Tim Whalen, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (781) 375-8318
twhalen@clinellc.com

3/14/2016

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification // Site Number: CT5004
36 Ritch Avenue West, Greenwich CT (Site Name: Greenwich SW)
N 41.0050639 // W -73.6483111

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (`AT&T_) currently maintains (9) antennas at the 67 foot level of the existing 76.7 foot monopine tower at 36 Ritch Avenue West. The tower is owned by American Tower Corporation. The property is owned by 35 Ritch Avenue, LLC. AT&T now intends to replace (3) antennas for its LTE upgrade. These antennas would be installed at the 67 foot level of the tower. AT&T also intends to install (3) remote radio units, and (1) surge arrestor behind the antennas.

The current proposal involves an antenna swap of (3) existing antennas with (3) new.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectman of the Town of Greenwich, as well as the tower owner, American Tower Corporation and the ground owner, 36 Ritch Avenue, LLC.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

Attached to accommodate this filing are construction drawings dated 3/9/2016 by Comex Consultants, a structural analysis dated 1/21/2016 by American Tower Corporation and an Emissions Analysis Report dated 2/28/2016 by EBI Consulting.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading as shown in the attached structural analysis by American Tower Corp., dated 1/21/2016.

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

_____

Tim Whalen, Site Acquisition
c/o New Cingular Wireless, PCS LLC (AT&T)
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (781) 375 8318
twhalen@centerlincommunications.com

Attachments

cc: Peter Tesei, First Selectman in the Town of Greenwich - as elected official
American Tower Corp. - as tower owner
36 Ritch Avenue, LLC - as property owner

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RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT5004

Greenwich SW
36 Ritch Avenue West
Greenwich, CT 6830

February 28, 2016

EBI Project Number: 6216000902

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	42.25 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

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February 28, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5004 – Greenwich SW**

EBI Consulting was directed to analyze the proposed AT&T facility located at **36 Ritch Avenue West, Greenwich, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **36 Ritch Avenue West, Greenwich, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 UMTS channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 2 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel

6) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

8) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antennas used in this modeling are the **CCI HPA-65R-LCUU-H6 and the Powerwave P65-16-XLH-RR** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is **67 feet** above ground level (AGL).

11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.

AT&T Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR
Gain:	13.4 / 15.1 dBd	Gain:	13.4 / 15.1 dBd	Gain:	13.4 / 15.1 dBd
Height (AGL):	67 feet	Height (AGL):	67 feet	Height (AGL):	67 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	3,254.22	ERP (W):	3,254.22	ERP (W):	3,254.22
Antenna A1 MPE%	**4.11**	Antenna B1 MPE%	**4.11**	Antenna C1 MPE%	**4.11**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6
Gain:	12.45 / 15.45 dBd	Gain:	12.45 / 15.45 dBd	Gain:	12.45 / 15.45 dBd
Height (AGL):	67 feet	Height (AGL):	67 feet	Height (AGL):	67 feet
Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)	Frequency Bands	850 MHz / 2300 MHz (WCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,318.53	ERP (W):	6,318.53	ERP (W):	6,318.53
Antenna A2 MPE%	**7.66**	Antenna B2 MPE%	**7.66**	Antenna C2 MPE%	**7.66**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR	Make / Model:	Powerwave P65-16-XLH-RR
Gain:	12.7 / 15.1 dBd	Gain:	12.7 / 15.1 dBd	Gain:	12.7 / 15.1 dBd
Height (AGL):	67 feet	Height (AGL):	67 feet	Height (AGL):	67 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	6,117.63	ERP (W):	6,117.63	ERP (W):	6,117.63
Antenna A3 MPE%	**8.37**	Antenna B3 MPE%	**8.37**	Antenna C3 MPE%	**8.37**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**20.15 %**
T-Mobile	1.20 %
Verizon Wireless	20.90 %
Site Total MPE %:	**42.25 %**

AT&T Sector 1 Total:	20.15 %
AT&T Sector 2 Total:	20.15 %
AT&T Sector 3 Total:	20.15 %
Site Total:	42.25 %

AT&T _ Max Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	656.33	67	12.68	850	567	2.24 %
AT&T 1900 MHz (PCS) UMTS	2	970.78	67	18.76	1900	1000	1.88 %
AT&T 850 MHz LTE	2	1054.75	67	20.38	850	567	3.59 %
AT&T 2300 MHz (WCS) LTE	2	2104.51	67	40.67	2300	1000	4.07 %
AT&T 700 MHz LTE	2	1117.25	67	21.59	700	467	4.62 %
AT&T 1900 MHz (PCS) LTE	2	1941.56	67	37.52	1900	1000	3.75 %
						Total:	20.15 %

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Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector 1:	20.15 %
Sector 2:	20.15 %
Sector 3 :	20.15 %
AT&T Maximum Total (per sector):	20.15 %
Site Total:	42.25 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **42.25%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
RF Engineering Director

EBI Consulting
21 B Street
Burlington, MA 01803

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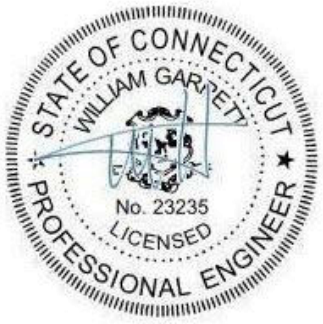
Structural Analysis Report

Structure	:	**76.7 ft Monopole**
ATC Site Name	:	**Byram Park CT, CT**
ATC Site Number	:	**414240**
Engineering Number	:	**64868221**
Proposed Carrier	:	**AT&T Mobility**
Carrier Site Name	:	**N/A**
Carrier Site Number	:	**/FA#10071045**
Site Location	:	**36 Ritch Avenue** **North Hudson, CT 12855-2537** **41.005064,-73.648306**
County	:	**Fairfield**
Date	:	**January 21, 2016**
Max Usage	:	**71%**
Result	:	**Pass**

Reviewed by:
William Garrett, PE
Chief Engineer



Jan 21 2016 3:57 PM

Prepared By:
Emily M. Basile, E.I.
Structural Engineer I

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 76.7 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	EEI Project #16733 Rev. 3, dated December 9, 2011
Foundation Drawing	Centek Engineering Job #09129 Rev. 0, dated February 14, 2012
Geotechnical Report	DET Job #2010.14, dated October 4, 2010

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/TIA-222.

Basic Wind Speed:	110 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.26, S_1 = 0.07
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
73.0	73.0	-	-	Empty T-Arms	-	-
67.0	67.0	6	Powerwave TT19-08BP111-001	Sector Frames	(12) 1 5/8" Coax (2) 0.63" Cable (1) 5/8" Hybriflex	AT&T Mobility
		1	Raycap DC6-48-60-18-8F(32.8 lbs)			
		6	Ericsson RRUS-11			
		6	Powerwave P65-16-XLH-RR			
57.0	56.0	1	20" x 15" x 10" BOB	T-Arms	(18) 1 5/8" Coax (1) 1 1/4" Coax	Verizon
		3	25" x 13" x 8" RRU/RRH			
		6	Antel BXA-171063-12CF			
		6	KMW AM-X-CD-16-65-00T-RET (54")			
		3	Commscope LNX-4514DS-A1M			
		3	Antel LPA-80063-6CF-EDIN-X			
		1	VZW Unused Reserve: 16,383 sq in			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
67.0	67.0	3	Powerwave P65-16-XLH-RR	-	-	AT&T Mobility

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
67.0	67.0	1	Raycap DC6-48-60-18-8F(32.8 lbs)	Sector Frames	(2) 0.63" Cable (1) 5/8" Hybriflex	AT&T Mobility
		3	Ericsson RRUS-32			
		3	CCI OPA-65R-LCUU-H6			

[1]Mount 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.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	63%	Pass
Shaft	49%	Pass
Base Plate	71%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	4,555.2	3,043.9	67%
Shear (Kips)	74.4	60.2	81%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
67.0	Raycap DC6-48-60-18-8F(32.8 lbs)	AT&T Mobility	0.192	0.274
	Ericsson RRUS-32			
	CCI OPA-65R-LCUU-H6			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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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 necessary limited, to:

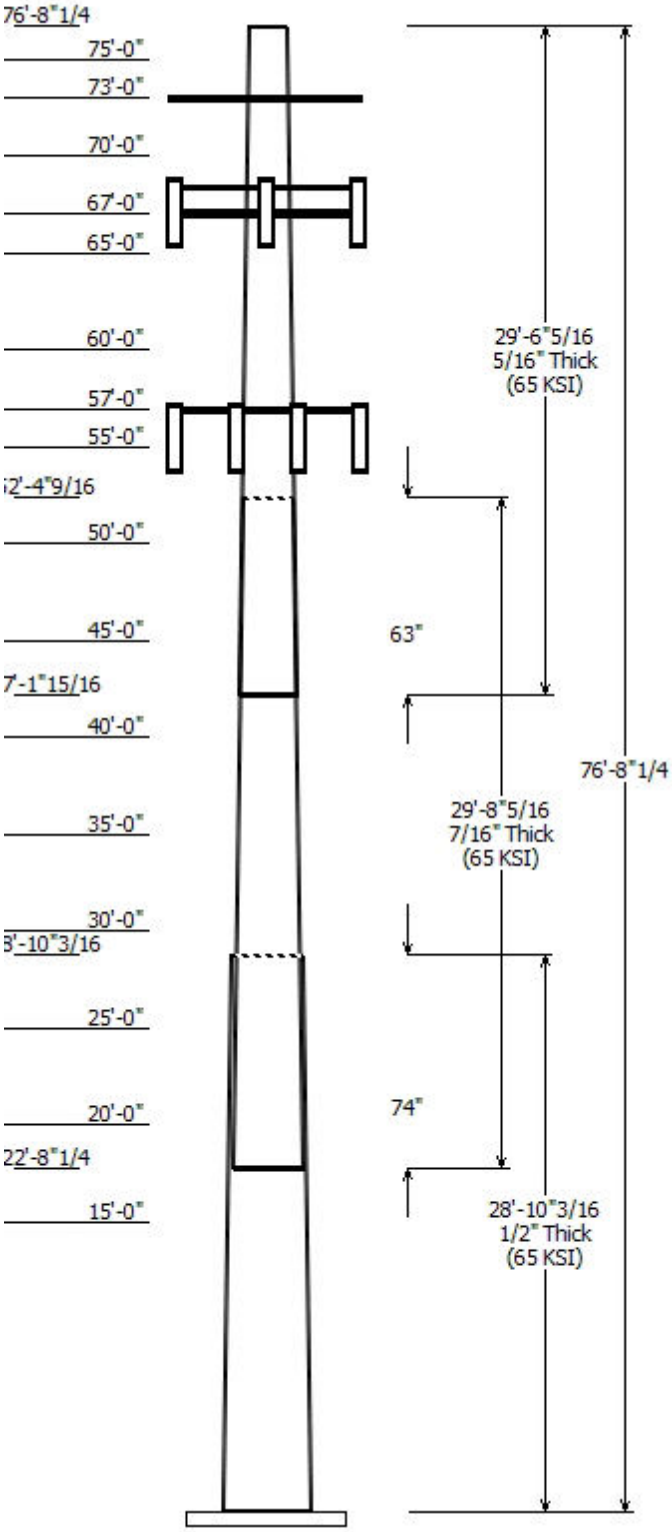
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- 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 A.T. Engineering Service, PLLC 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. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.



Job Information

Pole :	414240	Code:	ANSI/TIA-222-G
Description :	77' EEI Monopole		
Client :	AT&T Mobility	Struct Class :	II
Location :	Byram Park CT, CT		
Shape :	18 Sides	Exposure :	C
Height :	76.69 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.33579 (in/ft)		

Sections Properties

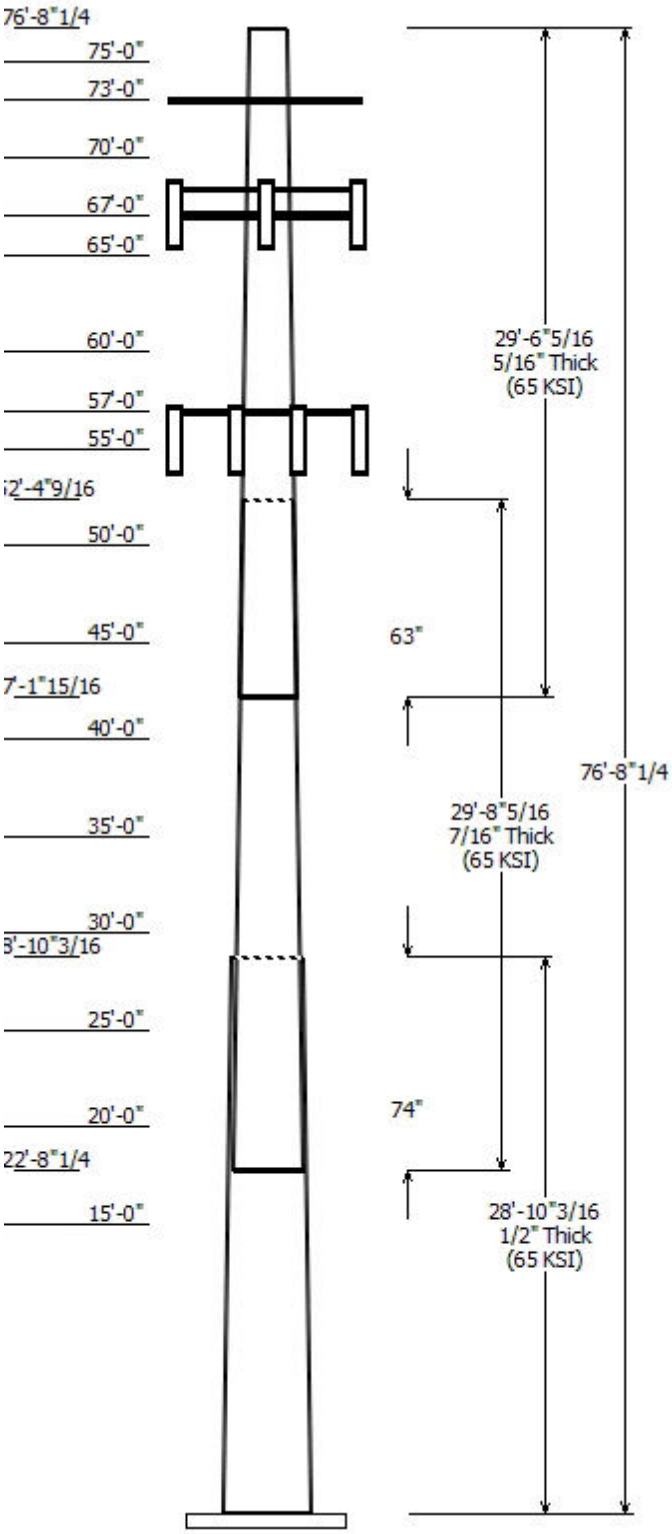
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	28.852	42.31	52.00	0.500		0.000	0.335800	65
2	29.693	35.28	45.25	0.438	Slip Joint	73.969	0.335800	65
3	29.529	27.75	37.66	0.313	Slip Joint	62.656	0.335800	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
75.000	75.000	1	Pine Branches
73.000	73.000	3	Flat T-Arm
70.000	70.000	1	Pine Branches
67.000	67.000	6	Powerwave Allgon TT19-
67.000	67.000	6	Ericsson RRUS-11
67.000	67.000	1	Raycap DC6-48-60-18-8F(32.8 lb
67.000	67.000	6	Powerwave Allgon P65-16-
67.000	67.000	3	CCI OPA-65R-LCUU-H6
67.000	67.000	3	Round Sector Frame
67.000	67.000	3	Ericsson RRUS-32
67.000	67.000	1	Raycap DC6-48-60-18-8F(32.8 lb
65.000	65.000	1	Pine Branches
60.000	60.000	1	Pine Branches
57.000	56.000	1	VZW Unused Reserve: 16,383
57.000	56.000	3	Commscope LNX-4514DS-A1M
57.000	56.000	3	Amphenol Antel LPA-80063-
57.000	56.000	6	Amphenol Antel BXA-171063-
57.000	56.000	6	KMW AM-X-CD-16-65-00T-RET
57.000	56.000	1	20" x 15" x 10" BOB
57.000	57.000	3	Flat T-Arm
57.000	56.000	3	25" x 13" x 8" RRU/RRH
55.000	55.000	1	Pine Branches
50.000	50.000	1	Pine Branches
45.000	45.000	1	Pine Branches
40.000	40.000	1	Pine Branches
35.000	35.000	1	Pine Branches
30.000	30.000	1	Pine Branches
25.000	25.000	1	Pine Branches
20.000	20.000	1	Pine Branches
15.000	15.000	1	Pine Branches

