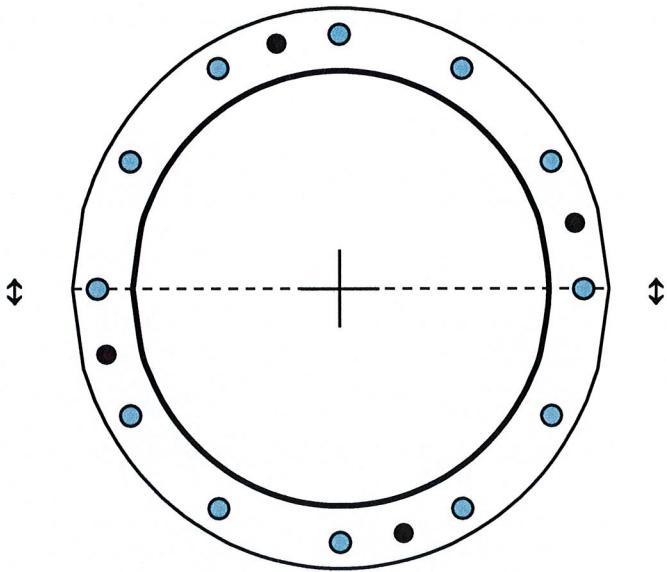


Plate Stress Ratio:

0.96 (Pass)

Bolt Stress Ratio:

0.97 (Pass)

Base/Flange Plate	Plate Type	Flange @ 125.3 ft
	Pole Diameter	23.179 in
	Pole Thickness	in
	Plate Diameter	29.6028 in
	Plate Thickness	1.25 in
	Plate Fy	36 ksi
	Weld Length	0.1875 in
	Allowable	37.93 k-in
	Applied	20.49 k-in
#	0	

Code Rev.	F	Date	9/12/2012
A.S.I.	1.33	Engineer	CLJ
Moment	449.6 k-ft	Site #	302503
Axial	5.3 k	Carrier	AT&T Mobility

Required Flange Thickness:
0.92 in OK

Bolts	#	18
	Bolt Circle (R)radial / (S)square	27.237 in R
	Diameter	1 in
	Hole Diameter	1.125 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	Allowable	46.08 k
	Applied	16.02 k
#	4	
DYW. Circle	30.054 in	
Offset Angle	0 °	
Type	#20	
Diameter	2.5 in	
Fu	100 ksi	
#	0	

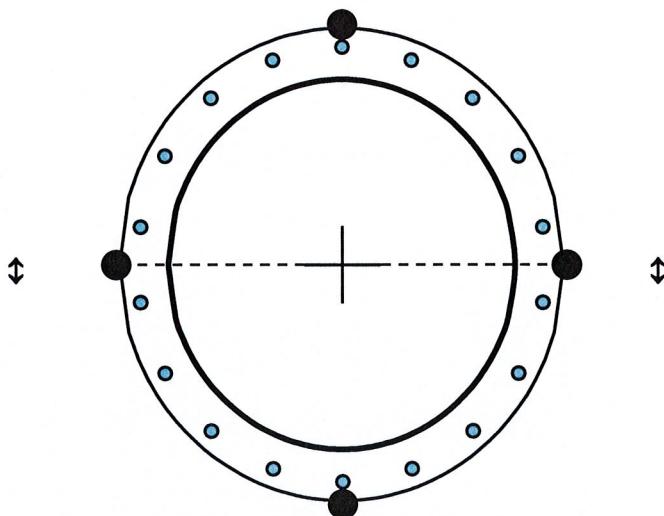


Plate Stress Ratio:

0.54 (Pass)

Bolt Stress Ratio:

0.35 (Pass)

Site Name: **Lisbon CT3**
 Site Number: **302503**
 Engineering Number: **50406821**
 Engineer: **BKL**
 Date: **9/13/2012**

Design Base Loads (Unfactored) - Design per TIA-222-F Standard

Moment (Overturning) (M_u):	2864.3 k-ft	
Shear/Leg (V_u):	27.1 k	
Compression/Leg (P_u):	30.5 k	
Uplift/Leg (T_u):	0.0 k	
Tower Type (GT / SST / MP):	MP	
Length / Width of Block:	10.0 ft	
Thickness of Block:	6.0 ft	
Block Height Above Ground:	1.0 ft	
Depth Below Ground Surface to Water Table (w):	30.0 ft	
Unit Weight of Concrete:	150.0 pcf	
Unit Weight of Soil:	120.0 pcf	
Unit Weight of Water:	62.4 pcf	
Ultimate Compressive Bearing Pressure:	10000 psf	
Capacity Increase (Due to Transient Loads):	1.00	
Pullout Angle:	45.0 degrees	
Rod Diameter:	1.00 in	
Rod Ultimate Strength:	90 ksi	
Rod Net Area:	0.85 in ²	
Number of Rods:	16	
Diameter of Cored Hole:	3.00 in	
Ultimate Grout / Rock Interface Bond Strength:	100 psi	
Ultimate Grout / Rock Anchor Interface Bond Strength:	400 psi	
Overall Rod Embedment Length:	72 in	
Rod Exposure Above Lock Off Nut in Foundation:	36 in	
Rod Embedment Circle:	137 in (Adjustment necessary if square configuration)	
Free Stress Length:	0 in	
Soil / Concrete Friction Coefficient:	0.55	
Lock Off Load:	0 k	
Rock Anchor Design Plastic or Elastic:	Elastic	
Ignore Pullout Weight Resistance (Y/N):	Y	
Weight of Concrete (Buoyancy Effect Considered):	90.0 k	
Compressive Bearing Resistance:	785.4 k	
Pullout Weight / Rod:	k - Ignored	
Rock / Grout Bond Strength / Rod:	67.9 k	
Grout / Rod Bond Strength / Rod:	90.5 k	
Rod Mechanical Strength / Rod:	76.5 k	
Soil Strength Reduction Factor (ϕ_s):	0.50	Results in a factor of safety = 2.00
Factored Nominal Moment Capacity per Leg ($\phi_s M_n$):	2684.8 k	
Factored Nominal Uplift Capacity per Leg ($\phi_s T_n$):	663.4 k	
Factored Nominal Compressive Capacity per Leg ($\phi_s P_n$):	392.7 k	
Factored Nominal Shear Capacity per Leg ($\phi_s V_n$):	367.2 k	
M_u :	3026.9 k-ft	
T_u :	0.0 k	
P_u :	45.5 k	
V_u :	27.1 k	
$T_u/\phi_s T_n + M_u/\phi_s M_n$:	1.13 Result: NG	
$P_u/\phi_s P_n$:	0.12 Result: OK	
$V_u/\phi_s V_n$:	0.07 Result: OK	
Recommended Lock Off Load:	38.3 k	
Recommended Test Load:	76.5 k	
Maximum Allowable Test Load:	54.3 k	

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in ²
# of Vertical Steel Rebars:	52 Minimum # of vertical rebar met
Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Horizontal Tie / Stirrup Size #:	4
Horizontal Tie / Stirrup Area:	0.20 in ²
Horizontal Tie / Stirrup Spacing:	12.0 in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	40 ksi
Rod Bearing Plate Diameter:	8.0 in
Rod Bearing Plate Thickness:	1.0 in
Anchor Bearing Plate Yield Strength:	36 ksi
Anchor Rod Nut Diameter:	2.02 in
Rebar Cage Diameter:	112.0 in
Concrete Load Factor:	1.3
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75 ACI318-05 - 9.3.2.3
Strength Compression/Bearing Reduction Factor ($\phi_{P/B}$):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment (M_u):	3935.0 k-ft
Factored Nominal Moment Capacity ($\phi_B M_n$):	19990.7 k-ft - ACI318-05 - 10.2
$M_u/\phi_B M_n$:	0.20 Result: OK
Design Shear (V_u):	511.5 k
Factored Nominal Shear Capacity ($\phi_V V_n$):	670.4 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u/\phi_V V_n$:	0.76 Result: OK
Design Tension (T_u):	0.0 k
Factored Nominal Tension Capacity ($\phi_T T_n$):	4380.5 k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00 Result: OK
Design Compression (P_u):	39.7 k
Factored Nominal Compression Capacity ($\phi_P P_n$):	17516.6 k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.00 Result: OK

