October 11, 2019

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

Re:	**Notice of Exempt Modification – Antenna and RRU Add**
Property Address:	**44 Gavitt Road, Barkhamstead, CT 06063**
Applicant:	**AT&T Mobility, LLC**

Dear Ms. Bachman:

On behalf of AT&T, 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).

AT&T currently maintains a wireless telecommunications facility consisting of twelve (12) wireless telecommunication antennas at an antenna center line height of 167-feet on an existing 170-foot monopole, owned by SBA at 8051 Congress Ave, Boca Raton, FL 33487. AT&T now intends to remove three (3) 4' Kathrein 7770 Panel Antennas, two (2) 6' KMW AM-X-CD-16-65-00T-RET Panel antennas, and one (1) 6' Kathrein 800-10764 Panel Antennas, each currently installed in position [3 + 4], all sectors. Swap these for two (2) 6' CCI HPA-65R-BU6AA panel Antennas in position [3] Alpha and Beta sectors only, two (2) 6' CCI DMP65R-BU6DA Panel Antennas in position [4] Alpha and Beta sectors only, one (1) 5' Commscope SBNHH-1D65A Panel Antenna in position [3] Gamma sector only, and one (1) 4' CCI DMP65R-BU4DA Panel Antenna in position [4] Gamma sector only. In addition, AT&T intends to remove six (6) RRUS-11, and to add one (1) RRUS-8843 B2/B66A and (1) RRUS-4449 B5/B12 in position [3+4], all sectors, for a total of six (6) new RRUs. AT&T is also proposing to add (1) Raycap Squid, as well as one (1) fiber line and (2) DC Power Cables to their equipment configuration. All the changes will take place on a new antenna mount.

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

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-5I0j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to David Langworthy – Building Inspector, Town of Barkhamsted, CT at 67 Ripley Hill Road Barkhamsted, CT 06063 and Donald S. Stein – First Selectman, Town of Barkhamsted, CT at 67 Ripley Hill Road Barkhamsted, CT 06063. A copy of this letter is being sent to the property owner Karen J & Richard J Langer at 44 Gavitt Road, Barkhamsted, CT 06063 and to the tower company, SBA at 8051 Congress Ave, Boca Raton, FL 33487.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-CING-005-121126** –New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 44 Gavitt Road, Barkhamsted, Connecticut.

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).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 105-foot level of the 147-foot self-support tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the noise levels 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 the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in Tab 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Kristina Cottone

CC w/enclosures:
David Langworthy – Building Inspector, Town of Barkhamstead, CT
Donald S. Stein – First Selectman, Town of Barkhamstead, CT
Karen J & Richard J Langer – Property Owners
SBA – Tower Company

Property Location: 44 GAVITT RD | **MAP ID:** 26/ 33/ 15/A / | **Bldg Name:** | **State Use:** 101

Vision ID: 616 | **Account #** 00061500 | **Bldg #:** 1 of 2 | **Sec #:** 1 of 1 | **Card** 1 of 2 | **Print Date:** 05/13/2019 20:39

CURRENT OWNER	TOPO.	UTILITIES	STRT./ROAD	LOCATION
LANGER KAREN J & RICHARD J	4 Rolling		1 Public	
44 GAVITT RD				
BARKHAMSTED, CT 06063				
Additional Owners:				

SUPPLEMENTAL DATA

Other ID: 26-33-15A	DV Lot #
B.P. Status	Solar Energy
Census Tr.	BAA
Interior	Callback
100 Yr Flood	PA490 Date: 3/18/1977
DV Map #	
GIS ID:	ASSOC PID#

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
RES LAND	1-1	70,810	49,570
DWELLING	1-3	270,880	189,620
IND LAND	3-1	235,000	164,500
IND IMPR	3-3	15,600	10,920
FOREST	6-2	135,560	5,690
	Total	727,850	420,300

6005
BARKHAMSTED, CT

VISION

RECORD OF OWNERSHIP

	BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
LANGER KAREN J & RICHARD J	110/ 799	02/14/2001		V	0	
LANGER KAREN J	99/1014	09/09/1996		V	41,250	

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2018	1-1	49,570	2017	1-1	47,210	2016	1-1	47,210
2018	1-3	189,620	2017	1-3	197,040	2016	1-3	197,040
2018	3-1	164,500	2017	3-1	164,500	2016	3-1	164,500
2018	3-3	10,920	2017	3-3	10,500	2016	3-3	10,500
2018	6-2	5,690	2017	6-2	3,080	2016	6-2	3,080
	Total:	420,300		Total:	422,330		Total:	422,330

This signature acknowledges a visit by a Data Collector or Assessor

ASSESSING NEIGHBORHOOD

NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

APPRAISED VALUE SUMMARY

Appraised Bldg. Value (Card)	270,880
Appraised XF (B) Value (Bldg)	0
Appraised OB (L) Value (Bldg)	0
Appraised Land Value (Bldg)	70,810
Special Land Value	135,560
Total Appraised Parcel Value	727,850
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	727,850

NOTES

RD 30'

2010 = LAND LEASE AREA FOR CELL TOWER

2011 UC = 70%

7/12/2012 CO = GARAGE UC

10/2012 = 95% (NO GARAGE DOORS)

POST & BEAM

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date of CO	Comments
2398	05/15/2013	EL	Electric	3,500		0		FOR EQUIPMENT SHELTER
13-05-18	05/06/2013	OT	Other	224,000		0	07/30/2013	INSTALL 12'X30' PREFAB EQUIP SHELTER
13-01-06	01/23/2013	OT	Other	25,000		0		3 new antennas etc
280	11/17/2011	OT	Other	3,000	07/12/2012	100		underground 1000 gal tank
247	10/21/2011	WS	Wood Stve	2,000	07/12/2012	100	10/26/2011	
2175	05/25/2011	EL	Electric	10,000	07/12/2012	100	10/12/2012	
1135	05/25/2011	OT	Other	15,000	07/12/2012	100	10/12/2012	heat

VISIT/ CHANGE HISTORY

Date	ID	Cd.	Purpose/Result
06/28/2018	MVS	33	Datamailer sent
08/12/2013	ES	12	Permit - Measure Exterior
07/02/2013	FB	20	Info at assessors office
10/02/2012	FB	50	Field Review
07/12/2012	FB	00	Meas. and List

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	Front	Depth	Units	Unit Price	I. Factor	S.A.	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing Spec Use	Special Pricing Spec Calc	S Adj Fact	Adj. Unit Price	Land Value
1	101	Single Family	RA-2			2.00 AC	61,963.00	0.5714	5	1.00	5	1.00		490 240		1.00		70,810
1	610	Forest	RA-2			33.89 AC	4,000.00	1.0000	0	1.00		0.00	PENALTY EXP 03/18/1987			1.00		135,560

Total Card Land Units: 35.89 AC | **Parcel Total Land Area:** 36 AC | **Total Land Value:** 206,370

Property Location: 44 GAVITT RD **MAP ID:** 26/ 33/ 15/A / **Bldg Name:** **State Use:** 101

Vision ID: 616 **Account #** 00061500 **Bldg #:** 1 of 2 **Sec #:** 1 of 1 **Card** 1 of 2 **Print Date:** 05/13/2019 20:39

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Style	04		Cape Cod
Model	01		Residential
Grade	11		B
Occupancy	1		
Exterior Wall 1	25		Vinyl Siding
Exterior Wall 2	08		Wood
Roof Structure	03		Gable
Roof Cover	07		Arch. Shingles
Interior Wall 1	05		Drywall
Interior Wall 2			
Interior Flr 1	09		Pine/Soft Wood
Interior Flr 2			
Heat Fuel	03		Gas
Heat Type	08		Radiant
AC Type			
Total Bedrooms	02		2 Bedrooms
Total Bthrms	3		3 Full
Total Half Baths			
Total Rooms	6		
Bath Style	02		Average
Kitchen Style	02		Average
Fireplace	1		
Whirlpool Tubs			
Fin Basement			
Fin Bsmt Qual			
Bsmt. Garages			

CONSTRUCTION DETAIL (CONTINUED)

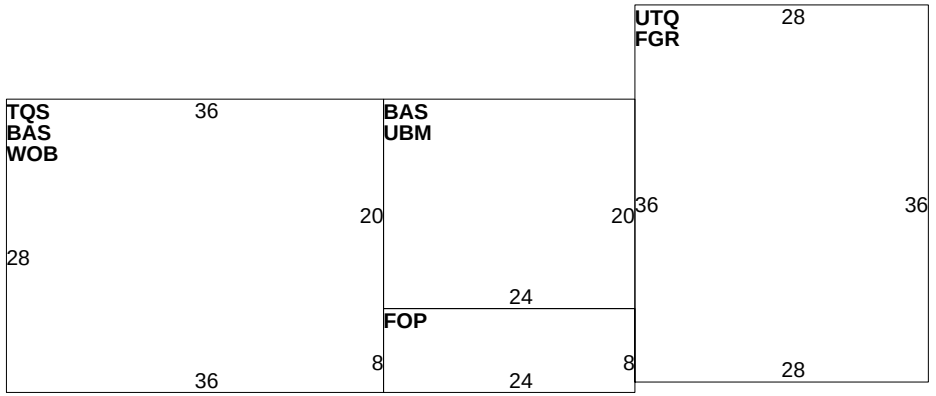
Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
101	Single Family	100

COST/MARKET VALUATION

Adj. Base Rate:	86.25
Replace Cost	291,271
AYB	2011
Dep Code	A
Remodel Rating	
Year Remodeled	
Dep %	7
Functional Obslnc	
External Obslnc	
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	93
Apprais Val	270,880
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	



OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area
BAS	First Floor	1,488	1,488
FGR	Garage	0	1,008
FOP	Framed Open Porch	0	192
TQS	Three Quarter Story	907	1,008
UBM	Unfin Basement	0	480
UTQ	Unfin Three Qrt St	0	1,008
WOB	Walk Out Bsmt.	0	1,008
	Ttl. Gross Liv/Lease Area:	2,395	6,192

Property Location: 44 GAVITT RD | **MAP ID:** 26/ 33/ 15/A / | **Bldg Name:** | **State Use:** 101

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Census Tr.	BAA
Interior	Callback
100 Yr Flood	PA490 Date: 3/18/1977
DV Map #	
GIS ID:	*ASSOC PID#*

CURRENT ASSESSMENT

Description	Code	Appraised Value	Assessed Value
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Appraised OB (L) Value (Bldg)	15,600
Appraised Land Value (Bldg)	235,000
Special Land Value	0
Total Appraised Parcel Value	727,850
Valuation Method:	C
Adjustment:	0
Net Total Appraised Parcel Value	727,850

NOTES

8/2013 VOL 162/832 SBA TOWERS V LLC
VERIZON=12X30 PRE FAB SHELTER, 12 PANEL
ANTENNA & GENERATOR
AT&T= 12X20 MASONARY SHLTER
SBA OWNS TOWER, SITE ID# CT11709
TOWER ASSESSED AS PERS PROP

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date of CO	Comments

VISIT/ CHANGE HISTORY

Date	ID	Cd.	Purpose/Result
06/28/2018	MVS	33	Datamailer sent
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07/12/2012	FB	00	Meas. and List

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	Front	Depth	Units		Unit Price	I. Factor	S.A.	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing Spec Use	Special Pricing Spec Calc	S Adj Fact	Adj. Unit Price	Land Value
2	350	Cell Tower				0.11	AC	73,080.00	1.0000		1.00		0.00	CELL TOWER SITE			1.00		235,000

Total Card Land Units: 0.11 AC | **Parcel Total Land Area:** 36 AC | **Total Land Value:** 235,000

CONSTRUCTION DETAIL

Element	Cd.	Ch.	Description
Model	00		Vacant

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description

MIXED USE

Code	Description	Percentage
350	Cell Tower	100

COST/MARKET VALUATION

Adj. Base Rate:	0.00
Replace Cost	0
AYB	
Dep Code	
Remodel Rating	
Year Remodeled	
Dep %	
Functional Obslnc	
External Obslnc	
Cost Trend Factor	
Condition	
% Complete	
Overall % Cond	
Apprais Val	
Dep % Ovr	0
Dep Ovr Comment	
Misc Imp Ovr	0
Misc Imp Ovr Comment	
Cost to Cure Ovr	0
Cost to Cure Ovr Comment	

OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)

Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value
SHD4	Cell Equip	FR	Frame	L	240	26.00	2013		0		100	6,240
SHD4	Cell Equip	FR	Frame	L	360	26.00	2013		0		100	9,360

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area
	Ttl. Gross Liv/Lease Area:	0	0

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 170 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT11709-S

Customer Site Name: Barkhamsted, CT

Carrier Name: AT&T (App#: 123321, V2)

Carrier Site ID / Name: CTL01280 / Barkhamsted Gavitt Road

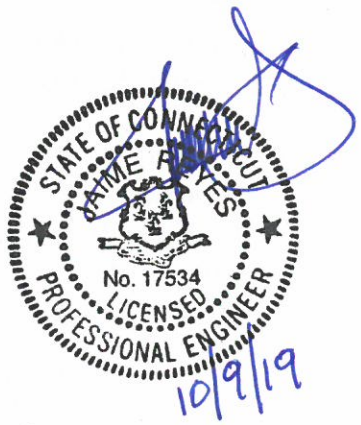
Site Location: 44 Gavitt Road

Barkhamsted, Connecticut

Litchfield County

Latitude: 41.946083

Longitude: -72.911472



Analysis Result:

Max Structural Usage: 50.9% [Pass]

Max Foundation Usage: 47.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Younus Alkarawi

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 170 ft Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT11709-S

Customer Site Name: Barkhamsted, CT

Carrier Name: AT&T (App#: 123321, V2)

Carrier Site ID / Name: CTL01280 / Barkhamsted Gavitt Road

Site Location: 44 Gavitt Road

Barkhamsted, Connecticut

Litchfield County

Latitude: 41.946083

Longitude: -72.911472

Analysis Result:

Max Structural Usage: 50.9% [Pass]

Max Foundation Usage: 47.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Younus Alkarawi

Introduction

The purpose of this report is to summarize the analysis results on the 170 ft Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	DaVinci #10243-1207, Dated 4/5/2010
Foundation Drawing	DaVinci #10243-1207, Dated 4/5/2010
Geotechnical Report	Tower Engineering Professionals, Inc #100484.01, Dated 2/3/2010
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.177, S_1 = 0.065

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	167.0	9	Powerwave P90-15-XLH-RR - Panel	Platform SitePro # RMQP-496-HK	(12) 1 5/8" (2) 1/2" (2) 3" Conduit (2) 3/4" DC	AT&T
-		2	KMW AM-X-CD-16-65-00T			
-		1	Kathrein 800 10794			
-		6	Powerwave TT08-19DB111-001 TMA			
-		6	Ericsson RRUS 11			
-		3	Andrew ABT-DF-DMADBH Bias-T			
-		2	Raycap DC6-48-60-18-8F			
12	157.0	6	Antel BXA-171063-12CF - Panel	12' Low Profile Platform	(18) 1 5/8"	Verizon
13		6	Antel BXA-70063-6CF - Panel			
14		3	Alcatel Lucent RRH 2x40-AWS			
15		3	Alcatel Lucent RRH 2x40-700			
16		1	RFS DB-T1-6Z-8AB-0Z			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	167.0	3	Powerwave P90-15-XLH-RR - Panel	Platform SitePro # RMQP-496-HK	(12) 1 5/8" (2) 1/2" (2) 3" Conduit*	AT&T
2		6	Powerwave TT08-19DB111-001 TMA			
3		3	Andrew ABT-DF-DMADBH			
4		2	Raycap DC6-48-60-18-8F			
5		2	CCI HPA-65R-BU6AA - Panel			
6		1	Andrew SBNHH-1D65A - Panel			
7		2	CCI DMP65R-BU6DA - Panel			
8		1	CCI DMP65R-BU4DA - Panel			
9		3	Powerwave 7770 - Panel			
10		3	Ericsson RRUS 8843 B2 B66A			
11		3	Ericsson RRUS 4449 B5/B12			

* Conduit 1: Holds (1) existing 7/16" Fiber Line + (2) existing 3/4" DC Cables

Conduit 2: Holds (1) proposed 7/16" Fiber Line + (2) Proposed 3/4" DC Cables

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**50.9%**	**45.3%**	**43.6%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	4200.0	33.0
Analysis Reactions	2635.5	22.1
Factored Reactions*	5670.0	44.6
% of Design Reactions	46.5%	49.7%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.8974 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-G Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

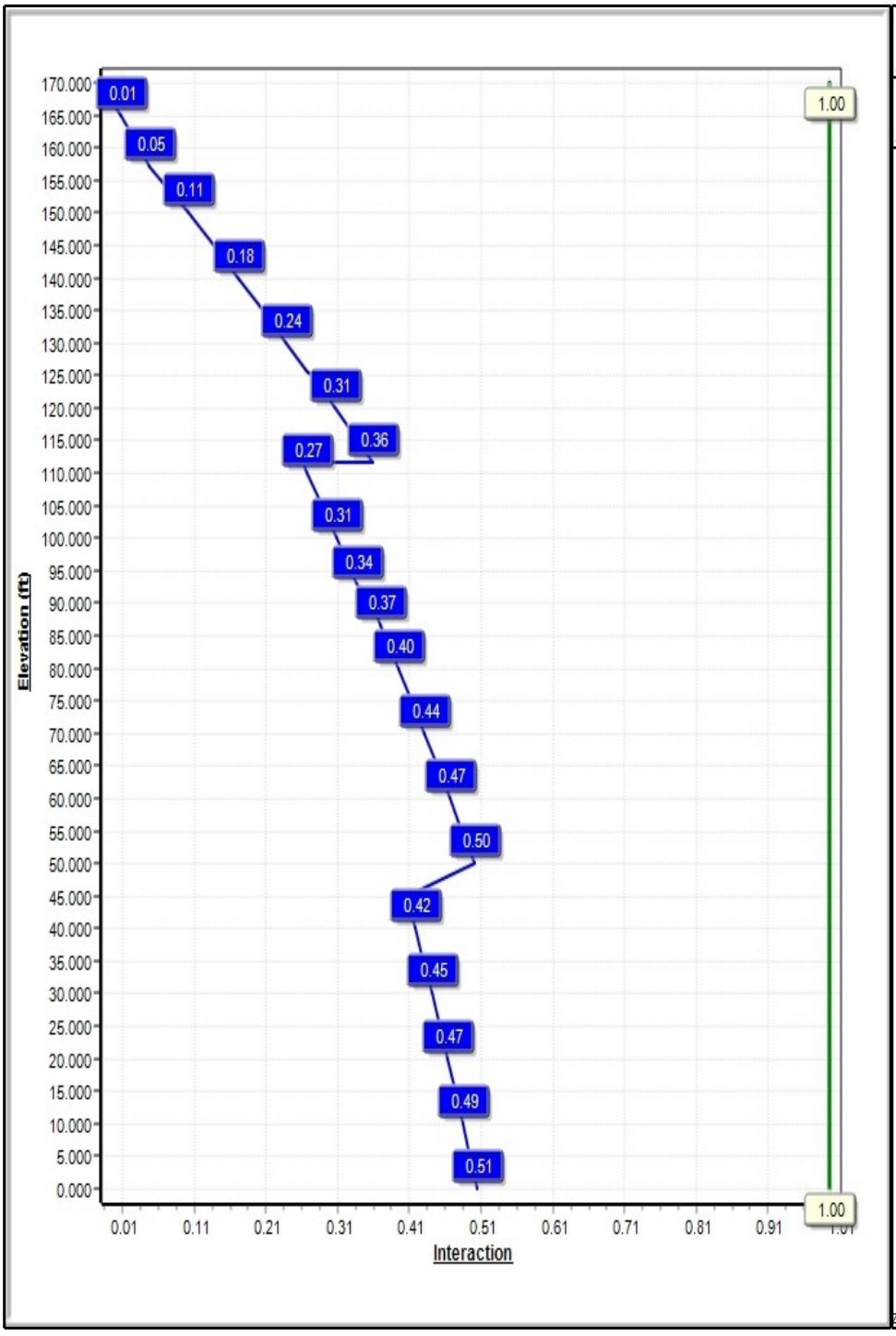
Usage Diagram - Max Ratio 50.86% at 0.0ft

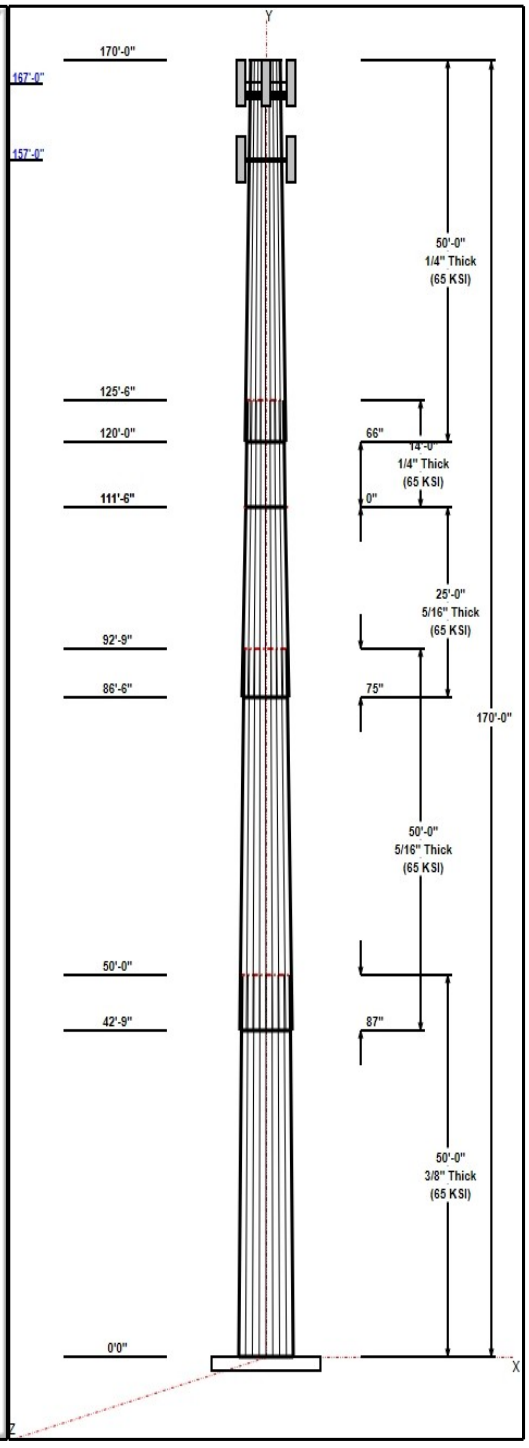
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Gh:**	1.1		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	24
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 93 mph Wind





Structure: CT11709-S-SBA

Type: Tapered
Site Name: Barkhamsted, CT
Height: 170.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.17250