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	57.000	1 1/4" Coax	No
0.000	57.000	1 5/8" Coax	No
0.000	67.000	0.63" Cable	No
0.000	67.000	0.63" Cable	No
0.000	67.000	1 5/8" Coax	No
0.000	67.000	5/8" Hybriflex	No
0.000	67.000	5/8" Hybriflex	No



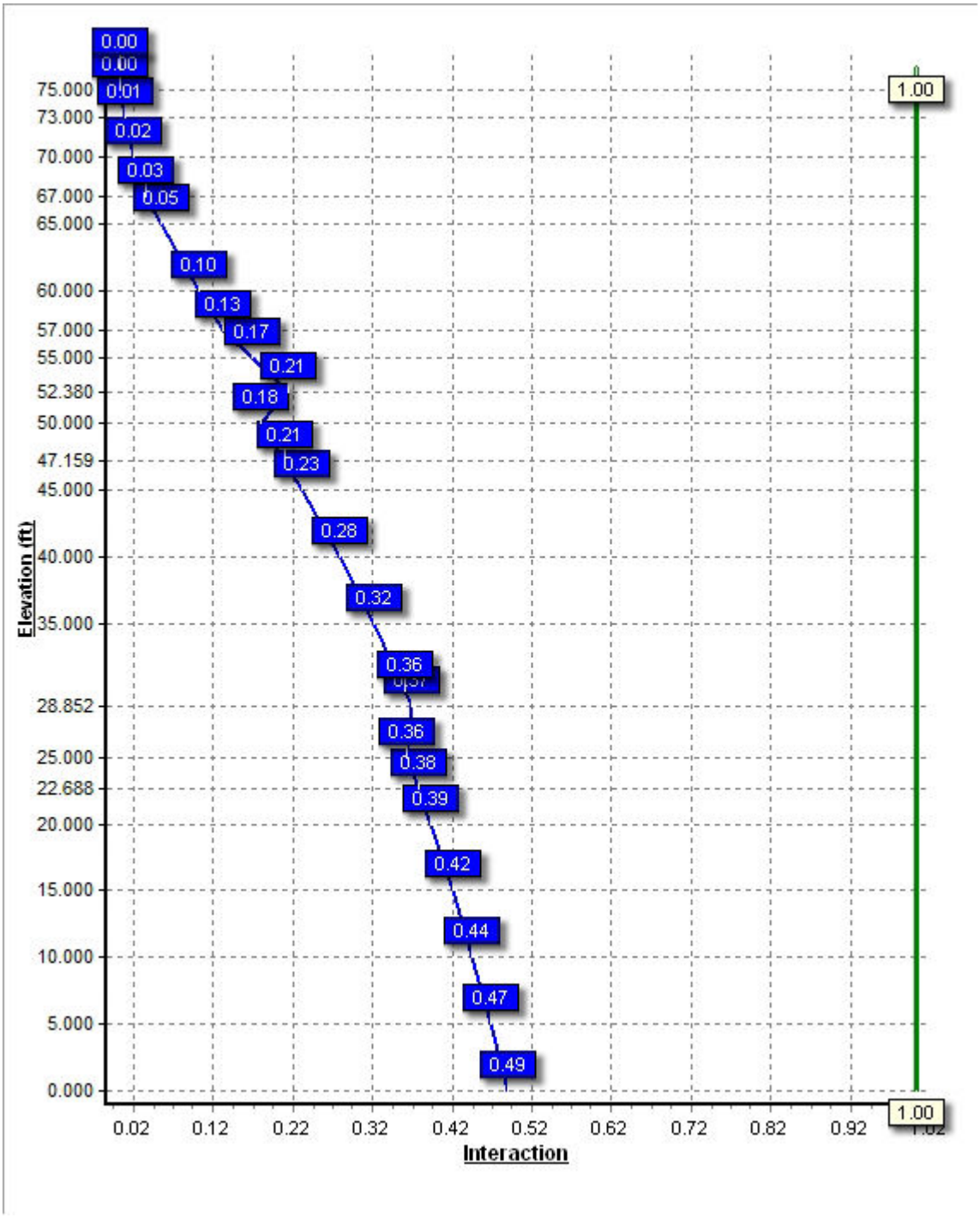
Load Cases	
1.2D + 1.6W	110 mph with No Ice
0.9D + 1.6W	110 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3043.93	60.17	38.03
0.9D + 1.6W	3038.95	60.15	28.50
1.2D + 1.0Di + 1.0Wi	640.78	12.70	61.44
(1.2 + 0.2Sds) * DL + E ELFM	257.52	4.94	37.99
(1.2 + 0.2Sds) * DL + E EMAM	203.72	3.58	37.99
(0.9 - 0.2Sds) * DL + E ELFM	256.97	4.94	25.54
(0.9 - 0.2Sds) * DL + E EMAM	203.26	3.58	25.54
1.0D + 1.0W	565.43	11.19	31.76

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


0.00
0.00
0.01
0.02
0.03
0.05
0.10
0.13
0.17
0.21
0.18
0.21
0.23
0.28
0.32
0.36
0.36
0.38
0.39
0.42
0.44
0.47
0.49
1.00
1.00
75.000
73.000
70.000
67.000
65.000
60.000
57.000
55.000
52.380
50.000
47.159
45.000
40.000
35.000
28.852
25.000
22.688
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**414240**	**Code: ANSI/TIA-222-G**	
Site Name:	**Byram Park CT, CT**	**Engineering Number: 64868221**	**1/21/2016 1:18:55 PM**
Customer:	**AT&T Mobility**		

Analysis Parameters

Location:	**Fairfield County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**76.6**
Shape:	**18 Sides**	**Base Diameter (in):**	**52.00**
Pole Type:	**Taper**	**Top Diameter (in):**	**27.75**
Pole Manfacturer:	**EEI**	**Taper (in/ft) :**	**0.336**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**110 mph**
Exposure Category:	**C**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**0.63**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.120**
S_s:	**0.263**	**S_1:**	**0.071**	**C_s Max:**	**0.120**
F_a:	**1.590**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.279**	**S_{d1}:**	**0.114**		

Load Cases

1.2D + 1.6W	**110 mph with No Ice**
0.9D + 1.6W	**110 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Site Number: 414240	**Code:** ANSI/TIA-222-G		
Site Name: Byram Park CT, CT	**Engineering Number:** 64868221	**1/21/2016 1:18:55 PM**	
Customer: AT&T Mobility			

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	28.852	0.5000	65		0.00	7,269	52.00	0.00	81.73	27387.9	16.93	104.00	42.31	28.85	66.35	14656.9	13.51	84.63	0.335790
2-18	29.693	0.4375	65	Slip	73.97	5,589	45.25	22.69	62.24	15795.8	16.83	103.45	35.28	52.38	48.39	7425.4	12.81	80.66	0.335790
3-18	29.529	0.3125	65	Slip	62.66	3,228	37.66	47.16	37.05	6530.8	19.84	120.53	27.75	76.69	27.21	2588.4	14.25	88.80	0.335790
				Shaft Weight		16,086													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
75.00	Pine Branches	1	600.00	45.000	1.00	990.28	74.271	1.00	0.000	0.000
73.00	Flat T-Arm	3	250.00	12.900	0.75	444.47	20.510	0.75	0.000	0.000
70.00	Pine Branches	1	600.00	45.000	1.00	987.28	74.046	1.00	0.000	0.000
67.00	CCI OPA-65R-LCUU-H6	3	73.00	9.660	0.79	260.87	12.219	0.79	0.000	0.000
67.00	Ericsson RRUS-11	6	55.00	3.790	0.67	137.87	4.975	0.67	0.000	0.000
67.00	Ericsson RRUS-32	3	77.00	3.310	0.67	166.77	4.494	0.67	0.000	0.000
67.00	Powerwave Allgon P65-16-	6	53.00	8.130	0.79	205.04	10.702	0.79	0.000	0.000
67.00	Powerwave Allgon TT19-	6	16.00	0.640	0.50	34.64	1.186	0.50	0.000	0.000
67.00	Raycap DC6-48-60-18-	1	32.80	1.280	1.00	89.75	1.841	1.00	0.000	0.000
67.00	Raycap DC6-48-60-18-	1	32.80	1.280	1.00	89.75	1.841	1.00	0.000	0.000
67.00	Round Sector Frame	3	300.00	14.400	0.75	639.54	29.679	0.75	0.000	0.000
65.00	Pine Branches	1	600.00	45.000	1.00	983.74	73.781	1.00	0.000	0.000
60.00	Pine Branches	1	600.00	45.000	1.00	981.21	73.591	1.00	0.000	0.000
57.00	20" x 15" x 10" BOB	1	30.00	2.500	1.00	101.34	3.449	1.00	0.000	-1.000
57.00	25" x 13" x 8" RRU/RRH	3	30.00	2.710	0.67	99.29	3.739	0.67	0.000	-1.000
57.00	Amphenol Antel BXA-171063-	6	12.80	4.800	0.88	99.75	6.947	0.88	0.000	-1.000
57.00	Amphenol Antel LPA-80063-	3	27.00	9.730	0.94	263.95	12.217	0.94	0.000	-1.000
57.00	Commscope LNX-4514DS-	3	29.50	6.780	0.74	161.70	8.624	0.74	0.000	-1.000
57.00	Flat T-Arm	3	250.00	12.900	0.75	439.78	20.326	0.75	0.000	0.000
57.00	KMW AM-X-CD-16-65-00T-	6	33.00	6.050	0.84	164.20	7.952	0.84	0.000	-1.000
57.00	VZW Unused Reserve:	1	1935.70	113.87	1.00	3,160.19	185.902	1.00	0.000	-1.000
55.00	Pine Branches	1	600.00	45.000	1.00	977.96	73.347	1.00	0.000	0.000
50.00	Pine Branches	1	600.00	45.000	1.00	974.19	73.064	1.00	0.000	0.000
45.00	Pine Branches	1	600.00	45.000	1.00	969.22	72.692	1.00	0.000	0.000
40.00	Pine Branches	1	600.00	45.000	1.00	964.63	72.347	1.00	0.000	0.000
35.00	Pine Branches	1	600.00	45.000	1.00	959.45	71.959	1.00	0.000	0.000
30.00	Pine Branches	1	600.00	45.000	1.00	955.90	71.692	1.00	0.000	0.000
25.00	Pine Branches	1	600.00	45.000	1.00	948.49	71.137	1.00	0.000	0.000
20.00	Pine Branches	1	600.00	45.000	1.00	937.87	70.341	1.00	0.000	0.000
15.00	Pine Branches	1	600.00	45.000	1.00	926.69	69.502	1.00	0.000	0.000
	Totals	71	13959.60			27,276.02			Number of Loadings :	30

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	67.00	2	0.63" Cable	0.63	0.31	N	0.00	N	AT&T Mobility
0.00	67.00	2	0.63" Cable	0.63	0.31	N	0.00	N	AT&T Mobility
0.00	67.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	67.00	1	5/8" Hybriflex	0.84	0.70	N	0.00	N	AT&T Mobility
0.00	67.00	1	5/8" Hybriflex	0.84	0.70	N	0.00	N	AT&T Mobility
0.00	57.00	1	1 1/4" Coax	1.55	0.63	N	0.00	N	Verizon
0.00	57.00	18	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.5000	52.001	81.729	27,387.9	16.93	104.00	81.5	1037.	0.0	0.0
5.00		0.5000	50.322	79.065	24,795.7	16.34	100.64	82.2	970.5	0.0	1,367.9
10.00		0.5000	48.643	76.400	22,372.4	15.74	97.29	82.6	905.9	0.0	1,322.5
15.00		0.5000	46.964	73.736	20,112.5	15.15	93.93	82.6	843.5	0.0	1,277.2
20.00		0.5000	45.285	71.071	18,010.0	14.56	90.57	82.6	783.3	0.0	1,231.9
22.69	Bot - Section 2	0.5000	44.383	69.639	16,943.1	14.24	88.77	82.6	751.9	0.0	643.4
25.00		0.5000	43.606	68.407	16,059.5	13.97	87.21	82.6	725.4	0.0	1,028.6
28.85	Top - Section 1	0.4375	43.188	59.362	13,706.9	16.00	98.72	82.6	625.1	0.0	1,672.9
30.00		0.4375	42.802	58.827	13,339.3	15.84	97.83	82.6	613.8	0.0	230.9
35.00		0.4375	41.123	56.495	11,815.4	15.16	94.00	82.6	565.9	0.0	981.0
40.00		0.4375	39.444	54.164	10,412.2	14.49	90.16	82.6	519.9	0.0	941.4
45.00		0.4375	37.765	51.833	9,124.8	13.81	86.32	82.6	475.9	0.0	901.7
47.16	Bot - Section 3	0.4375	37.040	50.826	8,603.4	13.52	84.66	82.6	457.5	0.0	377.1
50.00		0.4375	36.086	49.501	7,948.0	13.13	82.48	82.6	433.8	0.0	838.6
52.38	Top - Section 2	0.3125	35.912	35.309	5,653.7	18.85	114.92	79.2	310.1	0.0	685.6
55.00		0.3125	35.032	34.437	5,244.8	18.36	112.10	79.8	294.9	0.0	310.9
57.00		0.3125	34.361	33.771	4,946.3	17.98	109.95	80.3	283.5	0.0	232.1
60.00		0.3125	33.353	32.771	4,520.2	17.41	106.73	80.9	266.9	0.0	339.6
65.00		0.3125	31.675	31.106	3,865.5	16.46	101.36	82.0	240.4	0.0	543.4
67.00		0.3125	31.003	30.440	3,622.5	16.08	99.21	82.5	230.1	0.0	209.4
70.00		0.3125	29.996	29.441	3,277.3	15.51	95.99	82.6	215.2	0.0	305.6
73.00		0.3125	28.988	28.442	2,954.9	14.95	92.76	82.6	200.8	0.0	295.4
75.00		0.3125	28.317	27.776	2,752.1	14.57	90.61	82.6	191.4	0.0	191.3
76.69		0.3125	27.750	27.214	2,588.4	14.25	88.80	82.6	183.7	0.0	157.9
											16,086.3

