



May 1, 2018

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

Regarding: Notice of Exempt Modification – Equipment Upgrades
Property Address: 99 DAY HILL ROAD; WINDSOR, CT 06095
AT&T Site: CT5139 // FA# 10071331

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 170-foot monopole tower at the above-referenced address, latitude 41.87111111, longitude -72.67111111. Said monopole tower is owned by Crown Castle, and the property is owned by the Town of Windsor.

AT&T desires to modify its existing telecommunications facility by installing three (3) additional panel antennas, six (6) remote radio units, and two (1) DC surge arrestor and accompanying feedlines as detailed in the enclosed plans. The centerline height of the existing antennas is and will remain at 168 feet.

Please accept this application as notification pursuant to R.C.S.A. §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 The Honorable Donald Trinks, Mayor of the Town of Windsor; Robert Ruzzo, Building Official; and Eric Barz, Town Planner. A copy of this letter is also being sent to tower owner, Crown Castle, and ground owner Town of Windsor via notice to Mayor Trinks, referenced above.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The equipment to be added will be installed at the existing height of 168 feet on the 170-foot tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.
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 AT&T's proposed modifications (please see enclosed structural analysis completed by Crown Castle dated February 8, 2018).

For the foregoing reasons, AT&T respectfully requests that the proposed installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

Kristen White

Kristen White
Site Acquisition Specialist

Enclosures: Exhibit 1 – Construction Drawings
Exhibit 2 – Structural Analysis
Exhibit 3 – RF Emissions Analysis Report Evaluation
Exhibit 4 – Property Card and GIS Map

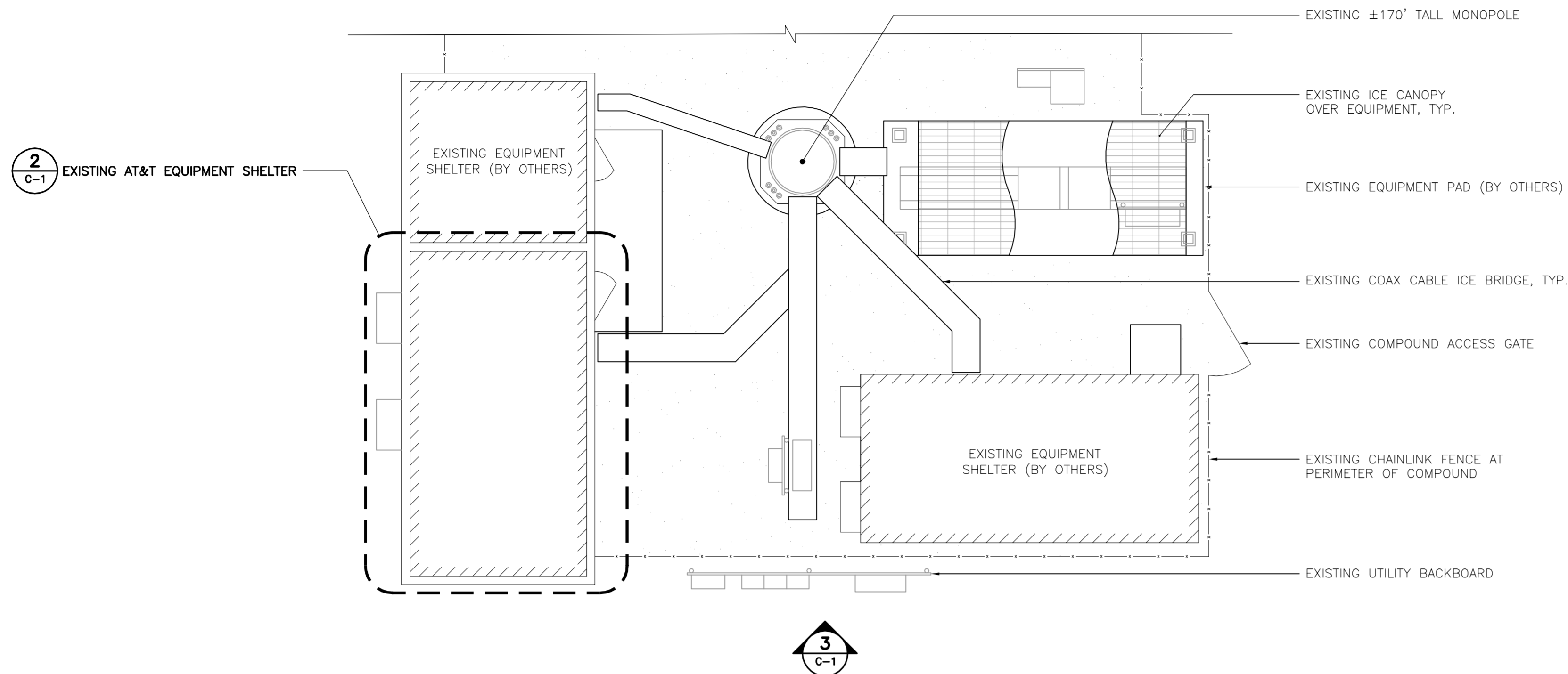
cc: The Honorable Donald Trinks, Mayor
275 Broad Street
Windsor, CT 06095

Paul Pedicone, Project Manager
CROWN CASTLE USA INC
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

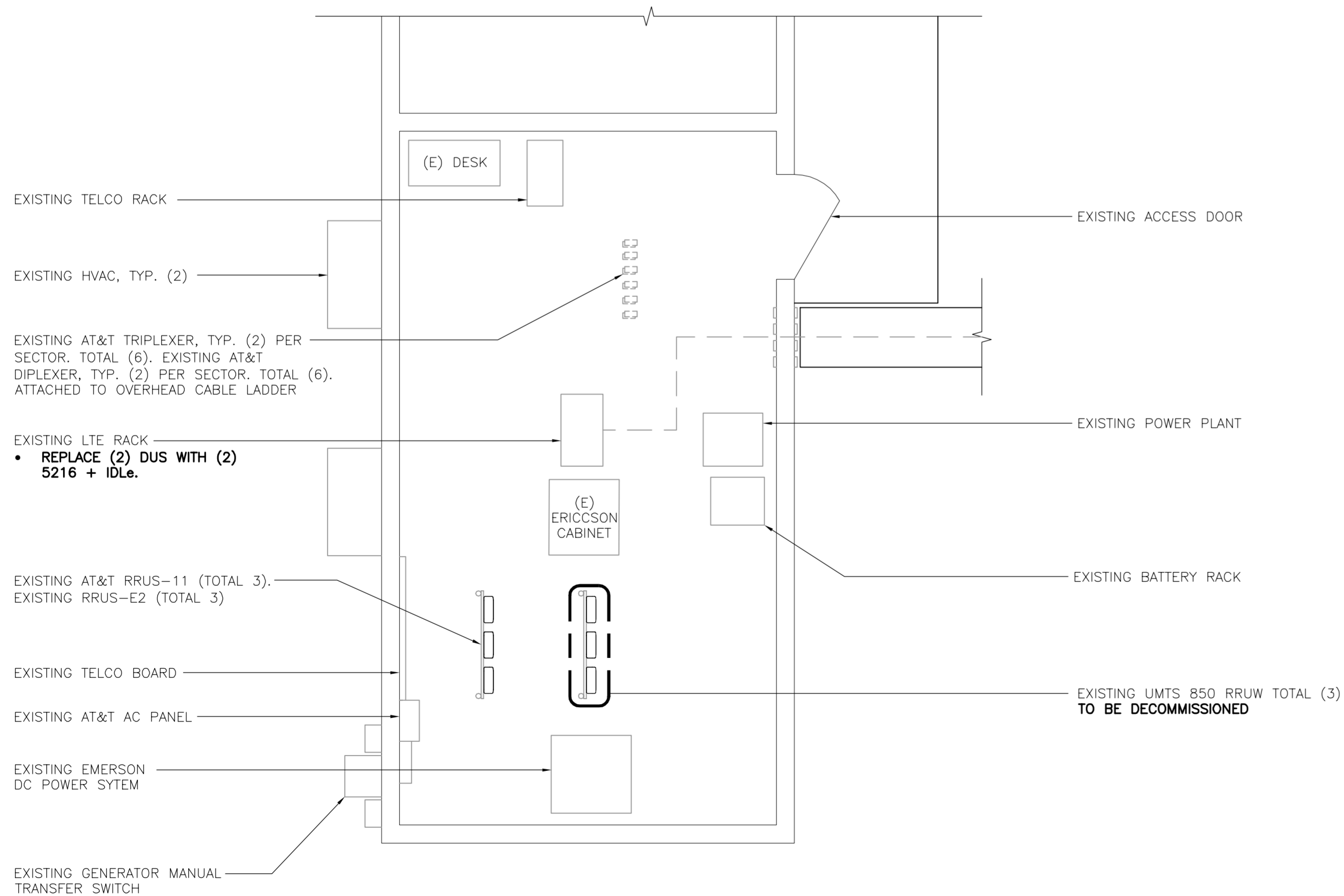
Mr. Eric Barz, AICP
Planning Department
275 Broad Street
Windsor, CT 06095

Mr. Robert Ruzzo
Building Department
275 Broad Street
Windsor, CT 06095

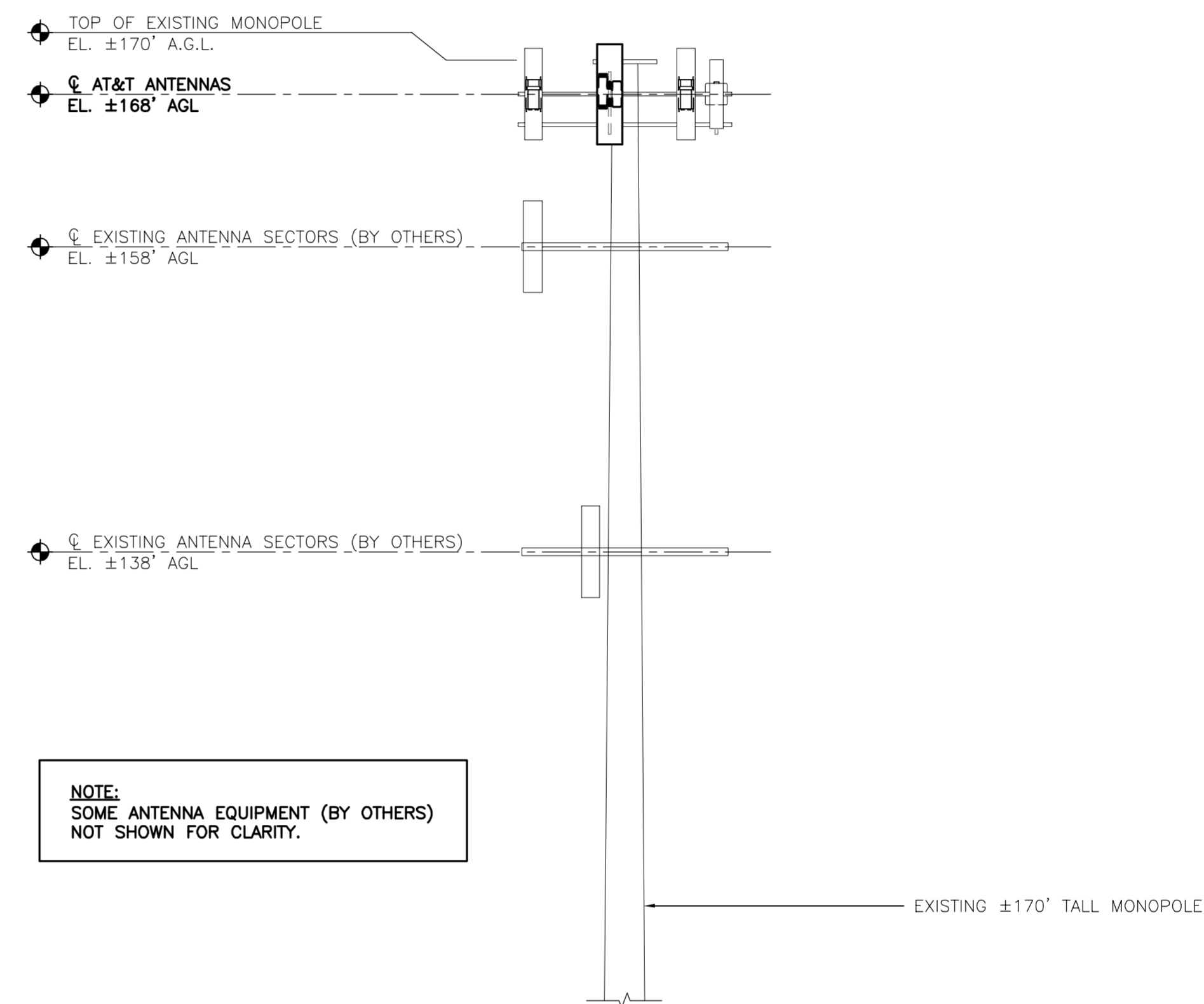
Exhibit 1



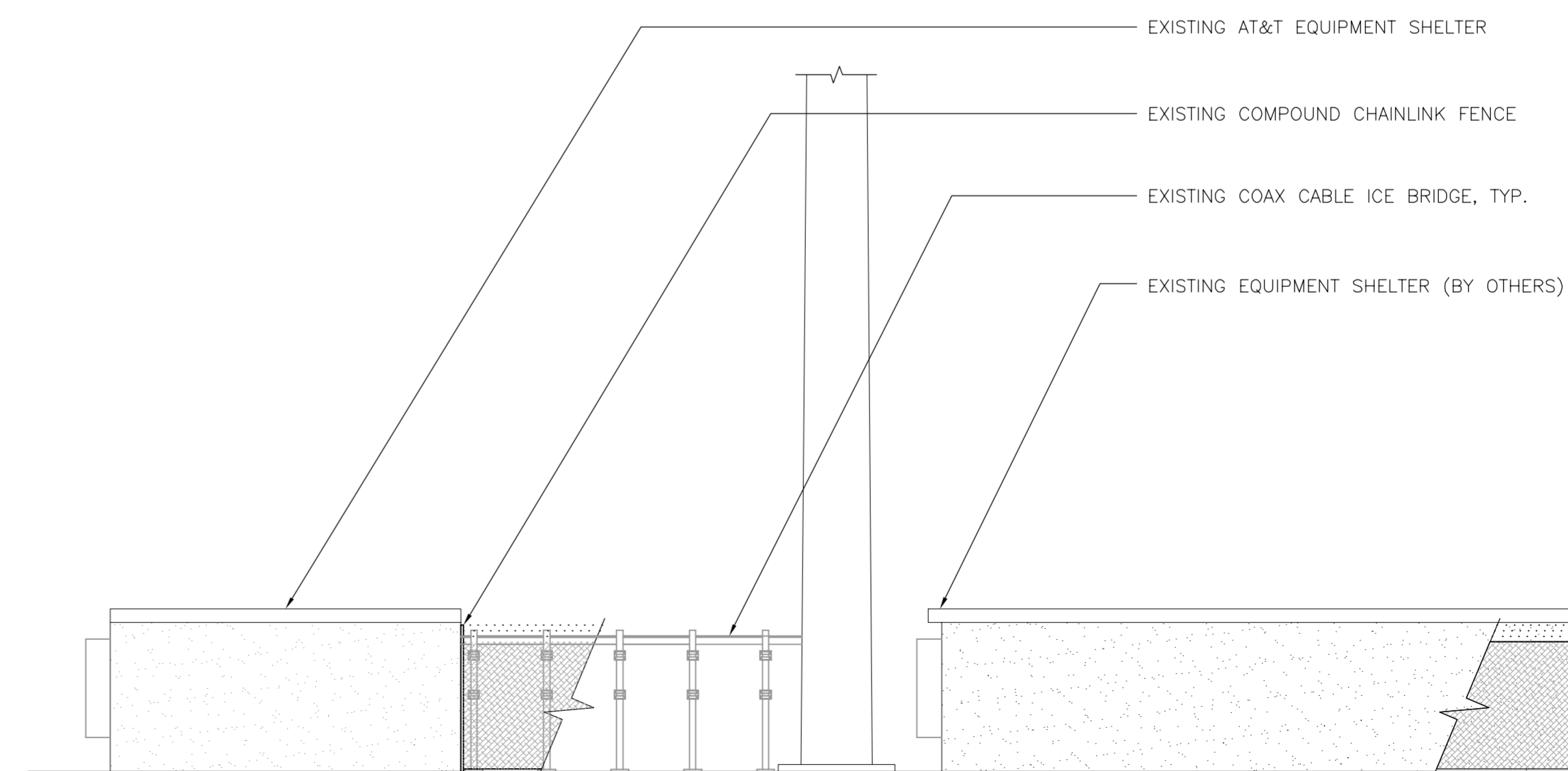
1 PARTIAL SITE PLAN
 SCALE: 3/16" = 1'-0"
 TRUE NORTH



2 PROPOSED EQUIPMENT LAYOUT PLAN
 SCALE: 3/16" = 1'-0"
 TRUE NORTH

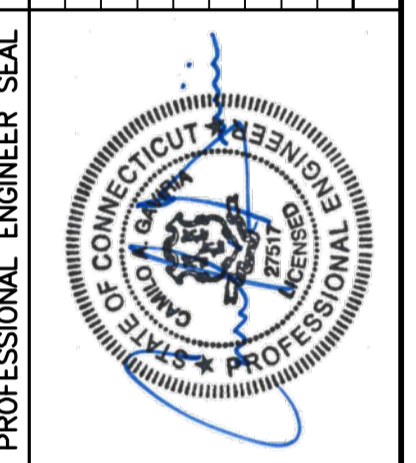


NOTE:
 SOME ANTENNA EQUIPMENT (BY OTHERS)
 NOT SHOWN FOR CLARITY.