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

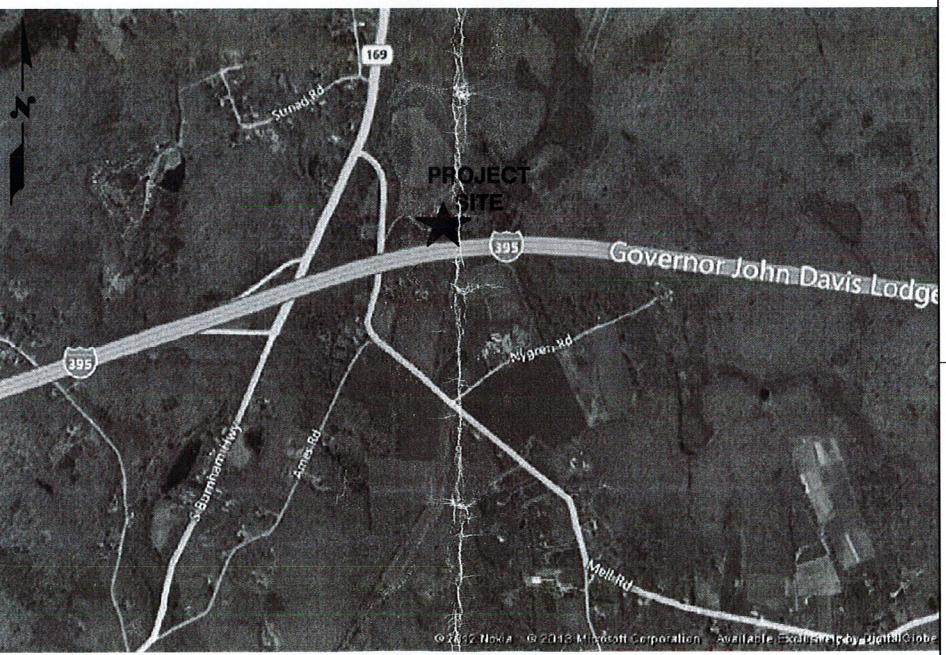
SITE ADDRESS: 20 MELL ROAD
 LISBON, CT 06351

LATITUDE: 41° 35' 26.7" N
 LONGITUDE: 72° 01' 0.8" W

CURRENT USE: TELECOMMUNICATIONS FACILITY
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT2058
SITE NAME: LISBON

DRAWING INDEX	REV	VICINITY MAP	GENERAL NOTES
T-1 TITLE SHEET GN-1 GENERAL NOTES A-1 COMPOUND PLAN & EQUIPMENT PLAN A-2 ANTENNA PLAN & ELEVATION A-3 DETAILS G-1 PLUMBING DIAGRAM & GROUNDING DETAILS	1 1 1 1 1 1 1	<p>DIRECTION TO SITE: START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.2 MI TURN LEFT ONTO WEST ST. 0.2 MI TAKE RAMP LEFT FOR I-91 N. 4.5 MI AT EXIT 25, TAKE RAMP RIGHT FOR CT-3 NORTH TOWARD GLASTONBURY. 2.4 MI TAKE RAMP RIGHT FOR CT-2 EAST TOWARD NORWICH. 31.9 MI. KEEP STRAIGHT ONTO CT-2 E / CT-32 S. 0.8 MI AT EXIT 28N, TAKE RAMP RIGHT FOR I-395 NORTH TOWARD PROVIDENCE. 5.8 MI AT EXIT 83A, TAKE RAMP RIGHT FOR CT-169 TOWARD LISBON. 0.2 MI TURN LEFT ONTO CT-169 / S BURNHAM HWY. 0.4 MI TURN RIGHT ONTO MELL RD. 0.2 MI ARRIVE AT 20 MELL RD, LISBON, CT 06351.</p> 	<p>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.</p> <p>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.</p> <p>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.</p>

CALL



BEFORE YOU DIG



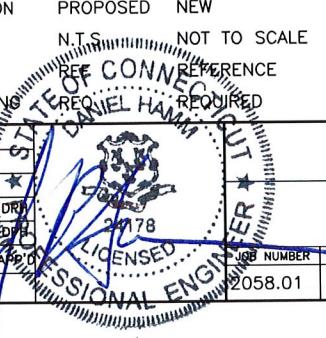
CALL TOLL FREE 1-800-922-4455 OR DIAL 811

UNDERGROUND SERVICE ALERT

Hudson Design Group Inc. 1600 OSGOOD STREET BUILDING 20 NORTH, SUITE 3090 N. ANDOVER, MA 01845	Pinnacle Wireless a UniTek GLOBAL SERVICES company 800 MARSHALL PHELPS ROAD UNIT# 2A WINDSOR, CT 06095	SITE NUMBER: CT2058 SITE NAME: LISBON 20 MELL ROAD LISBON, CT 06351 NEW LONDON COUNTY	at&t 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067	AT&T TITLE SHEET (LTE) 1 01/29/13 ISSUED FOR CONSTRUCTION 0 08/15/12 ISSUED FOR REVIEW NO. DATE REVISIONS BY CHK PDC DRAWN BY: RS SCALE: AS SHOWN DESIGNED BY: DC DRAWN BY: RS DRAWN BY: RS LICENCED DRAWING NUMBER: 2058.01 REVISION NUMBER: T-1 1
---	---	---	--	--

GROUNDING NOTES	GENERAL NOTES	
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.</p> <p>7. APPROVED ANTIODANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.</p> <p>8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.</p> <p>9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.</p> <p>10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.</p> <p>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.</p> <p>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</p>	<p>1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:</p> <p style="text-align: center;">CONTRACTOR - PINNACLE WIRELESS SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION) OWNER - AT&T MOBILITY</p> <p>2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.</p> <p>3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.</p> <p>4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.</p> <p>5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.</p> <p>6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.</p> <p>7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.</p> <p>8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.</p> <p>9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.</p> <p>10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.</p> <p>11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.</p> <p>12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.</p> <p>13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.</p> <p>14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.</p>	<p>15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 ($F_y = 36$ ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E ($F_y = 36$ ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.</p> <p>16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."</p> <p>17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.</p> <p>18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.</p> <p>19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.</p> <p>20. APPLICABLE BUILDING CODES: SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN. BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT & 2009 CT AMENDMENTS ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS</p> <p>SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:</p> <p>AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE; 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.</p> <p>FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.</p>

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. OF CONNECTIONS	REFERENCE		
EGR	EQUIPMENT GROUND RING	TERMINAL HANDBOOK	REQUIRED	TYP	TYPICAL



AT&T

GENERAL NOTES (LTE)