Site Number: 414240	**Code:** ANSI/TIA-222-G		
Site Name: Byram Park CT, CT	**Engineering Number:** 64868221	**1/21/2016 1:18:55 PM**	
Customer: AT&T Mobility			

Load Case: 1.2D + 1.6W — 110 mph with No Ice — 14 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		309.7	0.0					0.0	0.0	309.7	0.0	0.0	0.0
5.00		609.2	1,641.4					0.0	167.2	609.2	1,808.7	0.0	0.0
10.00		588.9	1,587.0					0.0	167.2	588.9	1,754.3	0.0	0.0
15.00	Appertunance(s)	577.4	1,532.6	1,981.0	0.0	0.0	720.0	0.0	167.2	2,558.5	2,419.9	0.0	0.0
20.00	Appertunance(s)	445.0	1,478.2	2,102.0	0.0	0.0	720.0	0.0	167.2	2,546.9	2,365.5	0.0	0.0
22.69	Bot - Section 2	295.2	772.1					0.0	89.9	295.2	862.0	0.0	0.0
25.00	Appertunance(s)	369.2	1,234.4	2,203.1	0.0	0.0	720.0	0.0	77.3	2,572.3	2,031.7	0.0	0.0
28.85	Top - Section 1	299.7	2,007.4					0.0	128.8	299.7	2,136.2	0.0	0.0
30.00	Appertunance(s)	367.3	277.1	2,289.3	0.0	0.0	720.0	0.0	38.4	2,656.6	1,035.5	0.0	0.0
35.00	Appertunance(s)	593.9	1,177.2	2,364.8	0.0	0.0	720.0	0.0	167.2	2,958.7	2,064.5	0.0	0.0
40.00	Appertunance(s)	585.9	1,129.6	2,432.2	0.0	0.0	720.0	0.0	167.2	3,018.2	2,016.9	0.0	0.0
45.00	Appertunance(s)	414.3	1,082.0	2,493.3	0.0	0.0	720.0	0.0	167.2	2,907.5	1,969.3	0.0	0.0
47.16	Bot - Section 3	287.3	452.5					0.0	72.2	287.3	524.7	0.0	0.0
50.00	Appertunance(s)	298.9	1,006.3	2,549.2	0.0	0.0	720.0	0.0	95.0	2,848.1	1,821.3	0.0	0.0
52.38	Top - Section 2	282.3	822.7					0.0	79.6	282.3	902.4	0.0	0.0
55.00	Appertunance(s)	257.7	373.1	2,600.9	0.0	0.0	720.0	0.0	87.6	2,858.5	1,180.7	0.0	0.0
57.00	Appertunance(s)	274.3	278.5	12,806.5	0.0	-11,538.8	3,900.0	0.0	66.9	13,080.8	4,245.4	0.0	0.0
60.00	Appertunance(s)	429.0	407.6	2,648.9	0.0	0.0	720.0	0.0	44.9	3,077.9	1,172.5	0.0	0.0
65.00	Appertunance(s)	369.0	652.1	2,694.0	0.0	0.0	720.0	0.0	74.9	3,062.9	1,447.0	0.0	0.0
67.00	Appertunance(s)	255.8	251.3	5,695.9	0.0	0.0	2,591.5	0.0	30.0	5,951.7	2,872.8	0.0	0.0
70.00	Appertunance(s)	300.9	366.8	2,736.3	0.0	0.0	720.0	0.0	0.0	3,037.2	1,086.8	0.0	0.0
73.00	Appertunance(s)	245.6	354.5	1,335.4	0.0	0.0	900.0	0.0	0.0	1,581.0	1,254.5	0.0	0.0
75.00	Appertunance(s)	177.4	229.6	2,776.3	0.0	0.0	720.0	0.0	0.0	2,953.8	949.6	0.0	0.0
76.69		80.5	189.5					0.0	0.0	80.5	189.5	0.0	0.0
								Totals:		60,423.3	38,111.2	0.00	0.00

Site Number: 414240 | Code: ANSI/TIA-222-G |

Site Name: Byram Park CT, CT | Engineering Number: 64868221 | 1/21/2016 1:18:56 PM

Customer: AT&T Mobility

Load Case: 1.2D + 1.6W | 110 mph with No Ice | 14 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.03	-60.17	0.00	-3,043.93	0.00	3,043.93	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.487
5.00	-36.06	-59.65	0.00	-2,743.10	0.00	2,743.10	5,848.26	2,924.13	11,946.7	5,982.24	0.08	-0.15	0.465
10.00	-34.16	-59.14	0.00	-2,444.86	0.00	2,444.86	5,676.15	2,838.07	11,200.5	5,608.58	0.32	-0.30	0.442
15.00	-31.61	-56.65	0.00	-2,149.16	0.00	2,149.16	5,478.20	2,739.10	10,429.0	5,222.27	0.72	-0.45	0.418
20.00	-29.17	-54.13	0.00	-1,865.94	0.00	1,865.94	5,280.25	2,640.12	9,685.10	4,849.75	1.26	-0.59	0.391
22.69	-28.25	-53.86	0.00	-1,720.46	0.00	1,720.46	5,173.85	2,586.92	9,296.61	4,655.21	1.62	-0.66	0.375
25.00	-26.17	-51.30	0.00	-1,595.90	0.00	1,595.90	5,082.30	2,541.15	8,968.69	4,491.01	1.96	-0.73	0.361
28.85	-23.98	-51.00	0.00	-1,398.30	0.00	1,398.30	4,410.30	2,205.15	7,729.01	3,870.25	2.59	-0.83	0.367
30.00	-22.92	-48.36	0.00	-1,339.73	0.00	1,339.73	4,370.52	2,185.26	7,589.50	3,800.39	2.79	-0.86	0.358
35.00	-20.80	-45.42	0.00	-1,097.91	0.00	1,097.91	4,197.31	2,098.66	6,996.91	3,503.66	3.77	-0.99	0.319
40.00	-18.76	-42.40	0.00	-870.82	0.00	870.82	4,024.10	2,012.05	6,428.41	3,218.98	4.87	-1.11	0.276
45.00	-16.80	-39.47	0.00	-658.82	0.00	658.82	3,850.90	1,925.45	5,884.00	2,946.37	6.09	-1.21	0.228
47.16	-16.25	-39.19	0.00	-573.61	0.00	573.61	3,776.11	1,888.05	5,656.38	2,832.39	6.65	-1.25	0.207
50.00	-14.47	-36.31	0.00	-462.27	0.00	462.27	3,677.69	1,838.84	5,363.67	2,685.82	7.41	-1.30	0.176
52.38	-13.55	-36.02	0.00	-375.84	0.00	375.84	2,517.68	1,258.84	3,679.49	1,842.48	8.07	-1.34	0.210
55.00	-12.42	-33.14	0.00	-281.49	0.00	281.49	2,473.56	1,236.78	3,524.91	1,765.07	8.82	-1.37	0.165
57.00	-8.48	-19.96	0.00	-215.22	0.00	215.22	2,439.26	1,219.63	3,408.19	1,706.63	9.40	-1.40	0.130
60.00	-7.37	-16.86	0.00	-155.34	0.00	155.34	2,386.80	1,193.40	3,235.34	1,620.07	10.29	-1.43	0.099
65.00	-6.00	-13.76	0.00	-71.04	0.00	71.04	2,296.71	1,148.36	2,953.54	1,478.97	11.82	-1.47	0.051
67.00	-3.28	-7.74	0.00	-43.51	0.00	43.51	2,259.74	1,129.87	2,843.16	1,423.69	12.43	-1.48	0.032
70.00	-2.27	-4.68	0.00	-20.30	0.00	20.30	2,187.31	1,093.65	2,660.78	1,332.37	13.36	-1.48	0.016
73.00	-1.06	-3.06	0.00	-6.27	0.00	6.27	2,113.08	1,056.54	2,482.34	1,243.01	14.30	-1.49	0.006
75.00	-0.19	-0.09	0.00	-0.14	0.00	0.14	2,063.59	1,031.79	2,366.81	1,185.17	14.92	-1.49	0.000
76.69	0.00	-0.08	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	15.44	-1.49	0.000

Site Number:	**414240**	**Code: ANSI/TIA-222-G**	
Site Name:	**Byram Park CT, CT**	**Engineering Number: 64868221**	**1/21/2016 1:18:56 PM**
Customer:	**AT&T Mobility**		

Load Case: **0.9D + 1.6W** — **110 mph with No Ice (Reduced DL)** — **14 Iterations**

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		309.7	0.0					0.0	0.0	309.7	0.0	0.0	0.0
5.00		609.2	1,231.1					0.0	125.4	609.2	1,356.5	0.0	0.0
10.00		588.9	1,190.3					0.0	125.4	588.9	1,315.7	0.0	0.0
15.00	Appertunance(s)	577.4	1,149.5	1,981.0	0.0	0.0	540.0	0.0	125.4	2,558.5	1,814.9	0.0	0.0
20.00	Appertunance(s)	445.0	1,108.7	2,102.0	0.0	0.0	540.0	0.0	125.4	2,546.9	1,774.1	0.0	0.0
22.69	Bot - Section 2	295.2	579.1					0.0	67.4	295.2	646.5	0.0	0.0
25.00	Appertunance(s)	369.2	925.8	2,203.1	0.0	0.0	540.0	0.0	58.0	2,572.3	1,523.8	0.0	0.0
28.85	Top - Section 1	299.7	1,505.6					0.0	96.6	299.7	1,602.2	0.0	0.0
30.00	Appertunance(s)	367.3	207.8	2,289.3	0.0	0.0	540.0	0.0	28.8	2,656.6	776.6	0.0	0.0
35.00	Appertunance(s)	593.9	882.9	2,364.8	0.0	0.0	540.0	0.0	125.4	2,958.7	1,548.3	0.0	0.0
40.00	Appertunance(s)	585.9	847.2	2,432.2	0.0	0.0	540.0	0.0	125.4	3,018.2	1,512.6	0.0	0.0
45.00	Appertunance(s)	414.3	811.5	2,493.3	0.0	0.0	540.0	0.0	125.4	2,907.5	1,476.9	0.0	0.0
47.16	Bot - Section 3	287.3	339.4					0.0	54.2	287.3	393.5	0.0	0.0
50.00	Appertunance(s)	298.9	754.7	2,549.2	0.0	0.0	540.0	0.0	71.3	2,848.1	1,366.0	0.0	0.0
52.38	Top - Section 2	282.3	617.1					0.0	59.7	282.3	676.8	0.0	0.0
55.00	Appertunance(s)	257.7	279.8	2,600.9	0.0	0.0	540.0	0.0	65.7	2,858.5	885.5	0.0	0.0
57.00	Appertunance(s)	274.3	208.9	12,806.5	0.0	-11,538.8	2,925.0	0.0	50.2	13,080.8	3,184.1	0.0	0.0
60.00	Appertunance(s)	429.0	305.7	2,648.9	0.0	0.0	540.0	0.0	33.7	3,077.9	879.4	0.0	0.0
65.00	Appertunance(s)	369.0	489.1	2,694.0	0.0	0.0	540.0	0.0	56.2	3,062.9	1,085.2	0.0	0.0
67.00	Appertunance(s)	255.8	188.5	5,695.9	0.0	0.0	1,943.6	0.0	22.5	5,951.7	2,154.6	0.0	0.0
70.00	Appertunance(s)	300.9	275.1	2,736.3	0.0	0.0	540.0	0.0	0.0	3,037.2	815.1	0.0	0.0
73.00	Appertunance(s)	245.6	265.9	1,335.4	0.0	0.0	675.0	0.0	0.0	1,581.0	940.9	0.0	0.0
75.00	Appertunance(s)	177.4	172.2	2,776.3	0.0	0.0	540.0	0.0	0.0	2,953.8	712.2	0.0	0.0
76.69		80.5	142.1					0.0	0.0	80.5	142.1	0.0	0.0
								Totals:		60,423.3	28,583.4	0.00	0.00

Load Case: 0.9D + 1.6W — 110 mph with No Ice (Reduced DL) — 14 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 0.90
Wind Load Factor : 1.60
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.50	-60.15	0.00	-3,038.95	0.00	3,038.95	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.484
5.00	-26.99	-59.61	0.00	-2,738.19	0.00	2,738.19	5,848.26	2,924.13	11,946.7	5,982.24	0.08	-0.15	0.463
10.00	-25.52	-59.08	0.00	-2,440.14	0.00	2,440.14	5,676.15	2,838.07	11,200.5	5,608.58	0.32	-0.30	0.440
15.00	-23.58	-56.57	0.00	-2,144.72	0.00	2,144.72	5,478.20	2,739.10	10,429.0	5,222.27	0.72	-0.44	0.415
20.00	-21.73	-54.05	0.00	-1,861.86	0.00	1,861.86	5,280.25	2,640.12	9,685.10	4,849.75	1.26	-0.59	0.388
22.69	-21.02	-53.77	0.00	-1,716.60	0.00	1,716.60	5,173.85	2,586.92	9,296.61	4,655.21	1.61	-0.66	0.373
25.00	-19.46	-51.21	0.00	-1,592.25	0.00	1,592.25	5,082.30	2,541.15	8,968.69	4,491.01	1.95	-0.73	0.359
28.85	-17.80	-50.91	0.00	-1,395.00	0.00	1,395.00	4,410.30	2,205.15	7,729.01	3,870.25	2.58	-0.83	0.365
30.00	-16.99	-48.27	0.00	-1,336.53	0.00	1,336.53	4,370.52	2,185.26	7,589.50	3,800.39	2.79	-0.86	0.356
35.00	-15.39	-45.32	0.00	-1,095.20	0.00	1,095.20	4,197.31	2,098.66	6,996.91	3,503.66	3.76	-0.99	0.317
40.00	-13.86	-42.30	0.00	-868.61	0.00	868.61	4,024.10	2,012.05	6,428.41	3,218.98	4.86	-1.11	0.274
45.00	-12.39	-39.38	0.00	-657.12	0.00	657.12	3,850.90	1,925.45	5,884.00	2,946.37	6.08	-1.21	0.227
47.16	-11.97	-39.09	0.00	-572.11	0.00	572.11	3,776.11	1,888.05	5,656.38	2,832.39	6.64	-1.25	0.206
50.00	-10.64	-36.22	0.00	-461.04	0.00	461.04	3,677.69	1,838.84	5,363.67	2,685.82	7.40	-1.30	0.175
52.38	-9.95	-35.93	0.00	-374.83	0.00	374.83	2,517.68	1,258.84	3,679.49	1,842.48	8.06	-1.34	0.208
55.00	-9.12	-33.06	0.00	-280.70	0.00	280.70	2,473.56	1,236.78	3,524.91	1,765.07	8.80	-1.37	0.163
57.00	-6.24	-19.90	0.00	-214.59	0.00	214.59	2,439.26	1,219.63	3,408.19	1,706.63	9.38	-1.40	0.129
60.00	-5.43	-16.81	0.00	-154.87	0.00	154.87	2,386.80	1,193.40	3,235.34	1,620.07	10.27	-1.43	0.098
65.00	-4.41	-13.72	0.00	-70.83	0.00	70.83	2,296.71	1,148.36	2,953.54	1,478.97	11.79	-1.46	0.050
67.00	-2.41	-7.72	0.00	-43.38	0.00	43.38	2,259.74	1,129.87	2,843.16	1,423.69	12.41	-1.47	0.032
70.00	-1.68	-4.66	0.00	-20.23	0.00	20.23	2,187.31	1,093.65	2,660.78	1,332.37	13.33	-1.48	0.016
73.00	-0.78	-3.06	0.00	-6.25	0.00	6.25	2,113.08	1,056.54	2,482.34	1,243.01	14.26	-1.48	0.005
75.00	-0.14	-0.08	0.00	-0.14	0.00	0.14	2,063.59	1,031.79	2,366.81	1,185.17	14.89	-1.48	0.000
76.69	0.00	-0.08	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	15.41	-1.48	0.000