3 PARTIAL SOUTH ELEVATION - PROPOSED
 SCALE: 1/8" = 1'-0"

REV.	DATE	TJR	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
0	04/10/18			DRAWN BY CHKD BY DESCRIPTION



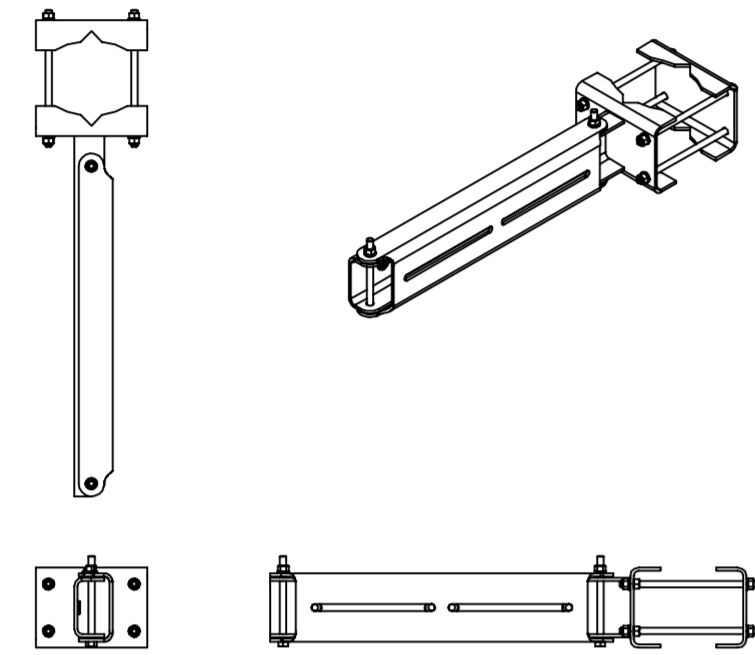
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 (203) 498-0390
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 622 North Branford Road
 Branford, CT 06405
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AT&T MOBILITY
 WIRELESS COMMUNICATIONS FACILITY
WINDSORDAY HILL
 CT15199 - LTE 6C/7C FIRSNET
 99 DAY HILL ROAD
 WINDSOR, CT 06095

DATE: 03/27/18
 SCALE: AS NOTED
 JOB NO. 18000.24

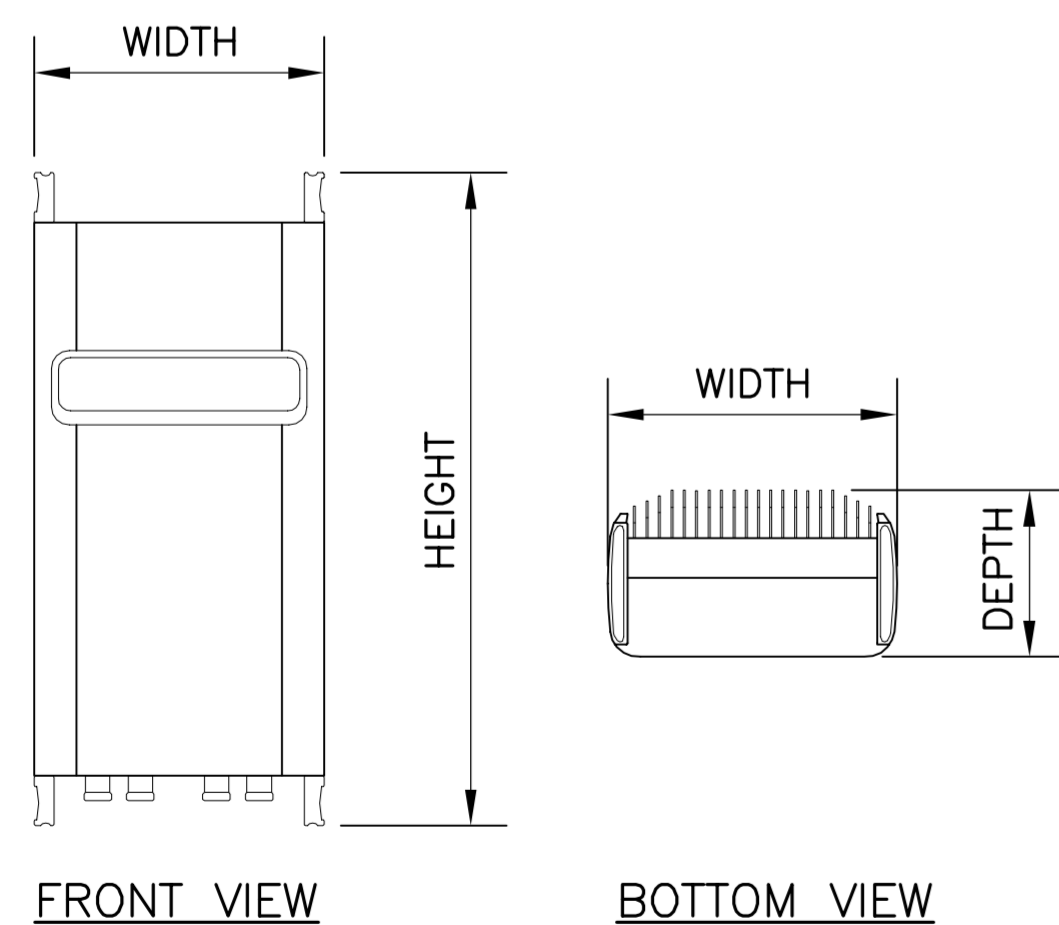
PLANS AND ELEVATION

C-1
 Sheet No. 3 of 8



RRU DUAL SWIVEL MOUNT			
EQUIPMENT	DIMENSIONS	WEIGHT	
MAKE: SITE PRO 1 PART NO.: RRUDSM	27.75"L x 6.5"W x 4.7"D	39.4 LBS.	

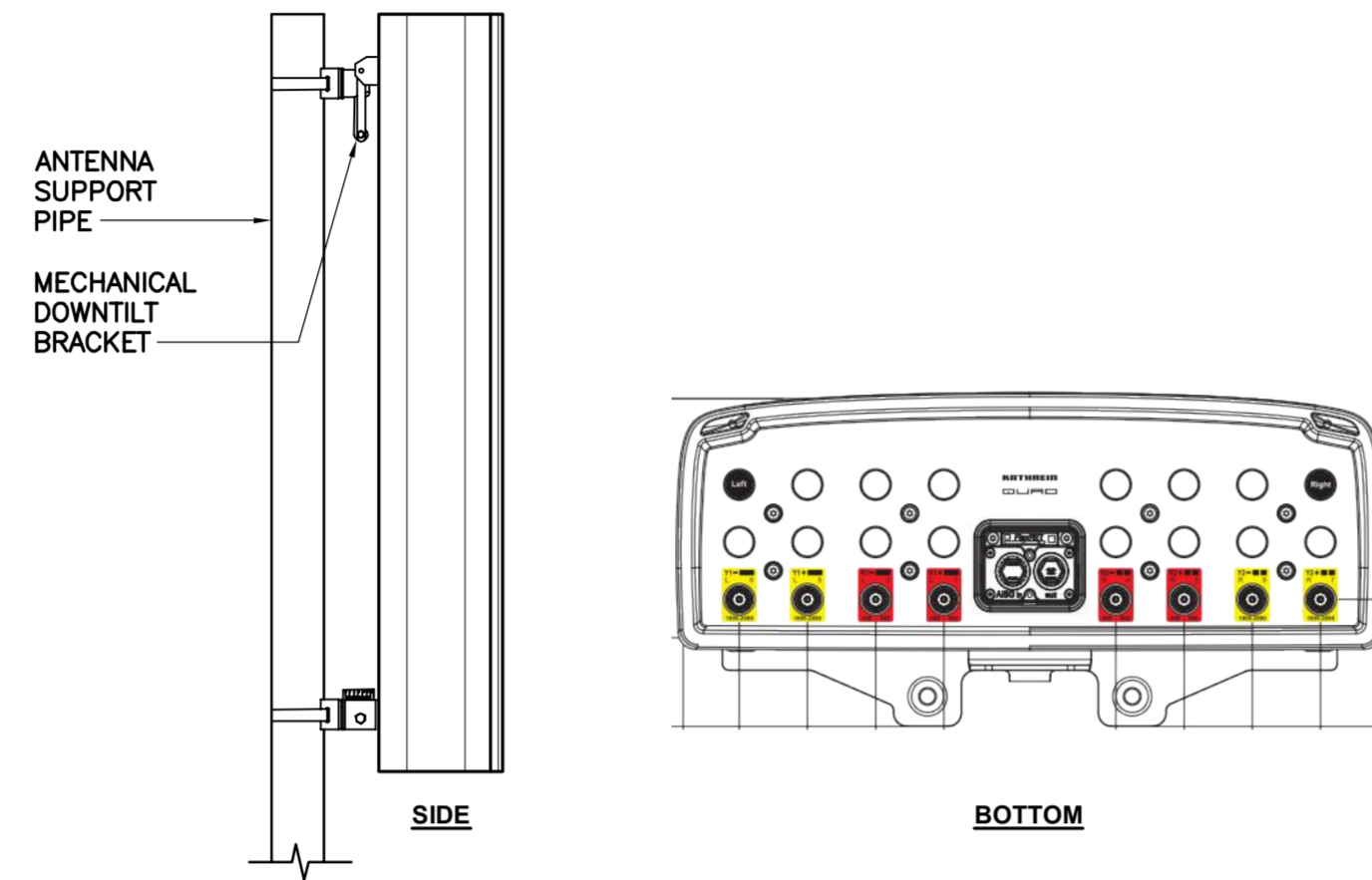
1 RRH DUAL SWIVEL MOUNT DETAIL
C-3 NOT TO SCALE



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 32 B66	27.17"L x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

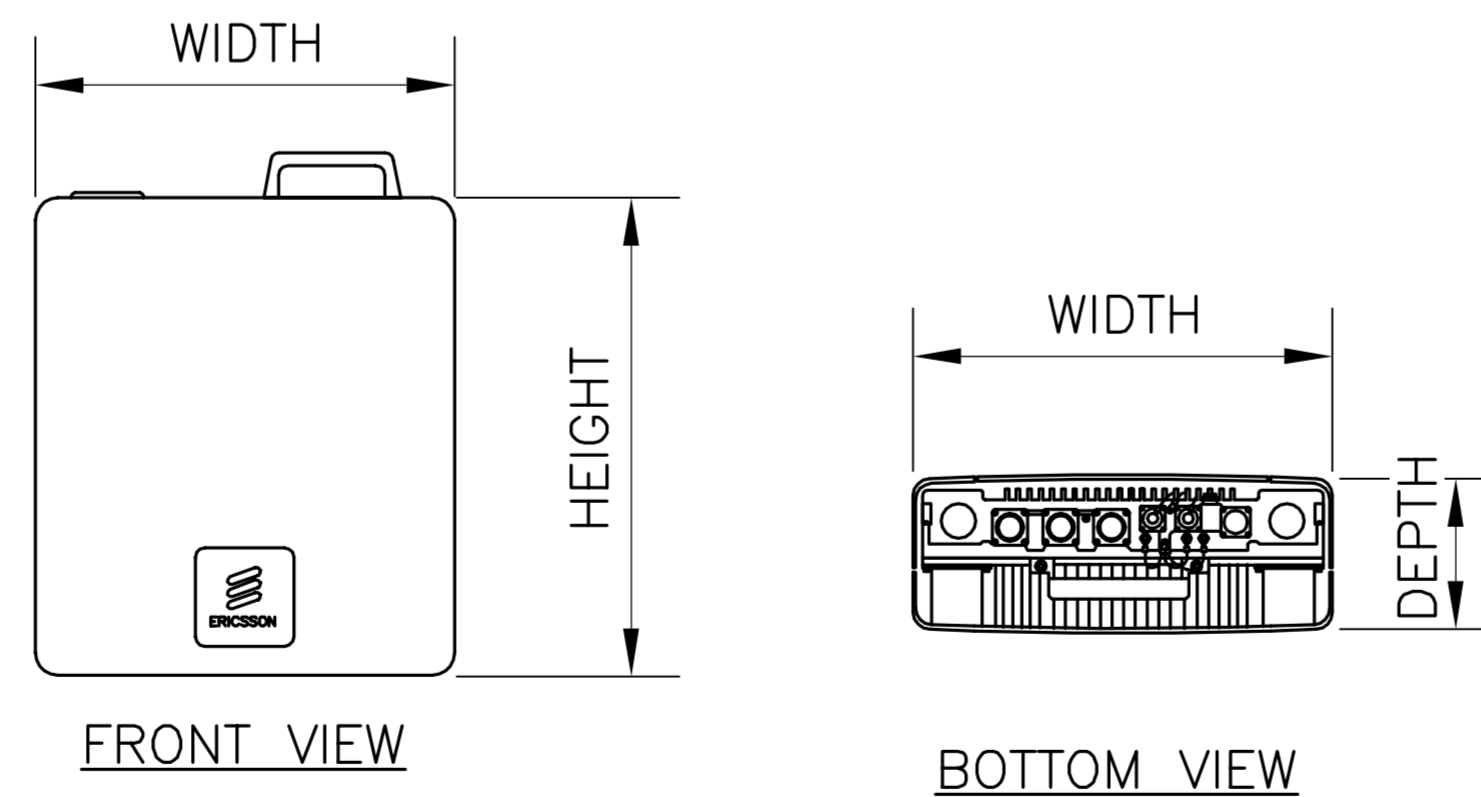
NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

3 ERICSSON RRUS 32 B66 DETAIL
C-3 NOT TO SCALE



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: KATHREIN MODEL: 80010965	78.7"L x 20"W x 6.9"D	108.6 LBS.
MAKE: KATHREIN MODEL: 80010966	96"L x 20"W x 6.9"D	114.6 LBS.

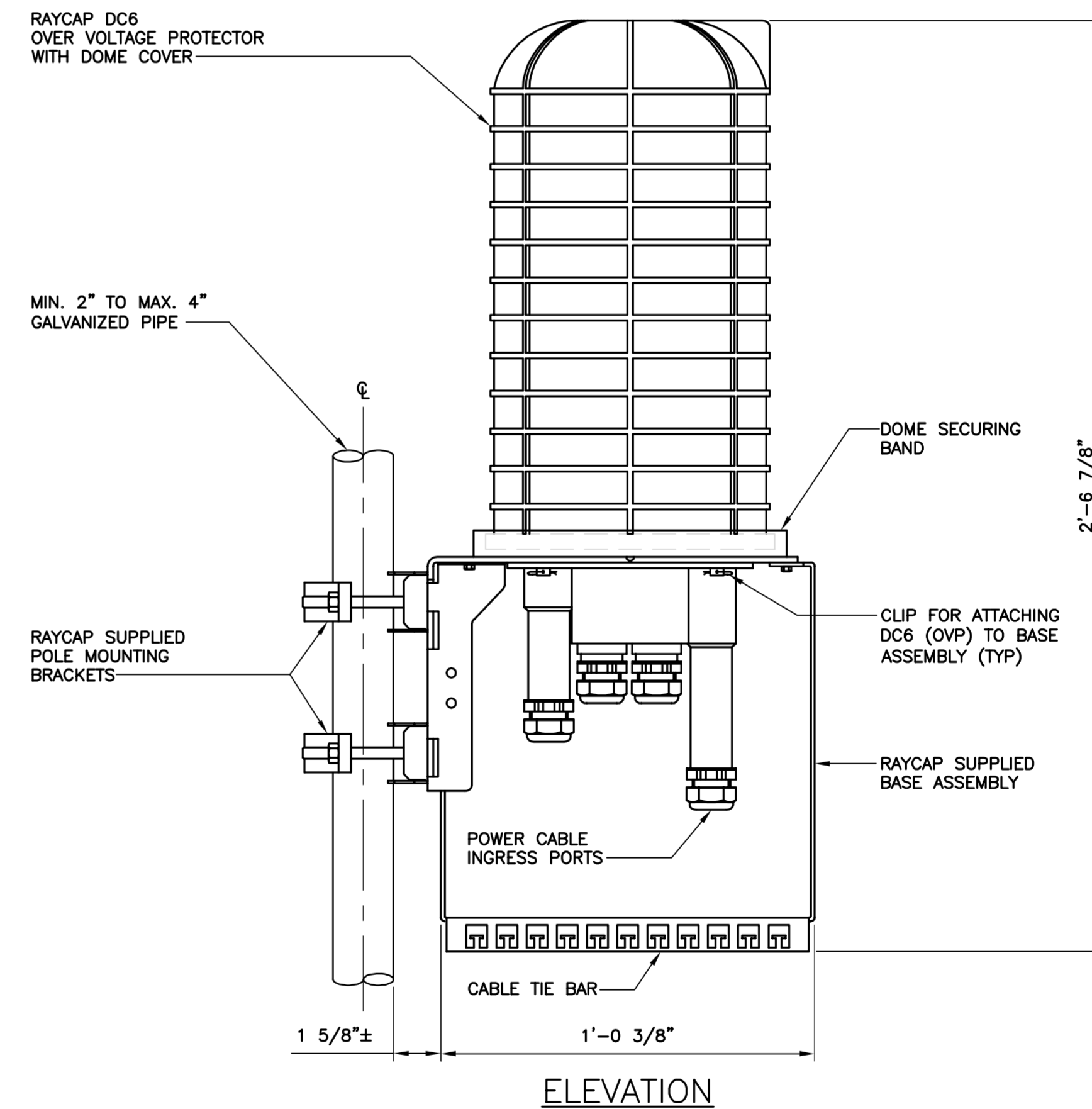
2 PROPOSED ANTENNA DETAIL
C-3 NOT TO SCALE



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: B14 4478	14.9"L x 13.1"W x 7.3"D	60 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

4 ERICSSON B14 4478 DETAIL
C-3 NOT TO SCALE

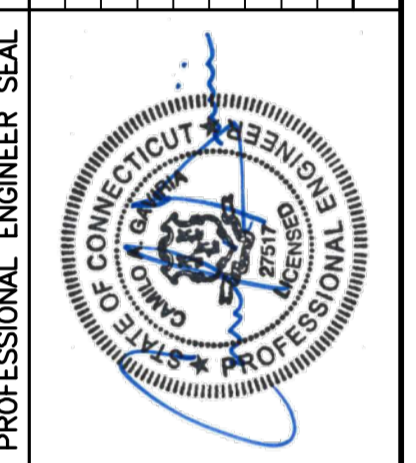


SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
	MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-18-BF	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUS.	20 LBS. (WITHOUT MOUNT)

NOTES:
1. CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.
3. RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

5 TYPICAL DC SQUID DETAIL
C-3 NOT TO SCALE

0	04/10/18	TJR	DND	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
				DATE
				DRAWN BY/CHKD BY/DESCRIPTION