Pinnacle
Wireless

1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845

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

SITE NUMBER: CT2058

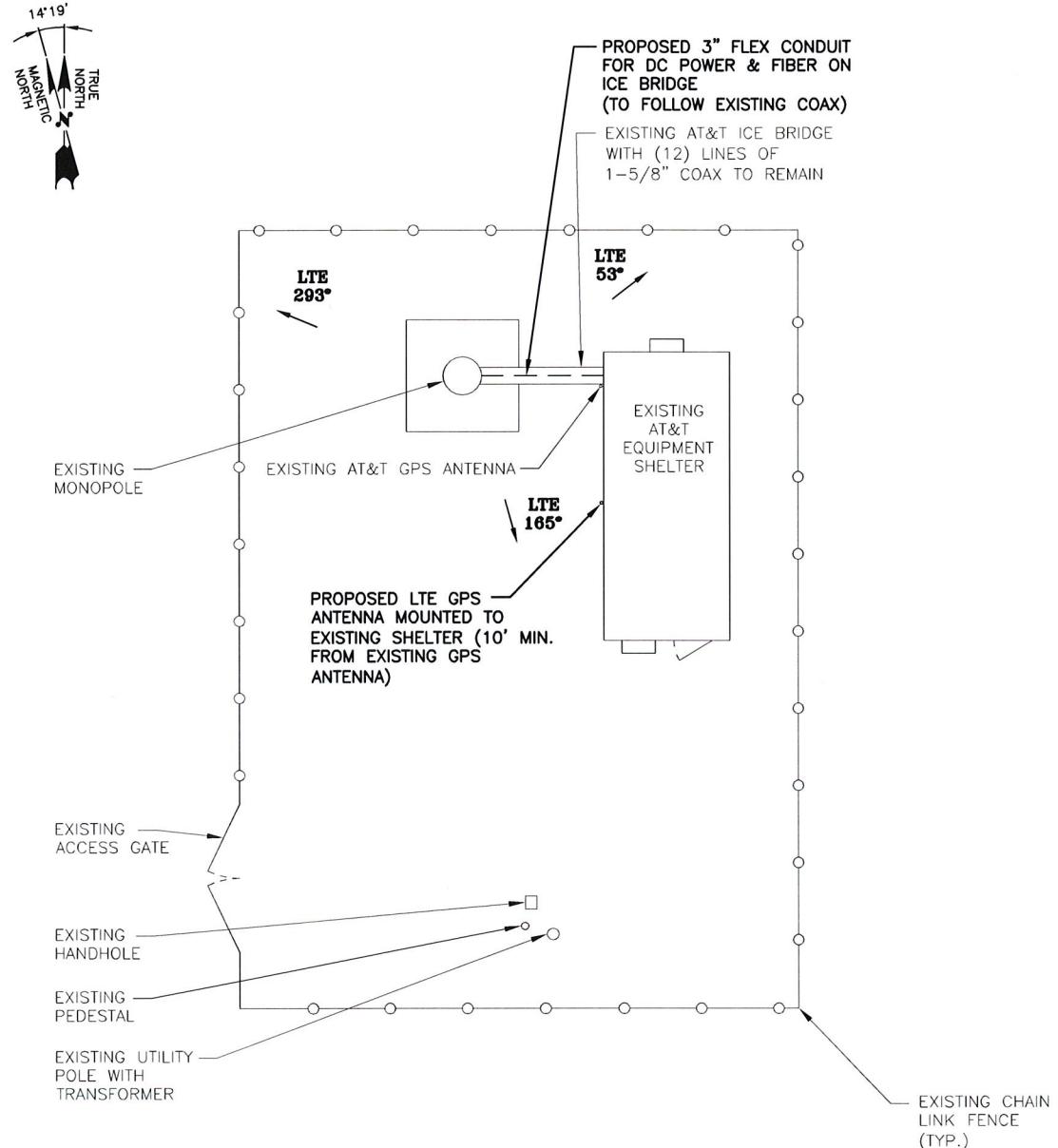
20 MELL ROAD
LISBON, CT 06351
NEW LONDON COUNTY



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

1	01/29/13	ISSUED FOR CONSTRUCTION	CG	DC	DRW
0	08/15/12	ISSUED FOR REVIEW	RS	DC	DRW
NO.	DATE	REVISIONS	BY	CHK	APPROVED
SCALE: AS SHOWN		DESIGNED BY: DC	DRAWN BY: RS		


 STATE OF CONNECTICUT
 2017
 LICENSED PROFESSIONAL ENGINEER
 205

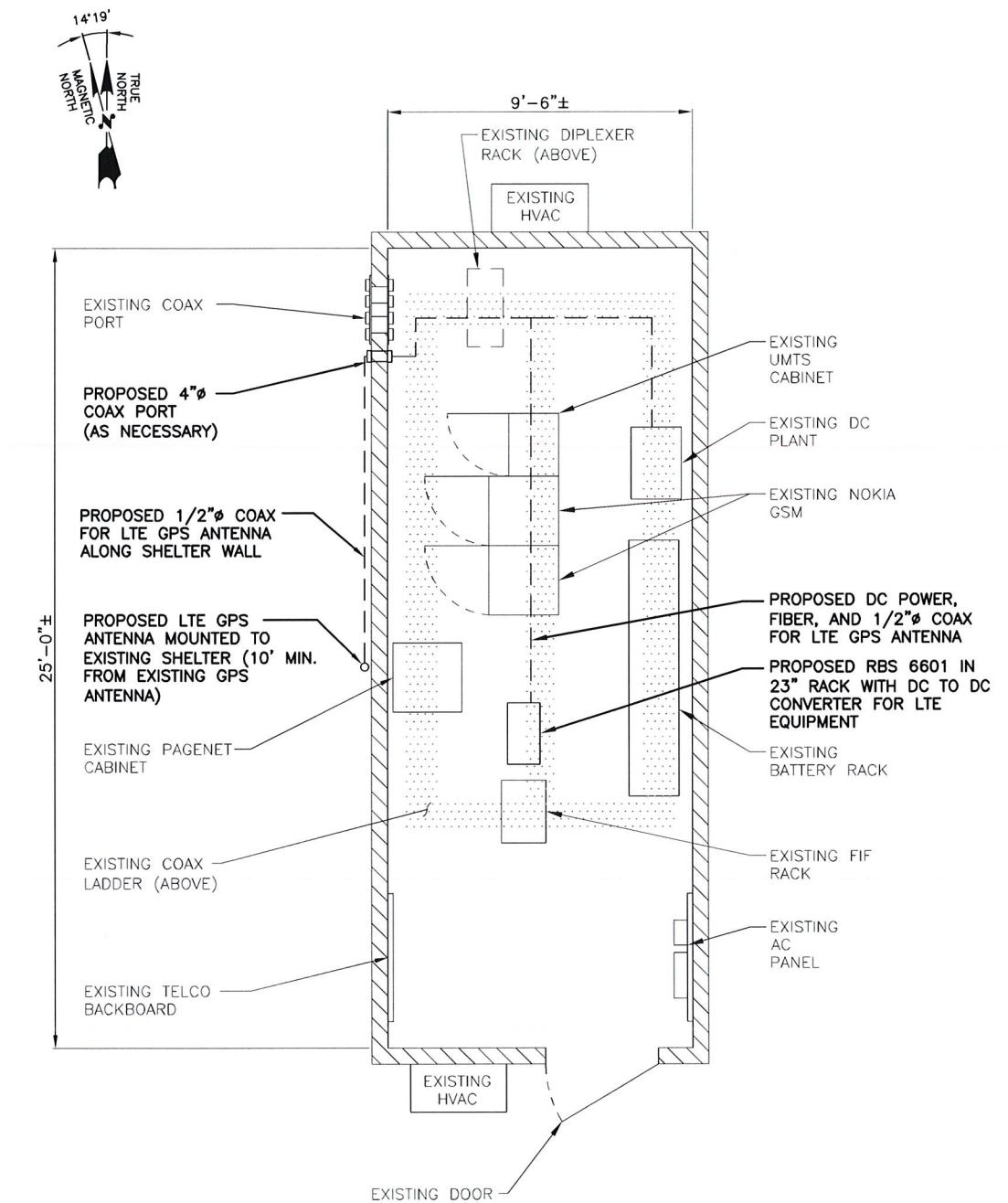


NOTE

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

NO

REFER TO STRUCTURAL ANALYSIS
& MODIFICATION PLAN
BY: AMERICAN TOWER CORP,
DATED: OCTOBER 25, 2012
FOR THE CAPACITY OF THE
EXISTING STRUCTURES TO SUPPORT
THE PROPOSED EQUIPMENT.