Site Number: 414240	**Code:** ANSI/TIA-222-G		
Site Name: Byram Park CT, CT	**Engineering Number:** 64868221	**1/21/2016 1:18:57 PM**	
Customer: AT&T Mobility			

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 13 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.00

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		77.1	0.0					0.0	0.0	77.1	0.0	0.0	0.0
5.00		152.2	2,015.2					0.0	167.2	152.2	2,182.4	0.0	0.0
10.00		147.9	1,991.6					0.0	167.2	147.9	2,158.9	0.0	0.0
15.00	Appertunance(s)	145.7	1,944.7	395.1	0.0	0.0	1,646.7	0.0	167.2	540.8	3,758.6	0.0	0.0
20.00	Appertunance(s)	112.6	1,890.0	424.3	0.0	0.0	1,657.9	0.0	167.2	536.8	3,715.1	0.0	0.0
22.69	Bot - Section 2	74.8	993.6					0.0	89.9	74.8	1,083.5	0.0	0.0
25.00	Appertunance(s)	93.8	1,427.6	449.7	0.0	0.0	1,668.5	0.0	77.3	543.5	3,173.4	0.0	0.0
28.85	Top - Section 1	76.2	2,324.1					0.0	128.8	76.2	2,452.9	0.0	0.0
30.00	Appertunance(s)	93.7	371.6	471.0	0.0	0.0	1,675.9	0.0	38.4	564.7	2,085.9	0.0	0.0
35.00	Appertunance(s)	151.8	1,577.1	488.3	0.0	0.0	1,679.5	0.0	167.2	640.1	3,423.7	0.0	0.0
40.00	Appertunance(s)	150.4	1,519.4	504.9	0.0	0.0	1,684.6	0.0	167.2	655.3	3,371.3	0.0	0.0
45.00	Appertunance(s)	106.6	1,460.7	520.1	0.0	0.0	1,689.2	0.0	167.2	626.7	3,317.2	0.0	0.0
47.16	Bot - Section 3	74.1	614.3					0.0	72.2	74.1	686.5	0.0	0.0
50.00	Appertunance(s)	77.2	1,218.6	534.5	0.0	0.0	1,694.2	0.0	95.0	611.7	3,007.8	0.0	0.0
52.38	Top - Section 2	73.1	997.9					0.0	79.6	73.1	1,077.5	0.0	0.0
55.00	Appertunance(s)	66.9	562.2	547.4	0.0	0.0	1,698.0	0.0	87.6	614.3	2,347.8	0.0	0.0
57.00	Appertunance(s)	71.4	420.9	2,497.6	0.0	-2,239.7	6,155.6	0.0	66.9	2,569.0	6,643.4	0.0	0.0
60.00	Appertunance(s)	112.0	616.1	559.4	0.0	0.0	1,701.2	0.0	44.9	671.4	2,362.2	0.0	0.0
65.00	Appertunance(s)	96.6	985.2	570.4	0.0	0.0	1,703.7	0.0	74.9	667.0	2,763.9	0.0	0.0
67.00	Appertunance(s)	67.3	382.6	1,111.4	0.0	0.0	4,966.8	0.0	30.0	1,178.7	5,379.4	0.0	0.0
70.00	Appertunance(s)	79.4	558.4	581.4	0.0	0.0	1,707.3	0.0	0.0	660.8	2,265.7	0.0	0.0
73.00	Appertunance(s)	65.0	540.9	274.2	0.0	0.0	1,291.4	0.0	0.0	339.1	1,832.3	0.0	0.0
75.00	Appertunance(s)	47.1	351.5	591.7	0.0	0.0	1,710.3	0.0	0.0	638.8	2,061.8	0.0	0.0
76.69		21.4	290.7					0.0	0.0	21.4	290.7	0.0	0.0
								Totals:		12,755.4	61,441.8	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 13 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.20
Wind Load Factor : 1.00
Ice Dead Load Factor : 1.00
Wind Importance Factor : 1.00
Ice Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.44	-12.70	0.00	-640.78	0.00	640.78	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.111
5.00	-59.25	-12.58	0.00	-577.31	0.00	577.31	5,848.26	2,924.13	11,946.7	5,982.24	0.02	-0.03	0.107
10.00	-57.08	-12.46	0.00	-514.43	0.00	514.43	5,676.15	2,838.07	11,200.5	5,608.58	0.07	-0.06	0.102
15.00	-53.32	-11.94	0.00	-452.15	0.00	452.15	5,478.20	2,739.10	10,429.0	5,222.27	0.15	-0.09	0.096
20.00	-49.60	-11.41	0.00	-392.46	0.00	392.46	5,280.25	2,640.12	9,685.10	4,849.75	0.27	-0.12	0.090
22.69	-48.51	-11.35	0.00	-361.79	0.00	361.79	5,173.85	2,586.92	9,296.61	4,655.21	0.34	-0.14	0.087
25.00	-45.34	-10.81	0.00	-335.54	0.00	335.54	5,082.30	2,541.15	8,968.69	4,491.01	0.41	-0.15	0.084
28.85	-42.88	-10.74	0.00	-293.90	0.00	293.90	4,410.30	2,205.15	7,729.01	3,870.25	0.54	-0.17	0.086
30.00	-40.80	-10.18	0.00	-281.57	0.00	281.57	4,370.52	2,185.26	7,589.50	3,800.39	0.59	-0.18	0.083
35.00	-37.37	-9.55	0.00	-230.67	0.00	230.67	4,197.31	2,098.66	6,996.91	3,503.66	0.79	-0.21	0.075
40.00	-34.00	-8.89	0.00	-182.94	0.00	182.94	4,024.10	2,012.05	6,428.41	3,218.98	1.02	-0.23	0.065
45.00	-30.68	-8.26	0.00	-138.49	0.00	138.49	3,850.90	1,925.45	5,884.00	2,946.37	1.28	-0.26	0.055
47.16	-29.99	-8.19	0.00	-120.66	0.00	120.66	3,776.11	1,888.05	5,656.38	2,832.39	1.40	-0.26	0.051
50.00	-26.99	-7.56	0.00	-97.40	0.00	97.40	3,677.69	1,838.84	5,363.67	2,685.82	1.56	-0.27	0.044
52.38	-25.91	-7.49	0.00	-79.40	0.00	79.40	2,517.68	1,258.84	3,679.49	1,842.48	1.70	-0.28	0.053
55.00	-23.56	-6.87	0.00	-59.78	0.00	59.78	2,473.56	1,236.78	3,524.91	1,765.07	1.86	-0.29	0.043
57.00	-16.93	-4.26	0.00	-46.05	0.00	46.05	2,439.26	1,219.63	3,408.19	1,706.63	1.98	-0.29	0.034
60.00	-14.57	-3.58	0.00	-33.25	0.00	33.25	2,386.80	1,193.40	3,235.34	1,620.07	2.17	-0.30	0.027
65.00	-11.81	-2.90	0.00	-15.34	0.00	15.34	2,296.71	1,148.36	2,953.54	1,478.97	2.49	-0.31	0.016
67.00	-6.44	-1.69	0.00	-9.53	0.00	9.53	2,259.74	1,129.87	2,843.16	1,423.69	2.62	-0.31	0.010
70.00	-4.18	-1.02	0.00	-4.45	0.00	4.45	2,187.31	1,093.65	2,660.78	1,332.37	2.81	-0.31	0.005
73.00	-2.35	-0.67	0.00	-1.38	0.00	1.38	2,113.08	1,056.54	2,482.34	1,243.01	3.01	-0.31	0.002
75.00	-0.29	-0.02	0.00	-0.04	0.00	0.04	2,063.59	1,031.79	2,366.81	1,185.17	3.14	-0.31	0.000
76.69	0.00	-0.02	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	3.25	-0.31	0.000

Site Number: 414240	**Code:** ANSI/TIA-222-G		
Site Name: Byram Park CT, CT	**Engineering Number:** 64868221	**1/21/2016 1:18:58 PM**	
Customer: AT&T Mobility			

Load Case: 1.0D + 1.0W — **Serviceability 60 mph** — **13 Iterations**

Gust Response Factor : 1.10 — **Wind Importance Factor : 1.00**

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		57.6	0.0					0.0	0.0	57.6	0.0	0.0	0.0
5.00		113.3	1,367.9					0.0	139.4	113.3	1,507.2	0.0	0.0
10.00		109.5	1,322.5					0.0	139.4	109.5	1,461.9	0.0	0.0
15.00	Appertunance(s)	107.4	1,277.2	368.4	0.0	0.0	600.0	0.0	139.4	475.7	2,016.5	0.0	0.0
20.00	Appertunance(s)	82.7	1,231.9	390.9	0.0	0.0	600.0	0.0	139.4	473.6	1,971.2	0.0	0.0
22.69	Bot - Section 2	54.9	643.4					0.0	74.9	54.9	718.3	0.0	0.0
25.00	Appertunance(s)	68.7	1,028.6	409.7	0.0	0.0	600.0	0.0	64.4	478.3	1,693.1	0.0	0.0
28.85	Top - Section 1	55.7	1,672.9					0.0	107.3	55.7	1,780.2	0.0	0.0
30.00	Appertunance(s)	68.3	230.9	425.7	0.0	0.0	600.0	0.0	32.0	494.0	862.9	0.0	0.0
35.00	Appertunance(s)	110.4	981.0	439.7	0.0	0.0	600.0	0.0	139.4	550.2	1,720.4	0.0	0.0
40.00	Appertunance(s)	109.0	941.4	452.3	0.0	0.0	600.0	0.0	139.4	561.2	1,680.7	0.0	0.0
45.00	Appertunance(s)	77.0	901.7	463.6	0.0	0.0	600.0	0.0	139.4	540.7	1,641.1	0.0	0.0
47.16	Bot - Section 3	53.4	377.1					0.0	60.2	53.4	437.2	0.0	0.0
50.00	Appertunance(s)	55.6	838.6	474.0	0.0	0.0	600.0	0.0	79.2	529.6	1,517.8	0.0	0.0
52.38	Top - Section 2	52.5	685.6					0.0	66.3	52.5	752.0	0.0	0.0
55.00	Appertunance(s)	47.9	310.9	483.6	0.0	0.0	600.0	0.0	73.0	531.5	983.9	0.0	0.0
57.00	Appertunance(s)	51.0	232.1	2,381.4	0.0	-2,145.6	3,250.0	0.0	55.7	2,432.4	3,537.8	0.0	0.0
60.00	Appertunance(s)	79.8	339.6	492.6	0.0	0.0	600.0	0.0	37.4	572.3	977.1	0.0	0.0
65.00	Appertunance(s)	68.6	543.4	500.9	0.0	0.0	600.0	0.0	62.4	569.6	1,205.8	0.0	0.0
67.00	Appertunance(s)	47.6	209.4	1,059.2	0.0	0.0	2,159.6	0.0	25.0	1,106.7	2,394.0	0.0	0.0
70.00	Appertunance(s)	56.0	305.6	508.8	0.0	0.0	600.0	0.0	0.0	564.8	905.6	0.0	0.0
73.00	Appertunance(s)	45.7	295.4	248.3	0.0	0.0	750.0	0.0	0.0	294.0	1,045.4	0.0	0.0
75.00	Appertunance(s)	33.0	191.3	516.3	0.0	0.0	600.0	0.0	0.0	549.3	791.3	0.0	0.0
76.69		15.0	157.9					0.0	0.0	15.0	157.9	0.0	0.0
								Totals:		11,235.7	31,759.3	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 13 Iterations