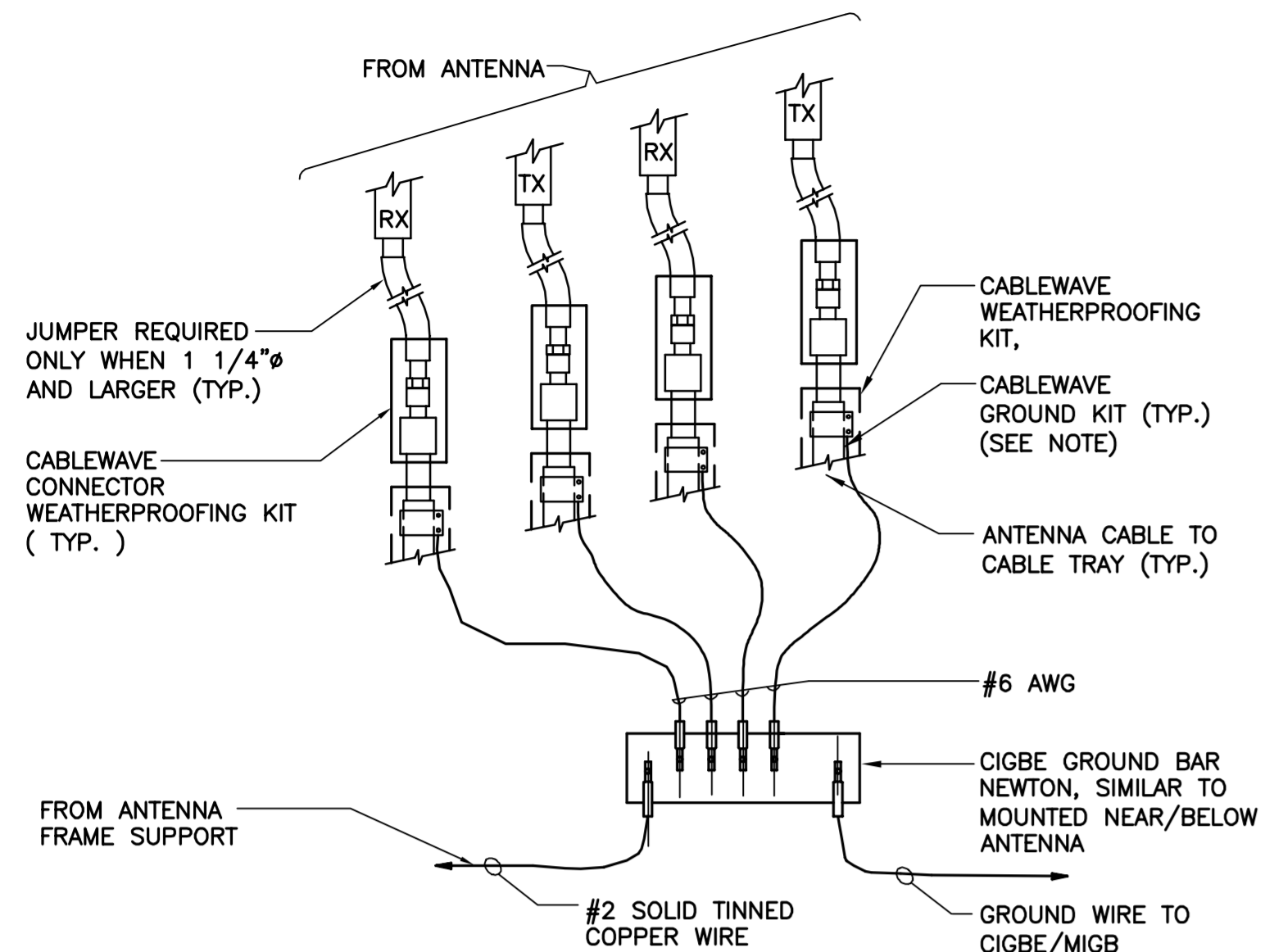


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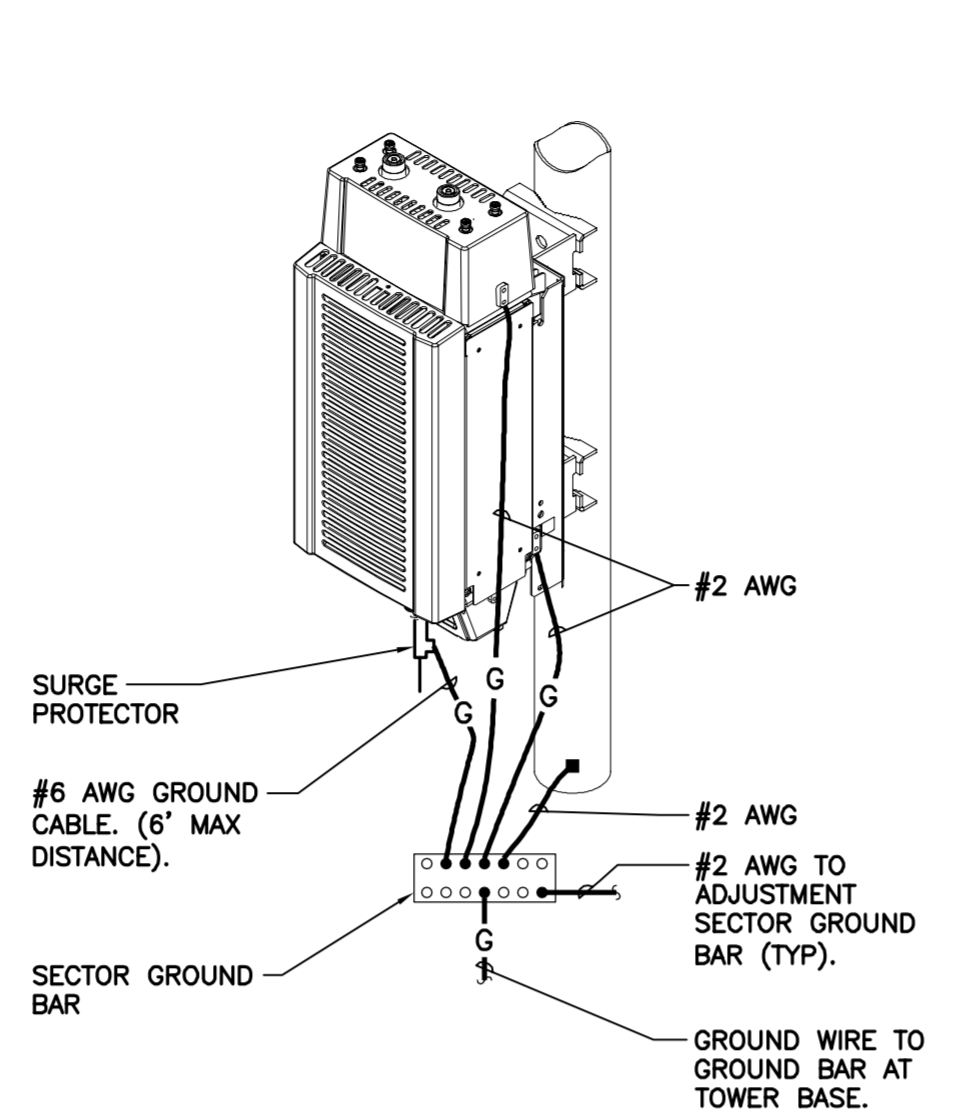
DATE: 03/27/18
SCALE: AS NOTED
JOB NO. 18000.24

DETAILS

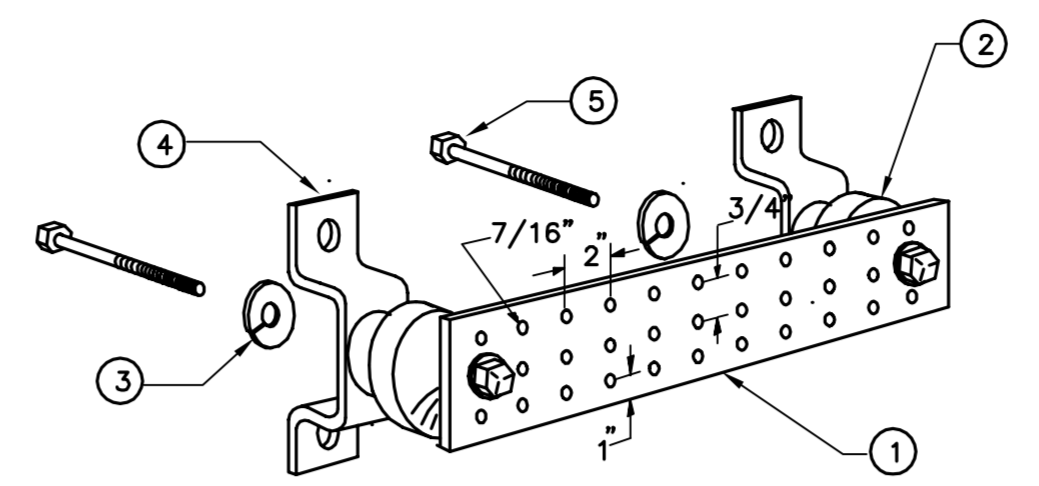


1 CONNECTION OF GROUND WIRES TO GROUND BAR
E-3 NOT TO SCALE

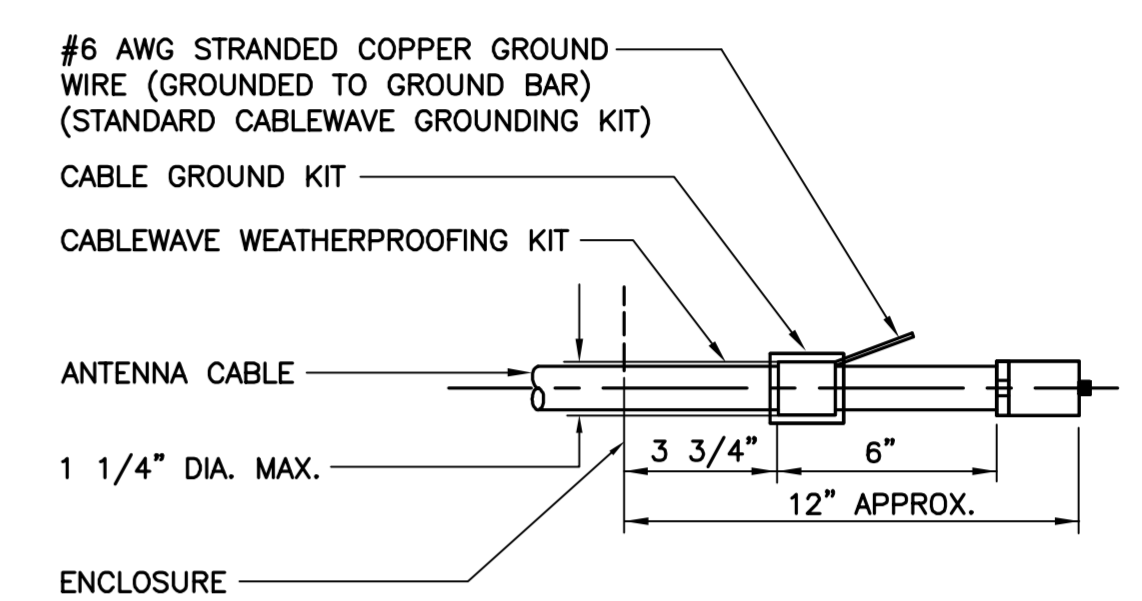
EACH RRU CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:
1. AT TOP OF THE CABINET
2. AT RIGHT SIDE OF THE CABINET.



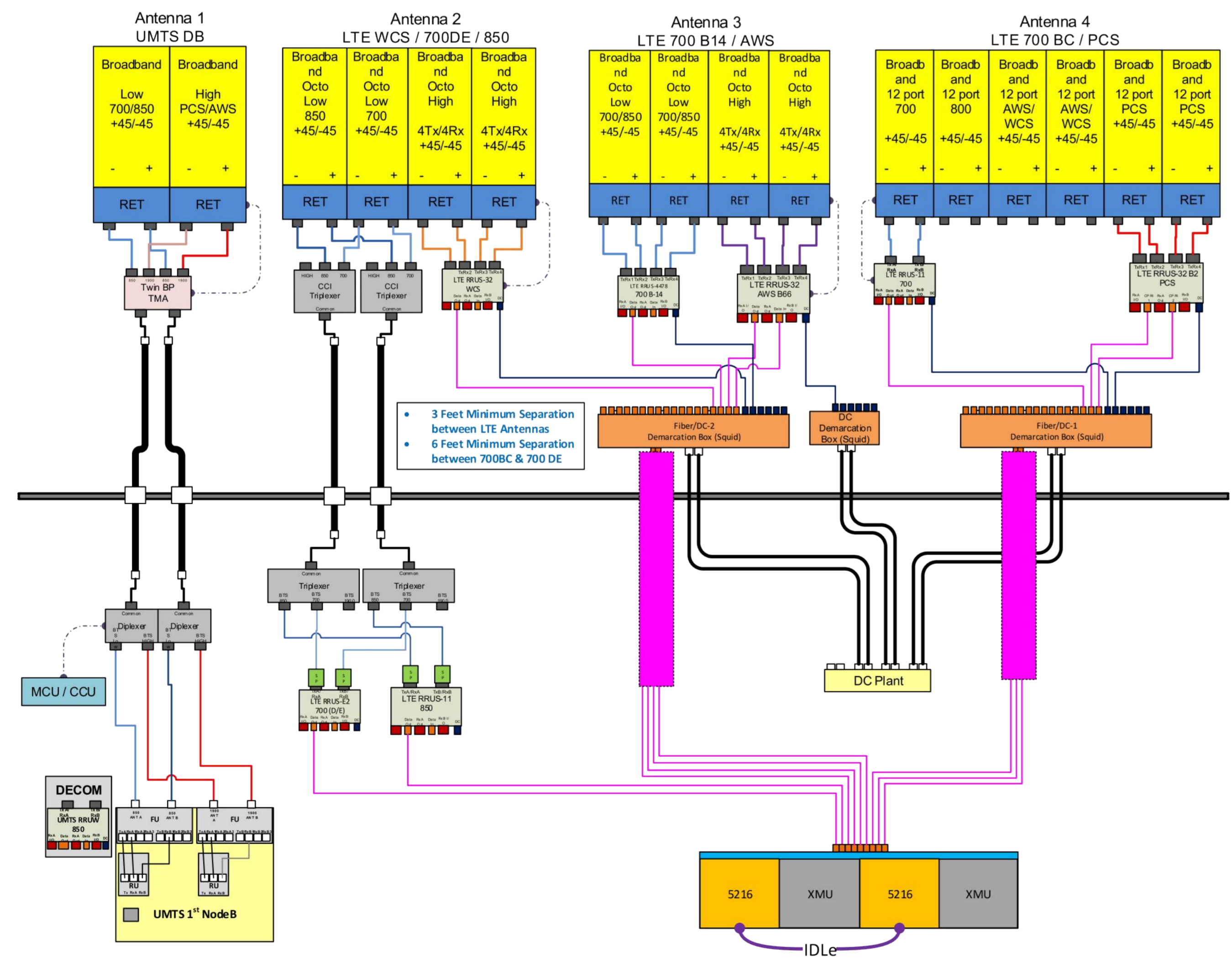
2 RRU POLE MOUNT GROUNDED
E-3 NOT TO SCALE



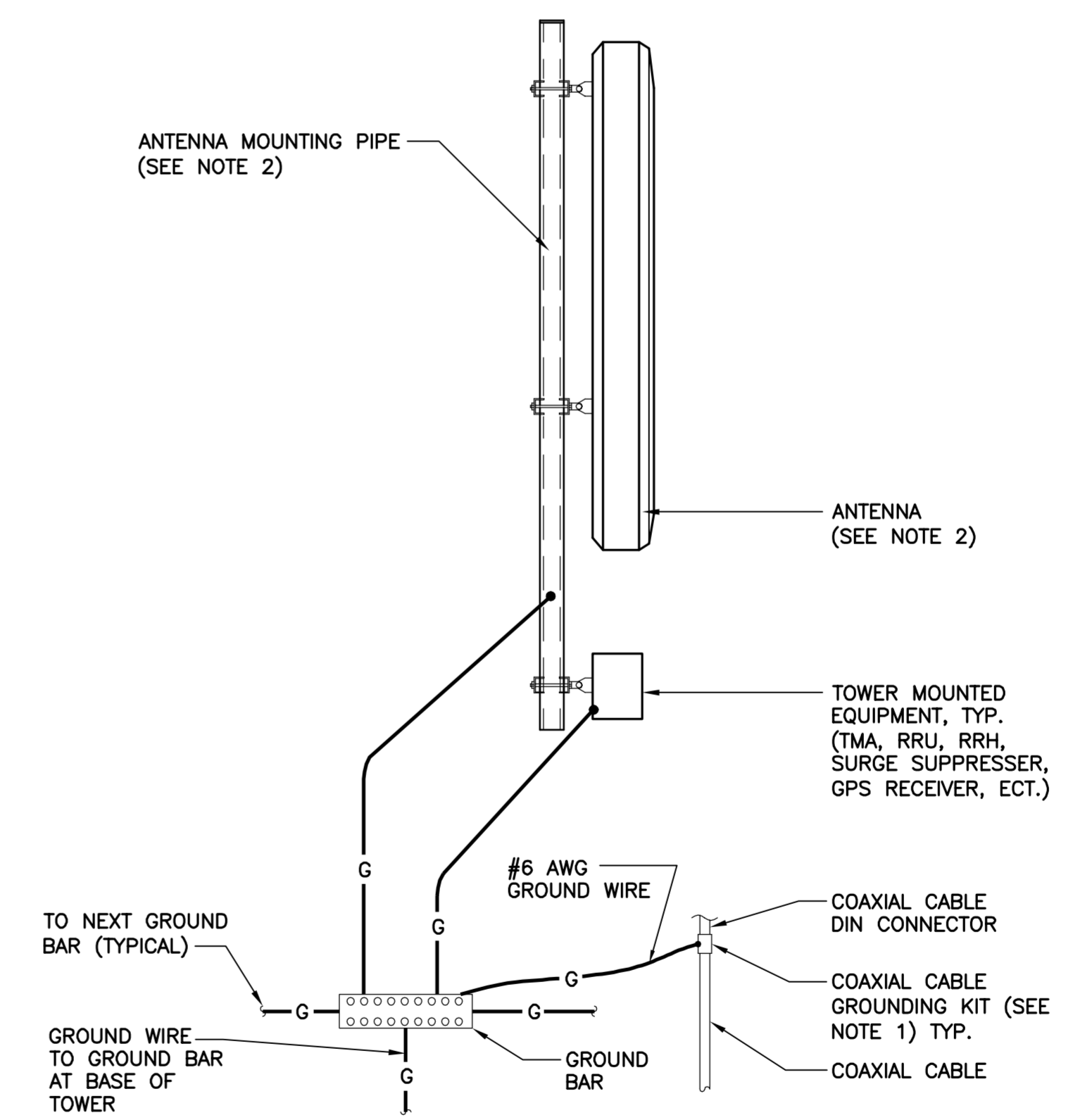
3 GROUND BAR DETAIL
E-3 NOT TO SCALE



4 ANTENNA CABLE GROUNDING DETAIL
E-3 NOT TO SCALE

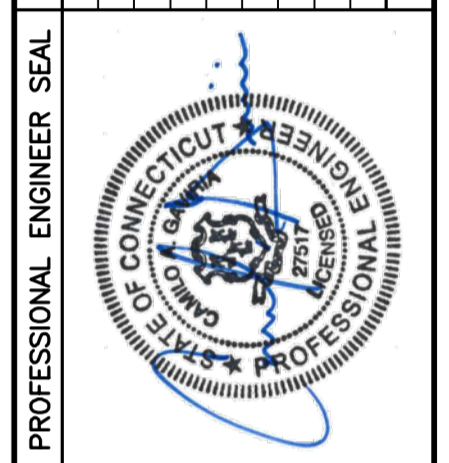


5 RF PLUMBING DIAGRAM
E-3 NOT TO SCALE



6 TYPICAL ANTENNA GROUNDING DETAIL
E-3 NOT TO SCALE

REV	0	DATE	04/10/18	TJR	DND	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION
REV		DATE				DRAWN BY/CHKD BY/DESCRIPTION