COMPOUND PLAN

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

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



EQUIPMENT PLAN

SCALE: 3/8" = 1'-0"

100 200 300 400 500 600 700 800



1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845

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

SITE NUMBER: CT2058

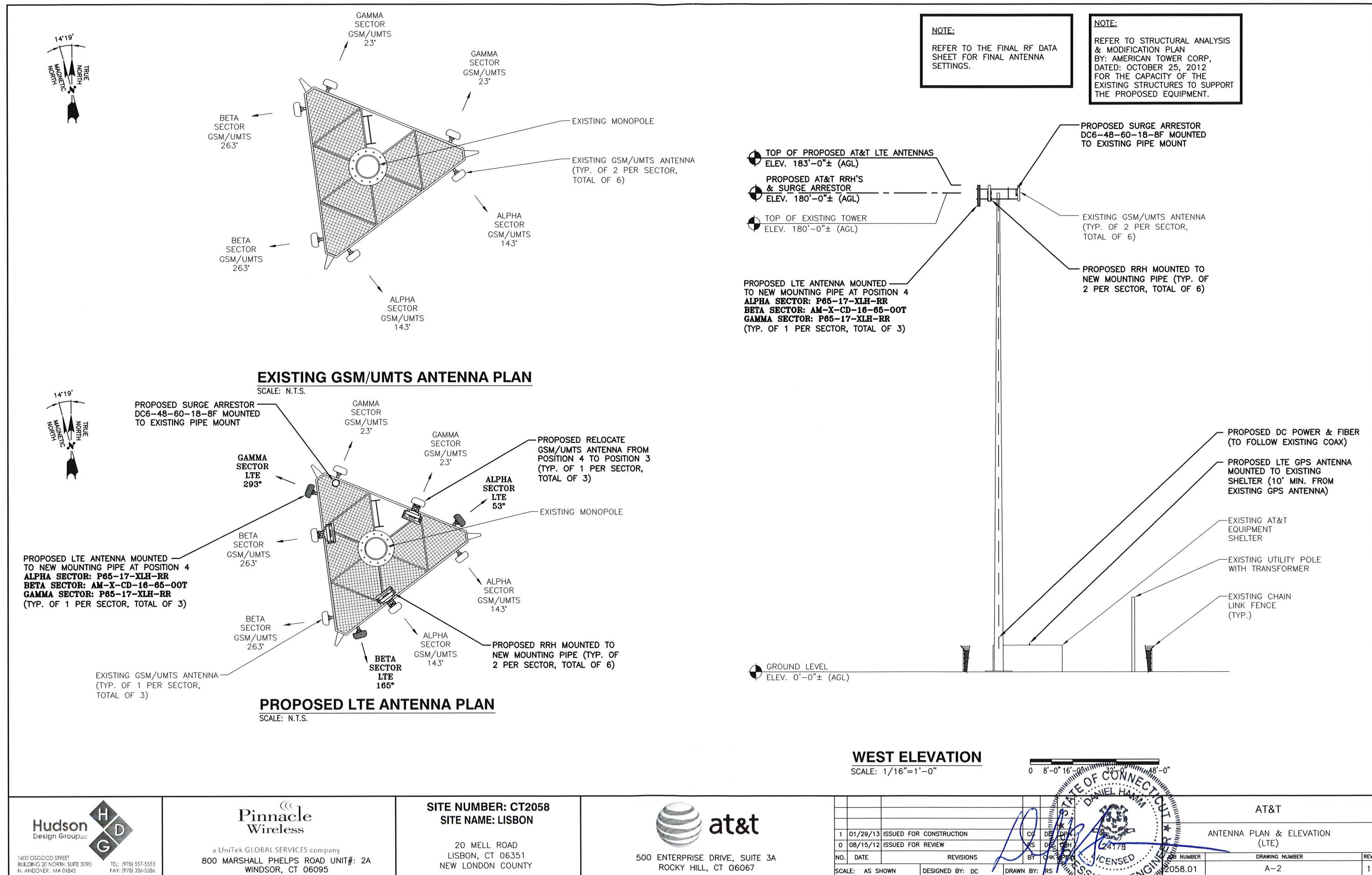
20 MELL ROAD
LISBON, CT 06351
NEW LONDON COUNTY

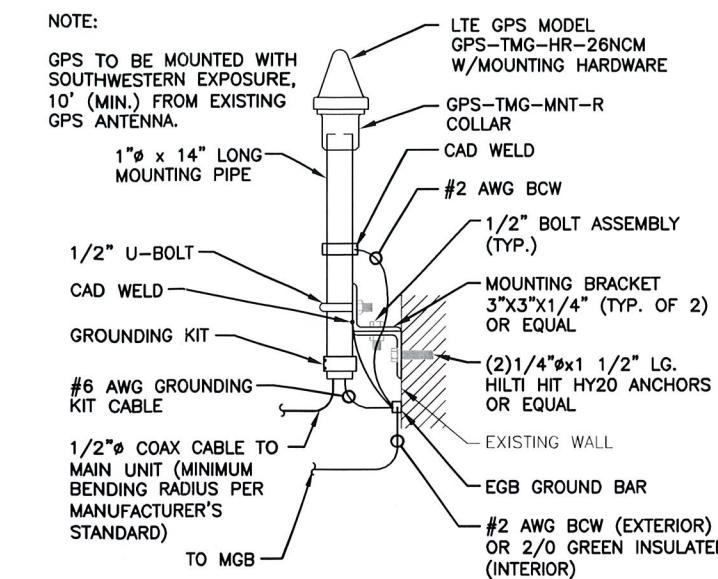
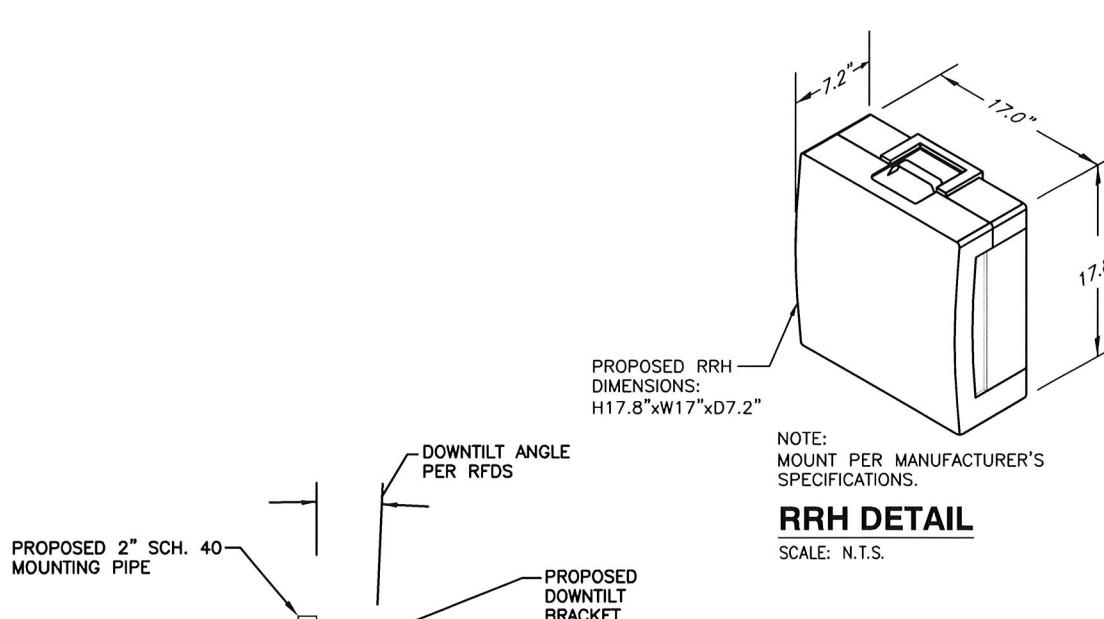