Gust Response Factor : 1.10
Dead Load Factor : 1.00
Wind Load Factor : 1.00
Wind Importance Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.76	-11.19	0.00	-565.43	0.00	565.43	5,994.12	2,997.06	12,661.4	6,340.12	0.00	0.00	0.094
5.00	-30.24	-11.09	0.00	-509.50	0.00	509.50	5,848.26	2,924.13	11,946.7	5,982.24	0.02	-0.03	0.090
10.00	-28.78	-10.99	0.00	-454.07	0.00	454.07	5,676.15	2,838.07	11,200.5	5,608.58	0.06	-0.06	0.086
15.00	-26.76	-10.52	0.00	-399.12	0.00	399.12	5,478.20	2,739.10	10,429.0	5,222.27	0.13	-0.08	0.081
20.00	-24.78	-10.06	0.00	-346.50	0.00	346.50	5,280.25	2,640.12	9,685.10	4,849.75	0.23	-0.11	0.076
22.69	-24.06	-10.01	0.00	-319.48	0.00	319.48	5,173.85	2,586.92	9,296.61	4,655.21	0.30	-0.12	0.073
25.00	-22.37	-9.53	0.00	-296.34	0.00	296.34	5,082.30	2,541.15	8,968.69	4,491.01	0.36	-0.14	0.070
28.85	-20.58	-9.47	0.00	-259.64	0.00	259.64	4,410.30	2,205.15	7,729.01	3,870.25	0.48	-0.15	0.072
30.00	-19.72	-8.98	0.00	-248.76	0.00	248.76	4,370.52	2,185.26	7,589.50	3,800.39	0.52	-0.16	0.070
35.00	-18.00	-8.43	0.00	-203.85	0.00	203.85	4,197.31	2,098.66	6,996.91	3,503.66	0.70	-0.18	0.062
40.00	-16.32	-7.87	0.00	-161.68	0.00	161.68	4,024.10	2,012.05	6,428.41	3,218.98	0.90	-0.21	0.054
45.00	-14.68	-7.33	0.00	-122.32	0.00	122.32	3,850.90	1,925.45	5,884.00	2,946.37	1.13	-0.23	0.045
47.16	-14.24	-7.28	0.00	-106.50	0.00	106.50	3,776.11	1,888.05	5,656.38	2,832.39	1.24	-0.23	0.041
50.00	-12.72	-6.74	0.00	-85.82	0.00	85.82	3,677.69	1,838.84	5,363.67	2,685.82	1.38	-0.24	0.035
52.38	-11.97	-6.69	0.00	-69.78	0.00	69.78	2,517.68	1,258.84	3,679.49	1,842.48	1.50	-0.25	0.043
55.00	-10.99	-6.15	0.00	-52.26	0.00	52.26	2,473.56	1,236.78	3,524.91	1,765.07	1.64	-0.25	0.034
57.00	-7.46	-3.71	0.00	-39.95	0.00	39.95	2,439.26	1,219.63	3,408.19	1,706.63	1.75	-0.26	0.026
60.00	-6.49	-3.13	0.00	-28.83	0.00	28.83	2,386.80	1,193.40	3,235.34	1,620.07	1.91	-0.27	0.021
65.00	-5.28	-2.55	0.00	-13.19	0.00	13.19	2,296.71	1,148.36	2,953.54	1,478.97	2.19	-0.27	0.011
67.00	-2.89	-1.44	0.00	-8.08	0.00	8.08	2,259.74	1,129.87	2,843.16	1,423.69	2.31	-0.27	0.007
70.00	-1.99	-0.87	0.00	-3.77	0.00	3.77	2,187.31	1,093.65	2,660.78	1,332.37	2.48	-0.28	0.004
73.00	-0.95	-0.57	0.00	-1.16	0.00	1.16	2,113.08	1,056.54	2,482.34	1,243.01	2.65	-0.28	0.001
75.00	-0.16	-0.02	0.00	-0.03	0.00	0.03	2,063.59	1,031.79	2,366.81	1,185.17	2.77	-0.28	0.000
76.69	0.00	-0.01	0.00	0.00	0.00	0.00	2,021.83	1,010.92	2,271.48	1,137.43	2.87	-0.28	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.26
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.07
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.59
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.28
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.11
Seismic Response Coefficient (C_s):	0.12
Upper Limit C_s	0.12
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	0.63
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.07
Total Unfactored Dead Load:	31.76 k
Seismic Base Shear (E):	4.95 k

Site Number:	**414240**	**Code: ANSI/TIA-222-G**	
Site Name:	**Byram Park CT, CT**	**Engineering Number: 64868221**	**1/21/2016 1:18:59 PM**
Customer:	**AT&T Mobility**		

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	**0.26**
Spectral Response Acceleration at 1.0 Second Period (S_1):	**0.07**
Importance Factor (I_E):	**1.00**
Site Coefficient F_a:	**1.59**
Site Coefficient F_v	**2.40**
Response Modification Coefficient (R):	**1.50**
Design Spectral Response Acceleration at Short Period (S_{ds}):	**0.28**
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	**0.11**
Period Based on Rayleigh Method (sec):	**0.63**
Redundancy Factor (p):	**1.30**

Load Case (1.2 + 0.2Sds) * DL + E ELFM **Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
23	75.84	158	1.849	1.769	1.063	0.582	80	133
22	74.00	191	1.760	1.362	0.910	0.507	84	162
21	71.50	295	1.643	0.918	0.730	0.417	107	249
20	68.50	306	1.508	0.521	0.552	0.325	86	258
19	66.00	234	1.400	0.284	0.432	0.262	53	198
18	62.50	606	1.255	0.063	0.298	0.193	101	511
17	58.50	377	1.100	-0.070	0.187	0.139	46	318
16	56.00	288	1.008	-0.108	0.135	0.117	29	243
15	53.69	384	0.926	-0.121	0.098	0.103	34	324
14	51.19	752	0.842	-0.118	0.067	0.093	61	635
13	48.58	918	0.758	-0.103	0.043	0.088	70	775
12	46.08	437	0.682	-0.081	0.027	0.085	32	369
11	42.50	1,041	0.580	-0.046	0.013	0.083	75	879
10	37.50	1,081	0.452	0.001	0.006	0.081	76	912
9	32.50	1,120	0.339	0.036	0.009	0.076	73	946
8	29.43	263	0.278	0.050	0.014	0.070	16	222
7	26.93	1,780	0.233	0.058	0.019	0.066	101	1,503
6	23.84	1,093	0.183	0.065	0.026	0.059	56	923
5	21.34	718	0.146	0.068	0.031	0.054	34	606
4	17.50	1,371	0.098	0.071	0.037	0.046	55	1,158
3	12.50	1,417	0.050	0.071	0.042	0.038	47	1,196
2	7.50	1,462	0.018	0.063	0.037	0.029	37	1,234
1	2.50	1,507	0.002	0.032	0.018	0.014	18	1,272
Pine Branches	75.00	600	1.808	1.574	0.991	0.547	284	507
Flat T-Arm	73.00	750	1.713	1.171	0.834	0.470	305	633
Pine Branches	70.00	600	1.575	0.702	0.636	0.369	192	507
Powerwave Allgon TT1	67.00	96	1.443	0.370	0.477	0.286	24	81
Raycap DC6-48-60-18-	67.00	33	1.443	0.370	0.477	0.286	8	28
Raycap DC6-48-60-18-	67.00	33	1.443	0.370	0.477	0.286	8	28
Ericsson RRUS-32	67.00	231	1.443	0.370	0.477	0.286	57	195
Ericsson RRUS-11	67.00	330	1.443	0.370	0.477	0.286	82	279
Powerwave Allgon P65	67.00	318	1.443	0.370	0.477	0.286	79	268
CCI OPA-65R-LCUU-H6	67.00	219	1.443	0.370	0.477	0.286	54	185
Round Sector Frame	67.00	900	1.443	0.370	0.477	0.286	223	760

Pine Branches	65.00	600	1.358	0.209	0.390	0.240	125	507
Pine Branches	60.00	600	1.157	-0.032	0.224	0.157	81	507
20" x 15" x 10" BOB	57.00	30	1.044	-0.096	0.154	0.125	3	25
25" x 13" x 8" RRU/R	57.00	90	1.044	-0.096	0.154	0.125	10	76
Amphenol Antel BXA-1	57.00	77	1.044	-0.096	0.154	0.125	8	65
KMW AM-X-CD-16-65-00	57.00	198	1.044	-0.096	0.154	0.125	21	167
Commscope LNX-	57.00	89	1.044	-0.096	0.154	0.125	10	75
Amphenol Antel LPA-8	57.00	81	1.044	-0.096	0.154	0.125	9	68
Flat T-Arm	57.00	750	1.044	-0.096	0.154	0.125	81	633
VZW Unused Reserve:	57.00	1,936	1.044	-0.096	0.154	0.125	210	1,634
Pine Branches	55.00	600	0.972	-0.116	0.118	0.110	57	507
Pine Branches	50.00	600	0.803	-0.113	0.055	0.090	47	507
Pine Branches	45.00	600	0.651	-0.071	0.021	0.084	44	507
Pine Branches	40.00	600	0.514	-0.021	0.008	0.083	43	507
Pine Branches	35.00	600	0.394	0.020	0.007	0.079	41	507
Pine Branches	30.00	600	0.289	0.048	0.013	0.071	37	507
Pine Branches	25.00	600	0.201	0.063	0.023	0.062	32	507
Pine Branches	20.00	600	0.129	0.069	0.033	0.051	27	507
Pine Branches	15.00	600	0.072	0.072	0.040	0.042	22	507
		31,759	48.642	10.546	13.237	9.271	3,596	26,813

Load Case (1.2 + 0.2Sds) * DL + E EMAM **Seismic Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
23	75.84	158	1.849	1.769	1.063	0.582	80	133
22	74.00	191	1.760	1.362	0.910	0.507	84	162
21	71.50	295	1.643	0.918	0.730	0.417	107	249
20	68.50	306	1.508	0.521	0.552	0.325	86	258
19	66.00	234	1.400	0.284	0.432	0.262	53	198
18	62.50	606	1.255	0.063	0.298	0.193	101	511
17	58.50	377	1.100	-0.070	0.187	0.139	46	318
16	56.00	288	1.008	-0.108	0.135	0.117	29	243
15	53.69	384	0.926	-0.121	0.098	0.103	34	324
14	51.19	752	0.842	-0.118	0.067	0.093	61	635
13	48.58	918	0.758	-0.103	0.043	0.088	70	775
12	46.08	437	0.682	-0.081	0.027	0.085	32	369
11	42.50	1,041	0.580	-0.046	0.013	0.083	75	879
10	37.50	1,081	0.452	0.001	0.006	0.081	76	912
9	32.50	1,120	0.339	0.036	0.009	0.076	73	946
8	29.43	263	0.278	0.050	0.014	0.070	16	222
7	26.93	1,780	0.233	0.058	0.019	0.066	101	1,503
6	23.84	1,093	0.183	0.065	0.026	0.059	56	923
5	21.34	718	0.146	0.068	0.031	0.054	34	606
4	17.50	1,371	0.098	0.071	0.037	0.046	55	1,158
3	12.50	1,417	0.050	0.071	0.042	0.038	47	1,196
2	7.50	1,462	0.018	0.063	0.037	0.029	37	1,234
1	2.50	1,507	0.002	0.032	0.018	0.014	18	1,272
Pine Branches	75.00	600	1.808	1.574	0.991	0.547	284	507
Flat T-Arm	73.00	750	1.713	1.171	0.834	0.470	305	633
Pine Branches	70.00	600	1.575	0.702	0.636	0.369	192	507
Powerwave Allgon TT1	67.00	96	1.443	0.370	0.477	0.286	24	81
Raycap DC6-48-60-18-	67.00	33	1.443	0.370	0.477	0.286	8	28
Raycap DC6-48-60-18-	67.00	33	1.443	0.370	0.477	0.286	8	28
Ericsson RRUS-32	67.00	231	1.443	0.370	0.477	0.286	57	195
Ericsson RRUS-11	67.00	330	1.443	0.370	0.477	0.286	82	279
Powerwave Allgon P65	67.00	318	1.443	0.370	0.477	0.286	79	268
CCI OPA-65R-LCUU-H6	67.00	219	1.443	0.370	0.477	0.286	54	185
Round Sector Frame	67.00	900	1.443	0.370	0.477	0.286	223	760
Pine Branches	65.00	600	1.358	0.209	0.390	0.240	125	507

Pine Branches	60.00	600	1.157	-0.032	0.224	0.157	81	507
20" x 15" x 10" BOB	57.00	30	1.044	-0.096	0.154	0.125	3	25
25" x 13" x 8" RRU/R	57.00	90	1.044	-0.096	0.154	0.125	10	76
Amphenol Antel BXA-1	57.00	77	1.044	-0.096	0.154	0.125	8	65
KMW AM-X-CD-16-65-00	57.00	198	1.044	-0.096	0.154	0.125	21	167
Commscope LNX-	57.00	89	1.044	-0.096	0.154	0.125	10	75
Amphenol Antel LPA-8	57.00	81	1.044	-0.096	0.154	0.125	9	68
Flat T-Arm	57.00	750	1.044	-0.096	0.154	0.125	81	633
VZW Unused Reserve:	57.00	1,936	1.044	-0.096	0.154	0.125	210	1,634
Pine Branches	55.00	600	0.972	-0.116	0.118	0.110	57	507
Pine Branches	50.00	600	0.803	-0.113	0.055	0.090	47	507
Pine Branches	45.00	600	0.651	-0.071	0.021	0.084	44	507
Pine Branches	40.00	600	0.514	-0.021	0.008	0.083	43	507
Pine Branches	35.00	600	0.394	0.020	0.007	0.079	41	507
Pine Branches	30.00	600	0.289	0.048	0.013	0.071	37	507
Pine Branches	25.00	600	0.201	0.063	0.023	0.062	32	507
Pine Branches	20.00	600	0.129	0.069	0.033	0.051	27	507
Pine Branches	15.00	600	0.072	0.072	0.040	0.042	22	507
		31,759	48.642	10.546	13.237	9.271	3,596	26,813

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
23	75.84	158	1.849	1.769	1.063	0.582	80	133
22	74.00	191	1.760	1.362	0.910	0.507	84	162
21	71.50	295	1.643	0.918	0.730	0.417	107	249
20	68.50	306	1.508	0.521	0.552	0.325	86	258
19	66.00	234	1.400	0.284	0.432	0.262	53	198
18	62.50	606	1.255	0.063	0.298	0.193	101	511
17	58.50	377	1.100	-0.070	0.187	0.139	46	318
16	56.00	288	1.008	-0.108	0.135	0.117	29	243
15	53.69	384	0.926	-0.121	0.098	0.103	34	324
14	51.19	752	0.842	-0.118	0.067	0.093	61	635
13	48.58	918	0.758	-0.103	0.043	0.088	70	775
12	46.08	437	0.682	-0.081	0.027	0.085	32	369
11	42.50	1,041	0.580	-0.046	0.013	0.083	75	879
10	37.50	1,081	0.452	0.001	0.006	0.081	76	912
9	32.50	1,120	0.339	0.036	0.009	0.076	73	946
8	29.43	263	0.278	0.050	0.014	0.070	16	222
7	26.93	1,780	0.233	0.058	0.019	0.066	101	1,503
6	23.84	1,093	0.183	0.065	0.026	0.059	56	923
5	21.34	718	0.146	0.068	0.031	0.054	34	606
4	17.50	1,371	0.098	0.071	0.037	0.046	55	1,158
3	12.50	1,417	0.050	0.071	0.042	0.038	47	1,196
2	7.50	1,462	0.018	0.063	0.037	0.029	37	1,234
1	2.50	1,507	0.002	0.032	0.018	0.014	18	1,272
Pine Branches	75.00	600	1.808	1.574	0.991	0.547	284	507
Flat T-Arm	73.00	750	1.713	1.171	0.834	0.470	305	633
Pine Branches	70.00	600	1.575	0.702	0.636	0.369	192	507
Powerwave Allgon TT1	67.00	96	1.443	0.370	0.477	0.286	24	81
Raycap DC6-48-60-18-	67.00	33	1.443	0.370	0.477	0.286	8	28
Raycap DC6-48-60-18-	67.00	33	1.443	0.370	0.477	0.286	8	28
Ericsson RRUS-32	67.00	231	1.443	0.370	0.477	0.286	57	195
Ericsson RRUS-11	67.00	330	1.443	0.370	0.477	0.286	82	279
Powerwave Allgon P65	67.00	318	1.443	0.370	0.477	0.286	79	268
CCI OPA-65R-LCUU-H6	67.00	219	1.443	0.370	0.477	0.286	54	185
Round Sector Frame	67.00	900	1.443	0.370	0.477	0.286	223	760
Pine Branches	65.00	600	1.358	0.209	0.390	0.240	125	507
Pine Branches	60.00	600	1.157	-0.032	0.224	0.157	81	507