10/9/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	50.05	58.67	0.375		0.17250	65
2	50.00	43.30	51.92	0.313	Slip	0.17250	65
3	25.00	40.69	45.00	0.313	Slip	0.17250	65
4	14.00	38.27	40.69	0.250	Butt	0.17250	65
5	50.00	31.10	39.72	0.250	Slip	0.17250	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
167.00	167.00	3	Powerwave	AT&T
167.00	167.00	6	Powerwave	AT&T
167.00	167.00	3	Andrew ABT-DFDM-ADBH	AT&T
167.00	167.00	2	Raycap DC6-48-60-18-8F	AT&T
167.00	167.00	1	RMQP-496-HK	AT&T
167.00	167.00	2	CCI HPA-65R-BU6AA	AT&T
167.00	167.00	1	Andrew SBNHH-1D65A	AT&T
167.00	167.00	2	CCI DMP65R-BU6DA	AT&T
167.00	167.00	1	CCI DMP65R-BU4DA	AT&T
167.00	167.00	3	Powerwave 7770	AT&T
167.00	167.00	3	Ericsson RRUS 8843 B2	AT&T
167.00	167.00	3	Ericsson RRUS 4449	AT&T
157.00	157.00	6	Antel BXA-171063/12CF	Verizon
157.00	157.00	6	Antel BXA-70063/6CF	Verizon
157.00	157.00	3	Alcatel Lucent RRH	Verizon
157.00	157.00	3	Alcatel Lucent RRH	Verizon
157.00	157.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
157.00	157.00	1	12' Low Profile Platform	Verizon

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	167.00	Inside	1 5/8" Coax	AT&T
0.00	167.00	Inside	1/2" Coax	AT&T
0.00	167.00	Inside	3" Conduit	AT&T
0.00	157.00	Inside	1 5/8" Coax	Verizon

Anchor Bolts

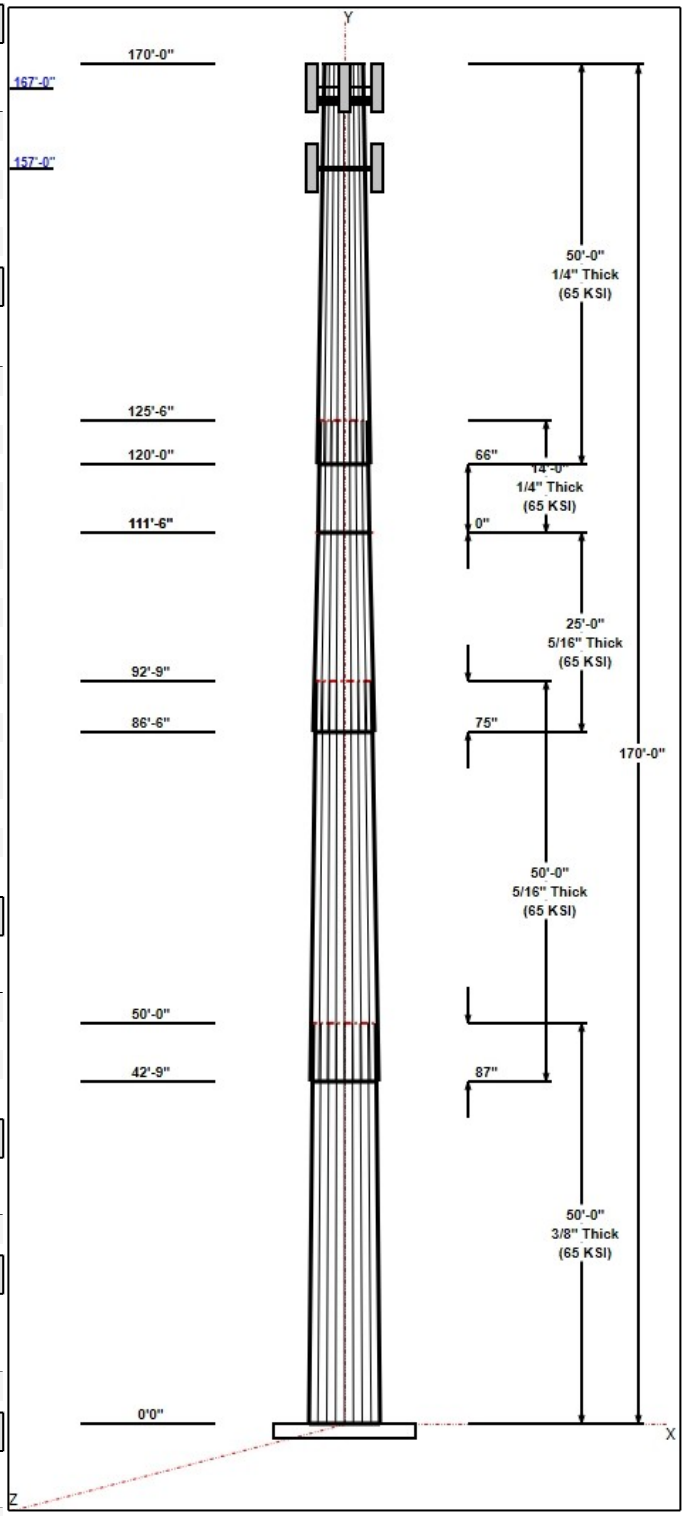
Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	72.0	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	2635.5	22.1	48.0
0.9D + 1.6W 93 mph Wind	2608.1	22.1	36.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	908.1	7.5	79.3
1.2D + 1.0E	264.4	1.9	48.0
0.9D + 1.0E	261.4	1.9	36.0



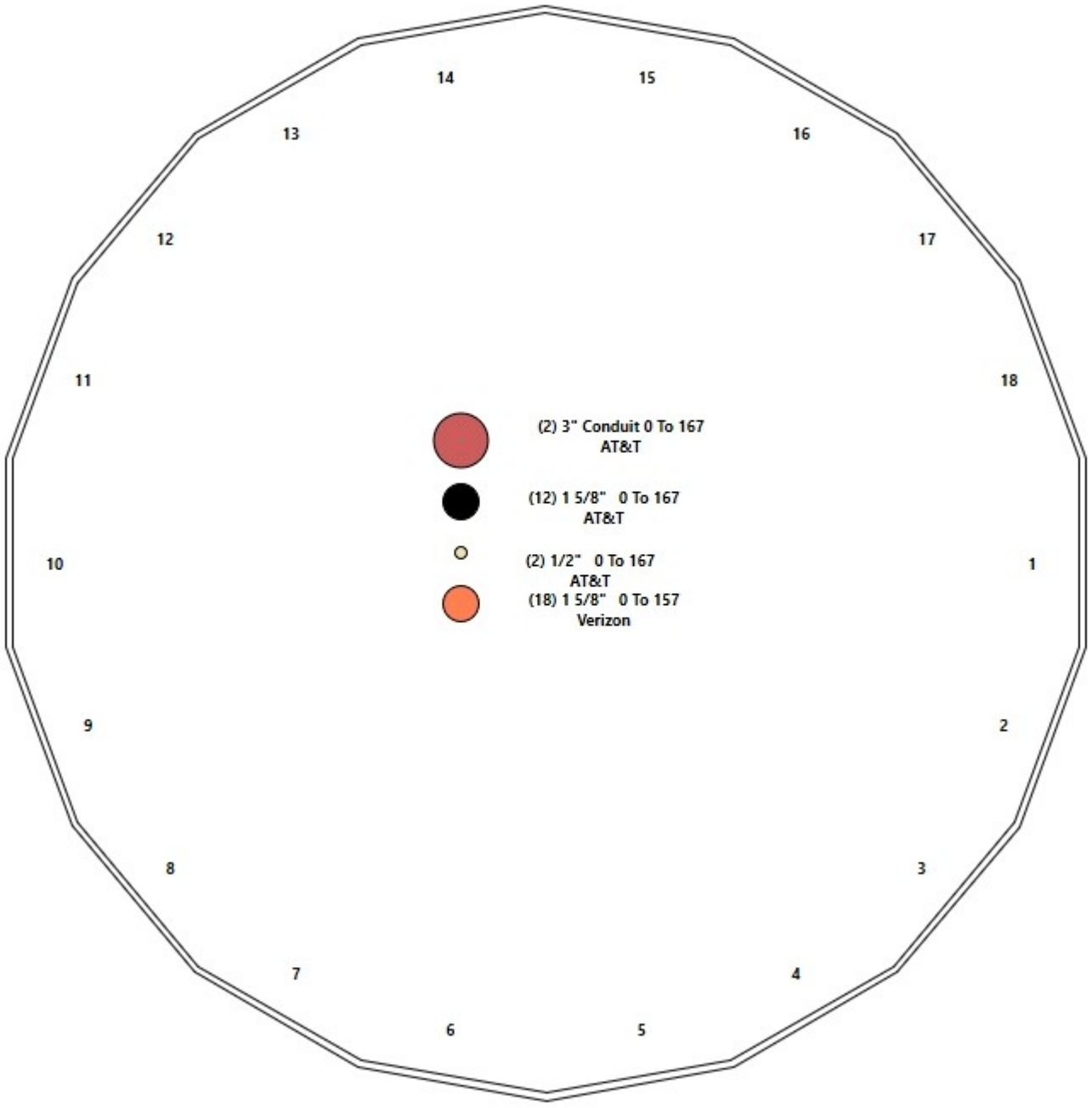
1.0D + 1.0W 60 mph Wind	681.1	5.8	40.0

Structure: CT11709-S-SBA - Coax Line Placement

Type: Monopole
Site Name: Barkhamsted, CT
Height: 170.00 (ft)

10/9/2019

Tower Engineering Solutions



Shaft Properties

Structure:	CT11709-S-SBA		**Code:**	EIA/TIA-222-G	10/9/2019
Site Name:	Barkhamsted, CT		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.3750	65		0.00	10,932
2	18	50.000	0.3125	65	Slip	87.00	7,981
3	18	25.000	0.3125	65	Slip	75.00	3,589
4	18	14.000	0.2500	65	Flange	0.00	1,483
5	18	50.000	0.2500	65	Slip	66.00	4,746
					Total Shaft Weight:		**28,731**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	58.67	0.00	69.38	29791.47	26.18	156.46	50.05	50.00	59.12	18428.2	22.12	133.4	0.172500
2	51.92	42.75	51.19	17225.58	27.89	166.15	43.30	92.75	42.63	9952.19	23.02	138.5	0.172500
3	45.00	86.50	44.32	11182.66	23.98	144.00	40.69	111.50	40.05	8247.53	21.55	130.2	0.172500
4	40.69	111.5	32.09	6628.71	27.29	162.75	38.27	125.50	30.17	5510.59	25.58	153.0	0.172500
5	39.72	120.0	31.32	6164.80	26.60	158.88	31.10	170.00	24.48	2942.26	20.52	124.3	0.172500

Load Summary

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	167.00	Powerwave P90-15-XLH-RR	3	53.00	8.16	0.75	275.44	11.937	0.75	0.00	0.00
2	167.00	Powerwave TT08-19DB111-001 TMA	6	22.00	0.92	0.90	57.87	1.916	0.90	0.00	0.00
3	167.00	Andrew ABT-DFDM-ADBH Surge Arr	3	1.10	0.05	0.98	4.11	0.309	0.98	0.00	0.00
4	167.00	Raycap DC6-48-60-18-8F Surge A	2	31.80	0.92	1.00	115.12	1.510	1.00	0.00	0.00
5	167.00	RMQP-496-HK	1	2449.00	46.00	1.00	5905.13	89.278	1.00	0.00	0.00
6	167.00	CCI HPA-65R-BU6AA	2	46.90	9.30	0.79	372.89	11.360	0.79	0.00	0.00
7	167.00	Andrew SBNHH-1D65A	1	33.50	5.88	1.00	262.13	7.370	1.00	0.00	0.00
8	167.00	CCI DMP65R-BU6DA	2	79.40	12.71	0.73	486.76	14.747	0.73	0.00	0.00
9	167.00	CCI DMP65R-BU4DA	1	67.90	7.23	1.00	504.47	8.733	1.00	0.00	0.00
10	167.00	Powerwave 7770	3	35.00	5.50	0.73	231.83	6.968	0.73	0.00	0.00
11	167.00	Ericsson RRUS 8843 B2 B66A	3	72.00	1.64	0.67	135.13	2.310	0.67	0.00	0.00
12	167.00	Ericsson RRUS 4449 B5/B12	3	71.00	1.97	0.67	142.94	2.708	0.67	0.00	0.00
13	157.00	Antel BXA-171063/12CF	6	15.00	4.78	0.84	143.35	7.940	0.84	0.00	0.00
14	157.00	Antel BXA-70063/6CF	6	17.00	7.57	0.70	206.81	11.272	0.70	0.00	0.00
15	157.00	Alcatel Lucent RRH 2x40-AWS RR	3	44.00	2.16	0.67	125.34	3.564	0.67	0.00	0.00
16	157.00	Alcatel Lucent RRH 2x40-700 RR	3	50.00	2.12	0.67	148.55	3.446	0.67	0.00	0.00
17	157.00	RFS DB-T1-6Z-8AB-0Z	1	18.90	4.80	1.00	223.29	5.997	1.00	0.00	0.00
18	157.00	12' Low Profile Platform	1	1500.00	22.00	1.00	3253.19	45.656	1.00	0.00	0.00
		Totals:	**50**	**5,687.80**			**17,735.97**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	167.00	(12) 1 5/8" Coax	0.00	Inside
0.00	167.00	(2) 1/2" Coax	0.00	Inside
0.00	167.00	(2) 3" Conduit	0.00	Inside
0.00	157.00	(18) 1 5/8" Coax	0.00	Inside

Shaft Section Properties

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	58.671	69.384	29791.5	26.18	156.46	70.6	1000.	0.0
5.00		0.3750	57.809	68.358	28488.6	25.77	154.16	71.1	970.6	1171.8
10.00		0.3750	56.946	67.331	27224.3	25.37	151.86	71.6	941.6	1154.3
15.00		0.3750	56.084	66.305	25998.0	24.96	149.56	72.0	913.0	1136.8
20.00		0.3750	55.221	65.278	24809.1	24.55	147.26	72.5	884.9	1119.4
25.00		0.3750	54.358	64.252	23657.0	24.15	144.96	73.0	857.2	1101.9
30.00		0.3750	53.496	63.225	22541.1	23.74	142.66	73.5	829.9	1084.4
35.00		0.3750	52.633	62.198	21460.8	23.34	140.36	74.0	803.1	1067.0
40.00		0.3750	51.771	61.172	20415.7	22.93	138.06	74.4	776.7	1049.5
42.75	Bot - Section 2	0.3750	51.297	60.607	19855.6	22.71	136.79	74.7	762.4	569.8
45.00		0.3750	50.908	60.145	19405.0	22.53	135.76	74.9	750.8	852.7
50.00	Top - Section 1	0.3125	50.671	49.948	16003.4	27.18	162.15	0.0	0.0	1871.7
55.00		0.3125	49.809	49.092	15195.1	26.69	159.39	70.0	600.9	842.5
60.00		0.3125	48.946	48.237	14414.5	26.21	156.63	70.6	580.0	828.0
65.00		0.3125	48.084	47.381	13661.2	25.72	153.87	71.1	559.6	813.4
70.00		0.3125	47.221	46.526	12934.5	25.23	151.11	71.7	539.5	798.9
75.00		0.3125	46.358	45.670	12234.0	24.75	148.35	72.3	519.8	784.3
80.00		0.3125	45.496	44.815	11559.4	24.26	145.59	72.9	500.4	769.8
85.00		0.3125	44.633	43.959	10910.0	23.77	142.83	73.4	481.4	755.2
86.50	Bot - Section 3	0.3125	44.375	43.703	10720.0	23.63	142.00	73.6	475.8	223.7
90.00		0.3125	43.771	43.104	10285.3	23.29	140.07	74.0	462.8	1041.2
92.75	Top - Section 2	0.3125	43.922	43.253	10392.7	23.37	140.55	0.0	0.0	808.1
95.00		0.3125	43.533	42.868	10117.6	23.15	139.31	74.2	457.8	329.7
100.00		0.3125	42.671	42.013	9523.9	22.67	136.55	74.7	439.6	722.1
105.00		0.3125	41.809	41.157	8953.9	22.18	133.79	75.3	421.8	707.5
110.00		0.3125	40.946	40.302	8407.1	21.69	131.03	75.9	404.4	693.0
111.50	Top - Section 3	0.3125	40.687	40.045	8247.5	21.55	130.20	76.1	399.3	205.1
111.50	Bot - Section 4	0.2500	40.687	32.086	6628.7	26.93	162.75	69.3	320.9	
115.00		0.2500	40.084	31.607	6336.2	26.86	160.33	69.8	311.3	379.3
120.00	Bot - Section 5	0.2500	39.221	30.922	5933.5	26.25	156.88	70.5	298.0	531.9
125.00		0.2500	38.358	30.238	5548.2	25.64	153.43	71.2	284.9	1047.3
125.50	Top - Section 4	0.2500	38.772	30.566	5730.9	25.94	155.09	0.0	0.0	103.5
130.00		0.2500	37.996	29.950	5391.3	25.39	151.98	71.5	279.5	463.3
135.00		0.2500	37.133	29.266	5030.1	24.78	148.53	72.3	266.8	503.8
140.00		0.2500	36.271	28.582	4685.5	24.17	145.08	73.0	254.4	492.1
145.00		0.2500	35.408	27.897	4356.9	23.56	141.63	73.7	242.4	480.5
150.00		0.2500	34.546	27.213	4044.0	22.95	138.18	74.4	230.6	468.8
155.00		0.2500	33.683	26.529	3746.5	22.35	134.73	75.1	219.1	457.2
157.00		0.2500	33.338	26.255	3631.7	22.10	133.35	75.4	214.6	179.6
160.00		0.2500	32.821	25.844	3464.0	21.74	131.28	75.8	207.9	265.9
165.00		0.2500	31.958	25.160	3196.0	21.13	127.83	76.5	197.0	433.9
167.00		0.2500	31.613	24.886	3092.8	20.89	126.45	76.8	192.7	170.3
170.00		0.2500	31.096	24.475	2942.3	20.52	124.38	77.3	186.4	251.9
										28730.9

Wind Loading - Shaft

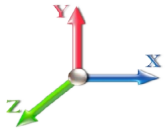
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	14.724	16.20	386.30	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	380.62	0.650	0.000	5.00	24.641	16.02	415.1	0.0	1406.1
10.00		1.00	0.70	14.724	16.20	374.94	0.650	0.000	5.00	24.276	15.78	408.9	0.0	1385.2
15.00		1.00	0.70	14.724	16.20	369.26	0.650	0.000	5.00	23.911	15.54	402.8	0.0	1364.2
20.00		1.00	0.70	14.724	16.20	363.58	0.650	0.000	5.00	23.546	15.31	396.6	0.0	1343.2
25.00		1.00	0.70	14.724	16.20	357.90	0.650	0.000	5.00	23.181	15.07	390.5	0.0	1322.3
30.00		1.00	0.70	14.736	16.21	352.37	0.650	0.000	5.00	22.816	14.83	384.6	0.0	1301.3
35.00		1.00	0.73	15.400	16.94	354.41	0.650	0.000	5.00	22.451	14.59	395.5	0.0	1280.4
40.00		1.00	0.76	15.999	17.60	355.32	0.650	0.000	5.00	22.086	14.36	404.2	0.0	1259.4
42.75	Bot - Section 2	1.00	0.78	16.306	17.94	355.42	0.650	0.000	2.75	11.992	7.79	223.7	0.0	683.7
45.00		1.00	0.79	16.546	18.20	355.33	0.650	0.000	2.25	9.849	6.40	186.4	0.0	1023.2
50.00	Top - Section 1	1.00	0.81	17.052	18.76	354.60	0.650	0.000	5.00	21.621	14.05	421.8	0.0	2246.0
55.00		1.00	0.83	17.523	19.28	357.76	0.650	0.000	5.00	21.256	13.82	426.1	0.0	1011.0
60.00		1.00	0.85	17.964	19.76	355.96	0.650	0.000	5.00	20.891	13.58	429.3	0.0	993.6
65.00		1.00	0.87	18.380	20.22	353.71	0.650	0.000	5.00	20.526	13.34	431.6	0.0	976.1
70.00		1.00	0.89	18.773	20.65	351.06	0.650	0.000	5.00	20.161	13.10	433.0	0.0	958.6
75.00		1.00	0.91	19.147	21.06	348.07	0.650	0.000	5.00	19.796	12.87	433.6	0.0	941.2
80.00		1.00	0.93	19.503	21.45	344.75	0.650	0.000	5.00	19.432	12.63	433.5	0.0	923.7
85.00		1.00	0.94	19.844	21.83	341.16	0.650	0.000	5.00	19.067	12.39	432.8	0.0	906.2
86.50	Bot - Section 3	1.00	0.95	19.943	21.94	340.03	0.650	0.000	1.50	5.649	3.67	128.9	0.0	268.5
90.00		1.00	0.96	20.170	22.19	337.31	0.650	0.000	3.50	13.238	8.60	305.5	0.0	1249.5
92.75	Top - Section 2	1.00	0.97	20.345	22.38	335.09	0.650	0.000	2.75	10.276	6.68	239.2	0.0	969.7
95.00		1.00	0.97	20.484	22.53	338.08	0.650	0.000	2.25	8.325	5.41	195.1	0.0	395.6
100.00		1.00	0.99	20.787	22.87	333.82	0.650	0.000	5.00	18.236	11.85	433.7	0.0	866.5
105.00		1.00	1.00	21.079	23.19	329.36	0.650	0.000	5.00	17.871	11.62	430.9	0.0	849.0
110.00		1.00	1.02	21.361	23.50	324.72	0.650	0.000	5.00	17.506	11.38	427.8	0.0	831.6
111.50	Top - Section 3	1.00	1.02	21.443	23.59	323.29	0.650	0.000	1.50	5.181	3.37	127.1	0.0	246.1
115.00		1.00	1.03	21.634	23.80	319.90	0.650	0.000	3.50	11.961	7.77	296.0	0.0	455.1
120.00	Bot - Section 5	1.00	1.04	21.898	24.09	314.93	0.650	0.000	5.00	16.777	10.90	420.3	0.0	638.3
125.00		1.00	1.05	22.155	24.37	309.80	0.650	0.000	5.00	16.623	10.81	421.3	0.0	1256.8
125.50	Top - Section 4	1.00	1.05	22.181	24.40	309.28	0.650	0.000	0.50	1.642	1.07	41.7	0.0	124.1
130.00		1.00	1.07	22.405	24.65	308.60	0.650	0.000	4.50	14.616	9.50	374.6	0.0	556.0
135.00		1.00	1.08	22.648	24.91	303.22	0.650	0.000	5.00	15.893	10.33	411.8	0.0	604.5
140.00		1.00	1.09	22.884	25.17	297.72	0.650	0.000	5.00	15.529	10.09	406.5	0.0	590.5
145.00		1.00	1.10	23.115	25.43	292.11	0.650	0.000	5.00	15.164	9.86	401.0	0.0	576.6
150.00		1.00	1.11	23.340	25.67	286.37	0.650	0.000	5.00	14.799	9.62	395.1	0.0	562.6
155.00		1.00	1.12	23.560	25.92	280.53	0.650	0.000	5.00	14.434	9.38	389.0	0.0	548.6
157.00	Appurtenance(s)	1.00	1.12	23.646	26.01	278.17	0.650	0.000	2.00	5.671	3.69	153.4	0.0	215.5
160.00		1.00	1.13	23.774	26.15	274.59	0.650	0.000	3.00	8.398	5.46	228.4	0.0	319.1
165.00		1.00	1.14	23.984	26.38	268.56	0.650	0.000	5.00	13.704	8.91	376.0	0.0	520.7
167.00	Appurtenance(s)	1.00	1.14	24.067	26.47	266.11	0.650	0.000	2.00	5.379	3.50	148.1	0.0	204.4
170.00		1.00	1.15	24.190	26.61	262.43	0.650	0.000	3.00	7.960	5.17	220.3	0.0	302.3
								Totals:	**170.00**			**14,021.9**		**34,477.0**