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WINDSOR, CT 06095

DATE: 03/27/18
SCALE: AS NOTED
JOB NO. 18000.24

TYPICAL ELECTRICAL DETAILS

Exhibit 2

Date: February 08, 2018

Marianne Dunst
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277



Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317
(724) 416-2000

Subject: Structural Analysis Report

Carrier Designation:

AT&T Mobility Co-Locate

Carrier Site Number:

CT5139

Carrier Site Name:

10071331

Crown Castle Designation:

Crown Castle BU Number:

842875

Crown Castle Site Name:

WINDSORDAY HILL

Crown Castle JDE Job Number:

480522

Crown Castle Work Order Number:

1521773

Crown Castle Application Number:

422658 Rev. 1

Engineering Firm Designation:

Crown Castle Project Number:

1521773

Site Data:

99 DAY HILL ROAD, WINDSOR, Hartford County, CT

Latitude 41° 52' 16.1", Longitude -72° 40' 16"

168 Foot - Monopole Tower

Dear Marianne Dunst,

Crown Castle is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1521773, in accordance with application 422658, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at Crown Castle appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Mahdis Arianpour / MJL

Respectfully submitted by:

Maribel Dentinger
Maribel Dentinger, P.E.,
Sr. Project Engineer

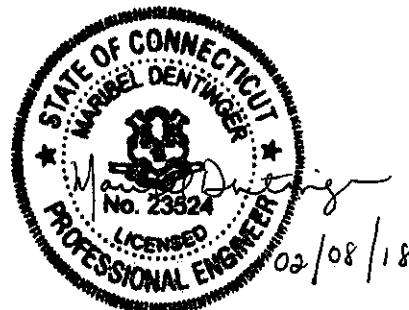


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1) INTRODUCTION

This tower is a 168 ft Monopole tower designed by SUMMIT MANUFACTURING in November of 2000. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category C.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
168.0	168.0	1	cci antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe	2	3/4	-
		6	cci antennas	TPX-070821			
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B66			
		3	ericsson	RRUS 4478 B14			
		2	kathrein	80010965 w/ Mount Pipe			
		1	kathrein	80010966 w/ Mount Pipe			
		6	kathrein	860 10025			
		2	quintel technology	QS66512-2 w/ Mount Pipe			
		1	raycap	DC6-48-60-0-8F			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note	
168.0	174.0	1	kathrein	OG-4	3	7/8	1	
	169.0	2	kmw communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	-	-	3	
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe				
	168.0	168.0	3	ericsson	RRUS-11 1900MHz	12 4 2 2	1-5/8 3/4 3/8 Conduit	1
			3	cci antennas	DTMABP7819VG12A			
			2	cci antennas	OPA-65R-LCUU-H6 w/ Mount Pipe			
			1	cci antennas	OPA-65R-LCUU-H8 w/ Mount Pipe			
			3	ericsson	RRUS 11			
			3	ericsson	RRUS 32 B30			
			3	kathrein	800 10121 w/ Mount Pipe			
			2	raycap	DC6-48-60-18-8F			
			1	tower mounts	Platform Mount [LP 1201-1]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
159.0	164.0	2	andrew	VHLP2.5-11	6	5/16	1
		1	dragonwave	Horizon Compact			
	160.0	3	argus technologies	LLPX310R-V1 w/ Mount Pipe			
		3	samsung telecommunications	RRH-2WB			
	159.0	1	tower mounts	Platform Mount [LP 1201-1]			
	156.0	1	andrew	VHLP2.5-11			
		2	dragonwave	Horizon Compact			
		1	rosenberger leoni	FB-15-ABOX			
147.0	147.0	1	andrew	VHLPX2-11	1	3/8	1
		1	kathrein	782 10876			
143.0	143.0	1	kathrein	782 10876	1	1/4	1
		1	pctel	MPRD2449			
140.0	140.0	1	ericsson	RIU	1	1/4	1
		1	motorola	PTP400 w/ Mount Pipe			
		1	tower mounts	Side Arm Mount [SO 102-3]			
135.0	144.0	2	decibel	ASP 705K	2	7/8	1
	135.0	2	tower mounts	Side Arm Mount [SO 702-1]			
131.0	131.0	3	alcatel lucent	1900MHz RRH	-	-	1
		1	tower mounts	Side Arm Mount [SO 102-3]			
	130.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER			
130.0	131.0	3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe	1	1/2	2
		3	alcatel lucent	TD-RRH8x20-25	3	5/16	
		3	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe	2	1-1/4	1
	130.0	1	tower mounts	Platform Mount [LP 1201-1]			
120.0	120.0	3	rfs celwave	APL199016-42T0	6	1-5/8	4
		1	tower mounts	Pipe Mount [PM 602-3]			
79.0	79.0	2	tower mounts	Side Arm Mount [SO 901-1]	-	-	4
52.0	52.0	1	pctel	GPS-TMG-HR-26NCM	1	1/2	1
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) Equipment To Be Removed; not considered in this analysis
- 4) Abandoned Equipment; considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	168.0	12	allgon	7184.14	-	-
163.0	163.0	12	swedcom	ALP-9212-N	-	-
148.0	148.0	12	swedcom	ALP-9212-N	-	-
133.0	133.0	12	swedcom	ALP-9212-N	-	-
118.0	118.0	12	swedcom	ALP-9212-N	-	-
103.0	103.0	12	swedcom	ALP-9212-N	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Summit Manufacturing, LLC	4529456	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Summit Manufacturing, LLC	4589719	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	168 - 119.25	Pole	TP34.288x24x0.25	1	-16.22	1794.53	63.5	Pass
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-24.42	2407.42	95.0	Pass
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-36.20	3975.05	81.2	Pass
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-52.02	4395.43	94.6	Pass
							Summary	
						Pole (L2)	95.0	Pass
						Rating =	95.0	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	89.0	Pass
1	Base Plate	0	64.7	Pass
1	Base Foundation (Structure)	0	73.6	Pass
1	Base Foundation (Soil Interaction)	0	32.4	Pass
Structure Rating (max from all components) =				95.0%

Notes:

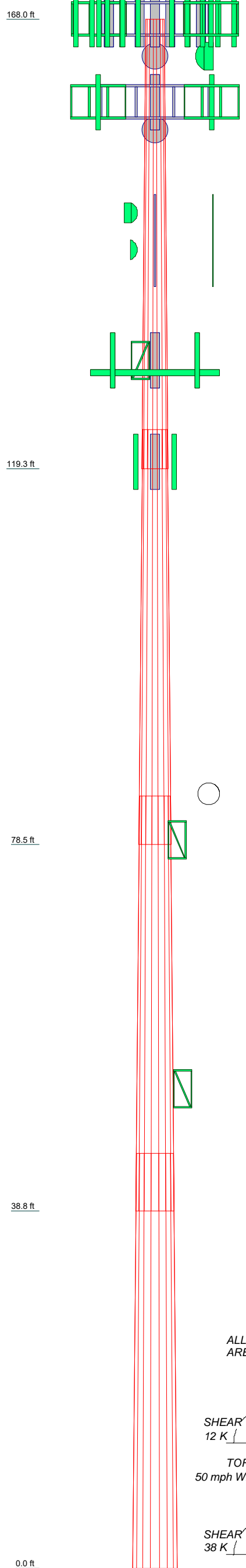
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration.
 No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4
Length (ft)	48.75	45.00	45.00	45.00
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.2813	0.3750	0.3750
Socket Length (ft)	4.25	5.25	6.25	
Top Dia (in)	24.0000	32.8911	40.7166	48.1441
Bot Dia (in)	34.2880	42.3870	50.2130	57.6400
Grade		A607-65		
Weight (K)	3.8	5.1	8.2	9.6



DESIGNED APPURTENANCE LOADING

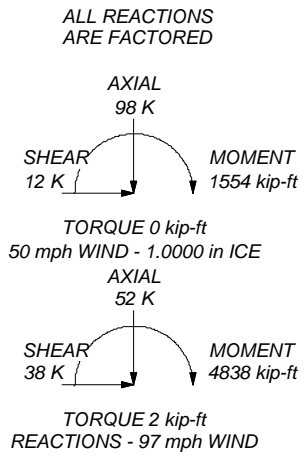
TYPE	ELEVATION	TYPE	ELEVATION
800 10121 w/ Mount Pipe	168	(3) 6' x 2" mount pipe	159
800 10121 w/ Mount Pipe	168	Platform Mount [LP 1201-1]	159
800 10121 w/ Mount Pipe	168	VHLP2.5-11	159
OPA-65R-LCUU-H8 w/ Mount Pipe	168	VHLP2.5-11	159
OPA-65R-LCUU-H8 w/ Mount Pipe	168	VHLP2.5-11	159
OPA-65R-LCUU-H8 w/ Mount Pipe	168	782 10876	147
DTMABP7819VG12A	168	Pipe Mount [PM 602-1]	147
DTMABP7819VG12A	168	VHLPX2-11	147
DTMABP7819VG12A	168	782 10876	143
RRUS 11	168	MPRD2449	143
RRUS 11	168	PTP400 w/ Mount Pipe	140
RRUS 11	168	RIU	140
(2) DC6-48-60-18-8F	168	Side Arm Mount [SO 102-3]	140
RRUS 32 B30	168	Side Arm Mount [SO 702-1]	135
RRUS 32 B30	168	Side Arm Mount [SO 702-1]	135
RRUS 32 B30	168	ASP 705K	135
OG-4	168	ASP 705K	135
80010965 w/ Mount Pipe	168	800MHz 2X50W RRH W/FILTER	131
80010965 w/ Mount Pipe	168	6' x 2" mount pipe	131
80010966 w/ Mount Pipe	168	6' x 2" mount pipe	131
QS66512-2 w/ Mount Pipe	168	6' x 2" mount pipe	131
QS66512-2 w/ Mount Pipe	168	Side Arm Mount [SO 102-3]	131
TPA-65R-LCUUUU-H8 w/ Mount Pipe	168	1900MHz RRH	131
(2) 860 10025	168	1900MHz RRH	131
(2) 860 10025	168	800MHz 2X50W RRH W/FILTER	131
(2) 860 10025	168	1900MHz RRH	131
RRUS 32	168	800MHz 2X50W RRH W/FILTER	131
RRUS 32	168	APXVTM14-C-120 w/ Mount Pipe	130
RRUS 32	168	TD-RRH8x20-25	130
(2) TPX-070821	168	TD-RRH8x20-25	130
(2) TPX-070821	168	TD-RRH8x20-25	130
(2) TPX-070821	168	(2) 6' x 2" mount pipe	130
RRUS 4478 B14	168	(2) 6' x 2" mount pipe	130
RRUS 4478 B14	168	(2) 6' x 2" mount pipe	130
RRUS 4478 B14	168	14' Horizontal HSS 3x3x1/4 Tube	130
RRUS 32 B66	168	14' Horizontal HSS 3x3x1/4 Tube	130
RRUS 32 B66	168	14' Horizontal HSS 3x3x1/4 Tube	130
RRUS 32 B66	168	(2) 4' Horizontal L3"x3" Angle Mount	130
DC6-48-60-0-8F	168	(2) 4' Horizontal L3"x3" Angle Mount	130
5' horizontal 3"x3" sq. tube mount	168	(2) 4' Horizontal L3"x3" Angle Mount	130
5' horizontal 3"x3" sq. tube mount	168	Platform Mount [LP 1201-1]	130
5' horizontal 3"x3" sq. tube mount	168	APXV9ERR18-C-A20 w/ Mount Pipe	130
4" x 2" Mount Pipe	168	APXV9ERR18-C-A20 w/ Mount Pipe	130
4" x 2" Mount Pipe	168	APXV9ERR18-C-A20 w/ Mount Pipe	130
4" x 2" Mount Pipe	168	APXVTM14-C-120 w/ Mount Pipe	130
Platform Mount [LP 1201-1]	168	APXVTM14-C-120 w/ Mount Pipe	130
LLPX310R-V1 w/ Mount Pipe	159	APL199016-42T0	120
LLPX310R-V1 w/ Mount Pipe	159	APL199016-42T0	120
LLPX310R-V1 w/ Mount Pipe	159	APL199016-42T0	120
(2) Horizon Compact	159	Pipe Mount [PM 602-3]	120
Horizon Compact	159	1' x 2-1/2"	79
FB-15-ABOX	159	Side Arm Mount [SO 901-1]	79
RRH-2WB	159	Side Arm Mount [SO 901-1]	79
RRH-2WB	159	1' x 2-1/2"	79
RRH-2WB	159	2' x 2" Pipe Mount	52
(3) 6' x 2" mount pipe	159	GPS-TMG-HR-26NCM	52
(3) 6' x 2" mount pipe	159	Side Arm Mount [SO 701-1]	52

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 95%



<p>CROWN CASTLE The foundation for a wireless World</p>	<p>Crown Castle 2000 Corporate Drive Canonsburgh, PA 15317 Phone: (724) 416-2000 FAX: (724) 416-4623</p>		<p>Job: BU# 842875</p>
	<p>Project: Crown Castle</p>	<p>Client: Crown Castle</p>	<p>Drawn by: Mahdis Arianpour</p>
	<p>Code: TIA-222-G</p>	<p>Date: 02/06/18</p>	<p>App'd: NTS</p>
	<p>Path: R:\SA Models - Letters\Work Area\Marianpour\SA\WIP\842875 WO 1521773\842875.dwg</p>	<p>Scale: NTS</p>	<p>Dwg No. E-1</p>

Tower Input Data

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

- 5) Tower is located in Hartford County, Connecticut.
- 6) Basic wind speed of 97 mph.
- 7) Structure Class II.
- 8) Exposure Category C.
- 9) Topographic Category 1.
- 10) Crest Height 0.00 ft.
- 11) Nominal ice thickness of 1.0000 in.
- 12) Ice thickness is considered to increase with height.
- 13) Ice density of 56 pcf.
- 14) A wind speed of 50 mph is used in combination with ice.
- 15) Temperature drop of 50 °F.
- 16) Deflections calculated using a wind speed of 60 mph.
- 17) A non-linear (P-delta) analysis was used.
- 18) Pressures are calculated at each section.
- 19) Stress ratio used in pole design is 1.
- 20) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|--|---|
| Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
✓ Use Code Stress Ratios
✓ Use Code Safety Factors - Guys
Escalate Ice
Always Use Max Kz
Use Special Wind Profile

Include Bolts In Member Capacity

Leg Bolts Are At Top Of Section
Secondary Horizontal Braces Leg
Use Diamond Inner Bracing (4 Sided)
SR Members Have Cut Ends
SR Members Are Concentric | Distribute Leg Loads As Uniform
Assume Legs Pinned
✓ Assume Rigid Index Plate
✓ Use Clear Spans For Wind Area
Use Clear Spans For KL/r
Retension Guys To Initial Tension
✓ Bypass Mast Stability Checks
✓ Use Azimuth Dish Coefficients
✓ Project Wind Area of Appurt.