20" x 15" x 10" BOB	57.00	30	1.044	-0.096	0.154	0.125	3	25
25" x 13" x 8" RRU/R	57.00	90	1.044	-0.096	0.154	0.125	10	76
Amphenol Antel BXA-1	57.00	77	1.044	-0.096	0.154	0.125	8	65
KMW AM-X-CD-16-65-00	57.00	198	1.044	-0.096	0.154	0.125	21	167
Commscope LNX-	57.00	89	1.044	-0.096	0.154	0.125	10	75
Amphenol Antel LPA-8	57.00	81	1.044	-0.096	0.154	0.125	9	68
Flat T-Arm	57.00	750	1.044	-0.096	0.154	0.125	81	633
VZW Unused Reserve:	57.00	1,936	1.044	-0.096	0.154	0.125	210	1,634
Pine Branches	55.00	600	0.972	-0.116	0.118	0.110	57	507
Pine Branches	50.00	600	0.803	-0.113	0.055	0.090	47	507
Pine Branches	45.00	600	0.651	-0.071	0.021	0.084	44	507
Pine Branches	40.00	600	0.514	-0.021	0.008	0.083	43	507
Pine Branches	35.00	600	0.394	0.020	0.007	0.079	41	507
Pine Branches	30.00	600	0.289	0.048	0.013	0.071	37	507
Pine Branches	25.00	600	0.201	0.063	0.023	0.062	32	507
Pine Branches	20.00	600	0.129	0.069	0.033	0.051	27	507
Pine Branches	15.00	600	0.072	0.072	0.040	0.042	22	507
		31,759	48.642	10.546	13.237	9.271	3,596	26,813

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
23	75.84	158	1.849	1.769	1.063	0.582	80	133
22	74.00	191	1.760	1.362	0.910	0.507	84	162
21	71.50	295	1.643	0.918	0.730	0.417	107	249
20	68.50	306	1.508	0.521	0.552	0.325	86	258
19	66.00	234	1.400	0.284	0.432	0.262	53	198
18	62.50	606	1.255	0.063	0.298	0.193	101	511
17	58.50	377	1.100	-0.070	0.187	0.139	46	318
16	56.00	288	1.008	-0.108	0.135	0.117	29	243
15	53.69	384	0.926	-0.121	0.098	0.103	34	324
14	51.19	752	0.842	-0.118	0.067	0.093	61	635
13	48.58	918	0.758	-0.103	0.043	0.088	70	775
12	46.08	437	0.682	-0.081	0.027	0.085	32	369
11	42.50	1,041	0.580	-0.046	0.013	0.083	75	879
10	37.50	1,081	0.452	0.001	0.006	0.081	76	912
9	32.50	1,120	0.339	0.036	0.009	0.076	73	946
8	29.43	263	0.278	0.050	0.014	0.070	16	222
7	26.93	1,780	0.233	0.058	0.019	0.066	101	1,503
6	23.84	1,093	0.183	0.065	0.026	0.059	56	923
5	21.34	718	0.146	0.068	0.031	0.054	34	606
4	17.50	1,371	0.098	0.071	0.037	0.046	55	1,158
3	12.50	1,417	0.050	0.071	0.042	0.038	47	1,196
2	7.50	1,462	0.018	0.063	0.037	0.029	37	1,234
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		31,759	48.642	10.546	13.237	9.271	3,596	26,813

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	60.17	0.00	38.03	0.00	0.00	3043.93	0.00	0.49
0.9D + 1.6W	60.15	0.00	28.50	0.00	0.00	3038.95	0.00	0.48
1.2D + 1.0Di + 1.0Wi	12.70	0.00	61.44	0.00	0.00	640.78	0.00	0.11
(1.2 + 0.2Sds) * DL + E ELFM	4.94	0.00	37.99	0.00	0.00	257.52	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	3.58	0.00	37.99	0.00	0.00	203.72	0.00	0.04
(0.9 - 0.2Sds) * DL + E ELFM	4.94	0.00	25.54	0.00	0.00	256.97	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	3.58	0.00	25.54	0.00	0.00	203.26	0.00	0.04
1.0D + 1.0W	11.19	0.00	31.76	0.00	0.00	565.43	0.00	0.09

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
4,555.20	38.30	74.40	3,043.93	61.44	60.17	66.82

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.750	66.000	Round	0	0.00	10.315	624.08	877.61	0.71

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
60.00	16	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	156.04	260.00	0.63	148.36	260.00	0.60

PROJECT INFORMATION

SCOPE OF WORK:
- AT&T ANTENNAS: (1) NEW ANTENNA PER SECTOR, FOR A TOTAL (3) NEW ANTENNAS. (2) EXISTING ANTENNAS PER SECTOR FOR 3 SECTORS, FOR A TOTAL OF (6) EXISTING ANTENNAS TO REMAIN. (1) EXISTING ANTENNA PER SECTOR FOR (3) SECTORS, FOR A TOTAL OF (3) EXISTING ANTENNAS TO BE REMOVED.
- AT&T RRUs: (1) NEW RRUs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (3) NEW RRUs; (2) EXISTING RRU PER SECTOR TO BE REUSED, FOR A TOTAL OF (6) EXISTING RRUs.
- AT&T SQUID: (1) NEW DC6 SURGE, FOR A TOTAL OF (1) NEW SQUID, (1) EXISTING DC-6 SURGE PROTECTOR, FOR A TOTAL OF (1) EXISTING SQUID TO REMAIN.

SITE ADDRESS: 36 RITCH AVENUE WEST, GREENWICH, CT 06830

LATITUDE: 41.0050639 — 41° 0' 18.23004"N
LONGITUDE: -73.6483111 — -73° 38' 53.91996"W

USID: 24473

TOWER OWNER:

TYPE OF SITE: MONOPINE/INDOOR EQUIPMENT

MONOPINE HEIGHT: 84'-0"±
RAD CENTER: 67'-0"±

CURRENT USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

PROPOSED USE: UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY

DRAWING INDEX

	DRAWING INDEX	REV.
T-1	TITLE SHEET	0
GN-1	GROUNDING & GENERAL NOTES	0
A-1	COMPOUND LAYOUT	0
A-2	EQUIPMENT LAYOUTS	0
A-3	ANTENNA LAYOUTS & ELEVATIONS	0
A-4	DETAILS	0
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	0

APPROVALS

THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE SUBCONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN, ALL DOCUMENTS ARE SUBJECT TO REVIEW BY THE LOCAL BUILDING DEPARTMENT AMD MAY IMPOSE CHANGES OR SITE MODIFICATIONS.

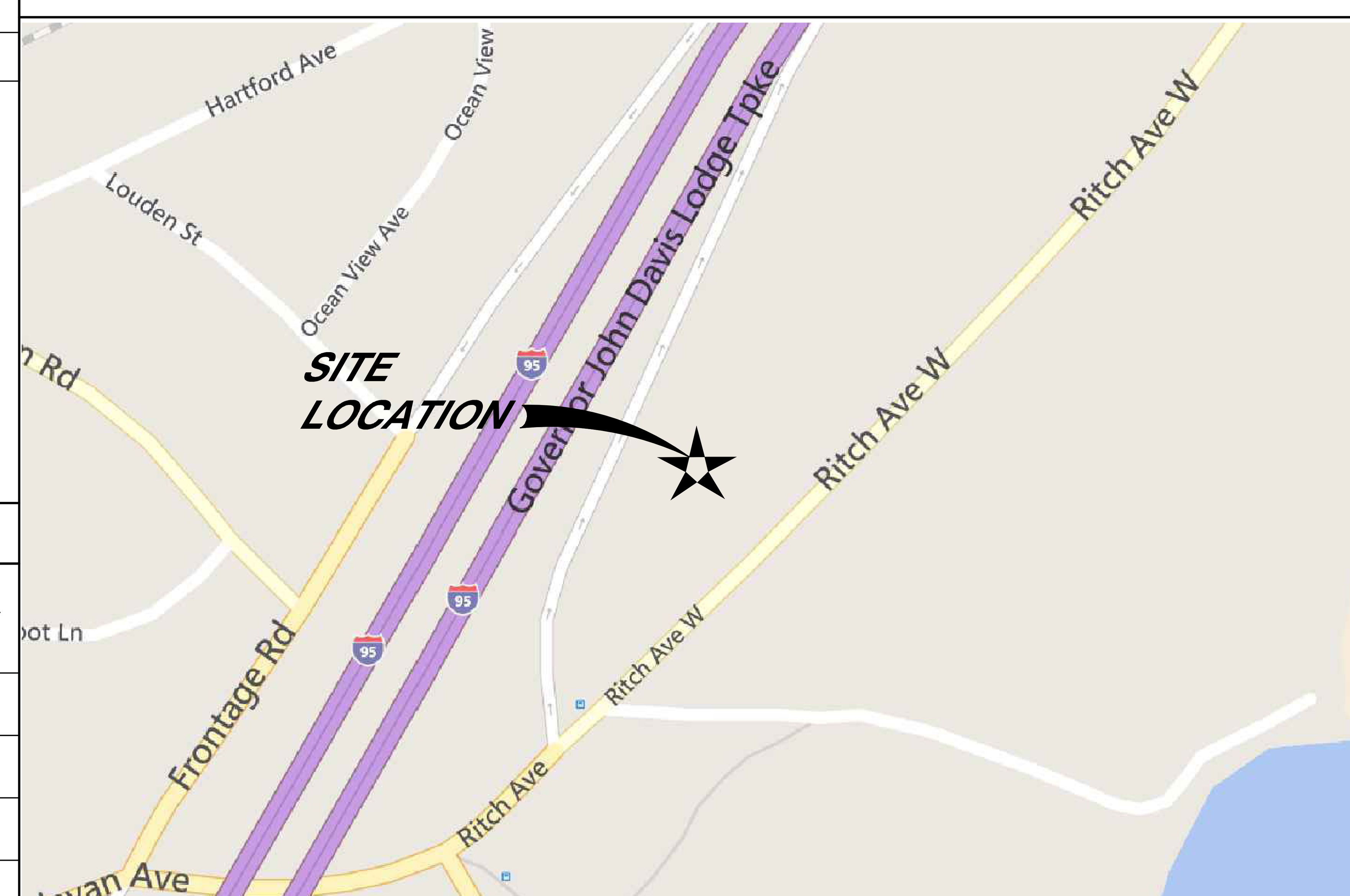
DISCIPLINE:	NAME:	
SITE ACQUISITION:		
CONSTRUCTION MANAGER:		
AT&T PROJECT MANAGER:		

at&t MOBILITY

FA CODE: 10071045
SITE NUMBER: CT5004
SITE NAME: GREENWICH SW

VICINITY MAP

1. 128I-84 WEST TO EXIT 48 AND BEAR LEFT, IT IS A ROTARY YOU GO HALF WAY AROUND IT AND FOLLOW CAPITAL AVENUE. AT THE NEXT LIGHT TAKE A RIGHT ONTO WASHINGTON AVENUE. FOLLOW UNTIL IT INTERSECTS WITH RETREAT AVENUE. TURN LEFT ON RETREAT AVENUE AND SITE WILL BE DOWN ON YOUR RIGHT MEDICAL ARTS BUILDING.



PROJECT TEAM

CLIENT REPRESENTATIVE
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

SITE ACQUISITION:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
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ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: DAVID COOPER
PHONE: 617-639-4908
EMAIL: dcooper@empiretelecomm.com

ENGINEERING:
COMPANY: COM-EX CONSULTANTS, LLC
ADDRESS: 115 ROUTE 46, SUITE E39, MOUNTAIN LAKES, NJ 07046
CONTACT: NICHOLAS D. BARILE, P.E.
PHONE: 862-209-4300
EMAIL: nbarile@comexconsultants.com

RF ENGINEER:
COMPANY: AT&T MOBILITY - NEW ENGLAND
ADDRESS: 550 COCHITUATE ROAD, SUITE 550 13 & 14, FRAMINGHAM, MA 01701
CONTACT: CAMERON SYME
PHONE: 508-596-7146
EMAIL: cs6970@att.com

CONSTRUCTION MANAGEMENT:
COMPANY: EMPIRE TELECOM
ADDRESS: 16 ESQUIRE ROAD, BILLERICA, MA 01821
CONTACT: GRZEGORZ "GREG" DORMAN
PHONE: 484-683-1750
EMAIL: gdorman@empiretelecomm.com

GENERAL NOTES

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

CONNECTICUT ONE CALL SYSTEM, INC. 1-800-922-4455 CALL BEFORE YOU DIG!