Discrete Appurtenance Forces

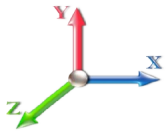
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	24.067	26.474	0.75	0.75	1.38	76.32	0.000	0.000	58.45	0.00	0.00
2	167.00	Ericsson RRUS 8843 B2	3	24.067	26.474	0.50	0.75	2.47	259.20	0.000	0.000	104.72	0.00	0.00
3	167.00	Powerwave 7770	3	24.067	26.474	0.55	0.75	9.03	126.00	0.000	0.000	382.65	0.00	0.00
4	167.00	CCI DMP65R-BU4DA	1	24.067	26.474	0.75	0.75	5.42	81.48	0.000	0.000	229.69	0.00	0.00
5	167.00	CCI DMP65R-BU6DA	2	24.067	26.474	0.55	0.75	13.92	190.56	0.000	0.000	589.51	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	24.067	26.474	0.75	0.75	4.41	40.20	0.000	0.000	186.80	0.00	0.00
7	167.00	CCI HPA-65R-BU6AA	2	24.067	26.474	0.59	0.75	11.02	112.56	0.000	0.000	466.80	0.00	0.00
8	167.00	RMQP-496-HK	1	24.067	26.474	1.00	1.00	46.00	2938.80	0.000	0.000	1948.46	0.00	0.00
9	167.00	Ericsson RRUS 4449	3	24.067	26.474	0.50	0.75	2.97	255.60	0.000	0.000	125.79	0.00	0.00
10	167.00	Andrew ABT-DFDM-ADBH	3	24.067	26.474	0.73	0.75	0.11	3.96	0.000	0.000	4.67	0.00	0.00
11	167.00	Powerwave	6	24.067	26.474	0.68	0.75	3.73	158.40	0.000	0.000	157.83	0.00	0.00
12	167.00	Powerwave	3	24.067	26.474	0.56	0.75	13.77	190.80	0.000	0.000	583.27	0.00	0.00
13	157.00	12' Low Profile Platform	1	23.646	26.011	1.00	1.00	22.00	1800.00	0.000	0.000	915.58	0.00	0.00
14	157.00	RFS DB-T1-6Z-8AB-0Z	1	23.646	26.011	0.80	0.80	3.84	22.68	0.000	0.000	159.81	0.00	0.00
15	157.00	Alcatel Lucent RRH	3	23.646	26.011	0.54	0.80	3.41	180.00	0.000	0.000	141.87	0.00	0.00
16	157.00	Alcatel Lucent RRH	3	23.646	26.011	0.54	0.80	3.47	158.40	0.000	0.000	144.55	0.00	0.00
17	157.00	Antel BXA-70063/6CF	6	23.646	26.011	0.56	0.80	25.44	122.40	0.000	0.000	1058.54	0.00	0.00
18	157.00	Antel BXA-171063/12CF	6	23.646	26.011	0.67	0.80	19.27	108.00	0.000	0.000	802.09	0.00	0.00
							Totals:		**6,825.36**			**8,061.08**		

Total Applied Force Summary

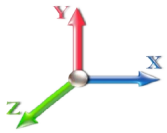
Structure:	CT11709-S-SBA		**Code:**	EIA/TIA-222-G	10/9/2019
Site Name:	Barkhamsted, CT		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		415.06	1614.56	0.00	0.00
10.00		408.91	1593.60	0.00	0.00
15.00		402.77	1572.64	0.00	0.00
20.00		396.62	1551.68	0.00	0.00
25.00		390.47	1530.72	0.00	0.00
30.00		384.65	1509.76	0.00	0.00
35.00		395.54	1488.80	0.00	0.00
40.00		404.24	1467.85	0.00	0.00
42.75		223.70	798.38	0.00	0.00
45.00		186.42	1117.03	0.00	0.00
50.00		421.78	2454.42	0.00	0.00
55.00		426.11	1219.47	0.00	0.00
60.00		429.33	1202.00	0.00	0.00
65.00		431.59	1184.54	0.00	0.00
70.00		432.99	1167.07	0.00	0.00
75.00		433.62	1149.61	0.00	0.00
80.00		433.54	1132.14	0.00	0.00
85.00		432.83	1114.68	0.00	0.00
86.50		128.88	331.00	0.00	0.00
90.00		305.47	1395.38	0.00	0.00
92.75		239.16	1084.36	0.00	0.00
95.00		195.10	489.42	0.00	0.00
100.00		433.66	1074.93	0.00	0.00
105.00		430.95	1057.47	0.00	0.00
110.00		427.80	1040.00	0.00	0.00
111.50		127.09	308.60	0.00	0.00
115.00		296.02	601.04	0.00	0.00
120.00		420.28	846.76	0.00	0.00
125.00		421.33	1465.23	0.00	0.00
125.50		41.67	144.99	0.00	0.00
130.00		374.63	743.59	0.00	0.00
135.00		411.78	812.94	0.00	0.00
140.00		406.53	798.97	0.00	0.00
145.00		400.98	785.00	0.00	0.00
150.00		395.14	771.02	0.00	0.00
155.00		389.02	757.05	0.00	0.00
157.00	(20) attachments	3375.85	2690.39	0.00	0.00
160.00		228.39	376.78	0.00	0.00
165.00		376.01	616.79	0.00	0.00
167.00	(30) attachments	4986.75	4676.68	0.00	0.00
170.00		220.27	302.34	0.00	0.00
	Totals:	**22,082.93**	**48,039.66**	**0.00**	**0.00**

Calculated Forces

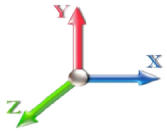
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-48.02	-22.13	0.00	-2635.5	0.00	2635.50	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.509
5.00	-46.35	-21.82	0.00	-2524.8	0.00	2524.83	4373.55	2186.77	10335.0	5175.19	0.07	-0.123	0.000	0.499
10.00	-44.72	-21.50	0.00	-2415.7	0.00	2415.74	4336.78	2168.39	10093.2	5054.11	0.26	-0.247	0.000	0.488
15.00	-43.10	-21.18	0.00	-2308.2	0.00	2308.25	4299.12	2149.56	9852.03	4933.34	0.59	-0.370	0.000	0.478
20.00	-41.51	-20.86	0.00	-2202.3	0.00	2202.34	4260.58	2130.29	9611.54	4812.91	1.04	-0.493	0.000	0.467
25.00	-39.94	-20.54	0.00	-2098.0	0.00	2098.03	4221.16	2110.58	9371.84	4692.89	1.62	-0.617	0.000	0.457
30.00	-38.39	-20.22	0.00	-1995.3	0.00	1995.31	4180.86	2090.43	9133.04	4573.31	2.34	-0.740	0.000	0.446
35.00	-36.86	-19.89	0.00	-1894.2	0.00	1894.20	4139.68	2069.84	8895.22	4454.22	3.18	-0.862	0.000	0.434
40.00	-35.37	-19.52	0.00	-1794.7	0.00	1794.77	4097.62	2048.81	8658.48	4335.68	4.14	-0.985	0.000	0.423
42.75	-34.55	-19.32	0.00	-1741.1	0.00	1741.10	4074.11	2037.05	8528.77	4270.73	4.73	-1.052	0.000	0.416
45.00	-33.41	-19.16	0.00	-1697.6	0.00	1697.65	4054.67	2027.34	8422.92	4217.72	5.24	-1.108	0.000	0.411
50.00	-30.93	-18.75	0.00	-1601.8	0.00	1601.85	3121.16	1560.58	6469.05	3239.33	6.47	-1.229	0.000	0.505
55.00	-29.67	-18.37	0.00	-1508.0	0.00	1508.08	3092.99	1546.50	6300.19	3154.78	7.82	-1.349	0.000	0.488
60.00	-28.44	-17.98	0.00	-1416.2	0.00	1416.25	3063.94	1531.97	6131.59	3070.35	9.31	-1.486	0.000	0.471
65.00	-27.23	-17.58	0.00	-1326.3	0.00	1326.38	3034.01	1517.01	5963.32	2986.09	10.93	-1.621	0.000	0.453
70.00	-26.03	-17.17	0.00	-1238.5	0.00	1238.51	3003.20	1501.60	5795.50	2902.06	12.70	-1.755	0.000	0.436
75.00	-24.86	-16.76	0.00	-1152.6	0.00	1152.67	2971.51	1485.76	5628.21	2818.29	14.61	-1.886	0.000	0.417
80.00	-23.71	-16.34	0.00	-1068.8	0.00	1068.89	2938.94	1469.47	5461.54	2734.83	16.66	-2.015	0.000	0.399
85.00	-22.59	-15.90	0.00	-987.21	0.00	987.21	2905.48	1452.74	5295.59	2651.73	18.83	-2.142	0.000	0.380
86.50	-22.24	-15.78	0.00	-963.37	0.00	963.37	2895.27	1447.64	5245.96	2626.88	19.51	-2.180	0.000	0.375
90.00	-20.84	-15.45	0.00	-908.15	0.00	908.15	2871.14	1435.57	5130.46	2569.04	21.14	-2.267	0.000	0.361
92.75	-19.75	-15.19	0.00	-865.67	0.00	865.67	2877.20	1438.60	5159.24	2583.45	22.47	-2.334	0.000	0.342
95.00	-19.25	-15.00	0.00	-831.50	0.00	831.50	2861.53	1430.77	5085.14	2546.35	23.58	-2.389	0.000	0.333
100.00	-18.16	-14.55	0.00	-756.51	0.00	756.51	2826.07	1413.04	4921.19	2464.25	26.15	-2.501	0.000	0.314
105.00	-17.10	-14.11	0.00	-683.74	0.00	683.74	2789.73	1394.87	4758.26	2382.67	28.82	-2.608	0.000	0.293
110.00	-16.07	-13.65	0.00	-613.20	0.00	613.20	2752.51	1376.25	4596.46	2301.65	31.61	-2.711	0.000	0.272
111.50	-15.75	-13.52	0.00	-592.72	0.00	592.72	2741.17	1370.58	4548.16	2277.46	32.46	-2.742	0.000	0.266
111.50	-15.75	-13.52	0.00	-592.72	0.00	592.72	2001.40	1000.70	3331.01	1667.98	32.46	-2.742	0.000	0.363
115.00	-15.15	-13.22	0.00	-545.39	0.00	545.39	1985.76	992.88	3255.34	1630.09	34.50	-2.810	0.000	0.342
120.00	-14.30	-12.79	0.00	-479.28	0.00	479.28	1962.68	981.34	3147.40	1576.04	37.51	-2.925	0.000	0.312
125.00	-12.84	-12.30	0.00	-415.33	0.00	415.33	1938.71	969.36	3039.72	1522.12	40.63	-3.033	0.000	0.280
125.50	-12.69	-12.27	0.00	-409.18	0.00	409.18	1950.32	975.16	3091.33	1547.96	40.94	-3.043	0.000	0.271
130.00	-11.95	-11.87	0.00	-353.98	0.00	353.98	1928.38	964.19	2994.57	1499.51	43.86	-3.132	0.000	0.242
135.00	-11.14	-11.43	0.00	-294.63	0.00	294.63	1903.16	951.58	2887.43	1445.86	47.18	-3.217	0.000	0.210
140.00	-10.36	-10.99	0.00	-237.48	0.00	237.48	1877.06	938.53	2780.79	1392.46	50.59	-3.293	0.000	0.176
145.00	-9.58	-10.56	0.00	-182.52	0.00	182.52	1850.08	925.04	2674.74	1339.36	54.07	-3.356	0.000	0.142
150.00	-8.83	-10.12	0.00	-129.75	0.00	129.75	1822.21	911.11	2569.37	1286.60	57.62	-3.407	0.000	0.106
155.00	-8.09	-9.69	0.00	-79.14	0.00	79.14	1793.47	896.74	2464.78	1234.22	61.21	-3.444	0.000	0.069
157.00	-5.61	-6.16	0.00	-59.75	0.00	59.75	1781.73	890.86	2423.19	1213.40	62.65	-3.455	0.000	0.052
160.00	-5.25	-5.91	0.00	-41.27	0.00	41.27	1763.85	881.92	2361.07	1182.29	64.82	-3.467	0.000	0.038
165.00	-4.65	-5.50	0.00	-11.71	0.00	11.71	1733.34	866.67	2258.33	1130.84	68.46	-3.477	0.000	0.013
167.00	-0.29	-0.24	0.00	-0.71	0.00	0.71	1720.89	860.44	2217.52	1110.41	69.92	-3.479	0.000	0.001
170.00	0.00	-0.22	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	72.10	-3.479	0.000	0.000

Wind Loading - Shaft

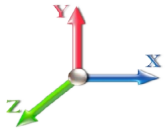
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	14.724	16.20	386.30	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	380.62	0.650	0.000	5.00	24.641	16.02	415.1	0.0	1054.6
10.00		1.00	0.70	14.724	16.20	374.94	0.650	0.000	5.00	24.276	15.78	408.9	0.0	1038.9
15.00		1.00	0.70	14.724	16.20	369.26	0.650	0.000	5.00	23.911	15.54	402.8	0.0	1023.1
20.00		1.00	0.70	14.724	16.20	363.58	0.650	0.000	5.00	23.546	15.31	396.6	0.0	1007.4
25.00		1.00	0.70	14.724	16.20	357.90	0.650	0.000	5.00	23.181	15.07	390.5	0.0	991.7
30.00		1.00	0.70	14.736	16.21	352.37	0.650	0.000	5.00	22.816	14.83	384.6	0.0	976.0
35.00		1.00	0.73	15.400	16.94	354.41	0.650	0.000	5.00	22.451	14.59	395.5	0.0	960.3
40.00		1.00	0.76	15.999	17.60	355.32	0.650	0.000	5.00	22.086	14.36	404.2	0.0	944.6
42.75	Bot - Section 2	1.00	0.78	16.306	17.94	355.42	0.650	0.000	2.75	11.992	7.79	223.7	0.0	512.8
45.00		1.00	0.79	16.546	18.20	355.33	0.650	0.000	2.25	9.849	6.40	186.4	0.0	767.4
50.00	Top - Section 1	1.00	0.81	17.052	18.76	354.60	0.650	0.000	5.00	21.621	14.05	421.8	0.0	1684.5
55.00		1.00	0.83	17.523	19.28	357.76	0.650	0.000	5.00	21.256	13.82	426.1	0.0	758.3
60.00		1.00	0.85	17.964	19.76	355.96	0.650	0.000	5.00	20.891	13.58	429.3	0.0	745.2
65.00		1.00	0.87	18.380	20.22	353.71	0.650	0.000	5.00	20.526	13.34	431.6	0.0	732.1
70.00		1.00	0.89	18.773	20.65	351.06	0.650	0.000	5.00	20.161	13.10	433.0	0.0	719.0
75.00		1.00	0.91	19.147	21.06	348.07	0.650	0.000	5.00	19.796	12.87	433.6	0.0	705.9
80.00		1.00	0.93	19.503	21.45	344.75	0.650	0.000	5.00	19.432	12.63	433.5	0.0	692.8
85.00		1.00	0.94	19.844	21.83	341.16	0.650	0.000	5.00	19.067	12.39	432.8	0.0	679.7
86.50	Bot - Section 3	1.00	0.95	19.943	21.94	340.03	0.650	0.000	1.50	5.649	3.67	128.9	0.0	201.3
90.00		1.00	0.96	20.170	22.19	337.31	0.650	0.000	3.50	13.238	8.60	305.5	0.0	937.1
92.75	Top - Section 2	1.00	0.97	20.345	22.38	335.09	0.650	0.000	2.75	10.276	6.68	239.2	0.0	727.3
95.00		1.00	0.97	20.484	22.53	338.08	0.650	0.000	2.25	8.325	5.41	195.1	0.0	296.7
100.00		1.00	0.99	20.787	22.87	333.82	0.650	0.000	5.00	18.236	11.85	433.7	0.0	649.9
105.00		1.00	1.00	21.079	23.19	329.36	0.650	0.000	5.00	17.871	11.62	430.9	0.0	636.8
110.00		1.00	1.02	21.361	23.50	324.72	0.650	0.000	5.00	17.506	11.38	427.8	0.0	623.7
111.50	Top - Section 3	1.00	1.02	21.443	23.59	323.29	0.650	0.000	1.50	5.181	3.37	127.1	0.0	184.5
115.00		1.00	1.03	21.634	23.80	319.90	0.650	0.000	3.50	11.961	7.77	296.0	0.0	341.4
120.00	Bot - Section 5	1.00	1.04	21.898	24.09	314.93	0.650	0.000	5.00	16.777	10.90	420.3	0.0	478.7
125.00		1.00	1.05	22.155	24.37	309.80	0.650	0.000	5.00	16.623	10.81	421.3	0.0	942.6
125.50	Top - Section 4	1.00	1.05	22.181	24.40	309.28	0.650	0.000	0.50	1.642	1.07	41.7	0.0	93.1
130.00		1.00	1.07	22.405	24.65	308.60	0.650	0.000	4.50	14.616	9.50	374.6	0.0	417.0
135.00		1.00	1.08	22.648	24.91	303.22	0.650	0.000	5.00	15.893	10.33	411.8	0.0	453.4
140.00		1.00	1.09	22.884	25.17	297.72	0.650	0.000	5.00	15.529	10.09	406.5	0.0	442.9
145.00		1.00	1.10	23.115	25.43	292.11	0.650	0.000	5.00	15.164	9.86	401.0	0.0	432.4
150.00		1.00	1.11	23.340	25.67	286.37	0.650	0.000	5.00	14.799	9.62	395.1	0.0	421.9
155.00		1.00	1.12	23.560	25.92	280.53	0.650	0.000	5.00	14.434	9.38	389.0	0.0	411.5
157.00	Appurtenance(s)	1.00	1.12	23.646	26.01	278.17	0.650	0.000	2.00	5.671	3.69	153.4	0.0	161.6
160.00		1.00	1.13	23.774	26.15	274.59	0.650	0.000	3.00	8.398	5.46	228.4	0.0	239.3
165.00		1.00	1.14	23.984	26.38	268.56	0.650	0.000	5.00	13.704	8.91	376.0	0.0	390.5
167.00	Appurtenance(s)	1.00	1.14	24.067	26.47	266.11	0.650	0.000	2.00	5.379	3.50	148.1	0.0	153.3
170.00		1.00	1.15	24.190	26.61	262.43	0.650	0.000	3.00	7.960	5.17	220.3	0.0	226.8
								Totals:	**170.00**			**14,021.9**		**25,857.8**

Discrete Appurtenance Forces

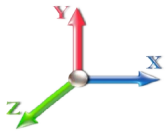
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	24.067	26.474	0.75	0.75	1.38	57.24	0.000	0.000	58.45	0.00	0.00
2	167.00	Ericsson RRUS 8843 B2	3	24.067	26.474	0.50	0.75	2.47	194.40	0.000	0.000	104.72	0.00	0.00
3	167.00	Powerwave 7770	3	24.067	26.474	0.55	0.75	9.03	94.50	0.000	0.000	382.65	0.00	0.00
4	167.00	CCI DMP65R-BU4DA	1	24.067	26.474	0.75	0.75	5.42	61.11	0.000	0.000	229.69	0.00	0.00
5	167.00	CCI DMP65R-BU6DA	2	24.067	26.474	0.55	0.75	13.92	142.92	0.000	0.000	589.51	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	24.067	26.474	0.75	0.75	4.41	30.15	0.000	0.000	186.80	0.00	0.00
7	167.00	CCI HPA-65R-BU6AA	2	24.067	26.474	0.59	0.75	11.02	84.42	0.000	0.000	466.80	0.00	0.00
8	167.00	RMQP-496-HK	1	24.067	26.474	1.00	1.00	46.00	2204.10	0.000	0.000	1948.46	0.00	0.00
9	167.00	Ericsson RRUS 4449	3	24.067	26.474	0.50	0.75	2.97	191.70	0.000	0.000	125.79	0.00	0.00
10	167.00	Andrew ABT-DFDM-ADBH	3	24.067	26.474	0.73	0.75	0.11	2.97	0.000	0.000	4.67	0.00	0.00
11	167.00	Powerwave	6	24.067	26.474	0.68	0.75	3.73	118.80	0.000	0.000	157.83	0.00	0.00
12	167.00	Powerwave	3	24.067	26.474	0.56	0.75	13.77	143.10	0.000	0.000	583.27	0.00	0.00
13	157.00	12' Low Profile Platform	1	23.646	26.011	1.00	1.00	22.00	1350.00	0.000	0.000	915.58	0.00	0.00
14	157.00	RFS DB-T1-6Z-8AB-0Z	1	23.646	26.011	0.80	0.80	3.84	17.01	0.000	0.000	159.81	0.00	0.00
15	157.00	Alcatel Lucent RRH	3	23.646	26.011	0.54	0.80	3.41	135.00	0.000	0.000	141.87	0.00	0.00
16	157.00	Alcatel Lucent RRH	3	23.646	26.011	0.54	0.80	3.47	118.80	0.000	0.000	144.55	0.00	0.00
17	157.00	Antel BXA-70063/6CF	6	23.646	26.011	0.56	0.80	25.44	91.80	0.000	0.000	1058.54	0.00	0.00
18	157.00	Antel BXA-171063/12CF	6	23.646	26.011	0.67	0.80	19.27	81.00	0.000	0.000	802.09	0.00	0.00
							Totals:		**5,119.02**			**8,061.08**		

Total Applied Force Summary

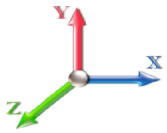
Structure:	CT11709-S-SBA		**Code:**	EIA/TIA-222-G	10/9/2019
Site Name:	Barkhamsted, CT		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		415.06	1210.92	0.00	0.00
10.00		408.91	1195.20	0.00	0.00
15.00		402.77	1179.48	0.00	0.00
20.00		396.62	1163.76	0.00	0.00
25.00		390.47	1148.04	0.00	0.00
30.00		384.65	1132.32	0.00	0.00
35.00		395.54	1116.60	0.00	0.00
40.00		404.24	1100.88	0.00	0.00
42.75		223.70	598.79	0.00	0.00
45.00		186.42	837.77	0.00	0.00
50.00		421.78	1840.82	0.00	0.00
55.00		426.11	914.60	0.00	0.00
60.00		429.33	901.50	0.00	0.00
65.00		431.59	888.40	0.00	0.00
70.00		432.99	875.30	0.00	0.00
75.00		433.62	862.21	0.00	0.00
80.00		433.54	849.11	0.00	0.00
85.00		432.83	836.01	0.00	0.00
86.50		128.88	248.25	0.00	0.00
90.00		305.47	1046.53	0.00	0.00
92.75		239.16	813.27	0.00	0.00
95.00		195.10	367.06	0.00	0.00
100.00		433.66	806.20	0.00	0.00
105.00		430.95	793.10	0.00	0.00
110.00		427.80	780.00	0.00	0.00
111.50		127.09	231.45	0.00	0.00
115.00		296.02	450.78	0.00	0.00
120.00		420.28	635.07	0.00	0.00
125.00		421.33	1098.92	0.00	0.00
125.50		41.67	108.74	0.00	0.00
130.00		374.63	557.69	0.00	0.00
135.00		411.78	609.71	0.00	0.00
140.00		406.53	599.23	0.00	0.00
145.00		400.98	588.75	0.00	0.00
150.00		395.14	578.27	0.00	0.00
155.00		389.02	567.79	0.00	0.00
157.00	(20) attachments	3375.85	2017.79	0.00	0.00
160.00		228.39	282.58	0.00	0.00
165.00		376.01	462.59	0.00	0.00
167.00	(30) attachments	4986.75	3507.51	0.00	0.00
170.00		220.27	226.75	0.00	0.00
	Totals:	**22,082.93**	**36,029.75**	**0.00**	**0.00**