Autocalc Torque Arm Areas

Add IBC .6D+W Combination
✓ Sort Capacity Reports By Component
Triangulate Diamond Inner Bracing
Treat Feed Line Bundles As Cylinder | Use ASCE 10 X-Brace Ly Rules
Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
SR Leg Bolts Resist Compression
All Leg Panels Have Same Allowable
Offset Girt At Foundation
✓ Consider Feed Line Torque
Include Angle Block Shear Check
Use TIA-222-G Bracing Resist.
Exemption
Use TIA-222-G Tension Splice
Exemption

<div style="text-align: center; background-color: #e0e0e0; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets |
|--|--|---|

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	168.00-119.25	48.75	4.25	18	24.0000	34.2880	0.2500	1.0000	A607-65 (65 ksi)
L2	119.25-78.50	45.00	5.25	18	32.8911	42.3870	0.2813	1.1250	A607-65 (65 ksi)
L3	78.50-38.75	45.00	6.25	18	40.7166	50.2130	0.3750	1.5000	A607-65 (65 ksi)
L4	38.75-0.00	45.00		18	48.1441	57.6400	0.3750	1.5000	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	24.3702	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	34.8169	27.0092	3953.4521	12.0835	17.4183	226.9711	7912.1063	13.5071	5.5947	22.379
L2	34.3092	29.1104	3910.9583	11.5765	16.7087	234.0675	7827.0628	14.5580	5.2938	18.823
	43.0409	37.5873	8419.0120	14.9475	21.5326	390.9892	16849.101	18.7972	6.9651	24.765
L3	42.4698	48.0166	9872.7116	14.3213	20.6841	477.3102	19758.414	24.0129	6.5061	17.35
	50.9876	59.3197	18614.760	17.6925	25.5082	729.7558	37254.015	29.6655	8.1775	21.807
L4	50.2260	56.8571	16391.389	16.9580	24.4572	670.2076	32804.348	28.4340	7.8134	20.836
	58.5292	68.1597	28238.617	20.3291	29.2811	964.3968	56514.392	34.0863	9.4846	25.292

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontal	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 168.00-119.25				1	1	1			
L2 119.25-78.50				1	1	1			
L3 78.50-38.75				1	1	1			
L4 38.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	Number Per Row	Clear Spacing	Width or Diameter	Perimeter	Weight
				ft			in	r in	r in	plf

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	C _A A _A	Weight
				ft		ft ² /ft	plf
*** 168 ***							
LDF7-50A(1-5/8)	C	No	Inside Pole	168.00 - 0.00	12	No Ice 1/2" Ice 1" Ice	0.00 0.82 0.82
FB-L98B-034-XXXXXX(3/8)	C	No	Inside Pole	168.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.05 0.05
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	168.00 - 0.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.58 0.58
2" Rigid Conduit	C	No	Inside Pole	168.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 2.80 2.80
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	168.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.58 0.58
LDF5-50A(7/8)	C	No	Inside Pole	168.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.33 0.33
*** 159 ***							
ATCB-B01-003(5/16)	B	No	Inside Pole	159.00 - 0.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.07 0.07

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf
*** 147 *** LDF2-50(3/8)	C	No	Inside Pole	147.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.08 0.08 0.08
*** 143 *** LDF1-50A(1/4)	C	No	Inside Pole	143.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.06 0.06 0.06
*** 140 *** CAT5e(1/4)	C	No	Inside Pole	140.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.04 0.04 0.04
*** 135 *** LDF5-50A(7/8)	C	No	Inside Pole	135.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.33 0.33 0.33
*** 130 *** HB114-13U3M12-XXXF(1-1/4)	B	No	Inside Pole	130.00 - 0.00	2	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.99 0.99 0.99
ATCB-B01-006(5/16)	B	No	Inside Pole	130.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.07 0.07 0.07
HYBRIFLEX RRH 1-SECTOR(1/2)	B	No	Inside Pole	130.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.20 0.20 0.20
*** 120 *** LDF7-50A(1-5/8)	C	No	Inside Pole	120.00 - 0.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82
*** 52 *** LDF4-50A(1/2)	C	No	Inside Pole	52.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.15 0.15 0.15

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	168.00-119.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.04
		C	0.000	0.000	0.000	0.000	1.00
L2	119.25-78.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.12
		C	0.000	0.000	0.000	0.000	1.05
L3	78.50-38.75	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.11
		C	0.000	0.000	0.000	0.000	1.03
L4	38.75-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.11
		C	0.000	0.000	0.000	0.000	1.01

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	168.00-119.25	A	2.315	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.04
		C		0.000	0.000	0.000	0.000	1.00
L2	119.25-78.50	A	2.231	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.12
		C		0.000	0.000	0.000	0.000	1.05
L3	78.50-38.75	A	2.117	0.000	0.000	0.000	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L4	38.75-0.00	B	1.898	0.000	0.000	0.000	0.000	0.11
		C		0.000	0.000	0.000	0.000	1.03
		A		0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.11
		C		0.000	0.000	0.000	0.000	1.01

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	168.00-119.25	0.0000	0.0000	0.0000	0.0000
L2	119.25-78.50	0.0000	0.0000	0.0000	0.0000
L3	78.50-38.75	0.0000	0.0000	0.0000	0.0000
L4	38.75-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
*** 168 ***									
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	5.39	4.60	0.07
						1/2" Ice	5.81	5.35	0.11
						1" Ice	6.23	6.05	0.17
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	5.39	4.60	0.07
						1/2" Ice	5.81	5.35	0.11
						1" Ice	6.23	6.05	0.17
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	5.39	4.60	0.07
						1/2" Ice	5.81	5.35	0.11
						1" Ice	6.23	6.05	0.17
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	9.90	7.18	0.10
						1/2" Ice	10.47	8.36	0.18
						1" Ice	11.01	9.26	0.26
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	9.90	7.18	0.10
						1/2" Ice	10.47	8.36	0.18
						1" Ice	11.01	9.26	0.26
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	12.98	9.32	0.12
						1/2" Ice	13.67	10.79	0.21
						1" Ice	14.36	12.24	0.32
DTMABP7819VG12A	A	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	0.98	0.34	0.02
						1/2" Ice	1.10	0.42	0.03
						1" Ice	1.23	0.51	0.04
DTMABP7819VG12A	B	From Leg	4.00 0.00 0.00	0.0000	168.00	No Ice	0.98	0.34	0.02
						1/2" Ice	1.10	0.42	0.03
						1" Ice	1.23	0.51	0.04

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight
			Horz	Lateral			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
DTMABP7819VG12A	C	From Leg	4.00	0.0000	168.00	No Ice	0.98	0.34	0.02
			0.00			1/2"	1.10	0.42	0.03
			0.00			Ice	1.23	0.51	0.04
RRUS 11	A	From Leg	4.00	0.0000	168.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
RRUS 11	B	From Leg	4.00	0.0000	168.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
RRUS 11	C	From Leg	4.00	0.0000	168.00	No Ice	2.78	1.19	0.05
			0.00			1/2"	2.99	1.33	0.07
			0.00			Ice	3.21	1.49	0.09
(2) DC6-48-60-18-8F	A	From Leg	4.00	0.0000	168.00	No Ice	0.79	0.79	0.02
			0.00			1/2"	1.27	1.27	0.04
			0.00			Ice	1.45	1.45	0.05
RRUS 32 B30	A	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			0.00			Ice	3.14	1.95	0.10
RRUS 32 B30	B	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			0.00			Ice	3.14	1.95	0.10
RRUS 32 B30	C	From Leg	4.00	0.0000	168.00	No Ice	2.69	1.57	0.06
			0.00			1/2"	2.91	1.76	0.08
			0.00			Ice	3.14	1.95	0.10
OG-4	C	From Leg	4.00	0.0000	168.00	No Ice	4.00	4.00	0.02
			0.00			1/2"	7.14	7.14	0.06
			6.00			Ice	7.86	7.86	0.11
80010965 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	14.05	7.63	0.13
			0.00			1/2"	14.69	8.90	0.22
			0.00			Ice	15.30	9.96	0.33
80010965 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	14.05	7.63	0.13
			0.00			1/2"	14.69	8.90	0.22
			0.00			Ice	15.30	9.96	0.33
80010966 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	17.60	9.64	0.15
			0.00			1/2"	18.33	11.15	0.26
			0.00			Ice	19.07	12.70	0.39
QS66512-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	168.00	No Ice	8.37	8.46	0.14
			0.00			1/2"	8.93	9.66	0.21
			0.00			Ice	9.46	10.55	0.30
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	168.00	No Ice	8.37	8.46	0.14
			0.00			1/2"	8.93	9.66	0.21
			0.00			Ice	9.46	10.55	0.30
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	13.54	10.96	0.11
			0.00			1/2"	14.24	12.49	0.22
			0.00			Ice	14.95	14.04	0.33
(2) 860 10025	A	From Leg	4.00	0.0000	168.00	No Ice	0.14	0.12	0.00
			0.00			1/2"	0.20	0.17	0.00
			0.00			Ice	0.26	0.23	0.01
(2) 860 10025	B	From Leg	4.00	0.0000	168.00	No Ice	0.14	0.12	0.00

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA	CAAA	Weight
			Horz	Lateral			Front	Side	
			ft	ft	°	ft	ft ²	ft ²	K
			0.00			1/2"	0.20	0.17	0.00
			0.00			Ice	0.26	0.23	0.01
(2) 860 10025	C	From Leg	4.00	0.0000	168.00	1" Ice	0.14	0.12	0.00
			0.00			No Ice	0.20	0.17	0.00
			0.00			1/2"	0.26	0.23	0.01
			0.00			Ice			
RRUS 32	A	From Leg	4.00	0.0000	168.00	1" Ice	2.86	1.78	0.06
			0.00			No Ice	3.08	1.97	0.08
			0.00			1/2"	3.32	2.17	0.10
			0.00			Ice			
RRUS 32	B	From Leg	4.00	0.0000	168.00	1" Ice	2.86	1.78	0.06
			0.00			No Ice	3.08	1.97	0.08
			0.00			1/2"	3.32	2.17	0.10
			0.00			Ice			
RRUS 32	C	From Leg	4.00	0.0000	168.00	1" Ice	2.86	1.78	0.06
			0.00			No Ice	3.08	1.97	0.08
			0.00			1/2"	3.32	2.17	0.10
			0.00			Ice			
(2) TPX-070821	A	From Leg	4.00	0.0000	168.00	1" Ice	0.47	0.10	0.01
			0.00			No Ice	0.56	0.15	0.01
			0.00			1/2"	0.66	0.20	0.02
			0.00			Ice			
(2) TPX-070821	B	From Leg	4.00	0.0000	168.00	1" Ice	0.47	0.10	0.01
			0.00			No Ice	0.56	0.15	0.01
			0.00			1/2"	0.66	0.20	0.02
			0.00			Ice			
(2) TPX-070821	C	From Leg	4.00	0.0000	168.00	1" Ice	0.47	0.10	0.01
			0.00			No Ice	0.56	0.15	0.01
			0.00			1/2"	0.66	0.20	0.02
			0.00			Ice			
RRUS 4478 B14	A	From Leg	4.00	0.0000	168.00	1" Ice	1.84	1.06	0.06
			0.00			No Ice	2.01	1.20	0.08
			0.00			1/2"	2.19	1.34	0.09
			0.00			Ice			
RRUS 4478 B14	B	From Leg	4.00	0.0000	168.00	1" Ice	1.84	1.06	0.06
			0.00			No Ice	2.01	1.20	0.08
			0.00			1/2"	2.19	1.34	0.09
			0.00			Ice			
RRUS 4478 B14	C	From Leg	4.00	0.0000	168.00	1" Ice	1.84	1.06	0.06
			0.00			No Ice	2.01	1.20	0.08
			0.00			1/2"	2.19	1.34	0.09
			0.00			Ice			
RRUS 32 B66	A	From Leg	4.00	0.0000	168.00	1" Ice	2.74	1.67	0.05
			0.00			No Ice	2.96	1.86	0.07
			0.00			1/2"	3.19	2.05	0.10
			0.00			Ice			
RRUS 32 B66	B	From Leg	4.00	0.0000	168.00	1" Ice	2.74	1.67	0.05
			0.00			No Ice	2.96	1.86	0.07
			0.00			1/2"	3.19	2.05	0.10
			0.00			Ice			
RRUS 32 B66	C	From Leg	4.00	0.0000	168.00	1" Ice	2.74	1.67	0.05
			0.00			No Ice	2.96	1.86	0.07
			0.00			1/2"	3.19	2.05	0.10
			0.00			Ice			
DC6-48-60-0-8F	C	From Leg	4.00	0.0000	168.00	1" Ice	0.92	0.92	0.03
			0.00			No Ice	1.46	1.46	0.05
			0.00			1/2"	1.64	1.64	0.07
			0.00			Ice			
5' horizontal 3"x3" sq. tube mount	A	From Leg	4.00	0.0000	168.00	1" Ice	1.50	0.07	0.08
			0.00			No Ice	1.85	0.11	0.09
			2.00			1/2"	2.21	0.16	0.11
			0.00			Ice			
5' horizontal 3"x3" sq. tube mount	B	From Leg	4.00	0.0000	168.00	1" Ice	1.50	0.07	0.08
			0.00			No Ice	1.85	0.11	0.09
			0.00			1/2"			

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K	
			2.00			Ice 2.21	0.16	0.11	
5' horizontal 3"x3" sq. tube mount	C	From Leg	4.00	0.0000	168.00	1" Ice			
			0.00			No Ice	1.50	0.07	0.08
			2.00			1/2"	1.85	0.11	0.09
4" x 2' Mount Pipe	A	From Leg	4.00	0.0000	168.00	Ice	2.21	0.16	0.11
			0.00			1" Ice			
			0.00			No Ice	0.53	0.53	0.02
4" x 2' Mount Pipe	B	From Leg	4.00	0.0000	168.00	1/2"	0.69	0.69	0.03
			0.00			Ice	0.87	0.87	0.03
			0.00			1" Ice			
4" x 2' Mount Pipe	C	From Leg	4.00	0.0000	168.00	No Ice	0.53	0.53	0.02
			0.00			1/2"	0.69	0.69	0.03
			0.00			Ice	0.87	0.87	0.03
Platform Mount [LP 1201-1]	C	None		0.0000	168.00	1" Ice			
						No Ice	23.10	23.10	2.10
						1/2"	26.80	26.80	2.50
						Ice	30.50	30.50	2.90
						1" Ice			
*** 159 ***									
LLPX310R-V1 w/ Mount Pipe	A	From Leg	4.00	0.0000	159.00	No Ice	4.54	2.98	0.05
			0.00			1/2"	4.89	3.53	0.08
			1.00			Ice	5.25	4.09	0.13
LLPX310R-V1 w/ Mount Pipe	B	From Leg	4.00	0.0000	159.00	1" Ice			
			0.00			No Ice	4.54	2.98	0.05
			1.00			1/2"	4.89	3.53	0.08
LLPX310R-V1 w/ Mount Pipe	C	From Leg	4.00	0.0000	159.00	Ice	5.25	4.09	0.13
			0.00			1" Ice			
			1.00			No Ice	4.54	2.98	0.05
(2) Horizon Compact	A	From Leg	4.00	0.0000	159.00	1/2"	4.89	3.53	0.08
			0.00			Ice	5.25	4.09	0.13
			-3.00			1" Ice			
Horizon Compact	B	From Leg	4.00	0.0000	159.00	No Ice	0.72	0.37	0.01
			0.00			1/2"	0.83	0.45	0.02
			5.00			Ice	0.94	0.54	0.03
FB-15-ABOX	A	From Leg	4.00	0.0000	159.00	1" Ice			
			0.00			No Ice	2.70	0.51	0.01
			-3.00			1/2"	2.90	0.63	0.03
RRH-2WB	A	From Leg	4.00	0.0000	159.00	Ice	3.11	0.75	0.04
			0.00			1" Ice			
			1.00			No Ice	2.30	0.78	0.04
RRH-2WB	B	From Leg	4.00	0.0000	159.00	1/2"	2.50	0.92	0.06
			0.00			Ice	2.69	1.06	0.08
			1.00			1" Ice			
RRH-2WB	C	From Leg	4.00	0.0000	159.00	No Ice	2.30	0.78	0.04
			0.00			1/2"	2.50	0.92	0.06
			1.00			Ice	2.69	1.06	0.08
(3) 6' x 2" mount pipe	A	From Leg	4.00	0.0000	159.00	1" Ice			
			0.00			No Ice	1.43	1.43	0.02
			0.00			1/2"	1.92	1.92	0.03
(3) 6' x 2" mount pipe	B	From Leg	4.00	0.0000	159.00	Ice	2.29	2.29	0.05
			0.00			1" Ice			
			0.00			No Ice	1.43	1.43	0.02
						1/2"	1.92	1.92	0.03

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
			0.00				Ice	2.29	2.29	0.05	
(3) 6' x 2" mount pipe	C	From Leg	4.00			0.0000	159.00	1" Ice	1.43	1.43	0.02
			0.00					No Ice	1.92	1.92	0.03
			0.00					1/2"	2.29	2.29	0.05
								Ice			
Platform Mount [LP 1201-1]	C	None				0.0000	159.00	1" Ice	23.10	23.10	2.10
								No Ice	26.80	26.80	2.50
								1/2"	30.50	30.50	2.90
								Ice			
*** 147 *** 782 10876	C	From Leg	1.00			0.0000	147.00	1" Ice	0.59	0.23	0.01
			0.00					No Ice	0.69	0.31	0.01
			0.00					1/2"	0.80	0.39	0.02
								Ice			
Pipe Mount [PM 602-1]	C	From Leg	0.50			0.0000	147.00	1" Ice	5.25	1.58	0.09
			0.00					No Ice	6.50	1.95	0.12
			0.00					1/2"	7.75	2.32	0.14
								Ice			
*** 143 *** 782 10876	C	From Leg	1.00			0.0000	143.00	1" Ice	0.59	0.23	0.01
			0.00					No Ice	0.69	0.31	0.01
			0.00					1/2"	0.80	0.39	0.02
								Ice			
*** 140 *** PTP400 w/ Mount Pipe	B	From Leg	1.00			0.0000	140.00	1" Ice	1.93	0.87	0.02
			0.00					No Ice	2.16	1.11	0.04
			0.00					1/2"	2.40	1.37	0.06
								Ice			
RIU	B	From Leg	1.00			0.0000	140.00	1" Ice	0.16	0.12	0.00
			0.00					No Ice	0.21	0.16	0.00
			0.00					1/2"	0.27	0.22	0.01
								Ice			
Side Arm Mount [SO 102-3]	B	None				0.0000	140.00	1" Ice	3.00	3.00	0.08
								No Ice	3.48	3.48	0.11
								1/2"	3.96	3.96	0.14
								Ice			
*** 135 *** ASP 705K	A	From Leg	6.00			0.0000	135.00	1" Ice	5.50	5.50	0.02
			0.00					No Ice	7.37	7.37	0.06
			9.00					1/2"	9.25	9.25	0.11
								Ice			
ASP 705K	B	From Leg	6.00			0.0000	135.00	1" Ice	5.50	5.50	0.02
			0.00					No Ice	7.37	7.37	0.06
			9.00					1/2"	9.25	9.25	0.11
								Ice			
Side Arm Mount [SO 702-1]	A	None				0.0000	135.00	1" Ice	1.00	1.43	0.03
								No Ice	1.25	2.05	0.04
								1/2"	1.50	2.67	0.05
								Ice			
Side Arm Mount [SO 702-1]	B	None				0.0000	135.00	1" Ice	1.00	1.43	0.03
								No Ice	1.25	2.05	0.04
								1/2"	1.50	2.67	0.05
								Ice			
131 1900MHz RRH	A	From Leg	1.00			0.0000	131.00	1" Ice	2.49	3.26	0.04
			0.00					No Ice	2.70	3.48	0.08
			0.00					1/2"	2.91	3.72	0.11
								Ice			
1900MHz RRH	B	From Leg	1.00			0.0000	131.00	1" Ice	2.49	3.26	0.04
			0.00					No Ice	2.70	3.48	0.08
			0.00					1/2"	2.91	3.72	0.11
								Ice			
1900MHz RRH	C	From Leg	1.00			0.0000	131.00	1" Ice	2.49	3.26	0.04
			0.00					No Ice	2.70	3.48	0.08