CONNECTICUT LAW REQUIRES TWO WORKING DAYS NOTICE PRIOR TO ANY EARTH MOVING ACTIVITIES BY CALLING 800-922-4455 OR DIAL 811

COM-EX Consultants
115 ROUTE 46, SUITE E39, MOUNTAIN LAKES, NJ 07046
PHONE: 862.209.4300
FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5004
SITE NAME: GREENWICH SW
36 RITCH AVENUE WEST
GRENNWICH, CT 06830
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/09/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL: STATE OF CONNECTICUT — NICHOLAS D. BARILE — No. 28643 — LICENSED PROFESSIONAL ENGINEER
NICHOLAS D. BARILE
PROFESSIONAL ENGINEER
CT LIC. NO. 28643

AT&T

DRAWING TITLE: TITLE SHEET

JOB NUMBER	DRAWING NUMBER	REV
15074-EMP	T-1	0

GROUNDING NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE–SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH 25471–000–3PS–EG00–0001, DESIGN & TESTING OF FACILITY GROUNDING FOR CELL SITES.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED WITH STAINLESS STEEL HARDWARE TO THE BRIDGE AND THE TOWER GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON–METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
13. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF ANSI/TIA 222. FOR TOWERS BEING BUILT TO REV–G OF THE STANDARD, THE WIRE SIZE OF THE BURIED GROUND RING AND CONNECTIONS BETWEEN THE TOWER AND THE BURIED GROUND RING SHALL BE CHANGED FROM 2 AWG TO 2/0 AWG. IN ADDITION, THE MINIMUM LENGTH OF THE GROUND RODS SHALL BE INCREASED FROM EIGHT FEET (8') TO TEN FEET (10').
14. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE ½" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID TINNED COPPER GROUND WIRE, PER NEC 250.50.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – EMPIRE TELECOM
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER
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 (EMPIRE TELECOM).
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. 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.
8. 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. ROUTING OF TRENCHING SHALL BE APPROVED BY CONTRACTOR
9. 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.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OFF 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.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
12. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
13. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS UNLESS OTHERWISE SPECIFIED. ALL CONCRETING WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
14. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy=36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
15. CONSTRUCTION SHALL COMPLY WITH SPECIFICATION 25741–000–3APS–A00Z–00002, "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
16. 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.
17. 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 MAY NEED TO BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
19. 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.
   - INTERNATIONAL BUILDING CODE: IBC 2009 WITH LOCAL & COUNTY AMENDMENTS
   - NATIONAL ELECTRICAL CODE: NEC 2011 WITH LOCAL & COUNTY AMENDMENTS
   - FIRE/LIFE SAFETY CODE: NFPA–101 2009 WITH LOCAL & COUNTY AMENDMENTS
20. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:
   - AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, THIRTEENTH EDITION
   - AMERICAN SOCIETY OF TESTING OF MATERIALS, ASTM
   - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (ANSI/TIA–222–G–1), STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES:
   - TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
   - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA
   - INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVELY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT
   - TELCORDIA GR–1503, COAXIAL CABLE CONNECTIONS
21. 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.
22. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.
23. INFORMATION SHOWN ON THIS SET OF PLANS TAKEN FROM DRAWINGS PREPARED BY CENTEK ENGINEERING FOR A RECENT UPGRADE DATED 01/25/2012. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

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FAX: 862.209.4301

EMPIRE telecom
16 ESQUIRE ROAD
BILLERICA, MA 01821

SITE NUMBER: CT5004
SITE NAME: GREENWICH SW
36 RITCH AVENUE WEST
GRENNWICH, CT 06830
FAIRFIELD COUNTY

at&t MOBILITY
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

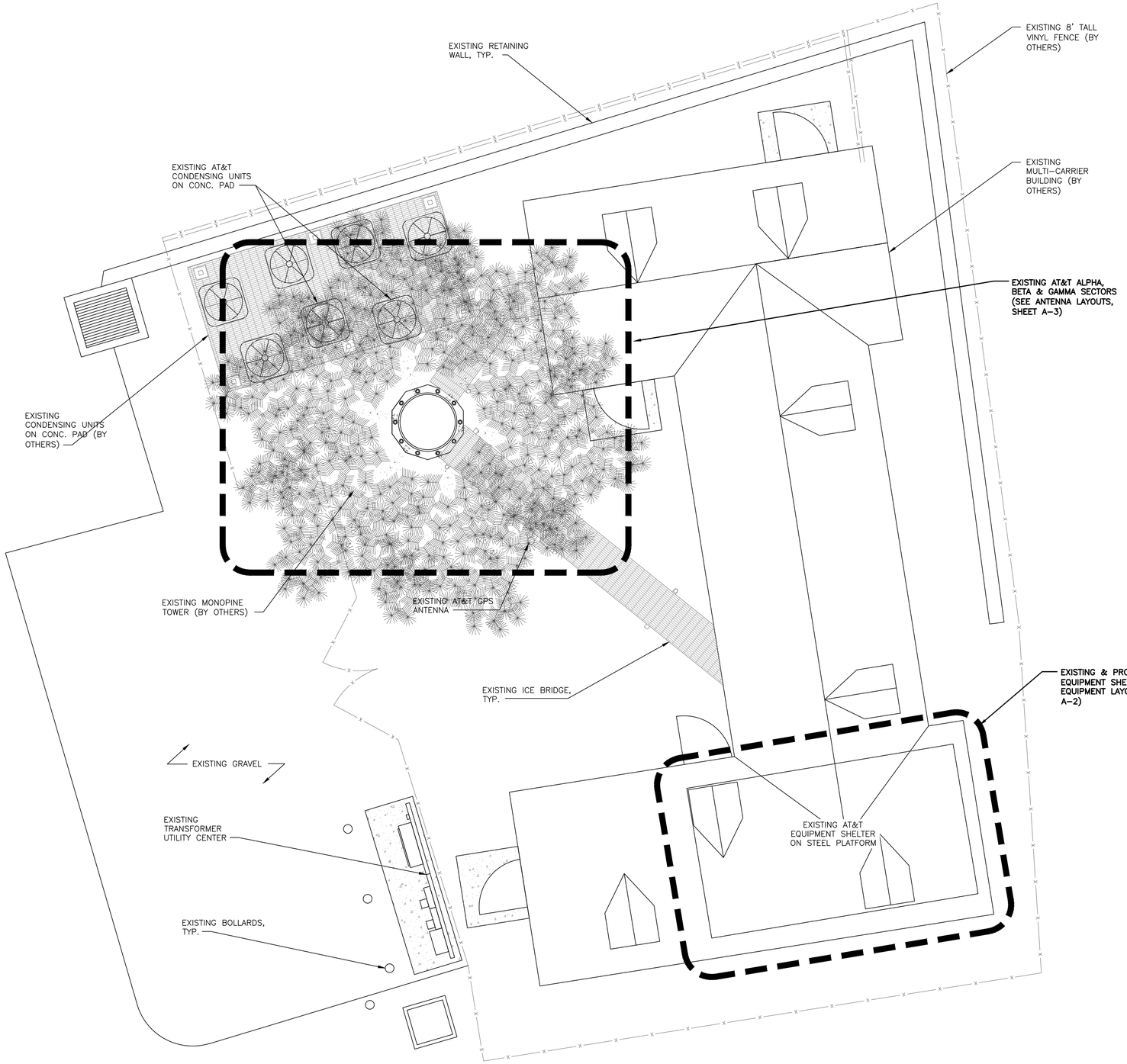
NO.	DATE	REVISIONS	BY	CHK	APP'D
0	03/09/16	ISSUED AS FINAL	NJM	NDB	NDB

SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:
PROFESSIONAL ENGINEER
CT [illegible] 28643

AT&T
DRAWING TITLE: GROUNDING & GENERAL NOTES

JOB NUMBER	DRAWING NUMBER	REV
15074–EMP	GN–1	0



COMPOUND LAYOUT

SCALE: 1" = 4'-0"

4 0 2 4 8 16

(IN FEET)

1/4 Inch = 1 Foot

NORTH

NOTE:
CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA AND SUBMIT TO THE ENGINEER ANY DISCREPANCIES FROM THE DRAWINGS.

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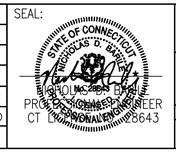
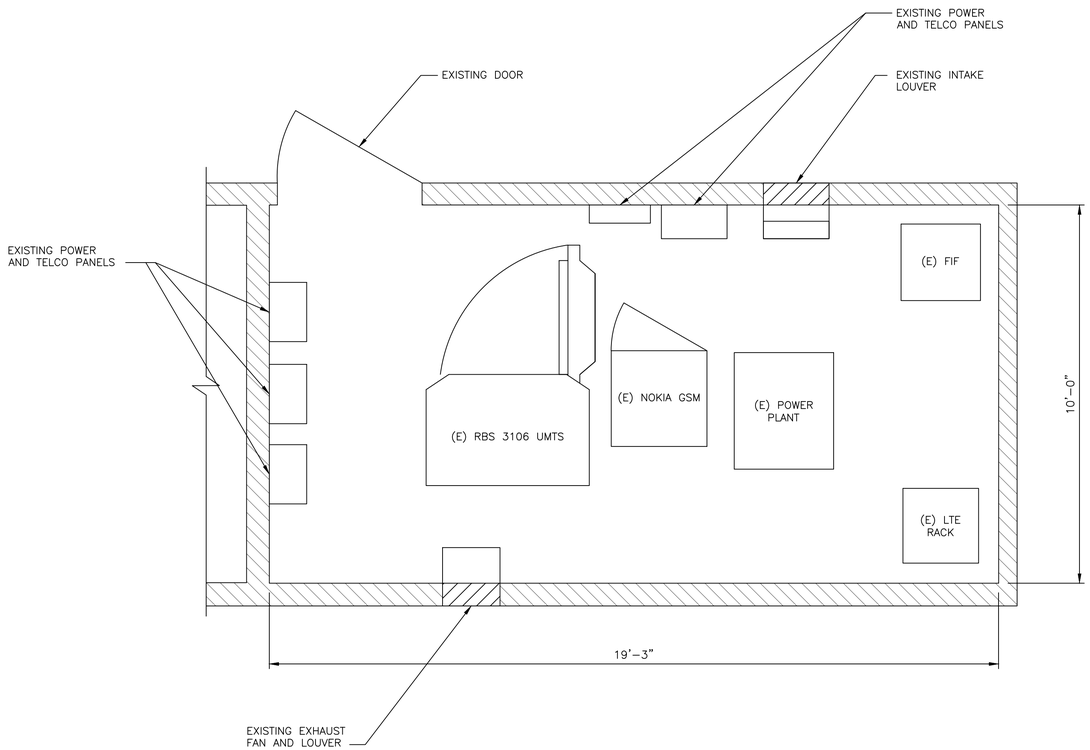


AT&T

DRAWING TITLE:
COMPOUND LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15074-EMP	A-1	0



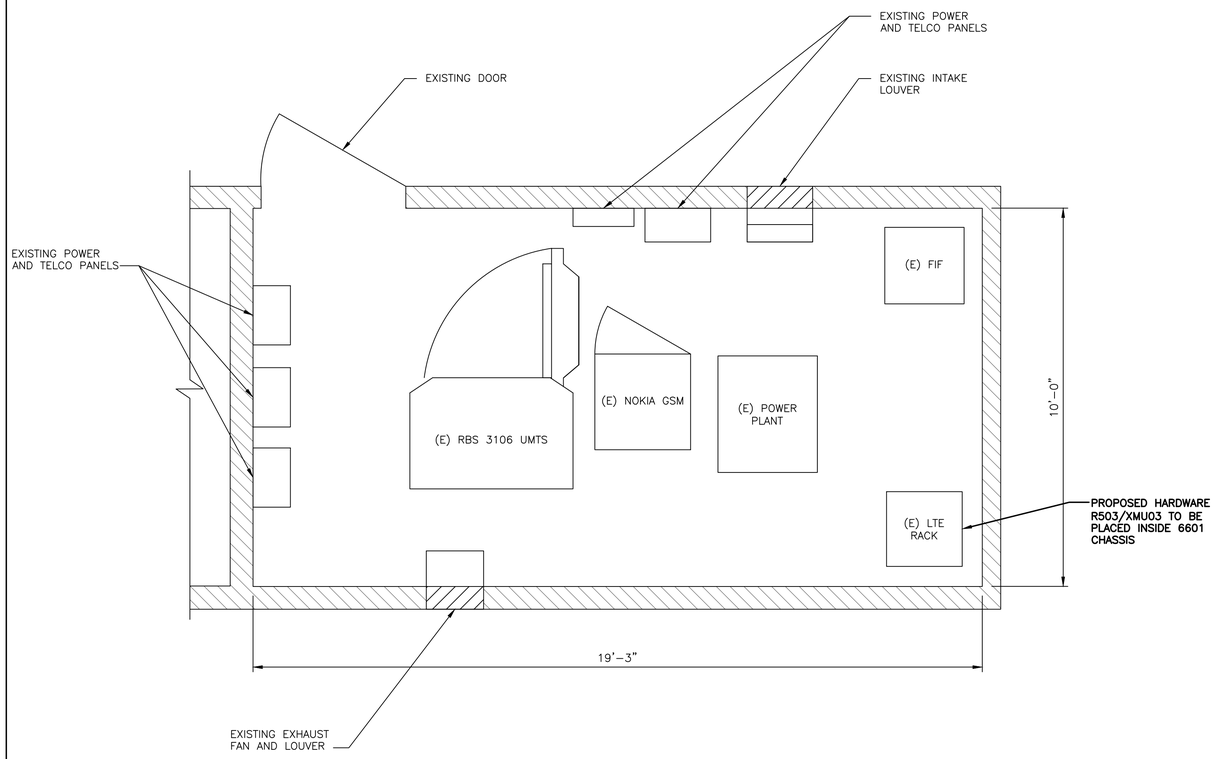
NORTH

EXISTING EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot



PROPOSED EQUIPMENT LAYOUT

SCALE: 1" = 2'-0"

2 0 1 2 4 8

(IN FEET)
1/2 Inch = 1 Foot

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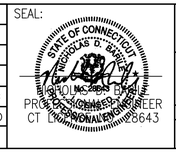
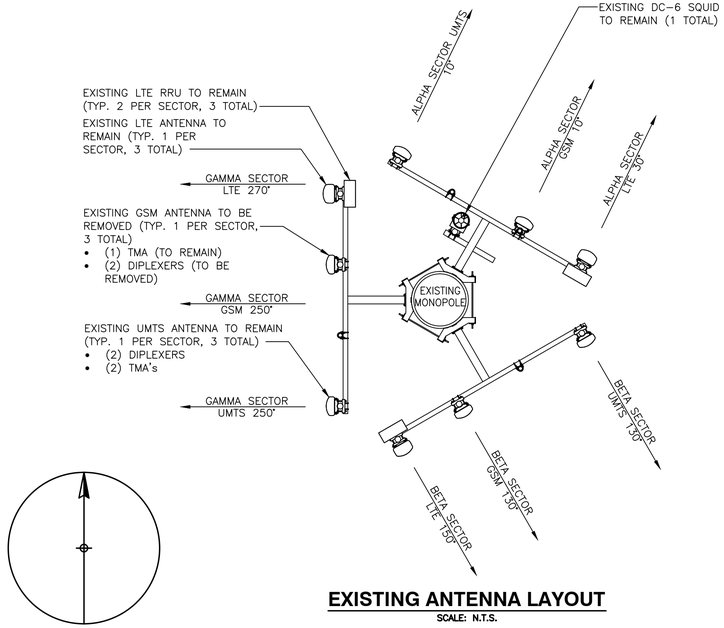