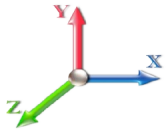
Calculated Forces

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.01	-22.12	0.00	-2608.0	0.00	2608.07	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.501
5.00	-34.75	-21.78	0.00	-2497.4	0.00	2497.46	4373.55	2186.77	10335.0	5175.19	0.07	-0.122	0.000	0.491
10.00	-33.51	-21.44	0.00	-2388.5	0.00	2388.57	4336.78	2168.39	10093.2	5054.11	0.26	-0.244	0.000	0.480
15.00	-32.29	-21.10	0.00	-2281.3	0.00	2281.38	4299.12	2149.56	9852.03	4933.34	0.58	-0.366	0.000	0.470
20.00	-31.08	-20.76	0.00	-2175.9	0.00	2175.90	4260.58	2130.29	9611.54	4812.91	1.03	-0.488	0.000	0.459
25.00	-29.89	-20.42	0.00	-2072.1	0.00	2072.11	4221.16	2110.58	9371.84	4692.89	1.61	-0.610	0.000	0.449
30.00	-28.72	-20.08	0.00	-1970.0	0.00	1970.01	4180.86	2090.43	9133.04	4573.31	2.31	-0.731	0.000	0.438
35.00	-27.57	-19.73	0.00	-1869.6	0.00	1869.60	4139.68	2069.84	8895.22	4454.22	3.14	-0.852	0.000	0.426
40.00	-26.45	-19.35	0.00	-1770.9	0.00	1770.95	4097.62	2048.81	8658.48	4335.68	4.10	-0.973	0.000	0.415
42.75	-25.83	-19.15	0.00	-1717.7	0.00	1717.73	4074.11	2037.05	8528.77	4270.73	4.68	-1.040	0.000	0.409
45.00	-24.97	-18.98	0.00	-1674.6	0.00	1674.65	4054.67	2027.34	8422.92	4217.72	5.18	-1.094	0.000	0.403
50.00	-23.10	-18.57	0.00	-1579.7	0.00	1579.75	3121.16	1560.58	6469.05	3239.33	6.39	-1.214	0.000	0.495
55.00	-22.15	-18.17	0.00	-1486.9	0.00	1486.90	3092.99	1546.50	6300.19	3154.78	7.73	-1.332	0.000	0.479
60.00	-21.22	-17.77	0.00	-1396.0	0.00	1396.04	3063.94	1531.97	6131.59	3070.35	9.19	-1.467	0.000	0.462
65.00	-20.30	-17.36	0.00	-1307.1	0.00	1307.18	3034.01	1517.01	5963.32	2986.09	10.80	-1.600	0.000	0.445
70.00	-19.40	-16.95	0.00	-1220.3	0.00	1220.36	3003.20	1501.60	5795.50	2902.06	12.55	-1.732	0.000	0.427
75.00	-18.52	-16.53	0.00	-1135.6	0.00	1135.62	2971.51	1485.76	5628.21	2818.29	14.43	-1.862	0.000	0.409
80.00	-17.65	-16.11	0.00	-1052.9	0.00	1052.97	2938.94	1469.47	5461.54	2734.83	16.45	-1.989	0.000	0.391
85.00	-16.81	-15.67	0.00	-972.43	0.00	972.43	2905.48	1452.74	5295.59	2651.73	18.60	-2.113	0.000	0.373
86.50	-16.55	-15.55	0.00	-948.93	0.00	948.93	2895.27	1447.64	5245.96	2626.88	19.27	-2.151	0.000	0.367
90.00	-15.49	-15.22	0.00	-894.51	0.00	894.51	2871.14	1435.57	5130.46	2569.04	20.88	-2.237	0.000	0.354
92.75	-14.67	-14.97	0.00	-852.65	0.00	852.65	2877.20	1438.60	5159.24	2583.45	22.19	-2.303	0.000	0.335
95.00	-14.29	-14.78	0.00	-818.97	0.00	818.97	2861.53	1430.77	5085.14	2546.35	23.29	-2.357	0.000	0.327
100.00	-13.48	-14.34	0.00	-745.08	0.00	745.08	2826.07	1413.04	4921.19	2464.25	25.81	-2.467	0.000	0.307
105.00	-12.68	-13.89	0.00	-673.40	0.00	673.40	2789.73	1394.87	4758.26	2382.67	28.45	-2.573	0.000	0.287
110.00	-11.91	-13.44	0.00	-603.93	0.00	603.93	2752.51	1376.25	4596.46	2301.65	31.20	-2.674	0.000	0.267
111.50	-11.67	-13.32	0.00	-583.76	0.00	583.76	2741.17	1370.58	4548.16	2277.46	32.05	-2.704	0.000	0.261
111.50	-11.67	-13.32	0.00	-583.76	0.00	583.76	2001.40	1000.70	3331.01	1667.98	32.05	-2.704	0.000	0.356
115.00	-11.21	-13.02	0.00	-537.15	0.00	537.15	1985.76	992.88	3255.34	1630.09	34.06	-2.772	0.000	0.335
120.00	-10.57	-12.59	0.00	-472.06	0.00	472.06	1962.68	981.34	3147.40	1576.04	37.02	-2.885	0.000	0.305
125.00	-9.49	-12.12	0.00	-409.13	0.00	409.13	1938.71	969.36	3039.72	1522.12	40.10	-2.991	0.000	0.274
125.50	-9.37	-12.08	0.00	-403.07	0.00	403.07	1950.32	975.16	3091.33	1547.96	40.41	-3.001	0.000	0.265
130.00	-8.82	-11.69	0.00	-348.71	0.00	348.71	1928.38	964.19	2994.57	1499.51	43.28	-3.089	0.000	0.237
135.00	-8.21	-11.26	0.00	-290.26	0.00	290.26	1903.16	951.58	2887.43	1445.86	46.56	-3.173	0.000	0.205
140.00	-7.62	-10.83	0.00	-233.98	0.00	233.98	1877.06	938.53	2780.79	1392.46	49.93	-3.247	0.000	0.172
145.00	-7.05	-10.40	0.00	-179.85	0.00	179.85	1850.08	925.04	2674.74	1339.36	53.36	-3.310	0.000	0.138
150.00	-6.49	-9.98	0.00	-127.86	0.00	127.86	1822.21	911.11	2569.37	1286.60	56.85	-3.360	0.000	0.103
155.00	-5.94	-9.56	0.00	-77.98	0.00	77.98	1793.47	896.74	2464.78	1234.22	60.39	-3.396	0.000	0.067
157.00	-4.13	-6.07	0.00	-58.86	0.00	58.86	1781.73	890.86	2423.19	1213.40	61.82	-3.407	0.000	0.051
160.00	-3.86	-5.82	0.00	-40.66	0.00	40.66	1763.85	881.92	2361.07	1182.29	63.96	-3.418	0.000	0.037
165.00	-3.42	-5.42	0.00	-11.54	0.00	11.54	1733.34	866.67	2258.33	1130.84	67.55	-3.429	0.000	0.012
167.00	-0.21	-0.23	0.00	-0.70	0.00	0.70	1720.89	860.44	2217.52	1110.41	68.98	-3.430	0.000	0.001
170.00	0.00	-0.22	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	71.14	-3.430	0.000	0.000

Wind Loading - Shaft

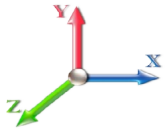
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.656	5.00	26.021	31.23	146.2	616.9	2023.0
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.775	5.00	25.755	30.91	144.7	652.8	2038.0
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.848	5.00	25.451	30.54	143.0	670.7	2034.9
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.902	5.00	25.131	30.16	141.2	680.6	2023.9
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.945	5.00	24.802	29.76	139.3	686.0	2008.3
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.981	5.00	24.467	29.36	137.6	688.3	1989.7
35.00		1.00	0.73	4.451	4.90	0.00	1.200	2.012	5.00	24.128	28.95	141.8	688.5	1968.9
40.00		1.00	0.76	4.625	5.09	0.00	1.200	2.039	5.00	23.786	28.54	145.2	687.1	1946.5
42.75	Bot - Section 2	1.00	0.78	4.713	5.18	0.00	1.200	2.052	2.75	12.933	15.52	80.5	377.2	1060.9
45.00		1.00	0.79	4.783	5.26	0.00	1.200	2.063	2.25	10.622	12.75	67.1	311.6	1334.9
50.00	Top - Section 1	1.00	0.81	4.929	5.42	0.00	1.200	2.085	5.00	23.358	28.03	152.0	688.8	2934.8
55.00		1.00	0.83	5.065	5.57	0.00	1.200	2.105	5.00	23.010	27.61	153.8	684.3	1695.4
60.00		1.00	0.85	5.193	5.71	0.00	1.200	2.123	5.00	22.661	27.19	155.3	679.1	1672.6
65.00		1.00	0.87	5.313	5.84	0.00	1.200	2.140	5.00	22.310	26.77	156.5	673.2	1649.3
70.00		1.00	0.89	5.426	5.97	0.00	1.200	2.156	5.00	21.958	26.35	157.3	666.7	1625.4
75.00		1.00	0.91	5.534	6.09	0.00	1.200	2.171	5.00	21.606	25.93	157.8	659.8	1601.0
80.00		1.00	0.93	5.637	6.20	0.00	1.200	2.185	5.00	21.253	25.50	158.1	652.5	1576.2
85.00		1.00	0.94	5.736	6.31	0.00	1.200	2.198	5.00	20.899	25.08	158.2	644.7	1551.0
86.50	Bot - Section 3	1.00	0.95	5.765	6.34	0.00	1.200	2.202	1.50	6.199	7.44	47.2	192.7	461.2
90.00		1.00	0.96	5.830	6.41	0.00	1.200	2.211	3.50	14.528	17.43	111.8	451.7	1701.2
92.75	Top - Section 2	1.00	0.97	5.881	6.47	0.00	1.200	2.218	2.75	11.292	13.55	87.7	352.4	1322.1
95.00		1.00	0.97	5.921	6.51	0.00	1.200	2.223	2.25	9.159	10.99	71.6	286.6	682.3
100.00		1.00	0.99	6.008	6.61	0.00	1.200	2.234	5.00	20.098	24.12	159.4	628.3	1494.8
105.00		1.00	1.00	6.093	6.70	0.00	1.200	2.245	5.00	19.743	23.69	158.8	619.4	1468.4
110.00		1.00	1.02	6.174	6.79	0.00	1.200	2.256	5.00	19.386	23.26	158.0	610.3	1441.8
111.50	Top - Section 3	1.00	1.02	6.198	6.82	0.00	1.200	2.259	1.50	5.746	6.89	47.0	182.2	428.3
115.00		1.00	1.03	6.253	6.88	0.00	1.200	2.266	3.50	13.283	15.94	109.6	420.6	875.7
120.00	Bot - Section 5	1.00	1.04	6.330	6.96	0.00	1.200	2.276	5.00	18.673	22.41	156.0	591.3	1229.6
125.00		1.00	1.05	6.404	7.04	0.00	1.200	2.285	5.00	18.527	22.23	156.6	588.6	1845.4
125.50	Top - Section 4	1.00	1.05	6.411	7.05	0.00	1.200	2.286	0.50	1.833	2.20	15.5	58.8	182.9
130.00		1.00	1.07	6.476	7.12	0.00	1.200	2.294	4.50	16.337	19.60	139.7	520.8	1076.8
135.00		1.00	1.08	6.546	7.20	0.00	1.200	2.303	5.00	17.812	21.37	153.9	568.5	1173.0
140.00		1.00	1.09	6.615	7.28	0.00	1.200	2.311	5.00	17.454	20.95	152.4	558.2	1148.8
145.00		1.00	1.10	6.681	7.35	0.00	1.200	2.319	5.00	17.096	20.52	150.8	547.8	1124.3
150.00		1.00	1.11	6.746	7.42	0.00	1.200	2.327	5.00	16.738	20.09	149.1	537.2	1099.8
155.00		1.00	1.12	6.810	7.49	0.00	1.200	2.335	5.00	16.379	19.66	147.2	526.4	1075.0
157.00	Appurtenance(s)	1.00	1.12	6.835	7.52	0.00	1.200	2.338	2.00	6.451	7.74	58.2	208.8	424.4
160.00		1.00	1.13	6.872	7.56	0.00	1.200	2.342	3.00	9.569	11.48	86.8	309.3	628.4
165.00		1.00	1.14	6.933	7.63	0.00	1.200	2.349	5.00	15.662	18.79	143.3	504.5	1025.2
167.00	Appurtenance(s)	1.00	1.14	6.957	7.65	0.00	1.200	2.352	2.00	6.163	7.40	56.6	200.0	404.4
170.00		1.00	1.15	6.992	7.69	0.00	1.200	2.356	3.00	9.138	10.97	84.3	296.1	598.4
								Totals:	**170.00**			**5,137.0**		**55,646.8**

Discrete Appurtenance Forces

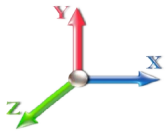
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	6.957	7.652	0.75	0.75	2.27	207.57	0.000	0.000	17.34	0.00	0.00
2	167.00	Ericsson RRUS 8843 B2	3	6.957	7.652	0.50	0.75	3.48	412.60	0.000	0.000	26.64	0.00	0.00
3	167.00	Powerwave 7770	3	6.957	7.652	0.55	0.75	11.45	716.49	0.000	0.000	87.58	0.00	0.00
4	167.00	CCI DMP65R-BU4DA	1	6.957	7.652	0.75	0.75	6.55	505.95	0.000	0.000	50.12	0.00	0.00
5	167.00	CCI DMP65R-BU6DA	2	6.957	7.652	0.55	0.75	16.15	1005.29	0.000	0.000	123.57	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	6.957	7.652	0.75	0.75	5.53	268.83	0.000	0.000	42.30	0.00	0.00
7	167.00	CCI HPA-65R-BU6AA	2	6.957	7.652	0.59	0.75	13.46	764.54	0.000	0.000	103.01	0.00	0.00
8	167.00	RMQP-496-HK	1	6.957	7.652	1.00	1.00	89.28	5604.93	0.000	0.000	683.18	0.00	0.00
9	167.00	Ericsson RRUS 4449	3	6.957	7.652	0.50	0.75	4.08	430.63	0.000	0.000	31.23	0.00	0.00
10	167.00	Andrew ABT-DFDM-ADBH	3	6.957	7.652	0.73	0.75	0.68	10.88	0.000	0.000	5.22	0.00	0.00
11	167.00	Powerwave	6	6.957	7.652	0.68	0.75	7.76	328.02	0.000	0.000	59.39	0.00	0.00
12	167.00	Powerwave	3	6.957	7.652	0.56	0.75	20.14	716.53	0.000	0.000	154.15	0.00	0.00
13	157.00	12' Low Profile Platform	1	6.835	7.518	1.00	1.00	45.66	3253.19	0.000	0.000	343.26	0.00	0.00
14	157.00	RFS DB-T1-6Z-8AB-0Z	1	6.835	7.518	0.80	0.80	4.80	227.07	0.000	0.000	36.07	0.00	0.00
15	157.00	Alcatel Lucent RRH	3	6.835	7.518	0.54	0.80	5.54	412.36	0.000	0.000	41.66	0.00	0.00
16	157.00	Alcatel Lucent RRH	3	6.835	7.518	0.54	0.80	5.73	350.21	0.000	0.000	43.08	0.00	0.00
17	157.00	Antel BXA-70063/6CF	6	6.835	7.518	0.56	0.80	37.87	1017.66	0.000	0.000	284.75	0.00	0.00
18	157.00	Antel BXA-171063/12CF	6	6.835	7.518	0.67	0.80	32.01	713.69	0.000	0.000	240.69	0.00	0.00
							Totals:		**16,946.43**			**2,373.25**		

Total Applied Force Summary

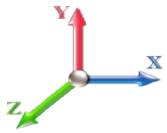
Structure:	CT11709-S-SBA		**Code:**	EIA/TIA-222-G	10/9/2019
Site Name:	Barkhamsted, CT		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		146.18	2231.42	0.00	0.00
10.00		144.69	2246.44	0.00	0.00
15.00		142.98	2243.34	0.00	0.00
20.00		141.19	2232.31	0.00	0.00
25.00		139.34	2216.71	0.00	0.00
30.00		137.57	2198.10	0.00	0.00
35.00		141.77	2177.35	0.00	0.00
40.00		145.19	2154.96	0.00	0.00
42.75		80.46	1175.56	0.00	0.00
45.00		67.06	1428.65	0.00	0.00
50.00		151.97	3143.27	0.00	0.00
55.00		153.84	1903.79	0.00	0.00
60.00		155.32	1881.07	0.00	0.00
65.00		156.45	1857.72	0.00	0.00
70.00		157.28	1833.82	0.00	0.00
75.00		157.84	1809.44	0.00	0.00
80.00		158.15	1784.62	0.00	0.00
85.00		158.23	1759.42	0.00	0.00
86.50		47.17	523.70	0.00	0.00
90.00		111.81	1847.10	0.00	0.00
92.75		87.66	1436.78	0.00	0.00
95.00		71.58	776.06	0.00	0.00
100.00		159.40	1703.26	0.00	0.00
105.00		158.78	1676.88	0.00	0.00
110.00		158.00	1650.26	0.00	0.00
111.50		47.01	490.83	0.00	0.00
115.00		109.64	1021.65	0.00	0.00
120.00		156.02	1438.02	0.00	0.00
125.00		156.62	2053.86	0.00	0.00
125.50		15.51	203.75	0.00	0.00
130.00		139.65	1264.39	0.00	0.00
135.00		153.92	1381.47	0.00	0.00
140.00		152.40	1357.20	0.00	0.00
145.00		150.78	1332.77	0.00	0.00
150.00		149.05	1308.20	0.00	0.00
155.00		147.23	1283.48	0.00	0.00
157.00	(20) attachments	1047.72	6481.92	0.00	0.00
160.00		86.80	686.11	0.00	0.00
165.00		143.32	1121.33	0.00	0.00
167.00	(30) attachments	1440.32	11415.10	0.00	0.00
170.00		84.34	598.39	0.00	0.00
	Totals:	**7,510.25**	**79,330.52**	**0.00**	**0.00**

Calculated Forces

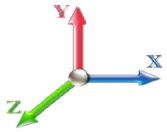
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 24