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			0.00				Ice	2.91	3.72	0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00	0.0000	131.00	1" Ice	2.06	1.93	0.06	
			0.00			No Ice	2.24	2.11	0.09	
			-1.00			1/2"	2.43	2.29	0.11	
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00	0.0000	131.00	1" Ice	2.06	1.93	0.06	
			0.00			No Ice	2.24	2.11	0.09	
			-1.00			1/2"	2.43	2.29	0.11	
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00	0.0000	131.00	1" Ice	2.06	1.93	0.06	
			0.00			No Ice	2.24	2.11	0.09	
			-1.00			1/2"	2.43	2.29	0.11	
6' x 2" mount pipe	A	From Leg	0.50	0.0000	131.00	1" Ice	1.43	1.43	0.02	
			0.00			No Ice	1.92	1.92	0.03	
			0.00			1/2"	2.29	2.29	0.05	
6' x 2" mount pipe	B	From Leg	0.50	0.0000	131.00	1" Ice	1.43	1.43	0.02	
			0.00			No Ice	1.92	1.92	0.03	
			0.00			1/2"	2.29	2.29	0.05	
6' x 2" mount pipe	C	From Leg	0.50	0.0000	131.00	1" Ice	1.43	1.43	0.02	
			0.00			No Ice	1.92	1.92	0.03	
			0.00			1/2"	2.29	2.29	0.05	
Side Arm Mount [SO 102-3]	C	From Leg	0.50	0.0000	131.00	1" Ice	3.00	3.00	0.08	
			0.00			No Ice	3.48	3.48	0.11	
			0.00			1/2"	3.96	3.96	0.14	
*** 130 ***										
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	130.00	1" Ice	8.26	7.47	0.09	
			0.00			No Ice	8.82	8.66	0.16	
			1.00			1/2"	9.35	9.56	0.24	
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	130.00	1" Ice	8.26	7.47	0.09	
			0.00			No Ice	8.82	8.66	0.16	
			1.00			1/2"	9.35	9.56	0.24	
APXV9ERR18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	130.00	1" Ice	8.26	7.47	0.09	
			0.00			No Ice	8.82	8.66	0.16	
			1.00			1/2"	9.35	9.56	0.24	
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00	0.0000	130.00	1" Ice	6.58	4.96	0.07	
			0.00			No Ice	7.03	5.75	0.13	
			1.00			1/2"	7.47	6.47	0.19	
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00	0.0000	130.00	1" Ice	6.58	4.96	0.07	
			0.00			No Ice	7.03	5.75	0.13	
			1.00			1/2"	7.47	6.47	0.19	
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00	0.0000	130.00	1" Ice	6.58	4.96	0.07	
			0.00			No Ice	7.03	5.75	0.13	
			1.00			1/2"	7.47	6.47	0.19	
TD-RRH8x20-25	A	From Leg	4.00	0.0000	130.00	1" Ice	4.05	1.53	0.07	
			0.00			No Ice	4.30	1.71	0.10	
			1.00			1/2"	4.56	1.90	0.13	
TD-RRH8x20-25	B	From Leg	4.00	0.0000	130.00	1" Ice	4.05	1.53	0.07	
			0.00			No Ice	4.30	1.71	0.10	
			1.00			1/2"	4.56	1.90	0.13	
TD-RRH8x20-25	C	From Leg	4.00	0.0000	130.00	1" Ice	4.05	1.53	0.07	
			0.00			No Ice	4.30	1.71	0.10	
						1/2"				

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			1.00			Ice 1" Ice 4.56	1.90	0.13
(2) 6' x 2" mount pipe	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 6' x 2" mount pipe	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 2.29	1.43 1.92 2.29	0.02 0.03 0.05
(2) 6' x 2" mount pipe	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 2.29	1.43 1.92 2.29	0.02 0.03 0.05
14' Horizontal HSS 3x3x1/4 Tube	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 6.11	4.20 0.11 0.16	0.12 0.16 0.21
14' Horizontal HSS 3x3x1/4 Tube	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 6.11	4.20 0.11 0.16	0.12 0.16 0.21
14' Horizontal HSS 3x3x1/4 Tube	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 6.11	4.20 0.11 0.16	0.12 0.16 0.21
(2) 4' Horizontal L3"x3" Angle Mount	A	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 2.30	1.70 0.16 0.22	0.01 0.01 0.01
(2) 4' Horizontal L3"x3" Angle Mount	B	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 2.30	1.70 0.16 0.22	0.01 0.01 0.01
(2) 4' Horizontal L3"x3" Angle Mount	C	From Leg	4.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 2.30	1.70 0.16 0.22	0.01 0.01 0.01
Platform Mount [LP 1201-1]	C	None		0.0000	130.00	No Ice 1/2" Ice 30.50	23.10 26.80 30.50	2.10 2.50 2.90
*** 120 *** APL199016-42T0	A	From Leg	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 5.01	4.12 3.97 4.41	0.01 0.03 0.06
APL199016-42T0	B	From Leg	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 5.01	4.12 3.97 4.41	0.01 0.03 0.06
APL199016-42T0	C	From Leg	1.00 0.00 0.00	0.0000	120.00	No Ice 1/2" Ice 5.01	4.12 3.97 4.41	0.01 0.03 0.06
Pipe Mount [PM 602-3]	C	None		0.0000	120.00	No Ice 1/2" Ice 11.32	7.68 9.50 11.32	0.28 0.35 0.43
*** 79 *** 1' x 2-1/2"	A	From Leg	2.00 0.00 0.00	0.0000	79.00	No Ice 1/2" Ice 0.31	0.16 0.23 0.31	0.03 0.03 0.03
1' x 2-1/2"	B	From Leg	2.00	0.0000	79.00	No Ice	0.16	0.03

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft²	CAAA Side ft²	Weight K	
			0.00		1/2"	0.23	0.23	0.03	
			0.00		Ice	0.31	0.31	0.03	
					1" Ice				
Side Arm Mount [SO 901-1]	A	From Leg	1.00	0.0000	79.00	No Ice	0.50	0.88	0.11
			0.00			1/2"	0.68	1.13	0.11
			0.00			Ice	0.86	1.38	0.11
						1" Ice			
Side Arm Mount [SO 901-1]	B	From Leg	1.00	0.0000	79.00	No Ice	0.50	0.88	0.11
			0.00			1/2"	0.68	1.13	0.11
			0.00			Ice	0.86	1.38	0.11
						1" Ice			
*** 52 ***									
GPS-TMG-HR-26NCM	B	From Leg	3.00	0.0000	52.00	No Ice	0.13	0.13	0.00
			0.00			1/2"	0.18	0.18	0.00
			0.00			Ice	0.24	0.24	0.01
						1" Ice			
2' x 2" Pipe Mount	B	From Leg	3.00	0.0000	52.00	No Ice	0.02	0.02	0.01
			0.00			1/2"	0.05	0.05	0.01
			0.00			Ice	0.09	0.09	0.01
						1" Ice			
Side Arm Mount [SO 701-1]	B	From Leg	1.50	0.0000	52.00	No Ice	0.85	1.67	0.07
			0.00			1/2"	1.14	2.34	0.08
			0.00			Ice	1.43	3.01	0.09
						1" Ice			

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft²	Weight K

*** 159 ***										
VHLP2.5-11	A	Paraboloid w/Shroud (HP)	From Leg	4.00	0.0000		159.00	2.92	No Ice	6.68
				0.00					1/2" Ice	7.07
				-3.00					1" Ice	7.46
				4.00	0.0000		159.00	2.92	No Ice	6.68
				0.00					1/2" Ice	7.07
				5.00					1" Ice	7.46
				4.00	0.0000		159.00	2.92	No Ice	6.68
				0.00					1/2" Ice	7.07
				5.00					1" Ice	7.46
*** 147 ***										
VHLPX2-11	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000		147.00	2.17	No Ice	3.72
				0.00					1/2" Ice	4.01
				0.00					1" Ice	4.30
*** 143 ***										
MPRD2449	C	Paraboloid w/o Radome	From Leg	1.00	0.0000		143.00	2.17	No Ice	3.69
				0.00					1/2" Ice	3.98
				0.00					1" Ice	4.27

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice

Comb. No.	Description
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Sectio n No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	168 - 119.25	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-46.88	2.32	1.10
			Max. Mx	20	-16.28	756.63	0.71
			Max. My	14	-16.26	4.01	-759.87
			Max. Vy	8	25.69	-755.03	10.91
			Max. Vx	14	25.71	4.01	-759.87
			Max. Torque	24			
L2	119.25 - 78.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.99	2.40	1.15
			Max. Mx	8	-24.45	-1889.02	27.68
			Max. My	14	-24.45	10.49	-1894.66
			Max. Vy	8	30.56	-1889.02	27.68
			Max. Vx	14	30.57	10.49	-1894.66
			Max. Torque	8			
L3	78.5 - 38.75	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	38.75 - 0	Pole	Max. Compression	26	-76.51	1.33	1.13
			Max. Mx	8	-36.22	-3156.29	44.24
			Max. My	14	-36.22	16.43	-3161.69
			Max. Vy	8	34.67	-3156.29	44.24
			Max. Vx	14	34.70	16.43	-3161.69
			Max. Torque	8			2.09
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97.67	1.33	1.13
			Max. Mx	8	-52.02	-4803.01	63.41
			Max. My	14	-52.02	24.52	-4809.59
			Max. Vy	8	38.22	-4803.01	63.41
			Max. Vx	14	38.24	24.52	-4809.59
			Max. Torque	8			1.94

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	34	97.67	5.86	-10.18
	Max. H _x	20	52.06	38.12	-0.05
	Max. H _z	3	39.04	-0.37	38.13
	Max. M _x	2	4797.04	-0.37	38.13
	Max. M _z	8	4803.01	-38.17	0.41
	Max. Torsion	8	1.93	-38.17	0.41
	Min. Vert	19	39.04	33.04	-19.39
	Min. H _x	8	52.06	-38.17	0.41
	Min. H _z	14	52.06	0.18	-38.20
	Min. M _x	14	-4809.59	0.18	-38.20
	Min. M _z	20	-4796.69	38.12	-0.05
	Min. Torsion	20	-1.68	38.12	-0.05

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	43.38	0.00	0.00	-0.27	-0.23	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	52.06	0.37	-38.13	-4797.04	-51.88	-0.21
0.9 Dead+1.6 Wind 0 deg - No Ice	39.04	0.37	-38.13	-4729.16	-51.09	-0.20
1.2 Dead+1.6 Wind 30 deg - No Ice	52.06	19.36	-33.11	-4167.15	-2441.88	-0.05
0.9 Dead+1.6 Wind 30 deg - No Ice	39.04	19.36	-33.11	-4108.18	-2407.32	-0.03
1.2 Dead+1.6 Wind 60 deg - No Ice	52.06	33.16	-19.36	-2444.12	-4173.86	-1.10
0.9 Dead+1.6 Wind 60 deg - No Ice	39.04	33.16	-19.36	-2409.47	-4114.84	-1.10
1.2 Dead+1.6 Wind 90 deg - No Ice	52.06	38.17	-0.41	-63.41	-4803.01	-1.93
0.9 Dead+1.6 Wind 90 deg - No Ice	39.04	38.17	-0.41	-62.39	-4735.11	-1.93
1.2 Dead+1.6 Wind 120 deg - No Ice	52.06	32.94	18.91	2380.42	-4138.46	-0.68
0.9 Dead+1.6 Wind 120 deg - No Ice	39.04	32.94	18.91	2346.83	-4079.99	-0.68
1.2 Dead+1.6 Wind 150 deg - No Ice	52.06	18.78	33.01	4155.02	-2354.57	-0.01
0.9 Dead+1.6 Wind 150 deg - No Ice	39.04	18.78	33.01	4096.37	-2321.29	-0.01
1.2 Dead+1.6 Wind 180 deg - No Ice	52.06	-0.18	38.20	4809.59	24.52	0.22

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
0.9 Dead+1.6 Wind 180 deg - No Ice	39.04	-0.18	38.20	4741.70	24.23	0.20
1.2 Dead+1.6 Wind 210 deg - No Ice	52.06	-19.11	33.30	4199.52	2403.05	0.31
0.9 Dead+1.6 Wind 210 deg - No Ice	39.04	-19.11	33.30	4140.21	2369.19	0.29
1.2 Dead+1.6 Wind 240 deg - No Ice	52.06	-33.04	19.39	2450.14	4155.47	0.88
0.9 Dead+1.6 Wind 240 deg - No Ice	39.04	-33.04	19.39	2415.55	4096.85	0.87
1.2 Dead+1.6 Wind 270 deg - No Ice	52.06	-38.12	0.05	4.24	4796.69	1.68
0.9 Dead+1.6 Wind 270 deg - No Ice	39.04	-38.12	0.05	4.29	4728.98	1.68
1.2 Dead+1.6 Wind 300 deg - No Ice	52.06	-32.85	-18.98	-2388.94	4127.31	0.89
0.9 Dead+1.6 Wind 300 deg - No Ice	39.04	-32.85	-18.98	-2355.07	4069.08	0.89
1.2 Dead+1.6 Wind 330 deg - No Ice	52.06	-18.85	-32.86	-4131.27	2365.82	-0.01
0.9 Dead+1.6 Wind 330 deg - No Ice	39.04	-18.85	-32.86	-4072.80	2332.48	0.00
1.2 Dead+1.0 Ice+1.0 Temp	97.67	-0.00	-0.00	-1.13	1.33	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	97.67	0.09	-11.69	-1546.82	-10.96	-0.02
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	97.67	5.91	-10.14	-1342.58	-781.02	-0.03
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	97.67	10.15	-5.91	-784.55	-1340.67	-0.30
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	97.67	11.69	-0.10	-16.12	-1544.48	-0.50
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	97.67	10.10	5.80	766.95	-1332.75	-0.23
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	97.67	5.78	10.12	1337.36	-760.43	-0.06
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	97.67	-0.04	11.70	1547.16	7.20	0.03
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	97.67	-5.86	10.18	1347.63	774.72	0.09
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	97.67	-10.12	5.92	783.38	1339.30	0.24
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	97.67	-11.68	0.02	-0.37	1545.88	0.44
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	97.67	-10.08	-5.82	-771.73	1332.87	0.27
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	97.67	-5.79	-10.09	-1334.15	766.32	0.06
Dead+Wind 0 deg - Service	43.38	0.08	-8.16	-1019.67	-11.19	-0.04
Dead+Wind 30 deg - Service	43.38	4.14	-7.08	-885.85	-519.13	-0.01
Dead+Wind 60 deg - Service	43.38	7.09	-4.14	-519.67	-887.22	-0.24
Dead+Wind 90 deg - Service	43.38	8.17	-0.09	-13.70	-1020.89	-0.42
Dead+Wind 120 deg - Service	43.38	7.05	4.05	505.64	-879.64	-0.15
Dead+Wind 150 deg - Service	43.38	4.02	7.06	882.77	-500.54	0.00
Dead+Wind 180 deg - Service	43.38	-0.04	8.17	1021.91	5.05	0.05
Dead+Wind 210 deg - Service	43.38	-4.09	7.12	892.29	510.56	0.07
Dead+Wind 240 deg - Service	43.38	-7.07	4.15	520.49	882.98	0.19
Dead+Wind 270 deg - Service	43.38	-8.16	0.01	0.68	1019.21	0.37
Dead+Wind 300 deg - Service	43.38	-7.03	-4.06	-507.90	876.93	0.19
Dead+Wind 330 deg - Service	43.38	-4.03	-7.03	-878.15	502.60	-0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-43.38	0.00	0.00	43.38	0.00	0.000%
2	0.37	-52.06	-38.13	-0.37	52.06	38.13	0.000%
3	0.37	-39.04	-38.13	-0.37	39.04	38.13	0.000%
4	19.36	-52.06	-33.11	-19.36	52.06	33.11	0.000%
5	19.36	-39.04	-33.11	-19.36	39.04	33.11	0.000%
6	33.16	-52.06	-19.36	-33.16	52.06	19.36	0.000%
7	33.16	-39.04	-19.36	-33.16	39.04	19.36	0.000%
8	38.17	-52.06	-0.41	-38.17	52.06	0.41	0.000%
9	38.17	-39.04	-0.41	-38.17	39.04	0.41	0.000%
10	32.94	-52.06	18.91	-32.94	52.06	-18.91	0.000%
11	32.94	-39.04	18.91	-32.94	39.04	-18.91	0.000%
12	18.78	-52.06	33.01	-18.78	52.06	-33.01	0.000%
13	18.78	-39.04	33.01	-18.78	39.04	-33.01	0.000%
14	-0.18	-52.06	38.20	0.18	52.06	-38.20	0.000%
15	-0.18	-39.04	38.20	0.18	39.04	-38.20	0.000%
16	-19.11	-52.06	33.30	19.11	52.06	-33.30	0.000%
17	-19.11	-39.04	33.30	19.11	39.04	-33.30	0.000%
18	-33.04	-52.06	19.39	33.04	52.06	-19.39	0.000%
19	-33.04	-39.04	19.39	33.04	39.04	-19.39	0.000%
20	-38.12	-52.06	0.05	38.12	52.06	-0.05	0.000%
21	-38.12	-39.04	0.05	38.12	39.04	-0.05	0.000%
22	-32.85	-52.06	-18.98	32.85	52.06	18.98	0.000%
23	-32.85	-39.04	-18.98	32.85	39.04	18.98	0.000%
24	-18.85	-52.06	-32.86	18.85	52.06	32.86	0.000%
25	-18.85	-39.04	-32.86	18.85	39.04	32.86	0.000%
26	0.00	-97.67	0.00	0.00	97.67	0.00	0.000%
27	0.09	-97.67	-11.69	-0.09	97.67	11.69	0.000%
28	5.91	-97.67	-10.14	-5.91	97.67	10.14	0.000%
29	10.15	-97.67	-5.91	-10.15	97.67	5.91	0.000%
30	11.69	-97.67	-0.10	-11.69	97.67	0.10	0.000%
31	10.10	-97.67	5.80	-10.10	97.67	-5.80	0.000%
32	5.78	-97.67	10.12	-5.78	97.67	-10.12	0.000%
33	-0.04	-97.67	11.70	0.04	97.67	-11.70	0.000%
34	-5.86	-97.67	10.18	5.86	97.67	-10.18	0.000%
35	-10.12	-97.67	5.92	10.12	97.67	-5.92	0.000%
36	-11.68	-97.67	0.02	11.68	97.67	-0.02	0.000%
37	-10.08	-97.67	-5.82	10.08	97.67	5.82	0.000%
38	-5.79	-97.67	-10.09	5.79	97.67	10.09	0.000%
39	0.08	-43.38	-8.16	-0.08	43.38	8.16	0.000%
40	4.14	-43.38	-7.08	-4.14	43.38	7.08	0.000%
41	7.09	-43.38	-4.14	-7.09	43.38	4.14	0.000%
42	8.17	-43.38	-0.09	-8.17	43.38	0.09	0.000%
43	7.05	-43.38	4.05	-7.05	43.38	-4.05	0.000%
44	4.02	-43.38	7.06	-4.02	43.38	-7.06	0.000%
45	-0.04	-43.38	8.17	0.04	43.38	-8.17	0.000%
46	-4.09	-43.38	7.12	4.09	43.38	-7.12	0.000%
47	-7.07	-43.38	4.15	7.07	43.38	-4.15	0.000%
48	-8.16	-43.38	0.01	8.16	43.38	-0.01	0.000%
49	-7.03	-43.38	-4.06	7.03	43.38	4.06	0.000%
50	-4.03	-43.38	-7.03	4.03	43.38	7.03	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00009394
3	Yes	4	0.00000001	0.00097327
4	Yes	6	0.00000001	0.00026604
5	Yes	6	0.00000001	0.00007654
6	Yes	6	0.00000001	0.00027102
7	Yes	6	0.00000001	0.00007817
8	Yes	5	0.00000001	0.00030067
9	Yes	5	0.00000001	0.00013104