500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

1 01/29/13 ISSUED FOR CONSTRUCTION		CG BC DPH		RS DC DPPM		DRAWN BY: RS		REVISIONS		BY CHIEF APPLICANT		COMPOUND PLAN & EQUIPMENT PLAN (LTE)	
NO.	DATE												
SCALE: AS SHOWN		DESIGNED BY: DC		DRAWN BY: RS									

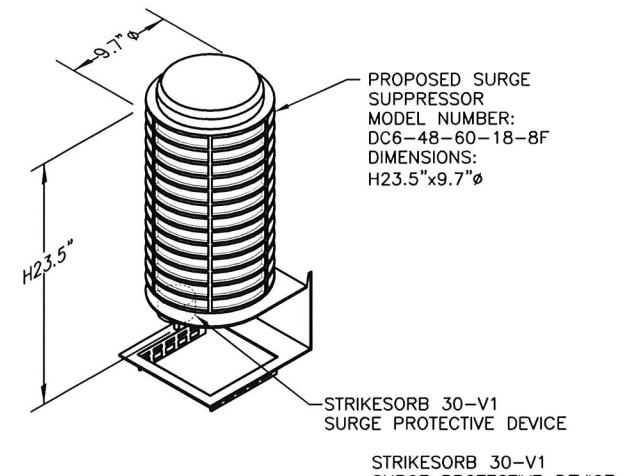
AT&T



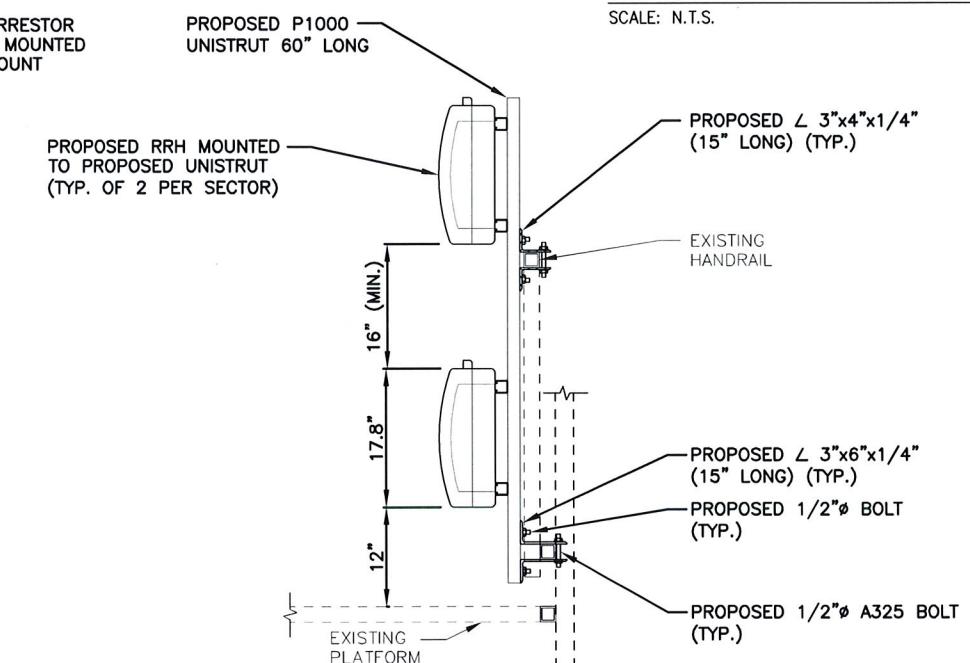
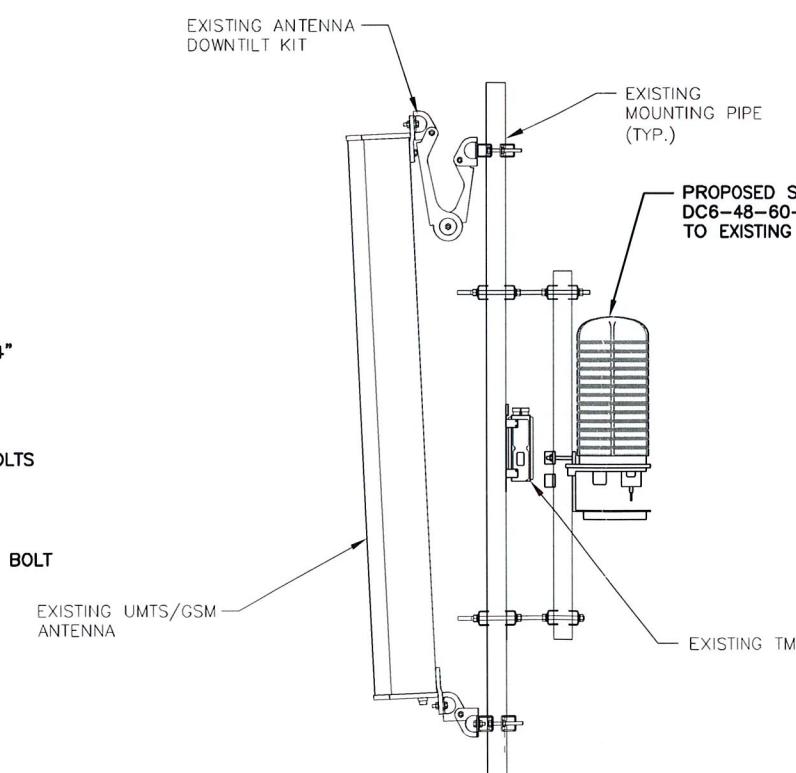
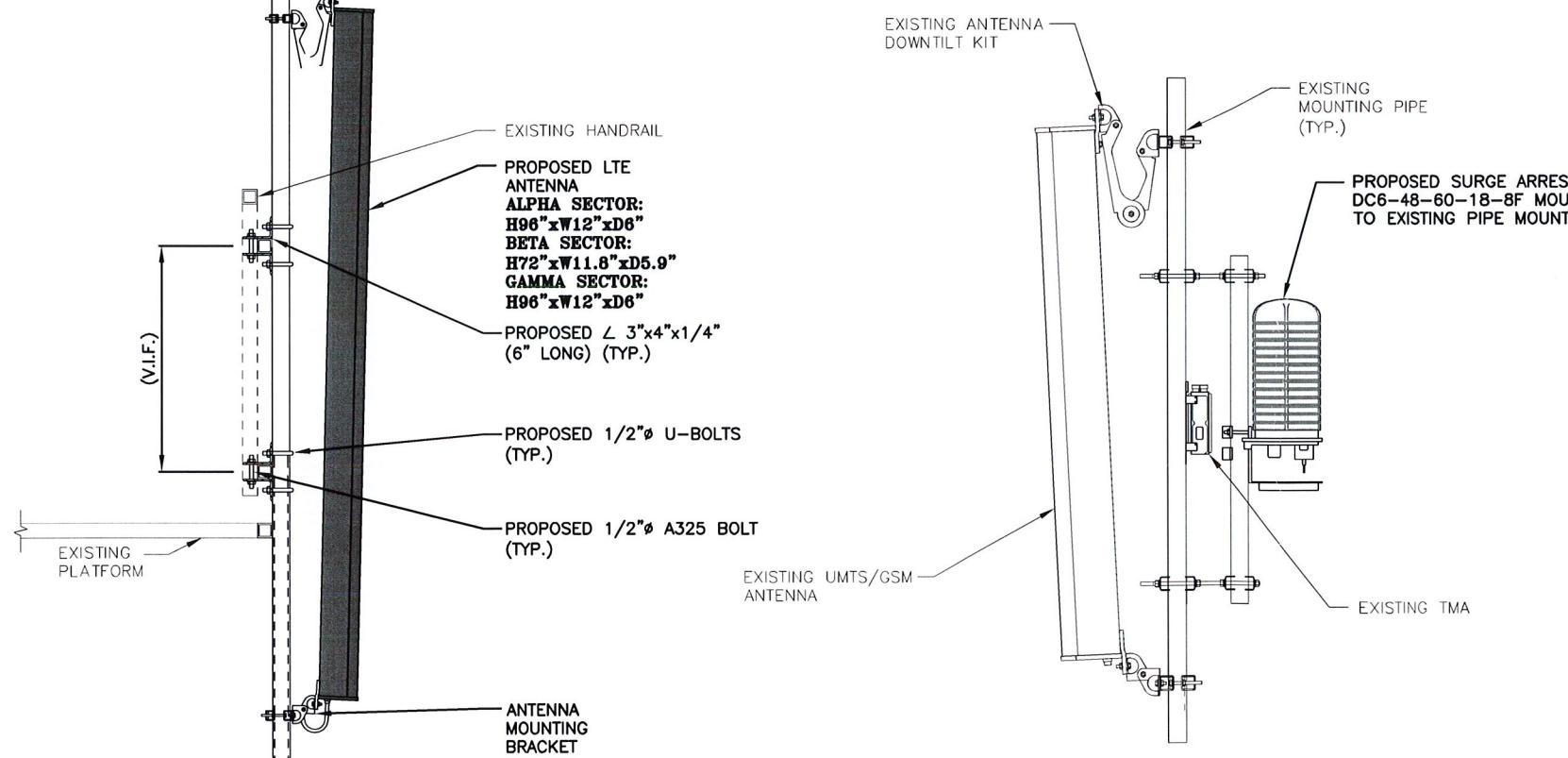