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-79.33	-7.54	0.00	-908.10	0.00	908.10	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.189
5.00	-77.09	-7.45	0.00	-870.41	0.00	870.41	4373.55	2186.77	10335.0	5175.19	0.02	-0.042	0.000	0.186
10.00	-74.84	-7.36	0.00	-833.16	0.00	833.16	4336.78	2168.39	10093.2	5054.11	0.09	-0.085	0.000	0.182
15.00	-72.59	-7.27	0.00	-796.37	0.00	796.37	4299.12	2149.56	9852.03	4933.34	0.20	-0.128	0.000	0.178
20.00	-70.35	-7.17	0.00	-760.04	0.00	760.04	4260.58	2130.29	9611.54	4812.91	0.36	-0.170	0.000	0.174
25.00	-68.13	-7.07	0.00	-724.19	0.00	724.19	4221.16	2110.58	9371.84	4692.89	0.56	-0.213	0.000	0.170
30.00	-65.93	-6.98	0.00	-688.82	0.00	688.82	4180.86	2090.43	9133.04	4573.31	0.81	-0.255	0.000	0.166
35.00	-63.75	-6.87	0.00	-653.94	0.00	653.94	4139.68	2069.84	8895.22	4454.22	1.10	-0.298	0.000	0.162
40.00	-61.59	-6.75	0.00	-619.58	0.00	619.58	4097.62	2048.81	8658.48	4335.68	1.43	-0.340	0.000	0.158
42.75	-60.41	-6.68	0.00	-601.02	0.00	601.02	4074.11	2037.05	8528.77	4270.73	1.63	-0.363	0.000	0.156
45.00	-58.98	-6.64	0.00	-585.98	0.00	585.98	4054.67	2027.34	8422.92	4217.72	1.81	-0.382	0.000	0.153
50.00	-55.83	-6.51	0.00	-552.79	0.00	552.79	3121.16	1560.58	6469.05	3239.33	2.23	-0.424	0.000	0.189
55.00	-53.93	-6.38	0.00	-520.26	0.00	520.26	3092.99	1546.50	6300.19	3154.78	2.70	-0.465	0.000	0.182
60.00	-52.04	-6.25	0.00	-488.37	0.00	488.37	3063.94	1531.97	6131.59	3070.35	3.21	-0.513	0.000	0.176
65.00	-50.18	-6.12	0.00	-457.12	0.00	457.12	3034.01	1517.01	5963.32	2986.09	3.77	-0.559	0.000	0.170
70.00	-48.34	-5.98	0.00	-426.54	0.00	426.54	3003.20	1501.60	5795.50	2902.06	4.38	-0.605	0.000	0.163
75.00	-46.53	-5.84	0.00	-396.64	0.00	396.64	2971.51	1485.76	5628.21	2818.29	5.04	-0.651	0.000	0.156
80.00	-44.74	-5.69	0.00	-367.45	0.00	367.45	2938.94	1469.47	5461.54	2734.83	5.75	-0.695	0.000	0.150
85.00	-42.98	-5.53	0.00	-338.99	0.00	338.99	2905.48	1452.74	5295.59	2651.73	6.50	-0.738	0.000	0.143
86.50	-42.46	-5.50	0.00	-330.69	0.00	330.69	2895.27	1447.64	5245.96	2626.88	6.73	-0.752	0.000	0.141
90.00	-40.61	-5.38	0.00	-311.45	0.00	311.45	2871.14	1435.57	5130.46	2569.04	7.29	-0.781	0.000	0.135
92.75	-39.17	-5.29	0.00	-296.66	0.00	296.66	2877.20	1438.60	5159.24	2583.45	7.75	-0.805	0.000	0.128
95.00	-38.40	-5.22	0.00	-284.77	0.00	284.77	2861.53	1430.77	5085.14	2546.35	8.14	-0.823	0.000	0.125
100.00	-36.69	-5.06	0.00	-258.66	0.00	258.66	2826.07	1413.04	4921.19	2464.25	9.02	-0.861	0.000	0.118
105.00	-35.01	-4.90	0.00	-233.36	0.00	233.36	2789.73	1394.87	4758.26	2382.67	9.94	-0.898	0.000	0.111
110.00	-33.37	-4.73	0.00	-208.87	0.00	208.87	2752.51	1376.25	4596.46	2301.65	10.90	-0.933	0.000	0.103
111.50	-32.87	-4.68	0.00	-201.78	0.00	201.78	2741.17	1370.58	4548.16	2277.46	11.19	-0.944	0.000	0.101
111.50	-32.87	-4.68	0.00	-201.78	0.00	201.78	2001.40	1000.70	3331.01	1667.98	11.19	-0.944	0.000	0.137
115.00	-31.85	-4.57	0.00	-185.39	0.00	185.39	1985.76	992.88	3255.34	1630.09	11.90	-0.967	0.000	0.130
120.00	-30.41	-4.41	0.00	-162.52	0.00	162.52	1962.68	981.34	3147.40	1576.04	12.93	-1.006	0.000	0.119
125.00	-28.36	-4.23	0.00	-140.46	0.00	140.46	1938.71	969.36	3039.72	1522.12	14.00	-1.042	0.000	0.107
125.50	-28.16	-4.22	0.00	-138.35	0.00	138.35	1950.32	975.16	3091.33	1547.96	14.11	-1.046	0.000	0.104
130.00	-26.89	-4.07	0.00	-119.37	0.00	119.37	1928.38	964.19	2994.57	1499.51	15.11	-1.076	0.000	0.094
135.00	-25.51	-3.90	0.00	-99.03	0.00	99.03	1903.16	951.58	2887.43	1445.86	16.26	-1.105	0.000	0.082
140.00	-24.16	-3.73	0.00	-79.53	0.00	79.53	1877.06	938.53	2780.79	1392.46	17.43	-1.130	0.000	0.070
145.00	-22.83	-3.56	0.00	-60.87	0.00	60.87	1850.08	925.04	2674.74	1339.36	18.62	-1.151	0.000	0.058
150.00	-21.52	-3.39	0.00	-43.06	0.00	43.06	1822.21	911.11	2569.37	1286.60	19.84	-1.168	0.000	0.045
155.00	-20.24	-3.22	0.00	-26.10	0.00	26.10	1793.47	896.74	2464.78	1234.22	21.07	-1.180	0.000	0.032
157.00	-13.78	-2.04	0.00	-19.66	0.00	19.66	1781.73	890.86	2423.19	1213.40	21.56	-1.184	0.000	0.024
160.00	-13.10	-1.94	0.00	-13.54	0.00	13.54	1763.85	881.92	2361.07	1182.29	22.31	-1.188	0.000	0.019
165.00	-11.98	-1.77	0.00	-3.84	0.00	3.84	1733.34	866.67	2258.33	1130.84	23.56	-1.191	0.000	0.010
167.00	-0.60	-0.10	0.00	-0.29	0.00	0.29	1720.89	860.44	2217.52	1110.41	24.06	-1.192	0.000	0.001
170.00	0.00	-0.08	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	24.80	-1.192	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.36	**SA**	0.04	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1171.7	0.00	0.03	0.02	18.44	
10.00		1154.3	0.01	0.05	0.03	27.33	
15.00		1136.8	0.01	0.06	0.04	31.79	
20.00		1119.3	0.03	0.07	0.04	33.96	
25.00		1101.9	0.04	0.07	0.04	34.96	
30.00		1084.4	0.06	0.07	0.04	35.41	
35.00		1066.9	0.08	0.07	0.04	35.66	
40.00		1049.5	0.10	0.07	0.04	35.84	
42.75	Bot - Section 2	569.78	0.12	0.07	0.03	19.68	
45.00		852.69	0.13	0.07	0.03	29.71	
50.00	Top - Section 1	1871.6	0.16	0.07	0.03	66.20	
55.00		842.52	0.20	0.06	0.02	29.91	
60.00		827.97	0.24	0.06	0.02	28.91	
65.00		813.42	0.28	0.05	0.01	26.99	
70.00		798.86	0.32	0.04	0.01	23.84	
75.00		784.31	0.37	0.03	0.01	19.21	
80.00		769.75	0.42	0.01	0.01	13.02	
85.00		755.20	0.47	-0.01	0.01	5.55	
86.50	Bot - Section 3	223.72	0.49	-0.01	0.01	0.94	
90.00		1041.2	0.53	-0.03	0.01	-3.59	
92.75	Top - Section 2	808.10	0.56	-0.04	0.01	-7.63	
95.00		329.68	0.59	-0.05	0.01	-4.67	
100.00		722.08	0.65	-0.07	0.02	-16.87	
105.00		707.52	0.72	-0.09	0.03	-21.13	
110.00		692.97	0.79	-0.11	0.05	-22.79	
111.50	Top - Section 3	205.05	0.81	-0.11	0.06	-6.78	
115.00		379.28	0.86	-0.12	0.07	-12.17	
120.00	Bot - Section 5	531.93	0.94	-0.12	0.10	-14.54	
125.00		1047.3	1.02	-0.10	0.14	-19.53	
125.50	Top - Section 4	103.45	1.03	-0.10	0.15	-1.82	
130.00		463.33	1.11	-0.07	0.19	-2.81	
135.00		503.75	1.19	0.00	0.25	5.26	
140.00		492.11	1.28	0.10	0.32	15.17	
145.00		480.46	1.37	0.24	0.41	26.51	
150.00		468.82	1.47	0.43	0.51	39.15	
155.00		457.18	1.57	0.69	0.63	52.98	
157.00	Appurtenance(s)	2172.5	1.61	0.82	0.69	282.42	
160.00		265.92	1.67	1.03	0.78	40.53	
165.00		433.89	1.78	1.45	0.94	83.80	
167.00	Appurtenance(s)	3865.1	1.82	1.65	1.02	814.08	
170.00		251.95	1.89	1.98	1.14	60.00	
	Totals:	**34,418.7**				**1,802.9**	**Total Wind:** **22,082.9**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.36	**SA**	0.04	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-48.04	-1.94	0.00	-264.35	0.00	264.35	4409.44	2204.72	10577.3	5296.53		0.00	0.00	0.061
5.00	-46.42	-1.93	0.00	-254.64	0.00	254.64	4373.55	2186.77	10335.0	5175.19		0.01	-0.01	0.060
10.00	-44.83	-1.91	0.00	-244.98	0.00	244.98	4336.78	2168.39	10093.2	5054.11		0.03	-0.02	0.059
15.00	-43.26	-1.89	0.00	-235.41	0.00	235.41	4299.12	2149.56	9852.03	4933.34		0.06	-0.04	0.058
20.00	-41.71	-1.87	0.00	-225.95	0.00	225.95	4260.58	2130.29	9611.54	4812.91		0.11	-0.05	0.057
25.00	-40.17	-1.84	0.00	-216.62	0.00	216.62	4221.16	2110.58	9371.84	4692.89		0.16	-0.06	0.056
30.00	-38.66	-1.81	0.00	-207.43	0.00	207.43	4180.86	2090.43	9133.04	4573.31		0.24	-0.08	0.055
35.00	-37.18	-1.78	0.00	-198.38	0.00	198.38	4139.68	2069.84	8895.22	4454.22		0.32	-0.09	0.054
40.00	-35.71	-1.75	0.00	-189.48	0.00	189.48	4097.62	2048.81	8658.48	4335.68		0.42	-0.10	0.052
42.75	-34.91	-1.73	0.00	-184.68	0.00	184.68	4074.11	2037.05	8528.77	4270.73		0.48	-0.11	0.052
45.00	-33.79	-1.70	0.00	-180.78	0.00	180.78	4054.67	2027.34	8422.92	4217.72		0.53	-0.11	0.051
50.00	-31.34	-1.64	0.00	-172.26	0.00	172.26	3121.16	1560.58	6469.05	3239.33		0.66	-0.13	0.063
55.00	-30.12	-1.61	0.00	-164.06	0.00	164.06	3092.99	1546.50	6300.19	3154.78		0.80	-0.14	0.062
60.00	-28.91	-1.59	0.00	-155.99	0.00	155.99	3063.94	1531.97	6131.59	3070.35		0.96	-0.16	0.060
65.00	-27.73	-1.57	0.00	-148.03	0.00	148.03	3034.01	1517.01	5963.32	2986.09		1.13	-0.17	0.059
70.00	-26.56	-1.55	0.00	-140.20	0.00	140.20	3003.20	1501.60	5795.50	2902.06		1.31	-0.19	0.057
75.00	-25.41	-1.53	0.00	-132.46	0.00	132.46	2971.51	1485.76	5628.21	2818.29		1.51	-0.20	0.056
80.00	-24.28	-1.52	0.00	-124.81	0.00	124.81	2938.94	1469.47	5461.54	2734.83		1.73	-0.22	0.054
85.00	-23.16	-1.51	0.00	-117.21	0.00	117.21	2905.48	1452.74	5295.59	2651.73		1.97	-0.23	0.052
86.50	-22.83	-1.51	0.00	-114.94	0.00	114.94	2895.27	1447.64	5245.96	2626.88		2.04	-0.23	0.052
90.00	-21.44	-1.51	0.00	-109.64	0.00	109.64	2871.14	1435.57	5130.46	2569.04		2.21	-0.24	0.050
92.75	-20.35	-1.51	0.00	-105.49	0.00	105.49	2877.20	1438.60	5159.24	2583.45		2.36	-0.25	0.048
95.00	-19.86	-1.51	0.00	-102.09	0.00	102.09	2861.53	1430.77	5085.14	2546.35		2.48	-0.26	0.047
100.00	-18.79	-1.51	0.00	-94.53	0.00	94.53	2826.07	1413.04	4921.19	2464.25		2.76	-0.27	0.045
105.00	-17.73	-1.51	0.00	-86.98	0.00	86.98	2789.73	1394.87	4758.26	2382.67		3.05	-0.29	0.043
110.00	-16.69	-1.51	0.00	-79.43	0.00	79.43	2752.51	1376.25	4596.46	2301.65		3.36	-0.30	0.041
111.50	-16.38	-1.51	0.00	-77.17	0.00	77.17	2741.17	1370.58	4548.16	2277.46		3.46	-0.30	0.040
111.50	-16.38	-1.51	0.00	-77.17	0.00	77.17	2001.40	1000.70	3331.01	1667.98		3.46	-0.30	0.054
115.00	-15.78	-1.51	0.00	-71.89	0.00	71.89	1985.76	992.88	3255.34	1630.09		3.68	-0.31	0.052
120.00	-14.93	-1.51	0.00	-64.35	0.00	64.35	1962.68	981.34	3147.40	1576.04		4.02	-0.33	0.048
125.00	-13.47	-1.50	0.00	-56.82	0.00	56.82	1938.71	969.36	3039.72	1522.12		4.37	-0.34	0.044
125.50	-13.32	-1.50	0.00	-56.07	0.00	56.07	1950.32	975.16	3091.33	1547.96		4.41	-0.34	0.043
130.00	-12.58	-1.50	0.00	-49.32	0.00	49.32	1928.38	964.19	2994.57	1499.51		4.74	-0.36	0.039
135.00	-11.77	-1.49	0.00	-41.82	0.00	41.82	1903.16	951.58	2887.43	1445.86		5.12	-0.37	0.035
140.00	-10.97	-1.47	0.00	-34.37	0.00	34.37	1877.06	938.53	2780.79	1392.46		5.51	-0.38	0.031
145.00	-10.18	-1.44	0.00	-27.00	0.00	27.00	1850.08	925.04	2674.74	1339.36		5.91	-0.39	0.026
150.00	-9.41	-1.40	0.00	-19.79	0.00	19.79	1822.21	911.11	2569.37	1286.60		6.32	-0.40	0.021
155.00	-8.65	-1.34	0.00	-12.80	0.00	12.80	1793.47	896.74	2464.78	1234.22		6.74	-0.40	0.015
157.00	-5.97	-1.04	0.00	-10.11	0.00	10.11	1781.73	890.86	2423.19	1213.40		6.91	-0.40	0.012
160.00	-5.59	-1.00	0.00	-6.99	0.00	6.99	1763.85	881.92	2361.07	1182.29		7.17	-0.41	0.009
165.00	-4.97	-0.91	0.00	-2.00	0.00	2.00	1733.34	866.67	2258.33	1130.84		7.59	-0.41	0.005
167.00	-0.30	-0.06	0.00	-0.19	0.00	0.19	1720.89	860.44	2217.52	1110.41		7.76	-0.41	0.000
170.00	0.00	-0.06	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93		8.02	-0.41	0.000

Seismic Segment Forces (Factored)

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E					**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19	**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.36	**SA**	0.04	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1171.7	0.00	0.03	0.02	18.44	
10.00		1154.3	0.01	0.05	0.03	27.33	
15.00		1136.8	0.01	0.06	0.04	31.79	
20.00		1119.3	0.03	0.07	0.04	33.96	
25.00		1101.9	0.04	0.07	0.04	34.96	
30.00		1084.4	0.06	0.07	0.04	35.41	
35.00		1066.9	0.08	0.07	0.04	35.66	
40.00		1049.5	0.10	0.07	0.04	35.84	
42.75	Bot - Section 2	569.78	0.12	0.07	0.03	19.68	
45.00		852.69	0.13	0.07	0.03	29.71	
50.00	Top - Section 1	1871.6	0.16	0.07	0.03	66.20	
55.00		842.52	0.20	0.06	0.02	29.91	
60.00		827.97	0.24	0.06	0.02	28.91	
65.00		813.42	0.28	0.05	0.01	26.99	
70.00		798.86	0.32	0.04	0.01	23.84	
75.00		784.31	0.37	0.03	0.01	19.21	
80.00		769.75	0.42	0.01	0.01	13.02	
85.00		755.20	0.47	-0.01	0.01	5.55	
86.50	Bot - Section 3	223.72	0.49	-0.01	0.01	0.94	
90.00		1041.2	0.53	-0.03	0.01	-3.59	
92.75	Top - Section 2	808.10	0.56	-0.04	0.01	-7.63	
95.00		329.68	0.59	-0.05	0.01	-4.67	
100.00		722.08	0.65	-0.07	0.02	-16.87	
105.00		707.52	0.72	-0.09	0.03	-21.13	
110.00		692.97	0.79	-0.11	0.05	-22.79	
111.50	Top - Section 3	205.05	0.81	-0.11	0.06	-6.78	
115.00		379.28	0.86	-0.12	0.07	-12.17	
120.00	Bot - Section 5	531.93	0.94	-0.12	0.10	-14.54	
125.00		1047.3	1.02	-0.10	0.14	-19.53	
125.50	Top - Section 4	103.45	1.03	-0.10	0.15	-1.82	
130.00		463.33	1.11	-0.07	0.19	-2.81	
135.00		503.75	1.19	0.00	0.25	5.26	
140.00		492.11	1.28	0.10	0.32	15.17	
145.00		480.46	1.37	0.24	0.41	26.51	
150.00		468.82	1.47	0.43	0.51	39.15	
155.00		457.18	1.57	0.69	0.63	52.98	
157.00	Appurtenance(s)	2172.5	1.61	0.82	0.69	282.42	
160.00		265.92	1.67	1.03	0.78	40.53	
165.00		433.89	1.78	1.45	0.94	83.80	
167.00	Appurtenance(s)	3865.1	1.82	1.65	1.02	814.08	
170.00		251.95	1.89	1.98	1.14	60.00	
	Totals:	**34,418.7**				**1,802.9**	**Total Wind:** **22,082.9**

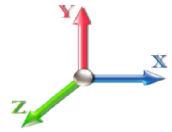
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E							**Iterations**	22
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.36	**SA**	0.04			**Seismic Importance Factor**	1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-36.03	-1.94	0.00	-261.38	0.00	261.38	4409.44	2204.72	10577.3	5296.53		0.00	0.00	0.058
5.00	-34.82	-1.93	0.00	-251.68	0.00	251.68	4373.55	2186.77	10335.0	5175.19		0.01	-0.01	0.057
10.00	-33.62	-1.91	0.00	-242.03	0.00	242.03	4336.78	2168.39	10093.2	5054.11		0.03	-0.02	0.056
15.00	-32.44	-1.88	0.00	-232.49	0.00	232.49	4299.12	2149.56	9852.03	4933.34		0.06	-0.04	0.055
20.00	-31.28	-1.86	0.00	-223.07	0.00	223.07	4260.58	2130.29	9611.54	4812.91		0.10	-0.05	0.054
25.00	-30.13	-1.83	0.00	-213.80	0.00	213.80	4221.16	2110.58	9371.84	4692.89		0.16	-0.06	0.053
30.00	-29.00	-1.80	0.00	-204.67	0.00	204.67	4180.86	2090.43	9133.04	4573.31		0.23	-0.07	0.052
35.00	-27.88	-1.76	0.00	-195.70	0.00	195.70	4139.68	2069.84	8895.22	4454.22		0.32	-0.09	0.051
40.00	-26.78	-1.73	0.00	-186.88	0.00	186.88	4097.62	2048.81	8658.48	4335.68		0.42	-0.10	0.050
42.75	-26.18	-1.71	0.00	-182.12	0.00	182.12	4074.11	2037.05	8528.77	4270.73		0.48	-0.11	0.049
45.00	-25.34	-1.69	0.00	-178.26	0.00	178.26	4054.67	2027.34	8422.92	4217.72		0.53	-0.11	0.049
50.00	-23.50	-1.62	0.00	-169.83	0.00	169.83	3121.16	1560.58	6469.05	3239.33		0.65	-0.13	0.060
55.00	-22.59	-1.59	0.00	-161.72	0.00	161.72	3092.99	1546.50	6300.19	3154.78		0.79	-0.14	0.059
60.00	-21.68	-1.57	0.00	-153.75	0.00	153.75	3063.94	1531.97	6131.59	3070.35		0.94	-0.15	0.057
65.00	-20.80	-1.55	0.00	-145.90	0.00	145.90	3034.01	1517.01	5963.32	2986.09		1.11	-0.17	0.056
70.00	-19.92	-1.52	0.00	-138.18	0.00	138.18	3003.20	1501.60	5795.50	2902.06		1.30	-0.18	0.054
75.00	-19.06	-1.51	0.00	-130.56	0.00	130.56	2971.51	1485.76	5628.21	2818.29		1.50	-0.20	0.053
80.00	-18.21	-1.50	0.00	-123.03	0.00	123.03	2938.94	1469.47	5461.54	2734.83		1.71	-0.21	0.051
85.00	-17.37	-1.49	0.00	-115.55	0.00	115.55	2905.48	1452.74	5295.59	2651.73		1.94	-0.23	0.050
86.50	-17.12	-1.49	0.00	-113.32	0.00	113.32	2895.27	1447.64	5245.96	2626.88		2.01	-0.23	0.049
90.00	-16.08	-1.49	0.00	-108.11	0.00	108.11	2871.14	1435.57	5130.46	2569.04		2.19	-0.24	0.048
92.75	-15.26	-1.49	0.00	-104.01	0.00	104.01	2877.20	1438.60	5159.24	2583.45		2.33	-0.25	0.046
95.00	-14.90	-1.49	0.00	-100.67	0.00	100.67	2861.53	1430.77	5085.14	2546.35		2.45	-0.26	0.045
100.00	-14.09	-1.49	0.00	-93.23	0.00	93.23	2826.07	1413.04	4921.19	2464.25		2.72	-0.27	0.043
105.00	-13.30	-1.49	0.00	-85.80	0.00	85.80	2789.73	1394.87	4758.26	2382.67		3.01	-0.28	0.041
110.00	-12.52	-1.48	0.00	-78.37	0.00	78.37	2752.51	1376.25	4596.46	2301.65		3.32	-0.30	0.039
111.50	-12.28	-1.48	0.00	-76.14	0.00	76.14	2741.17	1370.58	4548.16	2277.46		3.41	-0.30	0.038
111.50	-12.28	-1.48	0.00	-76.14	0.00	76.14	2001.40	1000.70	3331.01	1667.98		3.41	-0.30	0.052
115.00	-11.83	-1.48	0.00	-70.94	0.00	70.94	1985.76	992.88	3255.34	1630.09		3.63	-0.31	0.049
120.00	-11.20	-1.48	0.00	-63.52	0.00	63.52	1962.68	981.34	3147.40	1576.04		3.96	-0.32	0.046
125.00	-10.10	-1.48	0.00	-56.10	0.00	56.10	1938.71	969.36	3039.72	1522.12		4.31	-0.34	0.042
125.50	-9.99	-1.48	0.00	-55.36	0.00	55.36	1950.32	975.16	3091.33	1547.96		4.35	-0.34	0.041
130.00	-9.43	-1.48	0.00	-48.70	0.00	48.70	1928.38	964.19	2994.57	1499.51		4.67	-0.35	0.037
135.00	-8.82	-1.47	0.00	-41.31	0.00	41.31	1903.16	951.58	2887.43	1445.86		5.05	-0.36	0.033
140.00	-8.22	-1.45	0.00	-33.96	0.00	33.96	1877.06	938.53	2780.79	1392.46		5.44	-0.37	0.029
145.00	-7.63	-1.42	0.00	-26.69	0.00	26.69	1850.08	925.04	2674.74	1339.36		5.83	-0.38	0.024
150.00	-7.06	-1.38	0.00	-19.57	0.00	19.57	1822.21	911.11	2569.37	1286.60		6.24	-0.39	0.019
155.00	-6.49	-1.33	0.00	-12.66	0.00	12.66	1793.47	896.74	2464.78	1234.22		6.65	-0.40	0.014
157.00	-4.47	-1.03	0.00	-10.01	0.00	10.01	1781.73	890.86	2423.19	1213.40		6.82	-0.40	0.011
160.00	-4.19	-0.99	0.00	-6.92	0.00	6.92	1763.85	881.92	2361.07	1182.29		7.07	-0.40	0.008
165.00	-3.73	-0.90	0.00	-1.98	0.00	1.98	1733.34	866.67	2258.33	1130.84		7.49	-0.40	0.004
167.00	-0.23	-0.06	0.00	-0.18	0.00	0.18	1720.89	860.44	2217.52	1110.41		7.66	-0.40	0.000
170.00	0.00	-0.06	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93		7.91	-0.40	0.000