10	Yes	6	0.00000001	0.00026015
11	Yes	6	0.00000001	0.00007546
12	Yes	6	0.00000001	0.00025983
13	Yes	6	0.00000001	0.00007552
14	Yes	5	0.00000001	0.00011124
15	Yes	5	0.00000001	0.00004751
16	Yes	6	0.00000001	0.00026797
17	Yes	6	0.00000001	0.00007733
18	Yes	6	0.00000001	0.00026422
19	Yes	6	0.00000001	0.00007585
20	Yes	5	0.00000001	0.00011786
21	Yes	5	0.00000001	0.00005192
22	Yes	6	0.00000001	0.00026380
23	Yes	6	0.00000001	0.00007671
24	Yes	6	0.00000001	0.00026152
25	Yes	6	0.00000001	0.00007616
26	Yes	4	0.00000001	0.00003681
27	Yes	6	0.00000001	0.00031780
28	Yes	6	0.00000001	0.00055245
29	Yes	6	0.00000001	0.00055955
30	Yes	6	0.00000001	0.00031708
31	Yes	6	0.00000001	0.00053973
32	Yes	6	0.00000001	0.00053828
33	Yes	6	0.00000001	0.00031766
34	Yes	6	0.00000001	0.00055839
35	Yes	6	0.00000001	0.00055383
36	Yes	6	0.00000001	0.00031848
37	Yes	6	0.00000001	0.00055085
38	Yes	6	0.00000001	0.00054751
39	Yes	4	0.00000001	0.00013150
40	Yes	5	0.00000001	0.00006392
41	Yes	5	0.00000001	0.00006751
42	Yes	4	0.00000001	0.00020743
43	Yes	5	0.00000001	0.00006089
44	Yes	5	0.00000001	0.00006075
45	Yes	4	0.00000001	0.00014052
46	Yes	5	0.00000001	0.00006552
47	Yes	5	0.00000001	0.00006277
48	Yes	4	0.00000001	0.00017072
49	Yes	5	0.00000001	0.00006342
50	Yes	5	0.00000001	0.00006205

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 119.25	32.506	46	1.7317	0.0033
L2	123.5 - 78.5	17.468	46	1.4049	0.0016
L3	83.75 - 38.75	7.790	41	0.8792	0.0007
L4	45 - 0	2.273	41	0.4604	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	800 10121 w/ Mount Pipe	46	32.506	1.7317	0.0034	38535
164.00	VHLP2.5-11	46	31.072	1.7096	0.0030	38535
159.00	LLPX310R-V1 w/ Mount Pipe	46	29.287	1.6814	0.0028	21408
156.00	VHLP2.5-11	46	28.221	1.6640	0.0027	16056
147.00	VHLPX2-11	46	25.073	1.6074	0.0025	9174
143.00	MPRD2449	46	23.705	1.5795	0.0024	7706
140.00	PTP400 w/ Mount Pipe	46	22.695	1.5571	0.0023	6880
135.00	ASP 705K	46	21.048	1.5166	0.0022	5837
131.00	1900MHz RRH	46	19.767	1.4809	0.0020	5206
130.00	APXV9ERR18-C-A20 w/ Mount Pipe	46	19.452	1.4715	0.0020	5069

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	APL199016-42T0	46	16.446	1.3650	0.0017	4370
79.00	1' x 2-1/2"	41	6.906	0.8204	0.0007	4765
52.00	GPS-TMG-HR-26NCM	41	2.978	0.5302	0.0003	4487

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	168 - 119.25	152.689	16	8.1611	0.0155
L2	123.5 - 78.5	82.167	16	6.6212	0.0072
L3	83.75 - 38.75	36.672	16	4.1435	0.0030
L4	45 - 0	10.700	16	2.1683	0.0012

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
168.00	800 10121 w/ Mount Pipe	16	152.689	8.1611	0.0155	8511
164.00	VHLP2.5-11	16	145.970	8.0569	0.0140	8511
159.00	LLPX310R-V1 w/ Mount Pipe	16	137.599	7.9242	0.0129	4727
156.00	VHLP2.5-11	16	132.606	7.8419	0.0125	3544
147.00	VHLPX2-11	16	117.845	7.5753	0.0113	2022
143.00	MPRD2449	16	111.431	7.4437	0.0108	1697
140.00	PTP400 w/ Mount Pipe	16	106.695	7.3382	0.0104	1514
135.00	ASP 705K	16	98.969	7.1474	0.0098	1283
131.00	1900MHz RRH	16	92.959	6.9793	0.0092	1143
130.00	APXV9ERR18-C-A20 w/ Mount Pipe	16	91.482	6.9350	0.0091	1113
120.00	APL199016-42T0	16	77.370	6.4329	0.0077	955
79.00	1' x 2-1/2"	16	32.511	3.8658	0.0030	1022
52.00	GPS-TMG-HR-26NCM	16	14.018	2.4974	0.0016	956

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L1	168 - 119.25 (1)	TP34.288x24x0.25	48.75	0.00	0.0	26.297 5	-16.22	1794.53	0.009
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.281 3	45.00	0.00	0.0	36.598 3	-24.42	2407.42	0.010
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	45.00	0.00	0.0	57.749 8	-36.20	3975.05	0.009
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	45.00	0.00	0.0	68.159 7	-52.02	4395.43	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{nx} kip-ft	Ratio M _{ux} / φM _{nx}	M _{uy} kip-ft	φM _{ny} kip-ft	Ratio M _{uy} / φM _{ny}
L1	168 - 119.25 (1)	TP34.288x24x0.25	765.19	1223.34	0.625	0.00	1223.34	0.000
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.281 3	1907.40	2031.59	0.939	0.00	2031.59	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	3181.63	3966.47	0.802	0.00	3966.47	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	4838.45	5182.60	0.934	0.00	5182.60	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	168 - 119.25 (1)	TP34.288x24x0.25	25.90	897.27	0.029	0.69	2449.67	0.000
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.281 3	30.76	1203.71	0.026	0.68	4068.15	0.000
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	34.90	1987.52	0.018	0.31	7942.63	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	38.44	2197.71	0.017	0.31	10377.92	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u	Ratio M_{ux}	Ratio M_{uy}	Ratio V_u	Ratio T_u	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		ϕP_n	ϕM_{nx}	ϕM_{ny}	ϕV_n	ϕT_n			
L1	168 - 119.25 (1)	0.009	0.625	0.000	0.029	0.000	0.635	1.000	4.8.2
L2	119.25 - 78.5 (2)	0.010	0.939	0.000	0.026	0.000	0.950	1.000	4.8.2
L3	78.5 - 38.75 (3)	0.009	0.802	0.000	0.018	0.000	0.812	1.000	4.8.2
L4	38.75 - 0 (4)	0.012	0.934	0.000	0.017	0.000	0.946	1.000	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L1	168 - 119.25	Pole	TP34.288x24x0.25	1	-16.22	1794.53	63.5	Pass	
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-24.42	2407.42	95.0	Pass	
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-36.20	3975.05	81.2	Pass	
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-52.02	4395.43	94.6	Pass	
							Summary		
							Pole (L2)	95.0	Pass
							RATING =	95.0	Pass

APPENDIX B
BASE LEVEL DRAWING



(INSTALLED)
(2) 7/8" TO 168 FT LEVEL

(INSTALLED)
(2) 7/8" TO 135 FT LEVEL
(1) 1/4" TO 140 FT LEVEL
(1) 1/4" TO 143 FT LEVEL
(1) 3/8" TO 147 FT LEVEL
(1) 7/8" TO 168 FT LEVEL

(ABANDONED)
(6) 1-5/8" TO 120 FT LEVEL

(INSTALLED)
(1) 1/2" TO 52 FT LEVEL

(INSTALLED)
(6) 5/16" TO 159 FT LEVEL

(RESERVED)
(3) 5/16" TO 130 FT LEVEL
(1) 1/2" TO 130 FT LEVEL
(INSTALLED)
(2) 1-1/4" TO 130 FT LEVEL

(PROPOSED)
(2) 3/4" TO 168 FT LEVEL
(INSTALLED-IN CONDUIT)
(2) 3/8" TO 168 FT LEVEL
(4) 3/4" TO 168 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 168 FT LEVEL

CLIMBING PEGS
W/ SAFETY CLIMB

APPENDIX C
ADDITIONAL CALCULATIONS

Drilled Pier Foundation



BU # :	842875
Site Name:	WINDSORDAY HILL
App. Number:	422658 Rev. 1

TIA-222 Revison:	G
Tower Type:	Monopole

Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	4838	
Axial Force (kips)	52	
Shear Force (kips)	38	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	24	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
<i>From 0.5' above grade to 24' below grade</i>		
Pier Diameter	8	ft
Rebar Quantity	24	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity		
	Compression	Uplift
D _{v=0} (ft from TOC)	8.73	-
Soil Safety Factor	4.10	-
Max Moment (kip-ft)	5139.37	-
Rating	32.4%	-
Soil Vertical Capacity		
	Compression	Uplift
Skin Friction (kips)	1187.52	-
End Bearing (kips)	3015.93	-
Weight of Concrete (kips)	150.16	-
Total Capacity (kips)	4203.45	-
Axial (kips)	202.16	-
Rating	4.8%	-
Reinforced Concrete Capacity		
	Compression	Uplift
Critical Depth (ft from TOC)	8.22	-
Critical Moment (kip-ft)	5137.41	-
Critical Moment Capacity	6982.32	-
Rating	73.6%	-
Soil Interaction Rating		32.4%
Structural Foundation Rating		73.6%

Soil Profile				
Groundwater Depth	5	ft	# of Layers	5

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ _{soil} (pcf)	γ _{concrete} (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ultimate Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	5	5	100	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	5	10	5	60	87.6	0	35	0.000	0.000	0.00	0.00			Cohesionless
3	10	15	5	55	87.6	0	33	0.000	0.000	0.00	0.00			Cohesionless
4	15	17	2	80	87.6	0	40	0.000	0.000	0.00	0.00			Cohesionless
5	17	24	7	95	87.6	20	0	9.000	9.000			80		Cohesive

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F / G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding $(1) \times (\text{Rod Diameter})$

Site Data

BU#: 842875
 Site Name: WINDSORDAY HILL
 App #: 422658 Rev. 1

Anchor Rod Data

Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, F_y :	75	ksi
Strength, F_u :	100	ksi
Bolt Circle:	65	in
Anchor Spacing:	6	in

Plate Data

W=Side:	63	in
Thick:	3.25	in
Grade:	55	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:	**	
Groove Depth:		<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:		in
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	57.64	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Base Reactions

TIA Revision:	G	
Factored Moment, M_u :	4838	ft-kips
Factored Axial, P_u :	52	kips
Factored Shear, V_u :	38	kips

Anchor Rod Results

TIA G --> Max Rod ($C_u + V_u/\eta$): 231.4 Kips
 Axial Design Strength, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 89.0% **Pass**

Base Plate Results

Base Plate Stress: 32.0 ksi
 PL Design Bending Strength, $\Phi * F_y$: 49.5 ksi
 Base Plate Stress Ratio: 64.7% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	31.46
Max PL Length:	31.46

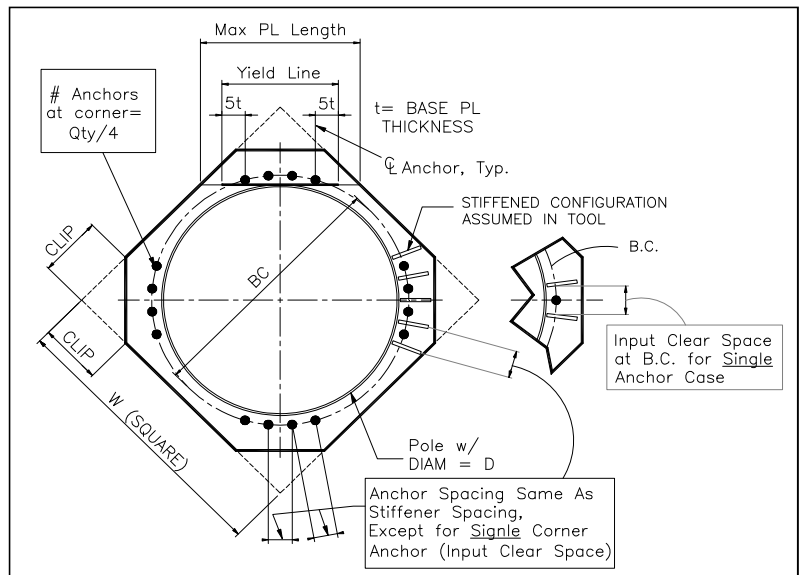
N/A - Unstiffened

Stiffener Results

Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

CCISeismic - Design Category

Per 2012/2015 IBC

Site BU: 842875
 Work Order: 1521773
 Application: 422658 Rev. 1



	Degrees	Minutes	Seconds	
Site Latitude =	42	52	16.10	42.8711 degrees
Site Longitude =	-72	40	15.99	-72.6711 degrees
Ground Supported Structure =	Yes			
Structure Class =	II			(Table 2-1)
Site Class =	D - Stiff Soil			(Table 2-11)
Spectral response acceleration short periods, S_s =	0.179			USGS Seismic Tool
Spectral response acceleration 1 s period, S_1 =	0.064			
Importance Factor, I =	1.0			(Table 2-3)
Acceleration-based site coefficient, F_a =	1.6			(Table 2-12)
Velocity-based site coefficient, F_v =	2.4			(Table 2-13)
Design spectral response acceleration short period, S_{DS} =	0.191			(2.7.6)
Design spectral response acceleration 1 s period, S_{D1} =	0.102			(2.7.6)
Seismic Design Category - Short Period Response =	B			ASCE 7-05 Table 11.6-1
Seismic Design Category - 1s Period Response =	B			ASCE 7-05 Table 11.6-2
Worst Case Seismic Design Category =	B			ASCE 7-05 Tables 11.6-1 and 6-2

Exhibit 3



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5139

FA#: 10071331

Windsor Day Hill
99 Day Hill Road
Windsor, CT 6095

March 14, 2018

Centerline Communications Project Number: 950006-103

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	9.12 %



March 14, 2018

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

Emissions Analysis for Site: **CT5139 – Windsor Day Hill**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **99 Day Hill Road, Windsor, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 population 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 population 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.

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. 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 performed for the proposed AT&T Wireless antenna facility located at **99 Day Hill Road, Windsor, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	1	30
UMTS	1900 MHz (PCS)	1	30
LTE	850 MHz	2	40
LTE	700 MHz	2	40
LTE	2300 MHz (WCS)	4	30
LTE	700 MHz (Band 14)	4	40
LTE	2100 MHz (AWS)	4	30
LTE	1900 MHz (PCS)	4	40

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Kathrein 800-10121	168
A	2	CCI OPA-65R-LCUU-H6	168
A	3	Kathrein 800-10965	168
A	4	Quintel QS66512-2	168
B	1	Kathrein 800-10121	168
B	2	CCI OPA-65R-LCUU-H6	168
B	3	Kathrein 800-10965	168
B	4	Quintel QS66512-2	168
C	1	Kathrein 800-10121	168
C	2	CCI OPA-65R-LCUU-H8	168
C	3	Kathrein 800-10965	168
C	4	Quintel TPA-65R-LCUUUU-H8	168

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBi)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	2	60	1,235.72	0.21
Antenna A2	CCI OPA-65R-LCUU-H6	850 MHz / 700 MHz / 2300 MHz (WCS)	12.45 / 11.65 / 15.45	8	280	6,785.10	1.26
Antenna A3	Kathrein 800-10965	700 MHz (Band 14) / 2100 MHz (AWS)	12.65 / 15.95	8	280	7,667.84	1.51
Antenna A4	Quintel QS66512-2	700 MHz / 1900 MHz (PCS)	10.85 / 13.85	6	240	4,855.52	0.82
Sector A Composite MPE%							3.80
Antenna B1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	2	60	1,235.72	0.21
Antenna B2	CCI OPA-65R-LCUU-H6	850 MHz / 700 MHz / 2300 MHz (WCS)	12.45 / 11.65 / 15.45	8	280	6,785.10	1.26
Antenna B3	Kathrein 800-10965	700 MHz (Band 14) / 2100 MHz (AWS)	12.65 / 15.95	8	280	7,667.84	1.51
Antenna B4	Quintel QS66512-2	700 MHz / 1900 MHz (PCS)	10.85 / 13.85	6	240	4,855.52	0.82
Sector B Composite MPE%							3.80
Antenna C1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	2	60	1,235.72	0.21
Antenna C2	CCI OPA-65R-LCUU-H8	850 MHz / 700 MHz / 2300 MHz (WCS)	13.35 / 12.55 / 14.95	8	280	6,920.57	1.35
Antenna C3	Kathrein 800-10965	700 MHz (Band 14) / 2100 MHz (AWS)	12.65 / 15.95	8	280	7,667.84	1.51
Antenna C4	Quintel TPA-65R-LCUUUU-H8	700 MHz / 1900 MHz (PCS)	12.95 / 13.75	6	240	5,372.14	0.98
Sector C Composite MPE%							4.06

Table 3: AT&T Emissions Levels



The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, the sector with the largest calculated MPE% is Sector C. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
AT&T – Max Sector Value (Sector C)	4.06 %
Nextel	0.24 %
Sprint	3.45 %
Clearwire	0.08 %
MetroPCS	0.94 %
Bloomfield PD	0.01 %
Municipal Ant. 1	0.17 %
Municipal Ant. 2	0.17 %
Municipal MW 1	0.00 %
Municipal MW 2	0.00 %
Site Total MPE %:	9.12 %

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	3.80 %
AT&T Sector B Total:	3.80 %
AT&T Sector C Total:	4.06 %
Site Total:	9.12 %

Table 5: Site MPE Summary



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, the sector with the largest calculated MPE% is Sector C.