NOTE:
REFER TO STRUCTURAL ANALYSIS & MODIFICATION PLAN BY: AMERICAN TOWER CORP, DATED: OCTOBER 25, 2012 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

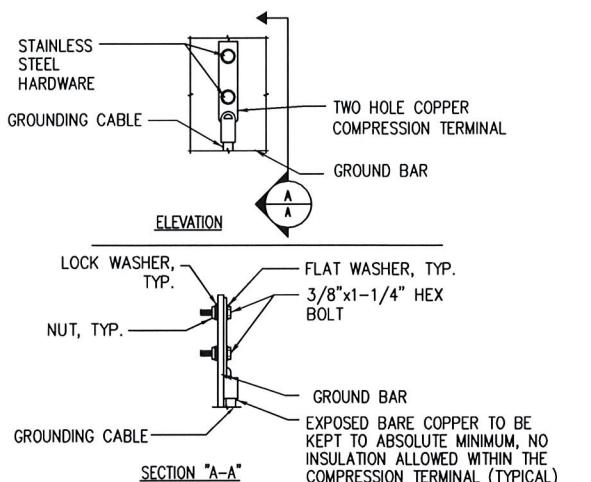
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



PROPOSED RRH MOUNTING DETAIL
SCALE: N.T.S.

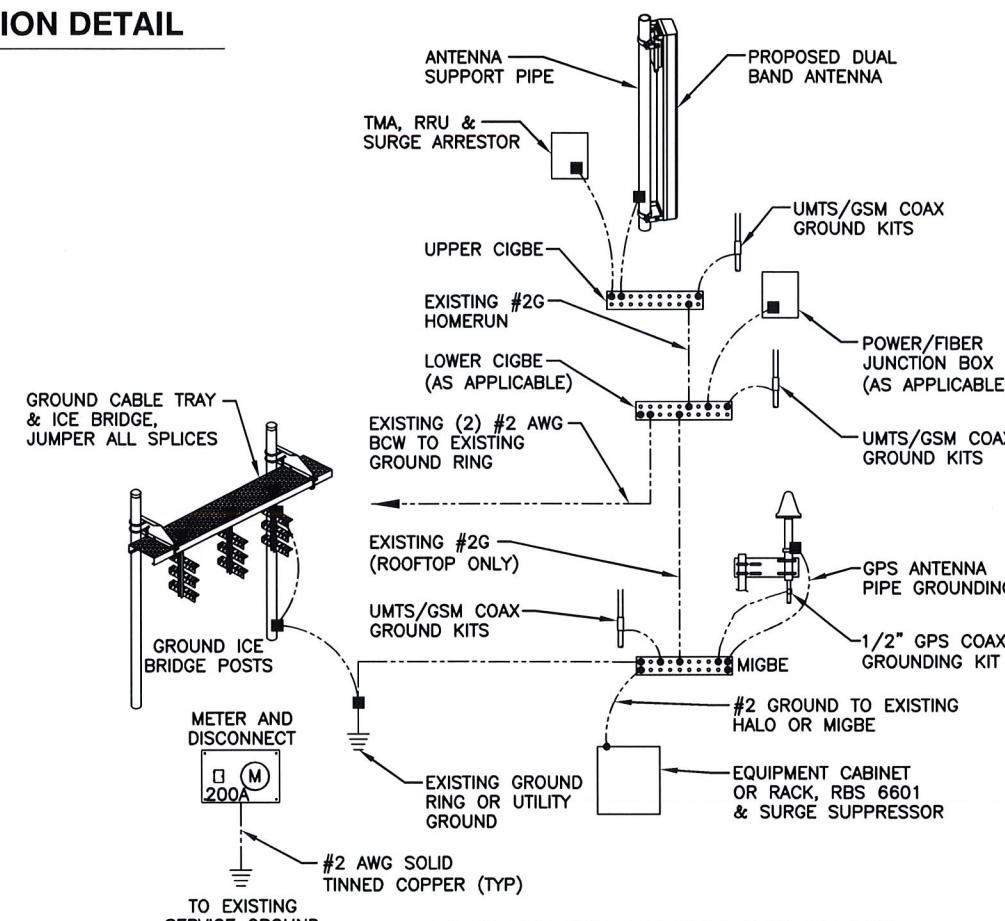


NOTE:

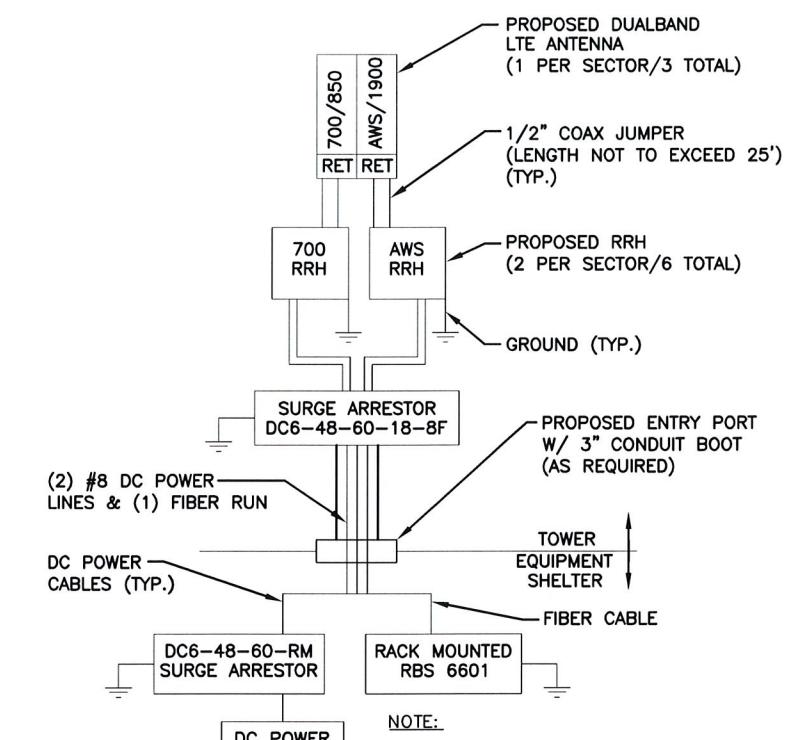
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL

- N.T.S.