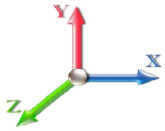
Wind Loading - Shaft

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	249.22	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	245.56	0.650	0.000	5.00	24.641	16.02	108.0	0.0	1171.8
10.00		1.00	0.70	6.129	6.74	241.90	0.650	0.000	5.00	24.276	15.78	106.4	0.0	1154.3
15.00		1.00	0.70	6.129	6.74	238.23	0.650	0.000	5.00	23.911	15.54	104.8	0.0	1136.8
20.00		1.00	0.70	6.129	6.74	234.57	0.650	0.000	5.00	23.546	15.31	103.2	0.0	1119.4
25.00		1.00	0.70	6.129	6.74	230.91	0.650	0.000	5.00	23.181	15.07	101.6	0.0	1101.9
30.00		1.00	0.70	6.134	6.75	227.34	0.650	0.000	5.00	22.816	14.83	100.1	0.0	1084.4
35.00		1.00	0.73	6.410	7.05	228.65	0.650	0.000	5.00	22.451	14.59	102.9	0.0	1067.0
40.00		1.00	0.76	6.659	7.33	229.24	0.650	0.000	5.00	22.086	14.36	105.2	0.0	1049.5
42.75	Bot - Section 2	1.00	0.78	6.787	7.47	229.30	0.650	0.000	2.75	11.992	7.79	58.2	0.0	569.8
45.00		1.00	0.79	6.887	7.58	229.24	0.650	0.000	2.25	9.849	6.40	48.5	0.0	852.7
50.00	Top - Section 1	1.00	0.81	7.098	7.81	228.78	0.650	0.000	5.00	21.621	14.05	109.7	0.0	1871.7
55.00		1.00	0.83	7.294	8.02	230.81	0.650	0.000	5.00	21.256	13.82	110.8	0.0	842.5
60.00		1.00	0.85	7.477	8.22	229.65	0.650	0.000	5.00	20.891	13.58	111.7	0.0	828.0
65.00		1.00	0.87	7.650	8.42	228.20	0.650	0.000	5.00	20.526	13.34	112.3	0.0	813.4
70.00		1.00	0.89	7.814	8.60	226.49	0.650	0.000	5.00	20.161	13.10	112.6	0.0	798.9
75.00		1.00	0.91	7.969	8.77	224.56	0.650	0.000	5.00	19.796	12.87	112.8	0.0	784.3
80.00		1.00	0.93	8.118	8.93	222.42	0.650	0.000	5.00	19.432	12.63	112.8	0.0	769.8
85.00		1.00	0.94	8.260	9.09	220.10	0.650	0.000	5.00	19.067	12.39	112.6	0.0	755.2
86.50	Bot - Section 3	1.00	0.95	8.301	9.13	219.37	0.650	0.000	1.50	5.649	3.67	33.5	0.0	223.7
90.00		1.00	0.96	8.396	9.24	217.62	0.650	0.000	3.50	13.238	8.60	79.5	0.0	1041.2
92.75	Top - Section 2	1.00	0.97	8.468	9.31	216.19	0.650	0.000	2.75	10.276	6.68	62.2	0.0	808.1
95.00		1.00	0.97	8.526	9.38	218.12	0.650	0.000	2.25	8.325	5.41	50.8	0.0	329.7
100.00		1.00	0.99	8.652	9.52	215.37	0.650	0.000	5.00	18.236	11.85	112.8	0.0	722.1
105.00		1.00	1.00	8.774	9.65	212.49	0.650	0.000	5.00	17.871	11.62	112.1	0.0	707.5
110.00		1.00	1.02	8.891	9.78	209.49	0.650	0.000	5.00	17.506	11.38	111.3	0.0	693.0
111.50	Top - Section 3	1.00	1.02	8.925	9.82	208.57	0.650	0.000	1.50	5.181	3.37	33.1	0.0	205.1
115.00		1.00	1.03	9.005	9.91	206.39	0.650	0.000	3.50	11.961	7.77	77.0	0.0	379.3
120.00	Bot - Section 5	1.00	1.04	9.115	10.03	203.18	0.650	0.000	5.00	16.777	10.90	109.3	0.0	531.9
125.00		1.00	1.05	9.222	10.14	199.87	0.650	0.000	5.00	16.623	10.81	109.6	0.0	1047.3
125.50	Top - Section 4	1.00	1.05	9.232	10.16	199.54	0.650	0.000	0.50	1.642	1.07	10.8	0.0	103.5
130.00		1.00	1.07	9.326	10.26	199.10	0.650	0.000	4.50	14.616	9.50	97.5	0.0	463.3
135.00		1.00	1.08	9.427	10.37	195.63	0.650	0.000	5.00	15.893	10.33	107.1	0.0	503.8
140.00		1.00	1.09	9.525	10.48	192.08	0.650	0.000	5.00	15.529	10.09	105.8	0.0	492.1
145.00		1.00	1.10	9.621	10.58	188.46	0.650	0.000	5.00	15.164	9.86	104.3	0.0	480.5
150.00		1.00	1.11	9.715	10.69	184.76	0.650	0.000	5.00	14.799	9.62	102.8	0.0	468.8
155.00		1.00	1.12	9.806	10.79	180.99	0.650	0.000	5.00	14.434	9.38	101.2	0.0	457.2
157.00	Appurtenance(s)	1.00	1.12	9.842	10.83	179.46	0.650	0.000	2.00	5.671	3.69	39.9	0.0	179.6
160.00		1.00	1.13	9.896	10.89	177.16	0.650	0.000	3.00	8.398	5.46	59.4	0.0	265.9
165.00		1.00	1.14	9.983	10.98	173.26	0.650	0.000	5.00	13.704	8.91	97.8	0.0	433.9
167.00	Appurtenance(s)	1.00	1.14	10.017	11.02	171.69	0.650	0.000	2.00	5.379	3.50	38.5	0.0	170.3
170.00		1.00	1.15	10.069	11.08	169.31	0.650	0.000	3.00	7.960	5.17	57.3	0.0	251.9
								Totals:	**170.00**			**3,647.7**		**28,730.9**

Discrete Appurtenance Forces

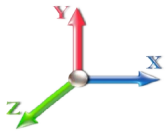
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	10.017	11.019	0.75	0.75	1.38	63.60	0.000	0.000	15.21	0.00	0.00
2	167.00	Ericsson RRUS 8843 B2	3	10.017	11.019	0.50	0.75	2.47	216.00	0.000	0.000	27.24	0.00	0.00
3	167.00	Powerwave 7770	3	10.017	11.019	0.55	0.75	9.03	105.00	0.000	0.000	99.54	0.00	0.00
4	167.00	CCI DMP65R-BU4DA	1	10.017	11.019	0.75	0.75	5.42	67.90	0.000	0.000	59.75	0.00	0.00
5	167.00	CCI DMP65R-BU6DA	2	10.017	11.019	0.55	0.75	13.92	158.80	0.000	0.000	153.36	0.00	0.00
6	167.00	Andrew SBNHH-1D65A	1	10.017	11.019	0.75	0.75	4.41	33.50	0.000	0.000	48.59	0.00	0.00
7	167.00	CCI HPA-65R-BU6AA	2	10.017	11.019	0.59	0.75	11.02	93.80	0.000	0.000	121.44	0.00	0.00
8	167.00	RMQP-496-HK	1	10.017	11.019	1.00	1.00	46.00	2449.00	0.000	0.000	506.88	0.00	0.00
9	167.00	Ericsson RRUS 4449	3	10.017	11.019	0.50	0.75	2.97	213.00	0.000	0.000	32.72	0.00	0.00
10	167.00	Andrew ABT-DFDM-ADBH	3	10.017	11.019	0.73	0.75	0.11	3.30	0.000	0.000	1.21	0.00	0.00
11	167.00	Powerwave	6	10.017	11.019	0.68	0.75	3.73	132.00	0.000	0.000	41.06	0.00	0.00
12	167.00	Powerwave	3	10.017	11.019	0.56	0.75	13.77	159.00	0.000	0.000	151.73	0.00	0.00
13	157.00	12' Low Profile Platform	1	9.842	10.827	1.00	1.00	22.00	1500.00	0.000	0.000	238.18	0.00	0.00
14	157.00	RFS DB-T1-6Z-8AB-0Z	1	9.842	10.827	0.80	0.80	3.84	18.90	0.000	0.000	41.57	0.00	0.00
15	157.00	Alcatel Lucent RRH	3	9.842	10.827	0.54	0.80	3.41	150.00	0.000	0.000	36.91	0.00	0.00
16	157.00	Alcatel Lucent RRH	3	9.842	10.827	0.54	0.80	3.47	132.00	0.000	0.000	37.60	0.00	0.00
17	157.00	Antel BXA-70063/6CF	6	9.842	10.827	0.56	0.80	25.44	102.00	0.000	0.000	275.37	0.00	0.00
18	157.00	Antel BXA-171063/12CF	6	9.842	10.827	0.67	0.80	19.27	90.00	0.000	0.000	208.66	0.00	0.00
							Totals:		**5,687.80**			**2,097.05**		

Total Applied Force Summary

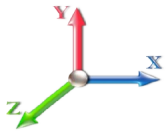
Structure:	CT11709-S-SBA		**Code:**	EIA/TIA-222-G	10/9/2019
Site Name:	Barkhamsted, CT		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		107.98	1345.46	0.00	0.00
10.00		106.38	1328.00	0.00	0.00
15.00		104.78	1310.53	0.00	0.00
20.00		103.18	1293.07	0.00	0.00
25.00		101.58	1275.60	0.00	0.00
30.00		100.07	1258.14	0.00	0.00
35.00		102.90	1240.67	0.00	0.00
40.00		105.16	1223.20	0.00	0.00
42.75		58.19	665.32	0.00	0.00
45.00		48.50	930.86	0.00	0.00
50.00		109.72	2045.35	0.00	0.00
55.00		110.85	1016.22	0.00	0.00
60.00		111.69	1001.67	0.00	0.00
65.00		112.28	987.12	0.00	0.00
70.00		112.64	972.56	0.00	0.00
75.00		112.80	958.01	0.00	0.00
80.00		112.78	943.45	0.00	0.00
85.00		112.60	928.90	0.00	0.00
86.50		33.53	275.83	0.00	0.00
90.00		79.47	1162.81	0.00	0.00
92.75		62.22	903.63	0.00	0.00
95.00		50.75	407.85	0.00	0.00
100.00		112.82	895.78	0.00	0.00
105.00		112.11	881.22	0.00	0.00
110.00		111.29	866.67	0.00	0.00
111.50		33.06	257.16	0.00	0.00
115.00		77.01	500.87	0.00	0.00
120.00		109.33	705.63	0.00	0.00
125.00		109.61	1221.03	0.00	0.00
125.50		10.84	120.82	0.00	0.00
130.00		97.46	619.66	0.00	0.00
135.00		107.12	677.45	0.00	0.00
140.00		105.76	665.81	0.00	0.00
145.00		104.31	654.16	0.00	0.00
150.00		102.79	642.52	0.00	0.00
155.00		101.20	630.88	0.00	0.00
157.00	(20) attachments	878.21	2241.99	0.00	0.00
160.00		59.42	313.98	0.00	0.00
165.00		97.82	513.99	0.00	0.00
167.00	(30) attachments	1297.28	3897.23	0.00	0.00
170.00		57.30	251.95	0.00	0.00
	Totals:	**5,744.78**	**40,033.05**	**0.00**	**0.00**

Calculated Forces

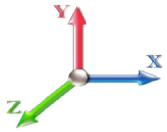
Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-40.03	-5.76	0.00	-681.14	0.00	681.14	4409.44	2204.72	10577.3	5296.53	0.00	0.000	0.000	0.138
5.00	-38.68	-5.67	0.00	-652.37	0.00	652.37	4373.55	2186.77	10335.0	5175.19	0.02	-0.032	0.000	0.135
10.00	-37.35	-5.58	0.00	-624.02	0.00	624.02	4336.78	2168.39	10093.2	5054.11	0.07	-0.064	0.000	0.132
15.00	-36.04	-5.50	0.00	-596.12	0.00	596.12	4299.12	2149.56	9852.03	4933.34	0.15	-0.096	0.000	0.129
20.00	-34.74	-5.41	0.00	-568.64	0.00	568.64	4260.58	2130.29	9611.54	4812.91	0.27	-0.127	0.000	0.126
25.00	-33.46	-5.32	0.00	-541.60	0.00	541.60	4221.16	2110.58	9371.84	4692.89	0.42	-0.159	0.000	0.123
30.00	-32.20	-5.24	0.00	-514.98	0.00	514.98	4180.86	2090.43	9133.04	4573.31	0.60	-0.191	0.000	0.120
35.00	-30.96	-5.15	0.00	-488.80	0.00	488.80	4139.68	2069.84	8895.22	4454.22	0.82	-0.223	0.000	0.117
40.00	-29.74	-5.05	0.00	-463.07	0.00	463.07	4097.62	2048.81	8658.48	4335.68	1.07	-0.254	0.000	0.114
42.75	-29.07	-5.00	0.00	-449.19	0.00	449.19	4074.11	2037.05	8528.77	4270.73	1.22	-0.272	0.000	0.112
45.00	-28.14	-4.95	0.00	-437.95	0.00	437.95	4054.67	2027.34	8422.92	4217.72	1.35	-0.286	0.000	0.111
50.00	-26.09	-4.85	0.00	-413.18	0.00	413.18	3121.16	1560.58	6469.05	3239.33	1.67	-0.317	0.000	0.136
55.00	-25.07	-4.75	0.00	-388.95	0.00	388.95	3092.99	1546.50	6300.19	3154.78	2.02	-0.348	0.000	0.131
60.00	-24.07	-4.64	0.00	-365.22	0.00	365.22	3063.94	1531.97	6131.59	3070.35	2.40	-0.384	0.000	0.127
65.00	-23.08	-4.54	0.00	-342.01	0.00	342.01	3034.01	1517.01	5963.32	2986.09	2.82	-0.418	0.000	0.122
70.00	-22.10	-4.43	0.00	-319.33	0.00	319.33	3003.20	1501.60	5795.50	2902.06	3.28	-0.453	0.000	0.117
75.00	-21.14	-4.32	0.00	-297.18	0.00	297.18	2971.51	1485.76	5628.21	2818.29	3.77	-0.487	0.000	0.113
80.00	-20.20	-4.21	0.00	-275.58	0.00	275.58	2938.94	1469.47	5461.54	2734.83	4.30	-0.520	0.000	0.108
85.00	-19.27	-4.10	0.00	-254.52	0.00	254.52	2905.48	1452.74	5295.59	2651.73	4.86	-0.553	0.000	0.103
86.50	-18.99	-4.07	0.00	-248.37	0.00	248.37	2895.27	1447.64	5245.96	2626.88	5.04	-0.562	0.000	0.101
90.00	-17.83	-3.98	0.00	-234.14	0.00	234.14	2871.14	1435.57	5130.46	2569.04	5.46	-0.585	0.000	0.097
92.75	-16.93	-3.92	0.00	-223.19	0.00	223.19	2877.20	1438.60	5159.24	2583.45	5.80	-0.602	0.000	0.092
95.00	-16.52	-3.87	0.00	-214.38	0.00	214.38	2861.53	1430.77	5085.14	2546.35	6.09	-0.616	0.000	0.090
100.00	-15.62	-3.75	0.00	-195.05	0.00	195.05	2826.07	1413.04	4921.19	2464.25	6.75	-0.645	0.000	0.085
105.00	-14.74	-3.64	0.00	-176.29	0.00	176.29	2789.73	1394.87	4758.26	2382.67	7.44	-0.673	0.000	0.079
110.00	-13.87	-3.52	0.00	-158.11	0.00	158.11	2752.51	1376.25	4596.46	2301.65	8.16	-0.699	0.000	0.074
111.50	-13.62	-3.49	0.00	-152.83	0.00	152.83	2741.17	1370.58	4548.16	2277.46	8.38	-0.707	0.000	0.072
111.50	-13.62	-3.49	0.00	-152.83	0.00	152.83	2001.40	1000.70	3331.01	1667.98	8.38	-0.707	0.000	0.098
115.00	-13.11	-3.41	0.00	-140.63	0.00	140.63	1985.76	992.88	3255.34	1630.09	8.91	-0.725	0.000	0.093
120.00	-12.41	-3.30	0.00	-123.60	0.00	123.60	1962.68	981.34	3147.40	1576.04	9.68	-0.755	0.000	0.085
125.00	-11.19	-3.17	0.00	-107.12	0.00	107.12	1938.71	969.36	3039.72	1522.12	10.49	-0.782	0.000	0.076
125.50	-11.07	-3.16	0.00	-105.53	0.00	105.53	1950.32	975.16	3091.33	1547.96	10.57	-0.785	0.000	0.074
130.00	-10.45	-3.06	0.00	-91.30	0.00	91.30	1928.38	964.19	2994.57	1499.51	11.32	-0.808	0.000	0.066
135.00	-9.77	-2.95	0.00	-76.00	0.00	76.00	1903.16	951.58	2887.43	1445.86	12.18	-0.830	0.000	0.058
140.00	-9.11	-2.83	0.00	-61.26	0.00	61.26	1877.06	938.53	2780.79	1392.46	13.06	-0.849	0.000	0.049
145.00	-8.45	-2.72	0.00	-47.09	0.00	47.09	1850.08	925.04	2674.74	1339.36	13.96	-0.866	0.000	0.040
150.00	-7.81	-2.61	0.00	-33.48	0.00	33.48	1822.21	911.11	2569.37	1286.60	14.87	-0.879	0.000	0.030
155.00	-7.18	-2.50	0.00	-20.42	0.00	20.42	1793.47	896.74	2464.78	1234.22	15.80	-0.889	0.000	0.021
157.00	-4.95	-1.59	0.00	-15.41	0.00	15.41	1781.73	890.86	2423.19	1213.40	16.17	-0.891	0.000	0.015
160.00	-4.64	-1.52	0.00	-10.65	0.00	10.65	1763.85	881.92	2361.07	1182.29	16.73	-0.894	0.000	0.012
165.00	-4.13	-1.42	0.00	-3.02	0.00	3.02	1733.34	866.67	2258.33	1130.84	17.67	-0.897	0.000	0.005
167.00	-0.25	-0.06	0.00	-0.18	0.00	0.18	1720.89	860.44	2217.52	1110.41	18.05	-0.897	0.000	0.000
170.00	0.00	-0.06	0.00	0.00	0.00	0.00	1701.95	850.98	2156.64	1079.93	18.61	-0.897	0.000	0.000

Final Analysis Summary

Structure:	CT11709-S-SBA	**Code:**	EIA/TIA-222-G	10/9/2019	
Site Name:	Barkhamsted, CT	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

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Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	22.1	0.00	48.02	0.00	0.00	2635.50
0.9D + 1.6W 93 mph Wind	22.1	0.00	36.01	0.00	0.00	2608.07
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.5	0.00	79.33	0.00	0.00	908.10
1.2D + 1.0E	1.9	0.00	48.04	0.00	0.00	264.35
0.9D + 1.0E	1.9	0.00	36.03	0.00	0.00	261.38
1.0D + 1.0W 60 mph Wind	5.8	0.00	40.03	0.00	0.00	681.14

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-48.02	-22.13	0.00	-2635.5	0.00	-2635.5	4409.44	2204.7	10577.3	5296.53	0.00	0.509
0.9D + 1.6W 93 mph Wind	-36.01	-22.12	0.00	-2608.0	0.00	-2608.0	4409.44	2204.7	10577.3	5296.53	0.00	0.501
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-79.33	-7.54	0.00	-908.10	0.00	-908.10	4409.44	2204.7	10577.3	5296.53	0.00	0.189
1.2D + 1.0E	-31.34	-1.64	0.00	-172.26	0.00	-172.26	3121.16	1560.5	6469.05	3239.33	50.00	0.063
0.9D + 1.0E	-23.50	-1.62	0.00	-169.83	0.00	-169.83	3121.16	1560.5	6469.05	3239.33	50.00	0.060
1.0D + 1.0W 60 mph Wind	-40.03	-5.76	0.00	-681.14	0.00	-681.14	4409.44	2204.7	10577.3	5296.53	0.00	0.138

Base Plate Summary

Structure:	CT11709-S-SB		**Code:**	EIA/TIA-222-G	10/9/2019
Site Name:	Barkhamsted, CT		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	4200.00
Axial (kip):	51.00
Shear (kip):	33.00

Analysis

Moment (kip-ft):	2635.50
Axial (kip):	79.33
Shear (kip):	22.13
Moment Design %:	62.75

Base Plate

Yield (ksi):	50.00
Width (in):	72.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	13.26
Moment (kip-in):	406.36
Allow Stress (ksi):	67.50
Applied Stress (ksi):	2.87650958467324
Stress Ratio:	0.44

Anchor Bolts

Bolt Circle:	66.00
Number Bolts:	18.00
Bolt Type:	2.00" F1554 105
Bolt Diameter (in):	2.00
Yield (ksi):	105.00
Ultimate (ksi):	125.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00

Compression

Force (kip):	110.89
Allowable (kip):	250.00
Ratio:	0.45

Tension

Force (kip):	102.08
Allowable (kip):	250.00
Ratio:	0.42

Monopole Mat Foundation Design

			Date: 10/9/2019
Customer Name:	AT&T	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	170
Site Number:	CT11709-S-SBA	**Engineer Name:**	H. You
Engr. Number:	86987	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

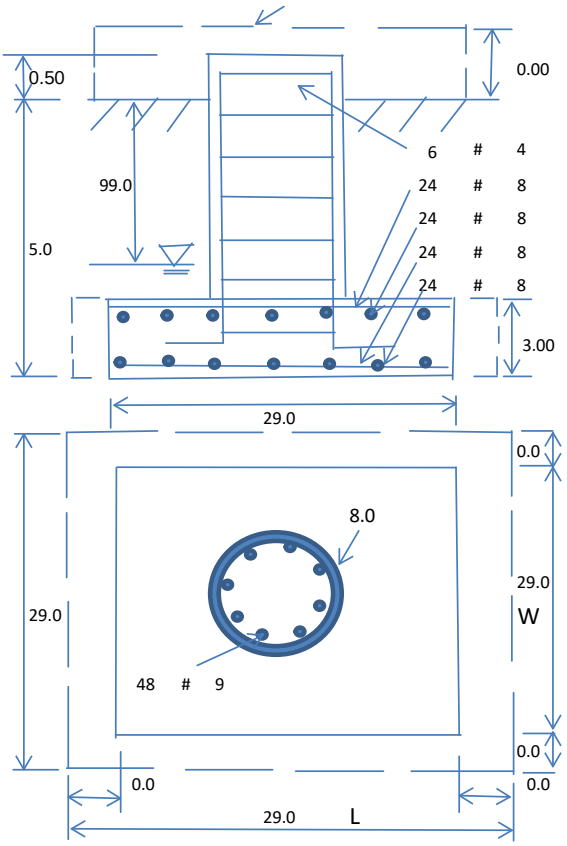
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	79.5	Shear Force (Kips):	22.1
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2635.9
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	5.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	29	Width of Pad (ft.):	29
Final Length of pad (ft)	29.0	Final width of pad (ft):	29.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	40	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	48	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	12000	Ultimate Skin Friction:	175	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	1581.47	Total Dry Soil Weight (Kips):	189.78
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	189.78	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2648.66	Total Dry Concrete Weight (Kips):	397.30
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	397.30	Total Vertical Load on Base (Kips):	666.58

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1369	<	Allowable Factored Soil Bearing (psf):	9000	0.15	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	8814.1	>	Design Factored Momont (kips-ft):	2757	0.31	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	3.20	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	9280.8	>	Design Factored Moment (Mu, Kips-F	2691.2	0.29	OK!
Calculated Shear Capacity (Kips):	789.1	>	Design Factored Shear (Kips):	22.1	0.03	OK!
Calculated Tension Capacity (Tn, Kips):	2592.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	12712.3	>	Design Factored Axial Load (Pu Kips):	79.5	0.01	OK!
Moment & Axial Strength Combination:	0.29	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.007		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	1073.0	>	One-Way Factored Shear (L-D. Kips):	200.3	0.19	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1073.0	>	One-Way Factored Shear (W-D., Kips)	200.3	0.19	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1021.0	>	One-Way Factored Shear (C-C, Kips):	176.5	0.17	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0017	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0017		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2731.9	>	Moment at Bottom (L-Dir. K-Ft):	1273.7	0.47	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2731.9	>	Moment at Bottom (W-Dir. K-Ft):	1273.7	0.47	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3849.4	>	Moment at Bottom (C-C Dir. K-Ft):	1801.2	0.47	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0017	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0017		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2731.9	>	Moment at the top (L-Dir K-Ft):	414.1	0.15	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2731.9	>	Moment at the top (W-Dir K-Ft):	414.1	0.15	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3849.4	>	Moment at the top (C-C Dir. K-Ft):	388.3	0.10	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1054.4	k-ft.	Max. factored shear stress v_{u_CD}:		1.0	Psi
Max. factored shear stress v_{u_AB}:	8.6	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	8.6	Psi	Check Usage of Punching Shear Capacity:		0.05	OK!