AT&T _ Frequency Band / Technology Max Power Values (Sector C)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS (Antenna 1)	1	418.91	168	0.57	850 MHz	567	0.10%
AT&T 1900 MHz (PCS) UMTS (Antenna 1)	1	816.81	168	1.12	1900 MHz (PCS)	1000	0.11%
AT&T 850 MHz LTE (Antenna 2)	2	865.09	168	2.37	850 MHz	567	0.42%
AT&T 700 MHz LTE (Antenna 2)	2	719.55	168	1.97	700 MHz	467	0.42%
AT&T 2300 MHz (WCS) LTE (Antenna 2)	4	937.82	168	5.14	2300 MHz (WCS)	1000	0.51%
AT&T 700 MHz LTE (Antenna 3)	4	736.31	168	4.03	700 MHz	467	0.86%
AT&T 2100 MHz (AWS) LTE (Antenna 3)	4	1,180.65	168	6.47	2100 MHz (AWS)	1000	0.65%
AT&T 700 MHz LTE (Antenna 4)	2	788.97	168	2.16	700 MHz	467	0.46%
AT&T 1900 MHz (PCS) LTE (Antenna 4)	4	948.55	168	5.20	1900 MHz (PCS)	1000	0.52%
						Total:	4.06%

Table 6: AT&T Maximum Sector MPE Power Values



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.80 %
Sector B:	3.80 %
Sector C:	4.06 %
AT&T Maximum Total (Sector C):	4.06 %
Site Total:	9.12 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **9.12 %** of the allowable FCC established general population 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.

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is positioned above the printed name.

Scott Heffernan

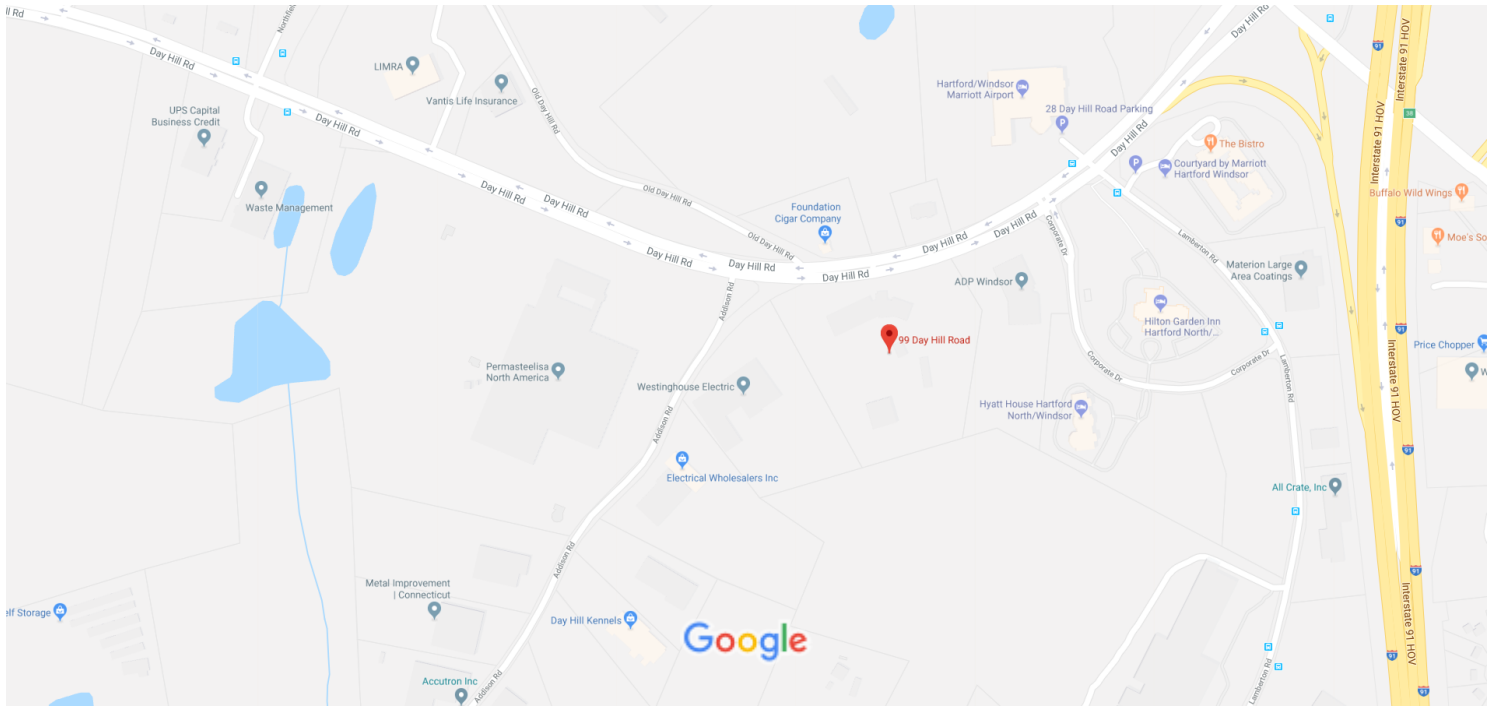
RF Engineering Director

Centerline Communications, LLC

95 Ryan Drive, Suite 1

Raynham, MA 02767

Exhibit 4



Map data ©2018 Google 200 ft



99 Day Hill Rd
Windsor, CT 06095



At this location

Park Maintenance
Park · 99 Day Hill Rd





Windsor Public Works

Paving Contractor · 99 Day Hill Rd



Windsor Street Light & Sign

City Government Office · 99 Day Hill Rd



Property Cards

Address Search : 99 Day Hill Road

[Clear Search](#)

Your search returned multiple addresses

Additional addresses:

[99 DAY HILL RD](#)

99 Day Hill Rd

Property Owner:

Windsor Town Of

Property Co-Owner

Public Works Garage

Mailing Address:

275 Broad Street
Windsor, CT
06095

File Code

9310

Map:

42

Block:

108

Lot:

1

Census Tract:

4735.01

Property Type:

Municipal MDL-96

Land Area (Acres):

11.76

Zone:

NZ



[Click to Enlarge](#)

Construction Details

Year Built:

1982

Building Style:

Garage/Office

Stories:

1

Living Area:

0 Sq/Ft

Building ID

3417

Grade

Average

Exterior Wall

Pre-Finsh Metl

Total Rooms:

Bedrooms:

Bathrooms:

Half Baths:

Heating Type

Hot Air-No Duc

Heating Fuel

Gas

AC Type

None

Valuation

Assessed Land Value:
\$536,830

Assessed Building Value:
\$1,076,250

Total Assessed Value:
\$1,613,080

Appraised Land Value:
\$766,900

Appraised Building Value:
\$1,537,500

Total Appraised Value:
\$2,304,400

Last Sale

Last Sale Date:
Friday, November 4th, 1977

Last Sale Price:
\$0

Qualified Sale:

Book/Page:
334/0257

Prior Owners

Sale Date	Owner Name	Sale Price	Book / Page

Parcel Sketch



Sub Area Detail

Code	Gross Area (Sq Ft)	Living Area (Sq Ft)
BAS	36300	36300

Outbuildings & Extra Features

Code	Description	Appraised Value	Assessed Value
PAV1	PAVING-ASPHALT	\$16500.00	\$11550.00
FGR1	GARAGE-AVE	\$51300.00	\$35910.00
CNP2	GOOD QUALITY	\$38900.00	\$27230.00
SHD1	SHED FRAME	\$80000.00	\$56000.00

AOF Office Area	APT Apartment	BAS First Floor
CAN Canopy	CDN Canopy (Det)	CLP Loading Platform (Finished)
EAF Attic (Expan)(Finished)	EAU Attic (Expan)(Unfinished)	FAT Attic (Finished)
FBM Basement (Finished)	FCB Cabana (Encl)(Finished)	FCP Carport (Framed)
FDC Carport (Det)(Framed)	FDS Porch (Scrn)(Det)(Finished)	FDU Utility (Det)(Finished)
FEP Porch (Encl)(Finished)	FGR Garage (Framed)	FHS Half-Story (Finished)
FLL Lower Level (Finished)	FOP Porch (Open)(Finished)	FSP Porch (Screen)(Finished)
FST Utility (Finished)	FUS Upper-Story (Finished)	PTO Patio
SDA Store Display Area	SFB Base (Semi-Finished)	SPA Service Prod Area
TQS Three-Qtr Story	UAT Attic (Unfinished)	UBM Basement (Unfinished)

UCB Cabana (Encl)(Unfinished)

UEP Porch (Encl)(Unfinished)

UOP Porch (Open)(Unfinished)

UUS Upper-Story (Unfinished)

UDS Porch (Scrn)(Dedt)(Unfinished)

UHS Half-Story (Unfinished)

USP Porch (Scrn)(Unfinished)

WDK Wood Deck

UDU Utility (Det)(Unfinished)

ULP Loading Platform (Unfinished)

UST Utility (Strg)(Unfinished)

Property Cards

Address Search : 9310.01

[Submit](#)

[Clear Search](#)

99 Day Hill Rd

Property Owner:

Windsor Town Of

Property Co-Owner

C/O At&T Mobility

Mailing Address:

575 Morosgo Dr Suite 13-F
Atlanta, GA
30324

File Code

9310.01

Map:

42

Block:

108

Lot:

1D

Census Tract:

4735.01

Property Type:

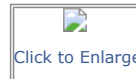
Cell Tower

Land Area (Acres):

0.05

Zone:

NZ



Construction Details

Year Built:

0

Building Style:

Stories:

Living Area:

0 Sq/Ft

Building ID

100453

Grade

Exterior Wall

Total Rooms:

Bedrooms:

Bathrooms:

Half Baths:

Heating Type

Heating Fuel

AC Type

Valuation

Assessed Land Value:
\$143,500

Assessed Building Value:
\$140,910

Total Assessed Value:
\$284,410

Appraised Land Value:
\$205,000

Appraised Building Value:
\$201,300

Total Appraised Value:
\$406,300

Last Sale

Last Sale Date:
Friday, November 4th, 1977

Last Sale Price:
\$0

Qualified Sale:

Book/Page:
334/0257

Prior Owners

Sale Date	Owner Name	Sale Price	Book / Page

Parcel Sketch




Sub Area Detail


Code	Gross Area (Sq Ft)	Living Area (Sq Ft)
------	--------------------	---------------------

Outbuildings & Extra Features

Code	Description	Appraised Value	Assessed Value
FN4	FENCE-8' CHAIN	\$1300.00	\$910.00
CB3	PerCastConCel	\$199500.00	\$139650.00

AOF Office Area	APT Apartment	BAS First Floor
CAN Canopy	CDN Canopy (Det)	CLP Loading Platform (Finished)
EAF Attic (Expan)(Finished)	EAU Attic (Expan)(Unfinished)	FAT Attic (Finished)
FBM Basement (Finished)	FCB Cabana (Encl)(Finished)	FCP Carport (Framed)
FDC Carport (Det)(Framed)	FDS Porch (Scrn)(Det)(Finished)	FDU Utility (Det)(Finished)
FEP Porch (Encl)(Finished)	FGR Garage (Framed)	FHS Half-Story (Finished)
FLL Lower Level (Finished)	FOP Porch (Open)(Finished)	FSP Porch (Screen)(Finished)
FST Utility (Finished)	FUS Upper-Story (Finished)	PTO Patio
SDA Store Display Area	SFB Base (Semi-Finished)	SPA Service Prod Area
TQS Three-Qtr Story	UAT Attic (Unfinished)	UBM Basement (Unfinished)
UCB Cabana (Encl)(Unfinished)	UDS Porch (Scrn)(Dedt)(Unfinished)	UDU Utility (Det)(Unfinished)
UEP Porch (Encl)(Unfinished)	UHS Half-Story (Unfinished)	ULP Loading Platform (Unfinished)
UOP Porch (Open)(Unfinished)	USP Porch (Scrn)(Unfinished)	UST Utility (Strg)(Unfinished)
UUS Upper-Story (Unfinished)	WDK Wood Deck	

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY																
<ul style="list-style-type: none"> ■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature <input checked="" type="checkbox"/> <i>Erita Jubrey</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p>																
<p>1. Article Addressed to:</p> <p>Mr. Eric Barz, AICP Planning Department 275 Broad Street Windsor, CT 06095</p>  <p>9590 9402 3676 7335 2345 71</p>	<p>B. Received by (Printed Name) C. Date of Delivery <i>Erita Jubrey</i></p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>																
<p>2. Article Number (Transfer from service label) 7016 3010 0000 7829 1407</p>	<p>3. Service Type</p> <table border="0"> <tr> <td><input type="checkbox"/> Adult Signature</td> <td><input type="checkbox"/> Priority Mail Express®</td> </tr> <tr> <td><input type="checkbox"/> Adult Signature Restricted Delivery</td> <td><input type="checkbox"/> Registered Mail™</td> </tr> <tr> <td><input checked="" type="checkbox"/> Certified Mail®</td> <td><input type="checkbox"/> Registered Mail Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Certified Mail Restricted Delivery</td> <td><input type="checkbox"/> Return Receipt for Merchandise</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery</td> <td><input type="checkbox"/> Signature Confirmation™</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery Restricted Delivery</td> <td><input type="checkbox"/> Signature Confirmation Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Insured Mail</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)</td> <td></td> </tr> </table>	<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®	<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™	<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery	<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise	<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™	<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery	<input type="checkbox"/> Insured Mail		<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)	
<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®																
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™																
<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery																
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<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™																
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery																
<input type="checkbox"/> Insured Mail																	
<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)																	
<p>PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt</p>																	

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY																
<ul style="list-style-type: none"> ■ Complete items 1, 2, and 3. ■ Print your name and address on the reverse so that we can return the card to you. ■ Attach this card to the back of the mailpiece, or on the front if space permits. 	<p>A. Signature <input checked="" type="checkbox"/> <i>Erita Jubrey</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p>																
<p>1. Article Addressed to:</p> <p>The Honorable Donald Trinks, Mayor 275 Broad Street Windsor, CT 06095</p>  <p>9590 9402 3676 7335 2345 88</p>	<p>B. Received by (Printed Name) C. Date of Delivery <i>Erita Jubrey</i></p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>																
<p>2. Article Number (Transfer from service label) 7016 3010 0000 7829 1384</p>	<p>3. Service Type</p> <table border="0"> <tr> <td><input type="checkbox"/> Adult Signature</td> <td><input type="checkbox"/> Priority Mail Express®</td> </tr> <tr> <td><input type="checkbox"/> Adult Signature Restricted Delivery</td> <td><input type="checkbox"/> Registered Mail™</td> </tr> <tr> <td><input checked="" type="checkbox"/> Certified Mail®</td> <td><input type="checkbox"/> Registered Mail Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Certified Mail Restricted Delivery</td> <td><input type="checkbox"/> Return Receipt for Merchandise</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery</td> <td><input type="checkbox"/> Signature Confirmation™</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery Restricted Delivery</td> <td><input type="checkbox"/> Signature Confirmation Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Insured Mail</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)</td> <td></td> </tr> </table>	<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®	<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™	<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery	<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise	<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™	<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery	<input type="checkbox"/> Insured Mail		<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)	
<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®																
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™																
<input checked="" type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery																
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Return Receipt for Merchandise																
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation™																
<input type="checkbox"/> Collect on Delivery Restricted Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery																
<input type="checkbox"/> Insured Mail																	
<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)																	
<p>PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt</p>																	

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. Robert Ruzzo
 Building Department
 275 Broad Street
 Windsor, CT 06095



9590 9402 3676 7335 2345 40

2. Article Number (Transfer from service label)

7016 3010 0000 7829 1391

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *Enita Labry*

-
- Agent
-
-
- Addressee

B. Received by (Printed Name)

Enita Labry

C. Date of Delivery

 D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

- | | |
|--|---|
| <input type="checkbox"/> Adult Signature | <input type="checkbox"/> Priority Mail Express® |
| <input type="checkbox"/> Adult Signature Restricted Delivery | <input type="checkbox"/> Registered Mail™ |
| <input checked="" type="checkbox"/> Certified Mail® | <input type="checkbox"/> Registered Mail Restricted Delivery |
| <input type="checkbox"/> Certified Mail Restricted Delivery | <input type="checkbox"/> Return Receipt for Merchandise |
| <input type="checkbox"/> Collect on Delivery | <input type="checkbox"/> Signature Confirmation™ |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail | |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) | |

PS Form 3811, July 2015 PSN 7530-02-000-9053

Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Paul Pedicone, Project Manager
 CROWN CASTLE USA INC
 3 Corporate Park Drive, Suite 101
 Clifton Park, NY 12065



9590 9402 3676 7335 2345 57

2. Article Number (Transfer from service label)

7016 3010 0000 7829 1414

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *Elizabeth Burns*

-
- Agent
-
-
- Addressee

B. Received by (Printed Name)

Sweeney

C. Date of Delivery

5/14
 D. Is delivery address different from item 1? Yes
 If YES, enter delivery address below: No

3. Service Type

- | | |
|--|---|
| <input type="checkbox"/> Adult Signature | <input type="checkbox"/> Priority Mail Express® |
| <input type="checkbox"/> Adult Signature Restricted Delivery | <input type="checkbox"/> Registered Mail™ |
| <input checked="" type="checkbox"/> Certified Mail® | <input type="checkbox"/> Registered Mail Restricted Delivery |
| <input type="checkbox"/> Certified Mail Restricted Delivery | <input type="checkbox"/> Return Receipt for Merchandise |
| <input type="checkbox"/> Collect on Delivery | <input type="checkbox"/> Signature Confirmation™ |
| <input type="checkbox"/> Collect on Delivery Restricted Delivery | <input type="checkbox"/> Signature Confirmation Restricted Delivery |
| <input type="checkbox"/> Insured Mail | |
| <input type="checkbox"/> Insured Mail Restricted Delivery (over \$500) | |

PS Form 3811, July 2015 PSN 7530-02-000-9053

Domestic Return Receipt