GROUNDING RISER DIAGRAM



DC POWER BUS

NOTE:

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

PLUMBING DIAGRAM

$\frac{z}{-}$ N.

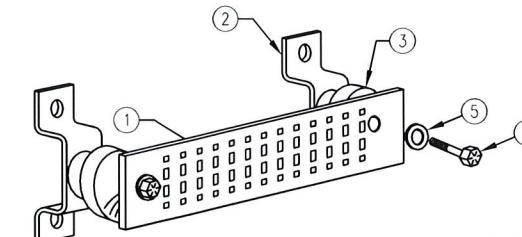
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#
+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)
BUILING STEEL (IF AVAILABLE) (#2)



GROUND BAR DETAIL



1600 OSGOOD STREET
BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845

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

SITE NUMBER: CT2058

20 MELL ROAD
LISBON, CT 06351
NEW LONDON COUNTY



500 ENTERPRISE DRIVE, SUITE 3
ROCKY HILL, CT 06067

1	01/29/13	ISSUED FOR CONSTRUCTION	CG	DC	DPL		★ P L U M B I G R A M M A N A G E S C O R P O R A T I O N	AT&T					
0	08/15/12	ISSUED FOR REVIEW	RS	DC	DPL		★ PLUMBING DIAGRAM & GROUNDING DETAILS (LTE)						
NO.	DATE	REVISIONS	BY	CHK	APPROVED		JOB NUMBER	DRAWING NUMBER	REV				
SCALE: AS SHOWN		DESIGNED BY: DC	DRAWN BY: RS				2058.01	G-1	1				

PROJECT DESCRIPTION:		AS-BUILT SIGN-OFF	
DATE	RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 50406821 DATED 09/13/12. SATISFACTORY COMPLETION OF THE WORK INDICATED ON THESE DRAWINGS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED.	CONTRACTOR NAME	CONTRACTOR REP. (PRINT NAME)
DATE	REDEVELOPMENT P.M. (SIGNATURE)	REDEVELOPMENT P.M. (SIGNATURE)	REDEVELOPMENT P.M. (SIGNATURE)
SHEET	SHEET TITLE		
REV.	BOM BILL OF MATERIALS (1 PAGE) IBC GENERAL NOTES MODIFICATION PROFILE FOUNDATION INSTALLATION DETAILS REBAR LIST A-2A A-2 A-1 IGN BOM BILL OF MATERIALS (1 PAGE) IBC GENERAL NOTES MODIFICATION PROFILE FOUNDATION INSTALLATION DETAILS REBAR LIST A-3 BR-20C TB-20C-12 #20 BAR BRACKET [CONCENTRIC] #20 STEP BOLT BRACKET FABRICATION AND INSTALLATION DETAILS #20 BAR TERMINATION BRACKET [CONCENTRIC 12-U-BOLT]		
<p>ATC PROJECT NUMBER: 50406832 CUSTOMER SITE NUMBER: CT2058 / 10035006</p> <p>CUSTOMER: AT&T MOBILITY CUSTOMER SITE NAME: LISBON</p> <p>SITE ADDRESS: 20 MEL ROAD JEWETT CITY, CT 06351</p> <p>DATE: 10/25/12 REVISION: 0</p> <p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the state of Connecticut.</p> 			
<p>PROJECT SUMMARY</p> <p>ATC PROJECT NUMBER: 50406832 CUSTOMER SITE NUMBER: CT2058 / 10035006</p> <p>CUSTOMER: AT&T MOBILITY CUSTOMER SITE NAME: LISBON</p> <p>SITE ADDRESS: 20 MEL ROAD JEWETT CITY, CT 06351</p> <p>DATE: 10/25/12 REVISION: 0</p> <p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the state of Connecticut.</p> 			

302503 - LISBON CT 3, CONNECTICUT

180.4 FT MONOPOLE MODIFICATIONS

PHONE: (919) 468-0112 / FAX: (919) 466-5040

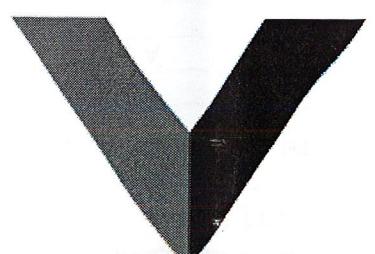
CARY, NORTH CAROLINA 27518

400 REGENCY FOREST DRIVE

ATC TOWER SERVICES, INC.

CORPORATION

AMERICAN TOWER®



AMERICAN TOWER®	
ATC TOWER SERVICES, INC.	400 REGENCY FOREST DRIVE SUITE 300 CARL, NC 27518
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS FOR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWERS LLC. THE USE AND BORROWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED AND SHALL REMAIN THE PROPERTY OF AMERICAN TOWERS LLC UNLESS PROVIDED, IN THE SPECIFIC CASE, BY THE TOWER OWNER NOR THE PROVIDER OF THESE SERVICES. THE ACCURACY OF THE PROVIDER IS EXCLUDED WHETHER WHETHER THE PROJECT IS CONSTRUCTION, DESIGN OR PRODUCTION ON-SITE OR OFF-SITE. THE PROVIDER WILL BE PRODUCING CONTRACTORS' OWN DESIGN OR THIS PROJECT. ADVISE AMERICAN TOWERS LLC OF ANY DISCREPANCIES BY THE LATEST ISSUE DATE OF THIS DRAWING. ANY PROBLEM ISSUANCE OF THIS DRAWING IS SPRUNG BY THE PROVIDER'S OWN DESIGN OR THIS DRAWING. TOWERS LLC	
FAX: (919) 466-5415 PHONE: (919) 468-0112	
NYSE AMT	