INFINIGY

THE SOLUTIONS ARE ENDLESS

Non-Ionizing Radiation Report

Compiled For: Smartlink on behalf of AT&T

Site Name: Barkhamsted Gavitt Road

Site FA: 10133911

Site ID: CTL01280

44 Gavitt Road, Barkhamsted, CT 06063

Latitude: 41.94611 Longitude: -72.91128

Structure Type: Monopole

Report Date: October 4, 2019

Status: AT&T will be compliant with FCC rules on RF Exposure with the signage recommendation in section 4 of this report.

Table of Contents

1. Executive Summary:

Smartlink on behalf of AT&T has contracted Infinigy Solutions, LLC to determine whether the site Barkhamsted Gavitt Road located at 44 Gavitt Road in Barkhamsted, CT Will Be Compliant with all Federal Communications Commission (FCC) rules and regulations for radio frequency (RF) exposure as indicated in **47CFR§1.1310**.

The report incorporates a theoretical RF field analysis in accordance with the FCC Rules and Regulations for all individuals classified as "Occupational or Controlled" and "General Public or Uncontrolled" (see Appendix A and B).

This document and the conclusions herein are based on information provided by Smartlink on behalf of AT&T.

As a result of the analysis, **AT&T Will Be Compliant with FCC rules with the installation of signage recommended in section 4.**

Engineering assumptions were made regarding the collation operator(s). The assumptions were made based upon typical deployment configurations and practices of the operator(s).

All Carriers, All Bands Cumulative Exposure %		
Uncontrolled / General Population	Exposure values at the site (mW/cm^2)	0.0135
	% Exposure	1.91%
Controlled / Occupational	Exposure values at the site (mW/cm^2)	0.0135
	% Exposure	0.40%

2. Site Summary:

Site Information	
Site Name: Barkhamsted Gavitt Road	
Site Address: 44 Gavitt Road, Barkhamsted, CT 06063	
Site Type: Monopole	
Compliance Status	Will Be Compliant
Mitigation Required	No
Signage Required	Yes
Barriers Required	No
Access Locked	No
Area Controlled or Uncontrolled	Uncontrolled

3. Site Compliance

This report also incorporates overview of the site information:

- Antenna Inventory Table
- Calculation Tables showing exposure for each carrier transmit frequency
- Total exposure for all carriers existing and proposed at ground level considering the centerline of all antennas and horizontal distance from the tower.
- Maximum Effective Radiated Power Assumed as Worst Case for Calculations used in this study
- Calculations based on flat ground around base of the structure

4. Site Compliance Recommendations

Infinigy recommends the following upon the installation of antennas at the site:

Base of tower

Caution 2 sign.

Note: The above signage recommendation is moot if there is an existing caution 2 sign at the base of the tower.

5. Antenna Inventory Table

Ant ID	Sector	Operator	Antenna manufacturer	Antenna Model	Operating Frequency	Rad Ctr (Ft)	Total ERP Power (Watts)
1	Alpha	AT&T	Powerwave	7770	850	167	1244
2a	Alpha	AT&T	CCI	DMP65R-BU6DA	700	167	2951
2b	Alpha	AT&T	CCI	DMP65R-BU6DA	1900	167	3664
3a	Alpha	AT&T	CCI	DMP65R-BU6DA	700	167	1476
3b	Alpha	AT&T	CCI	DMP65R-BU6DA	2100	167	3837
3c	Alpha	AT&T	CCI	DMP65R-BU6DA	850	167	1000
3d	Alpha	AT&T	CCI	DMP65R-BU6DA	850	167	1000
4	Beta	AT&T	Powerwave	7770	850	167	1244
5a	Beta	AT&T	CCI	DMP65R-BU6DA	700	167	2951
5b	Beta	AT&T	CCI	DMP65R-BU6DA	1900	167	3664
6a	Beta	AT&T	CCI	DMP65R-BU6DA	700	167	1476
6b	Beta	AT&T	CCI	DMP65R-BU6DA	2100	167	3837
6c	Beta	AT&T	CCI	DMP65R-BU6DA	850	167	1000
6d	Beta	AT&T	CCI	DMP65R-BU6DA	850	167	1000
7	Gamma	AT&T	Powerwave	7770	850	167	1244
8a	Gamma	AT&T	Commscope	SBNHH-1D65A	700	167	2951
8b	Gamma	AT&T	Commscope	SBNHH-1D65A	1900	167	3664
9a	Gamma	AT&T	CCI	DMP65R-BU4DA	700	167	1476
9b	Gamma	AT&T	CCI	DMP65R-BU4DA	2100	167	3837
9c	Gamma	AT&T	CCI	DMP65R-BU4DA	850	167	1000
9d	Gamma	AT&T	CCI	DMP65R-BU4DA	850	167	1000
10	Alpha	Verizon Wireless	Commscope	NNH-65C-R2B	700	157	1501
11	Alpha	Verizon Wireless	Commscope	NNH-65C-R2B	2100	157	2001
12	Alpha	Verizon Wireless	Commscope	NNH-65C-R2B	1900	157	1808
13	Alpha	Verizon Wireless	Commscope	NNH-65C-R2B	850	157	1497

Ant ID	Sector	Operator	Antenna manufacturer	Antenna Model	Operating Frequency	Rad Ctr (Ft)	Total ERP Power (Watts)
14	Beta	Verizon Wireless	Commscope	NNH-65C-R2B	700	157	1501
15	Beta	Verizon Wireless	Commscope	NNH-65C-R2B	2100	157	2001
16	Beta	Verizon Wireless	Commscope	NNH-65C-R2B	1900	157	1808
17	Beta	Verizon Wireless	Commscope	NNH-65C-R2B	850	157	1497
18	Gamma	Verizon Wireless	Commscope	NNH-65C-R2B	700	157	1501
19	Gamma	Verizon Wireless	Commscope	NNH-65C-R2B	2100	157	2001
20	Gamma	Verizon Wireless	Commscope	NNH-65C-R2B	1900	157	1808
21	Gamma	Verizon Wireless	Commscope	NNH-65C-R2B	850	157	1497

6. RF Guidelines

To ensure safety of company workers, the following points need to be taken into consideration and implemented at wireless sites in accordance with the Carriers policies:

a) Worksite: Any employee at the site should avoid working directly in front of the antenna or in areas predicted to exceed general population exposure limits by 100%. Workers should insist that the transmitters be switched off during the work period.

b) RF Safety Training and Awareness: All employees working in areas exceeding the general population limits should have a basic awareness of RF safety measures. Videos, classroom lectures and online courses are all appropriate training methods on these topics.

c) Site Access: Restricting access to transmitting antenna locations is one of the most important elements of RF safety. This can be done with:
   - Locked doors/gates/ladder access
   - Alarmed doors
   - Restrictive barriers

d) Three-foot Buffer: There is an inverse relationship between the strength of the field and the distance from the antenna. The RF field diminishes with distance from the antenna. Workers should maintain a three-foot distance from the antennas.

e) Antennas: Workers should always assume that the antenna is transmitting and should never stop right in front of the antenna. If someone must pass by an antenna, he/she should move quickly, thus reducing RF exposure.

Attachment 1: AT&T Exposure Analysis

AT&T 700 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.5**
	Exposure values at the site (mW/cm^2)	**0.0026**
	% Exposure	**0.53%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.3**
	Exposure values at the site (mW/cm^2)	**0.0026**
	% Exposure	**0.11%**

AT&T 850 MHz UMTS		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.6**
	Exposure values at the site (mW/cm^2)	**0.0007**
	% Exposure	**0.12%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.8**
	Exposure values at the site (mW/cm^2)	**0.0007**
	% Exposure	**0.03%**

AT&T 850 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.6**
	Exposure values at the site (mW/cm^2)	**0.0006**
	% Exposure	**0.10%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.8**
	Exposure values at the site (mW/cm^2)	**0.0006**
	% Exposure	**0.02%**

AT&T 850 MHz 5G		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.6**
	Exposure values at the site (mW/cm^2)	**0.0006**
	% Exposure	**0.10%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.8**
	Exposure values at the site (mW/cm^2)	**0.0006**
	% Exposure	**0.02%**

AT&T 1900 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0022**
	% Exposure	**0.22%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0022**
	% Exposure	**0.04%**

AT&T 2100 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0023**
	% Exposure	**0.23%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0023**
	% Exposure	**0.05%**

Attachment 2: Verizon Wireless Exposure Analysis

Verizon Wireless 700 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.5**
	Exposure values at the site (mW/cm^2)	**0.0010**
	% Exposure	**0.20%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.3**
	Exposure values at the site (mW/cm^2)	**0.0010**
	% Exposure	**0.04%**

Verizon Wireless 850 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**0.6**
	Exposure values at the site (mW/cm^2)	**0.0010**
	% Exposure	**0.17%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**2.8**
	Exposure values at the site (mW/cm^2)	**0.0010**
	% Exposure	**0.04%**

Verizon Wireless 1900 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0012**
	% Exposure	**0.12%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0012**
	% Exposure	**0.02%**

Verizon Wireless 2100 MHz LTE		
Uncontrolled / General Population	FCC's exposure limits (mW/cm^2)	**1.0**
	Exposure values at the site (mW/cm^2)	**0.0013**
	% Exposure	**0.13%**
Controlled / Occupational	FCC's Exposure limits(mW/cm^2)	**5.0**
	Exposure values at the site (mW/cm^2)	**0.0013**
	% Exposure	**0.03%**

Attachment 3: Combined Exposure Analysis for each Carrier

AT&T All Bands		
Uncontrolled / General Population	Exposure values at the site (mW/cm^2)	0.0090
	% Exposure	1.29%
Controlled / Occupational	Exposure values at the site (mW/cm^2)	0.0090
	% Exposure	0.27%

Verizon Wireless All Bands		
Uncontrolled / General Population	Exposure values at the site (mW/cm^2)	0.0045
	% Exposure	0.62%
Controlled / Occupational	Exposure values at the site (mW/cm^2)	0.0045
	% Exposure	0.13%

7. Appendix A: FCC Guidelines

FCC Policies

The Federal Communications Commission (FCC) in 1996 implemented regulations and policies for analysis of RF propagation to evaluate RF emissions. All the analysis and results of this report are compared with FCC's (Federal Communications Commission) rules to determine whether a site is compliant for Occupational/Controlled or General Public/Uncontrolled exposure. All the analysis of RF propagation is done in terms of a percentage. The limits primarily indicate the power density and are generally expressed in terms of milliwatts per centimeter square, mW/cm^2.

FCC guidelines incorporate two separate tiers of exposure limits that are dependent on the scenario/ situation in which that exposure takes place or the status of the individuals who are subjected to that exposure. The decision as to which tier is applied to a scenario is based on the following definitions:

Occupational / Controlled

These limits apply in situations when someone is exposed to RF energy through his/her occupation, is fully aware of the harmful effects of the RF exposure and has an ability to exercise control over this exposure. Occupational / controlled exposure limits also apply when 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. limits for Occupational/Controlled exposure can be found on Table 1(A).

General Population / Uncontrolled

These limits apply to situations in which the general public may be exposed or in which persons who are exposed because of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure to RF. Therefore, members of the general public would always be considered under this category, for example, in the case of a telecommunications tower that exposes people in a nearby residential area. Exposure limits for General Population/Uncontrolled can be found on Table 1(B).

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

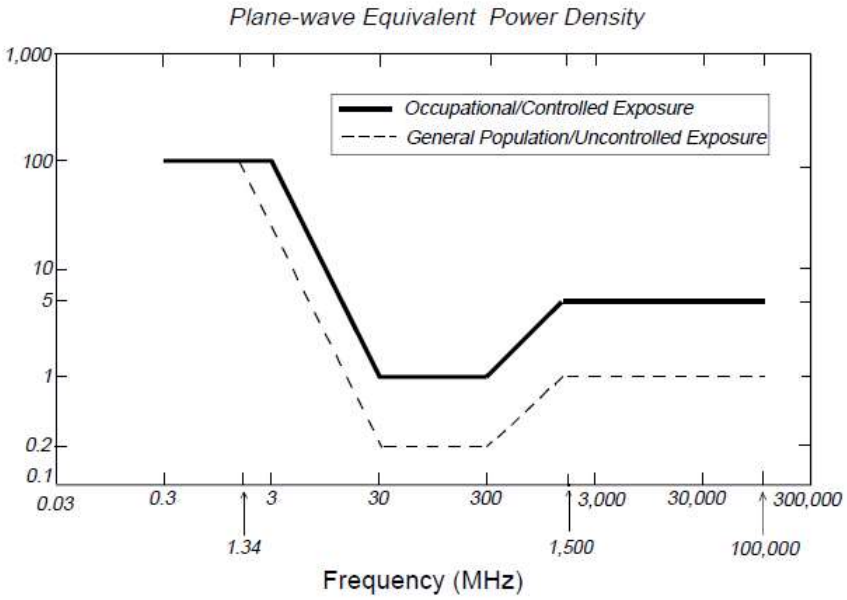
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $|E|^2$, $|H|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

Figure 1. *FCC Limits for Maximum Permissible Exposure (MPE)*



OSHA Statement:

The objective of the OSHA Act is to ensure the safety and health of the working men and women by enforcing certain standards. The act also assists and encourages the states in their efforts to ensure safe and healthy working conditions through means of research, information, education and training in the field of occupational safety and health and for other purposes.

According to OSHA Act section 5, important duties to be considered are:

(a) Each employer

1) Shall furnish to each of his employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious harm to his employees
2) Shall comply with occupational safety and health standards promulgated under this act.

(b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

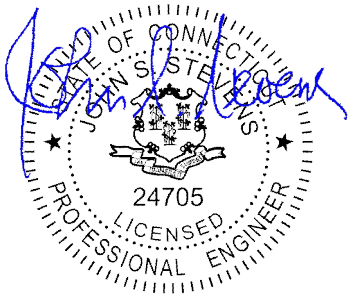
8. Appendix B: Preparer Certification

I, Tim Harris, preparer of this report, certify that I am fully trained and aware of the rules and regulations of both the Federal Communications Commission and the Occupational Safety and Heath Administration regarding Human Exposure to Radio Frequency Radiation. In addition, I have been trained in 1) RF safety and 2) RF modeling using RoofView modeling software.

I certify that the information contained in this report is true and correct to the best of my knowledge.

Timothy A. Harris *10/4/2019*

Signature Date



10/04/2019

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 10:13 AM
To: Kristina Cottone
Subject: FedEx Shipment 776735319861 Delivered

Your package has been delivered

Tracking # 776735319861

Ship date:
Wed, 10/23/2019

Kristina Cottone
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivered

Delivery date:
Thu, 10/24/2019 10:11 am

J & Richard Langer
J & RICHARD LANGER
44 GAVITT RD
BARKHAMSTED, CT
06063111444
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	776735319861
Status:	Delivered: 10/24/2019 10:11 AM Signed for By: Signature Not Req
Reference:	CTL01280 - Barkhamsted
Signed for by:	Signature Not Req
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	10/24/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 9:13 AM CDT on 10/24/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 11:09 AM
To: Kristina Cottone
Subject: FedEx Shipment 776735126802 Delivered

Your package has been delivered

Tracking # 776735126802

Ship date:
Wed, 10/23/2019

Kristina Cottone
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivered

Delivery date:
Thu, 10/24/2019 11:08 am

David Langworthy
TOWN OF BARKHAMSTED
67 RIPLEY HILL RD
BARKHAMSTED, CT
06063332999
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	776735126802
Status:	Delivered: 10/24/2019 11:08 AM Signed for By: Signature Not Req
Reference:	CTL01280 - Barkhamsted
Signed for by:	Signature Not Req
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	10/24/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:09 AM CDT on 10/24/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Thursday, October 24, 2019 11:09 AM
To: Kristina Cottone
Subject: FedEx Shipment 776735280077 Delivered

Your package has been delivered

Tracking # 776735280077

Ship date:
Wed, 10/23/2019

Kristina Cottone
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivered

Delivery date:
Thu, 10/24/2019 11:08 am

Donald S. Stein- First Selectman
TOWN OF BARKHAMSTED
67 RIPLEY HILL RD
BARKHAMSTED, CT
06063332999
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	776735280077
Status:	Delivered: 10/24/2019 11:08 AM Signed for By: Signature Not Req
Reference:	CTL01280 - Barkhamsted
Signed for by:	Signature Not Req
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	10/24/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 10:09 AM CDT on 10/24/2019.

All weights are estimated.

Kristina Cottone

From: TrackingUpdates@fedex.com
Sent: Monday, October 28, 2019 2:50 PM
To: Kristina Cottone
Subject: FedEx Shipment 776735341392 Delivered

Your package has been delivered

Tracking # 776735341392

Ship date:
Wed, 10/23/2019

Kristina Cottone
Smartlink LLC
NORTH BILLERICA, MA 01862
US

Delivered

Delivery date:
Mon, 10/28/2019

Carla Shorter
SBA COMMUNICATIONS CORP.
8051 CONGRESS AVE
BOCA RATON, FL
33487131099
US

Shipment Facts

Our records indicate that the following package has been delivered.

Tracking number:	776735341392
Status:	Delivered: 10/28/2019
Reference:	CTL01280 - Barkhamsted
Service type:	FedEx Ground
Packaging type:	Package
Number of pieces:	1
Weight:	1.00 lb.
Standard transit:	10/28/2019

Please do not respond to this message. This email was sent from an unattended mailbox. This report was generated at approximately 1:49 PM CDT on 10/28/2019.

All weights are estimated.

To track the latest status of your shipment, click on the tracking number above.

Standard transit is the date the package should be delivered by, based on the selected service, destination, and ship date. Limitations and exceptions may apply.Please see the FedEx Service Guide for terms and conditions of service, including the FedEx Money-Back Guarantee, or contact your FedEx Customer Support representative.

Thank you for your business.

SHEET INDEX

NO.	DESCRIPTION
T1	TITLE SHEET
C1	GENERAL NOTES
C2	OVERALL SITE PLAN
C2A	ENLARGED SITE PLAN
C3	ELEVATION VIEW
C4	ANTENNA ORIENTATION PLAN
C5	EQUIPMENT DETAILS
C5A	EQUIPMENT DETAILS
C6	PLUMBING DIAGRAM
C7	GROUNDING DETAILS
S1-S2	MODIFICATION DETAILS

DRIVING DIRECTIONS

FROM 550 COCHITUATE RD.:

GET ON I-90 WEST/MASSACHUETTS TURNPIKE. HEAD NORTHWEST TOWARD LEGGATT MCCALL CONN. TURN LEFT ONTO LEGGATT MCCALL CONN. CONTINUE ONTO BURR STREET. TURN LEFT ONTO COCHITUATE ROAD. USE THE RIGHT LANE TO TAKE THE RAMP TO I-90 WEST/MASSPIKE WEST/SPRINGFIELD/BOSTON. KEEP LEFT AT THE FORK, FOLLOW SIGNS FOR I-90 WEST/MASSACHUETTS TURNPIKE/WORCESTER/SPRINGFIELD AND MERGE ONTO I-90 WEST/MASSACHUETTS TURNPIKE. CONTINUE ON I-90 WEST/MASSACHUETTS TURNPIKE. TAKE I-84 TO CT-20 WEST IN EAST GRANBY. TAKE THE CT-20 WEST EXIT FROM CT-20 WEST. MERGE ONTO I-90 WEST/MASSACHUETTS TURNPIKE. USE THE RIGHT 2 LANES TO TAKE EXIT 9 FOR I-84 TOWARD US-20/HARTFORD/NEW YORK CITY. CONTINUE ONTO I-84. TAKE EXIT 61 FOR I-291 WEST TOWARD WINDSOR. CONTINUE ONTO I-291 WEST. TAKE EXIT 2B TO MERGE ONTO I-91 NORTH TOWARD SPRINGFIELD. USE THE RIGHT 2 LANES TO TAKE EXIT 40 FOR CT-20 TOWARD BRADLEY INTERNATIONAL AIRPORT. CONTINUE ONTO CT-20 WEST. TAKE THE CT-20 WEST EXIT TOWARD EAST GRANBY/GRABBY. CONTINUE ON CT-20 WEST. DRIVE TO CT-219 SOUTH IN BARKHAMSTED. CONTINUE ONTO CT-20 WEST. SLIGHT LEFT ONTO CT-20 WEST/WEST GRANBY ROAD. TURN LEFT ONTO CT-219 SOUTH.

LOCATION MAP

PROJECT

LTE 2C/3C/4C/5C/RETROFIT

SITE NAME

BARKHAMSTED GAVITT ROAD

CELL SITE ID

CTL01280

FA SITE NUMBER

10133911

PACE ID

MRCTB041411/MRCTB041603/MRCTB041584
MRCTB041555/MRCTB041750

SITE ADDRESS

44 GAVITT ROAD
BARKHAMSTED, CT 06063

STRUCTURE TYPE

MONOPOLE

PROJECT TEAM

smartlink

PROJECT MANAGER

INFINIGY

1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

ENGINEER

SCOPE OF WORK (PER LTE RFDS, DATED 09/08/2019 V3.00):

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED.
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- FACILITY HAS NO PLUMBING OR REFRIGERANTS.
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS.
- ALL NEW MATERIAL SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR UNLESS NOTED OTHERWISE. EQUIPMENT, ANTENNAS/RRU AND CABLES FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR.