NICHOLAS B. BASILE
PROFESSIONAL ENGINEER
CT 20643

AT&T

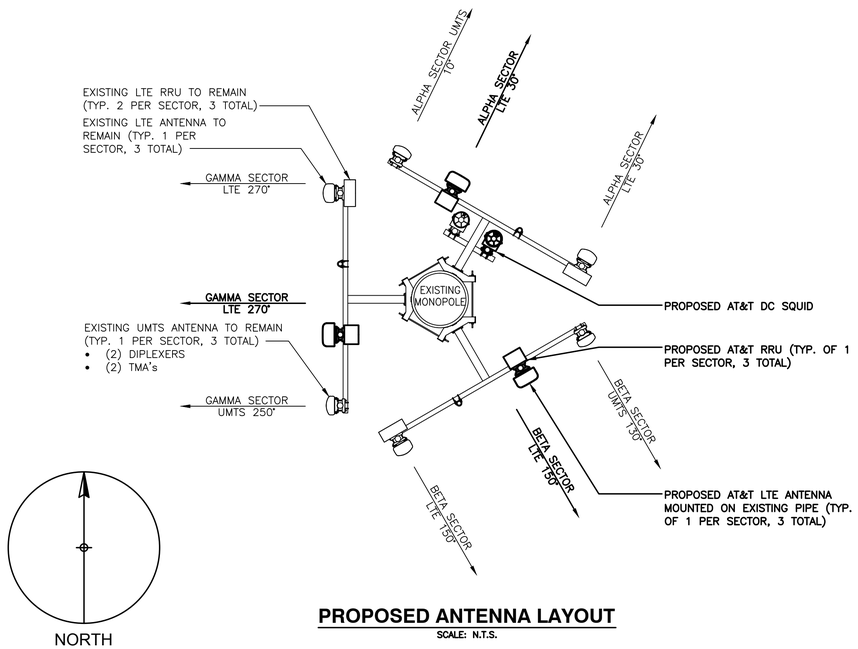
DRAWING TITLE:
EQUIPMENT LAYOUT

JOB NUMBER	DRAWING NUMBER	REV
15074-EMP	A-2	0



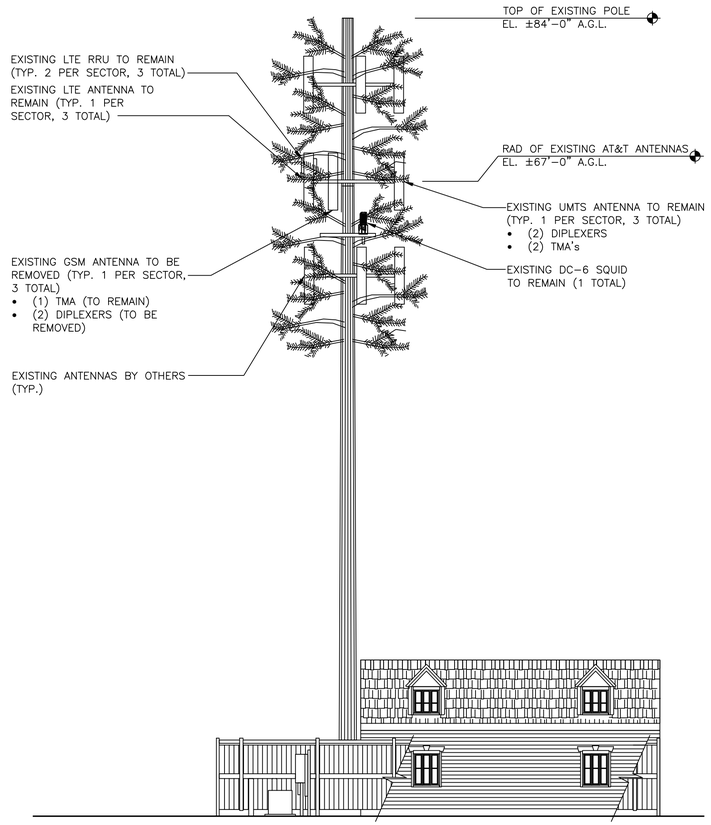
EXISTING ANTENNA LAYOUT

SCALE: N.T.S.



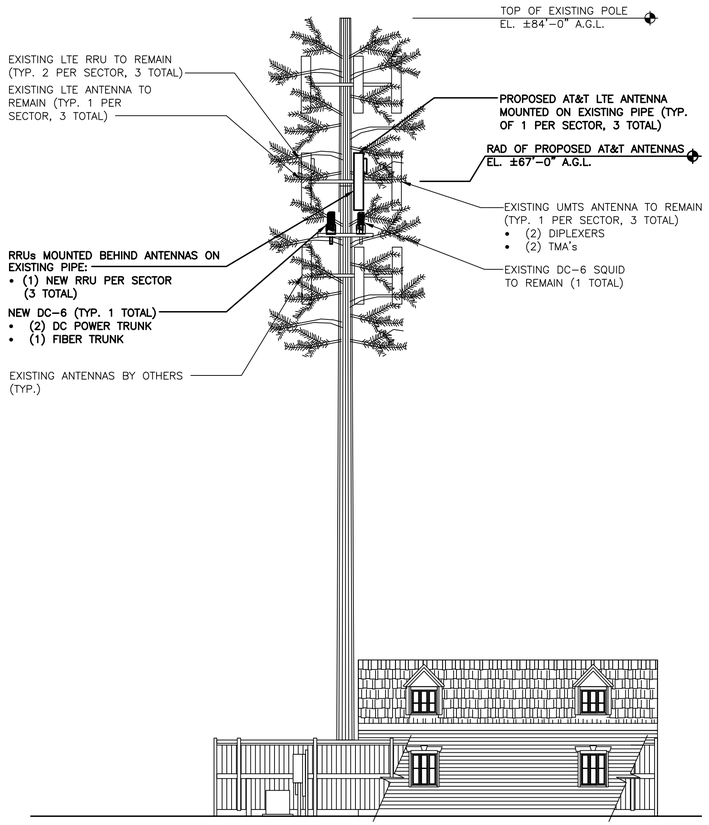
PROPOSED ANTENNA LAYOUT

SCALE: N.T.S.



EXISTING TOWER ELEVATION

SCALE: NTS



PROPOSED TOWER ELEVATION

SCALE: NTS

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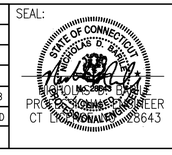
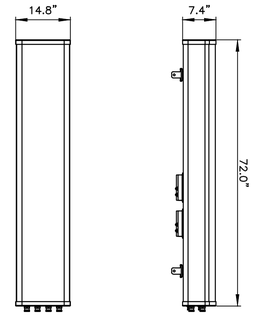


AT&T

DRAWING TITLE:
ANTENNA LAYOUTS & ELEVATIONS

JOB NUMBER	DRAWING NUMBER	REV
15074-EMP	A-3	0

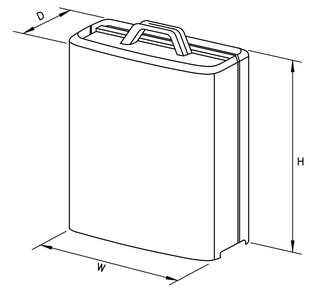


FRONT VIEW SIDE VIEW

BOTTOM VIEW

MANUFACTURER	CCI
MODEL	OPA-65R-LCUU-H6
WEIGHT	73.0 LBS

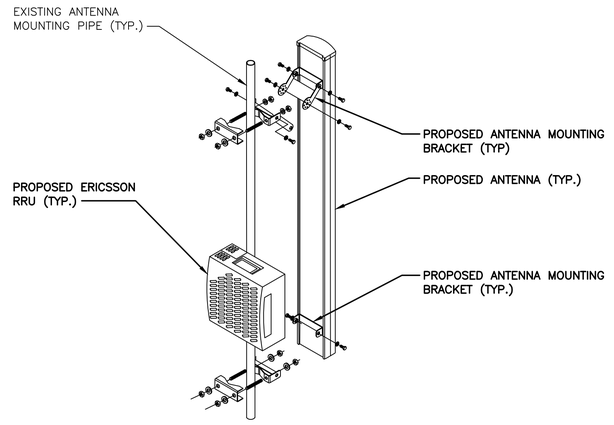
LTE ANTENNA DETAIL
SCALE: N.T.S.



MODEL	L x W x H	WEIGHT
*RRUS-11	19.69" x 16.97" x 7.17"	50.7 LBS
RRUS-32	29.9"x13.3"x9.5"	77 LBS

*DENOTES EXISTING.

RRUS DETAIL
SCALE: N.T.S.



ANTENNA AND RRU MOUNTING DETAIL
SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A2	–	–	–
	A3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A4	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
BETA	B1	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B2	–	–	–
	B3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B4	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
GAMMA	G1	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	G2	–	–	–
	G3	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	G4	POWERWAVE	P65-16-XLH-RR	72"x12"x6"

FINAL ANTENNA SCHEDULE

SECTOR	POSITION	MAKE	MODEL	SIZE (INCHES)
ALPHA	A1	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	A2	**CCI**	**OPA-65R-LCUU-H6**	**72"x14.8"x7.4"**
	A3	–	–	–
	A4	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
BETA	B1	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	B2	**CCI**	**OPA-65R-LCUU-H6**	**72"x14.8"x7.4"**
	B3	–	–	–
	B4	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
GAMMA	G1	POWERWAVE	P65-16-XLH-RR	72"x12"x6"
	G2	**CCI**	**OPA-65R-LCUU-H6**	**72"x14.8"x7.4"**
	G3	–	–	–
	G4	POWERWAVE	P65-16-XLH-RR	72"x12"x6"

PROPOSED RRU SCHEDULE

SECTOR	MAKE	MODEL	SIZE (INCHES)	ADDITIONAL COMPONENT	SIZE (INCHES)
ALPHA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
BETA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		
GAMMA	**ERICSSON**	**RRUS-32**	**29.9"x13.3"x9.5"**	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"	–	–
	ERICSSON	RRUS-11 (EXISTING)	19.7"x16.9"x7.2"		

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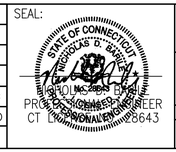
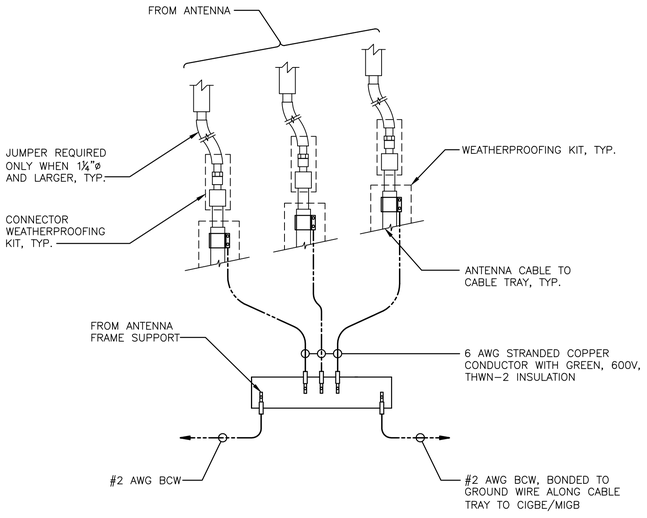
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:


AT&T

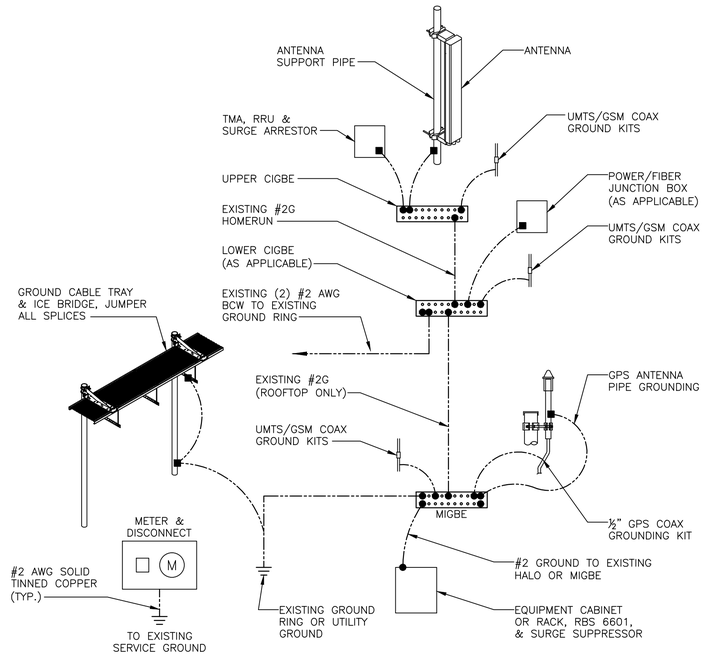
DRAWING TITLE:
DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15074-EMP	A-4	0



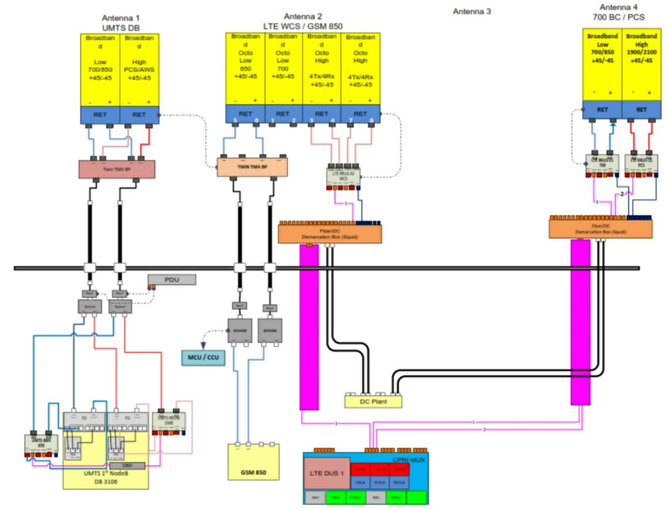
GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.



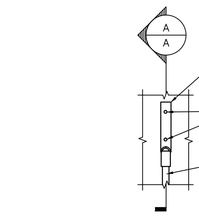
GROUNDING RISER DIAGRAM

SCALE: N.T.S.

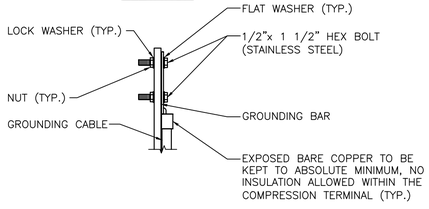


TYPICAL PLUMBING DIAGRAM (PER SECTOR)

SCALE: N.T.S.



ELEVATION



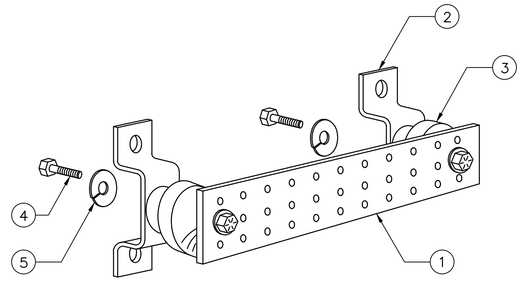
SECTION "A–A"

NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS 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

SCALE: N.T.S.



ITEM NO.	QTY.	DESCRIPTION
1	1	SOLID GROUND BAR (20"x 4"x ¼")
2	2	WALL MOUNTING BRACKET
3	2	INSULATORS
4	4	⅝"–11x1" H.H.C.S.
5	4	⅝" LOCK WASHER

NOTES:

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

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

SECTION "A" – SURGE ABSORBERS
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

GROUND BAR DETAIL

SCALE: N.T.S.

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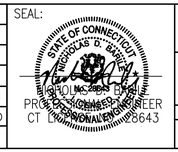
SCALE: AS SHOWN | DESIGNED BY: NJM | DRAWN BY: NJM

SEAL:



AT&T

DRAWING TITLE: GROUNDING, ONE–LINE DIAGRAM & DETAILS

JOB NUMBER	DRAWING NUMBER	REV
15074–EMP	G–1	0