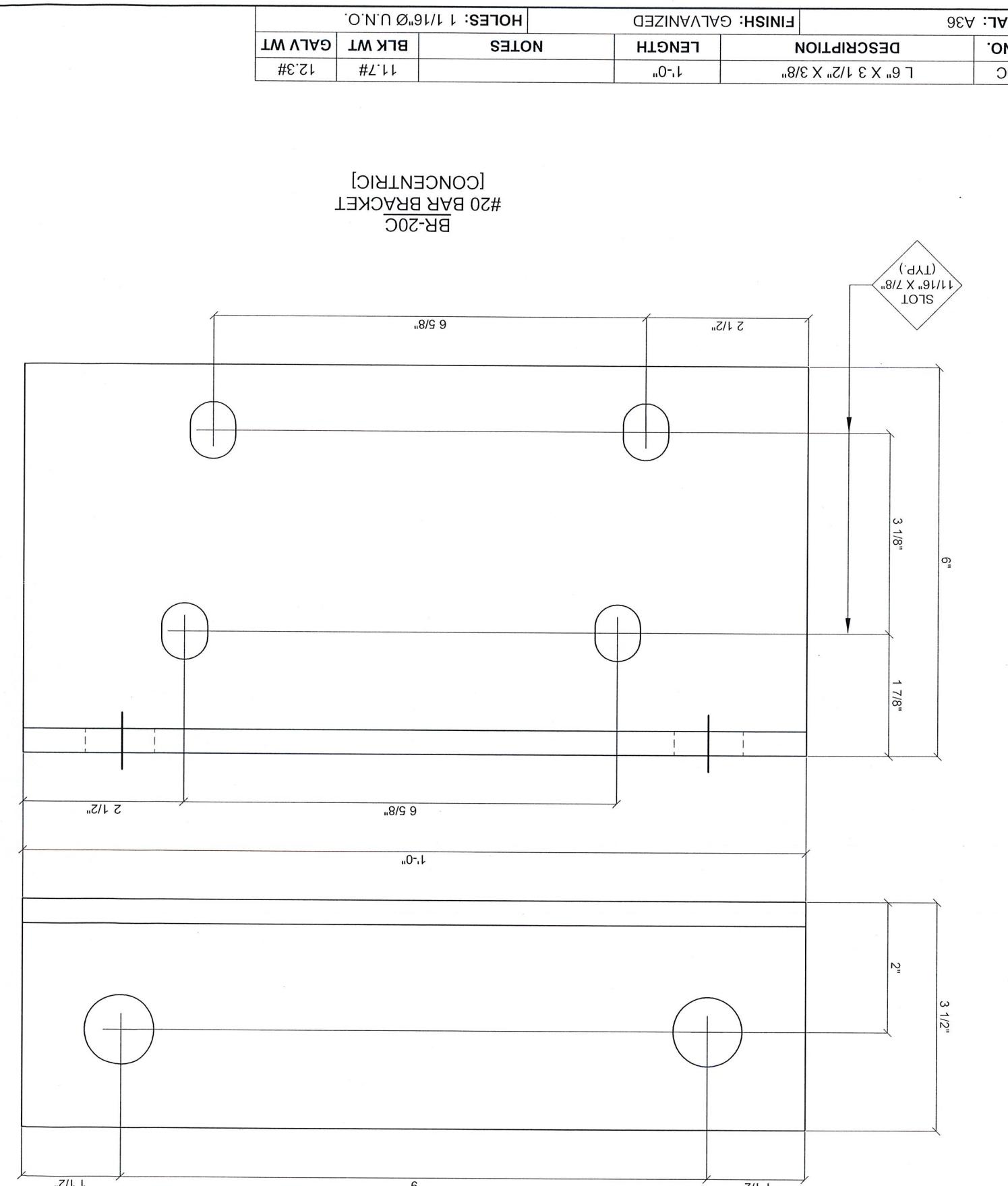


CONNECCTICUT
LISBON CT 3
ATC SITE NAME:
ATC SITE NUMBER:
302503
SITE ADDRESS:
20 MEL ROAD
JEWETT CITY, CT 06351
CONNECCTICUT
ATC SITE NAME:
ATC SITE NUMBER:
302503
SITE ADDRESS:
20 MEL ROAD
JEWETT CITY, CT 06351

REVISIONS BY DATE
FIRST ISSUE JMB 10/25/12
0
1-00
1-1/2"

#20 BAR BRACKET
[CONCENTRIC]
SHEET TITLE:
ATC JOB NO: 5040632
DATE DRAWN: 10/25/12
APPROVED BY: JMB
DRAWN BY: JMB
[CONCENTRIC]
#20 BAR BRACKET
SHEET NUMBER:
L 6" X 3 1/2" X 3/8"
BR-20C
0

MATERIAL: A36
FINISH: GALVANIZED
HOLDS: 1 1/16" Ø UN.O.
PART NO. 11-0"
DESCRIPTION LENGTH NOTES BLK WT GALV WT
11.7# 12.3#
REV. #





AMERICAN TOWER®			
ATC TOWER SERVICES, INC.			
400 REGENCY FOREST DRIVE			
SUITE 300			
CARLY, NC 27518			
PHONE: (919) 496-0112			
FAX: (919) 496-5115			
NSYE ASSET			
SPECIFICATIONS AND SUPPORT UNITS ARE THE ACCOMPANYING			
REPRINTS AND PUBLICATIONS SHALL BE RESTRICTED TO THE			
ORIGINAL SITE PROJECT WHICH THEY ARE PREPARED. ANY			
REPRINTS OR DISCLOSURES OTHER THAN THAT WHICH RELATES			
TO AMERICAN TOWERS LLC OR ITS SUBDIVISIONS AND			
THEIR PARENT COMPANY ARE PROHIBITED. THE PROJECT			
IS OWNED BY AMERICAN TOWERS LLC AND IS NOT THE PROPERTY			
OF THE ENGINEER NOR THE CONSULTANT REVIEW OF THIS PROJECT.			
THIS DRAWING IS THE LATEST VERSION OF FILE WITH AMERICAN			
TOWERS LLC			
FIRST ISSUE BY DATE	DEV. DESCRIPTION	BY DATE	FIRST ISSUE BY DATE
ATC SITE NUMBER:	302503	ATC SITE NAME:	LISBON CT 3
CONNECTICUT	CONNECCTICUT	STATE ADDRESS:	20 MEL ROAD JEWETT CITY, CT 06351
0			
CONNECTIONS			
LICENSING			
PROFESSIONAL ENGINEER			
NO. 23235			
PROVVED BY: JMB			
DRAWN BY: JMB			
TITLE DRAWN: 10/25/12			
JOB NO.: 50406832			
EET TITLE:			

EM/TS#	Address	Town	Council Additional Conditions	Compliance with Council Additional Conditions Received	Notice of Completion Received	Decision Date	CSC Extension Granted
EM-CING-069-130123	1375 North Road	Dayville	Yes	No	No	3/8/2013	12/31/15
EM-AT&T-060-130321	370 Rockland Road	Guildford	Yes	No	No	4/5/2013	12/31/15
EM-CING-069-130130	246 East Franklin Street	Danielson	Yes	No	No	4/15/2013	12/31/15
EM-CING-088-130109	103 Eastside Boulevard	Naugatuck	N/A	N/A	No	4/15/2013	12/31/15
TS-AT&T-004-131223	376 Deercliff Road	Avon	N/A	N/A	No	6/28/2013	12/31/15
TS-AT&T-069-131216	1249 Hartford Pike	East Killingly	N/A	N/A	No	6/28/2013	12/31/15
EM-CING-128-130828	530 Brushy Hill Road	Simsbury	N/A	N/A	No	6/28/2013	12/31/15
EM-CING-135-130910	366 Old Long Ridge Road	Stamford	Yes	No	No	6/28/2013	12/31/15
EM-CING-156-130531	1 Burwell Road	West Haven	N/A	N/A	No	6/28/2013	12/31/15
EM-CING-086-130712	334 Route 85	Montville	Yes	No	No	7/12/2013	12/31/15
TS-AT&T-101-131108	50 Devine Street	North Haven	N/A	N/A	No	7/22/2013	12/31/15
EM-CING-158-130703	515 Post Road East	Westport	N/A	N/A	No	7/22/2013	12/31/15
EM-CING-073-130207	20 Mell Road	Lisbon	Yes	No	No	7/26/2013	12/31/15
TS-AT&T-143-131227	137 Wright Road	Torrington	Yes	No	No	7/26/2013	12/31/15
EM-CING-103-130703	177 West Rocks Road	Norwalk	N/A	N/A	No	8/8/2013	12/31/15
EM-CING-143-130122	1210 Highland Avenue	Torrington	Yes	No	No	8/16/2013	12/31/15
EM-CING-104-130819	39 Maennicher Avenue	Norwich	Yes	No	No	8/23/2013	12/31/15
EM-CING-158-130326	880 Post Road East	Westport	Yes	No	No	9/13/2013	
TS-AT&T-164-131114	599 Marianuck Avenue	Windsor	N/A	N/A	No	9/27/2013	12/31/15
EM-CING-074-130322	438 BANTAM ROAD	LITCHFIELD	Yes	No	No	11/29/2013	
EM-CING-003-130214	353 Pumpkin Hill Road	Ashford	Yes	No	No	12/13/2013	
EM-CING-015-130531	1320 Chopey Hill Road	Bridgeport	N/A	N/A	No	12/13/2013	
EM-AT&T-089-131230	One Hartford Square	New Britain	N/A	N/A	No	12/20/2013	
EM-AT&T-051-130408	280 Morehouse Drive	Fairfield	Yes	No	No	12/27/2013	
EM-AT&T-118-131030	845 Ethan Allen Highway	RIDGEFIELD	N/A	N/A	No	12/27/2013	