TOWER
- REMOVE (6) PANEL ANTENNAS
- INSTALL (6) PANEL ANTENNAS
- REMOVE (3) RRUS-11 B12
- INSTALL (3) 4449 B5/B12
- INSTALL (3) 8843 B2/B66A
- INSTALL (1) DC6 SQUID W/ (1) FIBER AND (2) DC CABLES
- UMTS HOME RUN CABLE

GROUND
- SWAP BBU WITH (2) 6630
- ADD XMU
- ADD IDLe CABLE
- INSTALL (3) DIPLEXERS
- INSTALL (2) B14 4478

PROJECT SUMMARY

SITE NAME:	BARKHAMSTED GAVITT ROAD	
CELL SITE ID:	CTL01280	
FA SITE #:	10133911	
SITE ADDRESS:	44 GAVITT ROAD BARKHAMSTED, CT 06063	
COUNTY:	LITCHFIELD	
SITE COORDINATES: LATITUDE:	41.9461100° N	(NAD 83)
LONGITUDE:	72.9112800° W	(NAD 83)
RAD CENTER	±167'	(AGL)
LANDLORD:	SBA COMMUNICATIONS	
APPLICANT:	AT&T MOBILITY 550 COCHITUATE RD. FRAMINGHAM, MA 01701	
CLIENT REPRESENTATIVE:	SMARTLINK, LLC 85 RANGEWAY RD., BUILDING 3, SUITE 102 NORTH BILLERICA, MA 01862	
CONTACT:	SHARON KEEFE (978)930-3918	
ENGINEER:	INFINIGY 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205	
CONTACT:	ALEX WELLER (518) 690-0790	
BUILDING CODE:	2018 CT STATE BUILDING CODE 2015 INTERNATIONAL BUILDING CODE ANSI/TIA-222 G 2015 INTERNATIONAL PLUMBING CODE 2015 INTERNATIONAL MECHANICAL CODE 2015 INTERNATIONAL ENERGY CONSERVATION CODE 2017 NFPA 70	
ELECTRICAL CODE:	NATIONAL ELECTRICAL CODE (LATEST EDITION)	

811 Know what's below. Call before you dig.

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STATE OF CONNECTICUT
JOHN S. STEVENS
11/06/2019
24705
LICENSED PROFESSIONAL ENGINEER

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No.	Submittal / Revision	App'd	Date
2	ISSUED FOR PERMIT	ASW	11/06/19
1	ISSUED FOR PERMIT	BMM	10/17/19
0	ISSUED FOR REVIEW	BMM	09/27/19

Drawn: BMM Date: 09/27/19
Designed: ASW Date: 09/27/19
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Project Number: 499-006

Project Title:
BARKHAMSTED GAVITT ROAD
CTL01280
FA# 10133911
44 GAVITT ROAD
BARKHAMSTED, CT 06063

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 11/06/19

CD

Drawing Title
TITLE PAGE

Drawing Number
T1

GENERAL NOTES

PART 1 – GENERAL REQUIREMENTS

1.1 THE WORK SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF, INCLUDED BUT NOT LIMITED TO THE FOLLOWING:
- A. GR-63-CORE NEBS REQUIREMENTS: PHYSICAL PROTECTION
- B. GR-78-CORE GENERIC REQUIREMENTS FOR THE PHYSICAL DESIGN AND MANUFACTURE OF TELECOMMUNICATIONS EQUIPMENT.
- C. NATIONAL FIRE PROTECTION ASSOCIATION CODES AND STANDARDS (NFPA) INCLUDING NFPA 70 (NATIONAL ELECTRICAL CODE – "NEC").
- D. AND NFPA 101 (LIFE SAFETY CODE).
- E. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM).
- F. INSTITUTE OF ELECTRONIC AND ELECTRICAL ENGINEERS (IEEE).

1.2 DEFINITIONS:
A: WORK: THE SUM OF TASKS AND RESPONSIBILITIES IDENTIFIED IN THE CONTRACT DOCUMENTS.
B: COMPANY: AT&T CORPORATION
C. ENGINEER: SYNONYMOUS WITH ARCHITECT & ENGINEER AND "A&E". THE DESIGN PROFESSIONAL HAVING PROFESSIONAL RESPONSIBILITY FOR DESIGN OF THE PROJECT.
D: CONTRACTOR: CONSTRUCTION CONTRACTOR; CONSTRUCTION VENDOR; INDIVIDUAL OR ENTITY WHO AFTER EXECUTION OF A CONTRACT IS BOUND TO ACCOMPLISH THE WORK.
E: THIRD PARTY VENDOR OR AGENCY: A VENDOR OR AGENCY ENGAGED SEPARATELY BY THE COMPANY, A&E, OR CONTRACTOR TO PROVIDE MATERIALS OR TO ACCOMPLISH SPECIFIC TASKS RELATED TO BUT NOT INCLUDED IN THE WORK.

1.3 POINT OF CONTACT: COMMUNICATION BETWEEN THE COMPANY AND THE CONTRACTOR SHALL FLOW THROUGH THE SINGLE COMPANY SITE DEVELOPMENT SPECIALIST OR OTHER PROJECT COORDINATOR APPOINTED TO MANAGE THE PROJECT FOR THE COMPANY.

1.4 ON-SITE SUPERVISION: THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT WHO SHALL BE IN ATTENDANCE AT THE SITE AT ALL TIMES DURING PERFORMANCE OF THE WORK.

1.5 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE: THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS, STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES, AND THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
A. THE JOBSITE DRAWINGS, SPECIFICATIONS AND DETAILS SHALL BE CLEARLY MARKED DAILY IN PENCIL WITH ANY CHANGES IN CONSTRUCTION OVER WHAT IS DEPICTED IN THE DOCUMENTS. AT CONSTRUCTION COMPLETION, THIS JOBSITE MARKUP SET SHALL BE DELIVERED TO THE COMPANY OR COMPANY'S DESIGNATED REPRESENTATIVE TO BE FORWARDED TO THE COMPANY'S A&E VENDOR FOR PRODUCTION OF "AS-BUILT" DRAWINGS.

1.6 USE OF JOB SITE: THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION AND RELATED OPERATIONS INCLUDING STAGING AND STORAGE OF MATERIALS AND EQUIPMENT, PARKING, TEMPORARY FACILITIES, AND WASTE STORAGE TO THE LEASE PARCEL UNLESS OTHERWISE PERMITTED BY THE CONTRACT DOCUMENTS.

1.7 NOTICE TO PROCEED:
A. NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED.
B. UPON RECEIVING NOTICE TO PROCEED, CONTRACTOR SHALL FULLY PERFORM ALL WORK NECESSARY TO PROVIDE AT&T WITH AN OPERATIONAL WIRELESS FACILITY.

PART 2 – EXECUTION

2.1 TEMPORARY UTILITIES AND FACILITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY UTILITIES AND FACILITIES NECESSARY EXCEPT AS OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS. TEMPORARY UTILITIES AND FACILITIES INCLUDE, POTABLE WATER, HEAT, HVAC, ELECTRICITY, SANITARY FACILITIES, WASTE DISPOSAL FACILITIES, AND TELEPHONE/COMMUNICATION SERVICES. PROVIDE TEMPORARY UTILITIES AND FACILITIES IN ACCORDANCE WITH OSHA AND THE AUTHORITY HAVING JURISDICTION. CONTRACTOR MAY UTILIZE THE COMPANY ELECTRICAL SERVICE IN THE COMPLETION OF THE WORK WHEN IT BECOMES AVAILABLE. USE OF THE LESSORS OR SITE OWNER'S UTILITIES OR FACILITIES IS EXPRESSLY FORBIDDEN EXCEPT AS OTHERWISE ALLOWED IN THE CONTRACT DOCUMENTS.

2.2 ACCESS TO WORK: THE CONTRACTOR SHALL PROVIDE ACCESS TO THE JOB SITE FOR AUTHORIZED COMPANY PERSONNEL AND AUTHORIZED REPRESENTATIVES OF THE ARCHITECT/ENGINEER DURING ALL PHASES OF THE WORK.

2.3 TESTING: REQUIREMENTS FOR TESTING BY THIS CONTRACTOR SHALL BE AS INDICATED HEREWITH, ON THE CONSTRUCTION DRAWINGS, AND IN THE INDIVIDUAL SECTIONS OF THESE SPECIFICATIONS. SHOULD COMPANY CHOOSE TO ENGAGE ANY THIRD-PARTY TO CONDUCT ADDITIONAL TESTING, THE CONTRACTOR SHALL COOPERATE WITH AND PROVIDE A WORK AREA FOR COMPANY'S TEST AGENCY.

2.4 COMPANY FURNISHED MATERIAL AND EQUIPMENT: ALL HANDLING, STORAGE AND INSTALLATION OF COMPANY FURNISHED MATERIAL AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
A. CONTRACTOR SHALL PROCURE ALL OTHER REQUIRED WORK RELATED MATERIALS NOT PROVIDED BY AT&T TO SUCCESSFULLY CONSTRUCT A WIRELESS FACILITY.

2.5 DIMENSIONS: VERIFY DIMENSIONS INDICATED ON DRAWINGS WITH FIELD DIMENSIONS BEFORE FABRICATION OR ORDERING OF MATERIALS. DO NOT SCALE DRAWINGS.

2.6 EXISTING CONDITIONS: NOTIFY THE COMPANY REPRESENTATIVE OF EXISTING CONDITIONS DIFFERING FROM THOSE INDICATED ON THE DRAWINGS. DO NOT REMOVE OR ALTER STRUCTURAL COMPONENTS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND ENGINEER.

PART 3 – RECEIPT OF MATERIAL & EQUIPMENT

3.1 RECEIPT OF MATERIAL AND EQUIPMENT: CONTRACTOR IS RESPONSIBLE FOR AT&T PROVIDED MATERIAL AND EQUIPMENT AND UPON RECEIPT SHALL:
- A. ACCEPT DELIVERIES AS SHIPPED AND TAKE RECEIPT.
- B. VERIFY COMPLETENESS AND CONDITION OF ALL DELIVERIES.
- C. TAKE RESPONSIBILITY FOR EQUIPMENT AND PROVIDE INSURANCE PROTECTION AS REQUIRED IN AGREEMENT.
- D. RECORD ANY DEFECTS OR DAMAGES AND WITHIN TWENTY-FOUR HOURS AFTER RECEIPT, REPORT TO AT&T OR ITS DESIGNATED PROJECT REPRESENTATIVE OF SUCH.
- E. PROVIDE SECURE AND NECESSARY WEATHER PROTECTED WAREHOUSING.
- F. COORDINATE SAFE AND SECURE TRANSPORTATION OF MATERIAL AND EQUIPMENT, DELIVERING AND OFF-LOADING FROM CONTRACTOR'S WAREHOUSE TO SITE.

PART 4 – GENERAL REQUIREMENTS FOR CONSTRUCTION

4.1 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

4.2 EQUIPMENT ROOMS SHALL AT ALL TIMES BE MAINTAINED "BROOM CLEAN" AND CLEAR OF DEBRIS.

4.3 CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS TO DISCOVER AND LOCATE ANY HAZARDOUS CONDITION.
A. IN THE EVENT CONTRACTOR ENCOUNTERS ANY HAZARDOUS CONDITION WHICH HAS NOT BEEN ABATED OR OTHERWISE MITIGATED, CONTRACTOR AND ALL OTHER PERSONS SHALL IMMEDIATELY STOP WORK IN THE AFFECTED AREA AND NOTIFY COMPANY IN WRITING. THE WORK IN THE AFFECTED AREA SHALL NOT BE RESUMED EXCEPT BY WRITTEN NOTIFICATION BY COMPANY.
B. CONTRACTOR AGREES TO USE CARE WHILE ON THE SITE AND SHALL NOT TAKE ANY ACTION THAT WILL OR MAY RESULT IN OR CAUSE THE HAZARDOUS CONDITION TO BE FURTHER RELEASED IN THE ENVIRONMENT, OR TO FURTHER EXPOSE INDIVIDUALS TO THE HAZARD.

4.4 CONTRACTOR'S ACTIVITIES SHALL BE RESTRICTED TO THE PROJECT LIMITS. SHOULD AREAS OUTSIDE THE PROJECT LIMITS BE AFFECTED BY CONTRACTOR'S ACTIVITIES, CONTRACTOR SHALL IMMEDIATELY RETURN THEM TO ORIGINAL CONDITION.

4.5 CONDUCT TESTING AS REQUIRED HEREIN.

PART 5 – TESTS AND INSPECTIONS

5.1 TESTS AND INSPECTIONS:
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL COORDINATE TEST AND INSPECTION SCHEDULES WITH COMPANY'S REPRESENTATIVE WHO MUST BE ON SITE TO WITNESS SUCH TESTS AND INSPECTIONS.
- C. WHEN THE USE OF A THIRD PARTY INDEPENDENT TESTING AGENCY IS REQUIRED, THE AGENCY THAT IS SELECTED MUST PERFORM SUCH WORK ON A REGULAR BASIS IN THE STATE WHERE THE PROJECT IS LOCATED AND HAVE A THOROUGH UNDERSTANDING OF LOCAL AVAILABLE MATERIALS, INCLUDING THE SOIL, ROCK, AND GROUNDWATER CONDITIONS.
- D. THE THIRD PARTY TESTING AGENCY IS TO BE FAMILIAR WITH THE APPLICABLE REQUIREMENTS FOR THE TESTS TO BE DONE, EQUIPMENT TO BE USED, AND ASSOCIATED HEALTH AND SAFETY ISSUES.
- E. SITE RESISTANCE TO EARTH TESTING PER EXHIBIT: CELL SITE GROUNDING SYSTEM DESIGN.
- F. ANTENNA AND COAX SWEEP TESTS PER EXHIBIT: ANTENNA TRANSMISSION LINE ACCEPTANCE STANDARDS.
- G. ALL OTHER TESTS REQUIRED BY COMPANY OR JURISDICTION.

PART 6 – TRENCHING AND BACKFILLING

6.1 TRENCHING AND BACKFILLING: THE CONTRACTOR SHALL PERFORM ALL EXCAVATION OF EVERY DESCRIPTION AND OF WHATEVER SUBSTANCES ENCOUNTERED, TO THE DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS OTHERWISE SPECIFIED.

A. PROTECTION OF EXISTING UTILITIES: THE CONTRACTOR SHALL CHECK WITH THE LOCAL UTILITIES AND THE RESPECTIVE UTILITY LOCATOR COMPANIES PRIOR TO STARTING EXCAVATION OPERATIONS IN EACH RESPECTIVE AREA TO ASCERTAIN THE LOCATIONS OF KNOWN UTILITY LINES. THE LOCATIONS, NUMBER AND TYPES OF EXISTING UTILITY LINES DETAILED ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE AND DO NOT REPRESENT EXACT INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL LINES DAMAGED DURING EXCAVATION AND ALL ASSOCIATED OPERATIONS. ALL UTILITY LINES UNCOVERED DURING THE EXCAVATION OPERATIONS, SHALL BE PROTECTED FROM DAMAGE DURING EXCAVATION AND ASSOCIATED OPERATIONS. ALL REPAIRS SHALL BE APPROVED BY THE UTILITY COMPANY.

B. HAND DIGGING: UNLESS APPROVED IN WRITING OTHERWISE, ALL DIGGING WITHIN AN EXISTING CELL SITE COMPOUND IS TO BE DONE BY HAND.

C. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE STOCKPILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF THE TRENCH TO AVOID OVERLOADING AND TO PREVENT SLIDES OR CAVE-INS. ALL EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

D. GRADING SHALL BE DONE AS MAY BE NECESSARY TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS, AND ANY WATER ACCUMULATING THEREIN SHALL BE REMOVED BY PUMPING OR BY OTHER APPROVED METHOD.

E. SHEETING AND SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. UNLESS OTHERWISE INDICATED, EXCAVATION SHALL BE BY OPEN CUT, EXCEPT THAT SHORT SECTIONS OF A TRENCH MAY BE TUNNELED IF, THE CONDUIT CAN BE SAFELY AND PROPERLY INSTALLED AND BACKFILL CAN BE PROPERLY TAMPED IN SUCH TUNNEL SECTIONS. EARTH EXCAVATION SHALL COMPRISE ALL MATERIALS AND SHALL INCLUDE CLAY, SILT, SAND, MUCK, GRAVEL, HARDPAN, LOOSE SHALE, AND LOOSE STONE.

F. TRENCHES SHALL BE OF NECESSARY WIDTH FOR THE PROPER LAYING OF THE CONDUIT OR CABLE, AND THE BANKS SHALL BE AS NEARLY VERTICAL AS PRACTICABLE. THE BOTTOM OF THE TRENCHES SHALL BE ACCURATELY GRADED TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF THE CONDUIT OR CABLE ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE NECESSARY, THE ROCK SHALL BE EXCAVATED TO A MINIMUM OVER DEPTH OF 6 INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE CONSTRUCTION DRAWINGS OR SPECIFIED. OVER DEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVER DEPTHS SHALL BE THOROUGHLY BACK FILLED AND TAMPED TO THE APPROPRIATE GRADE. WHENEVER WET OR OTHERWISE UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE CONDUIT OR CABLE IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, SUCH SOLID SHALL BE REMOVED TO A MINIMUM OVER DEPTH OF 6 INCHES AND THE TRENCH BACKFILLED TO THE PROPER GRADE WITH EARTH OF OTHER SUITABLE MATERIAL, AS HEREINAFTER SPECIFIED.

G. BACKFILLING OF TRENCHES. TRENCHES SHALL NOT BE BACKFILLED UNTIL ALL SPECIFIED TESTS HAVE BEEN PERFORMED AND ACCEPTED. WHERE COMPACTED BACKFILL IS NOT INDICATED THE TRENCHES SHALL BE CAREFULLY BACKFILLED WITH SELECT MATERIAL SUCH AS EXCAVATED SOILS THAT ARE FREE OF ROOTS, SOD, RUBBISH OR STONES, DEPOSITED IN 6 INCH LAYERS AND THOROUGHLY AND CAREFULLY RAMMED UNTIL THE CONDUIT OR CABLE HAS A COVER OF NOT LESS THAN 1 FOOT. THE REMAINDER OF THE BACKFILL MATERIAL SHALL BE GRANULAR IN NATURE AND SHALL NOT CONTAIN ROOTS, SOD, RUBBING, OR STONES OF 2-1/2 INCH MAXIMUM DIMENSION. BACKFILL SHALL BE CAREFULLY PLACED IN THE TRENCH AND IN 1 FOOT LAYERS AND EACH LAYER TAMPED. SETTLING THE BACKFILL WITH WATER WILL BE PERMITTED. THE SURFACE SHALL BE GRADED TO A REASONABLE UNIFORMITY AND THE MOUNDING OVER THE TRENCHES LEFT IN A UNIFORM AND NEAT CONDITION.

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH
F	FUSIBLE DISCONNECT SWITCH
	SURFACE MOUNTED PANEL BOARD
T	TRANSFORMER
M	KILOWATT HOUR METER
JB	JUNCTION BOX
PB	PULL BOX TO NEC/TELCO STANDARDS
----------	UNDERGROUND UTILITIES
●	EXOTHERMIC WELD CONNECTION
■	MECHANICAL CONNECTION
OR ⊗	GROUND ROD
OR ⊠	GROUND ROD WITH INSPECTION SLEEVE
	GROUND BAR
	120AC DUPLEX RECEPTACLE
G	GROUND CONDUCTOR
	DC POWER AND FIBER OPTIC TRUNK CABLES
	DC POWER CABLES
# / #	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

ABBREVIATIONS

CIGBE	COAX ISOLATED GROUND BAR EXTERNAL
MIGB	MASTER ISOLATED GROUND BAR
SST	SELF SUPPORTING TOWER
GPS	GLOBAL POSITIONING SYSTEM
TYP.	TYPICAL
DWG	DRAWING
BCW	BARE COPPER WIRE
BFG	BELOW FINISH GRADE
PVC	POLYVINYL CHLORIDE
CAB	CABINET
C	CONDUIT
SS	STAINLESS STEEL
G	GROUND
AWG	AMERICAN WIRE GAUGE
RGS	RIGID GALVANIZED STEEL
AHJ	AUTHORITY HAVING JURISDICTION
TTLNA	TOWER TOP LOW NOISE AMPLIFIER
UNO	UNLESS NOTED OTHERWISE
EMT	ELECTRICAL METALLIC TUBING
AGL	ABOVE GROUND LEVEL

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FA# 10133911
44 GAVITT ROAD
BARKHAMSTED, CT 06063

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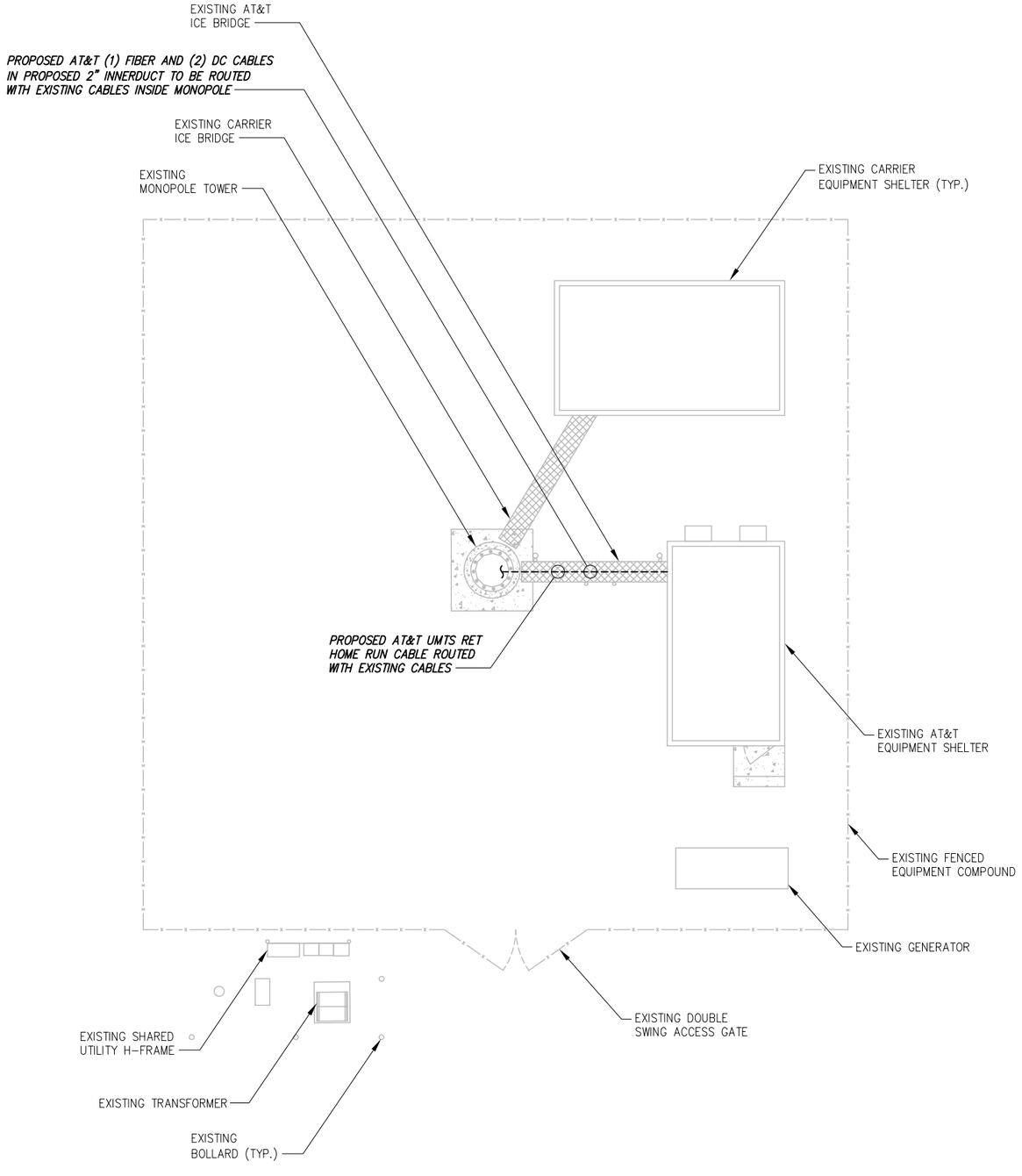
GENERAL NOTES

Drawing Number
C1



1 SITE PLAN
SCALE: AS NOTED

GRAPHIC SCALE:

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

BASEMAPPING PREPARED FROM A SITE WALK PERFORMED BY INFINIGY ENGINEERING AND PROVIDED INFORMATION, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.

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BARKHAMSTED, CT 06063

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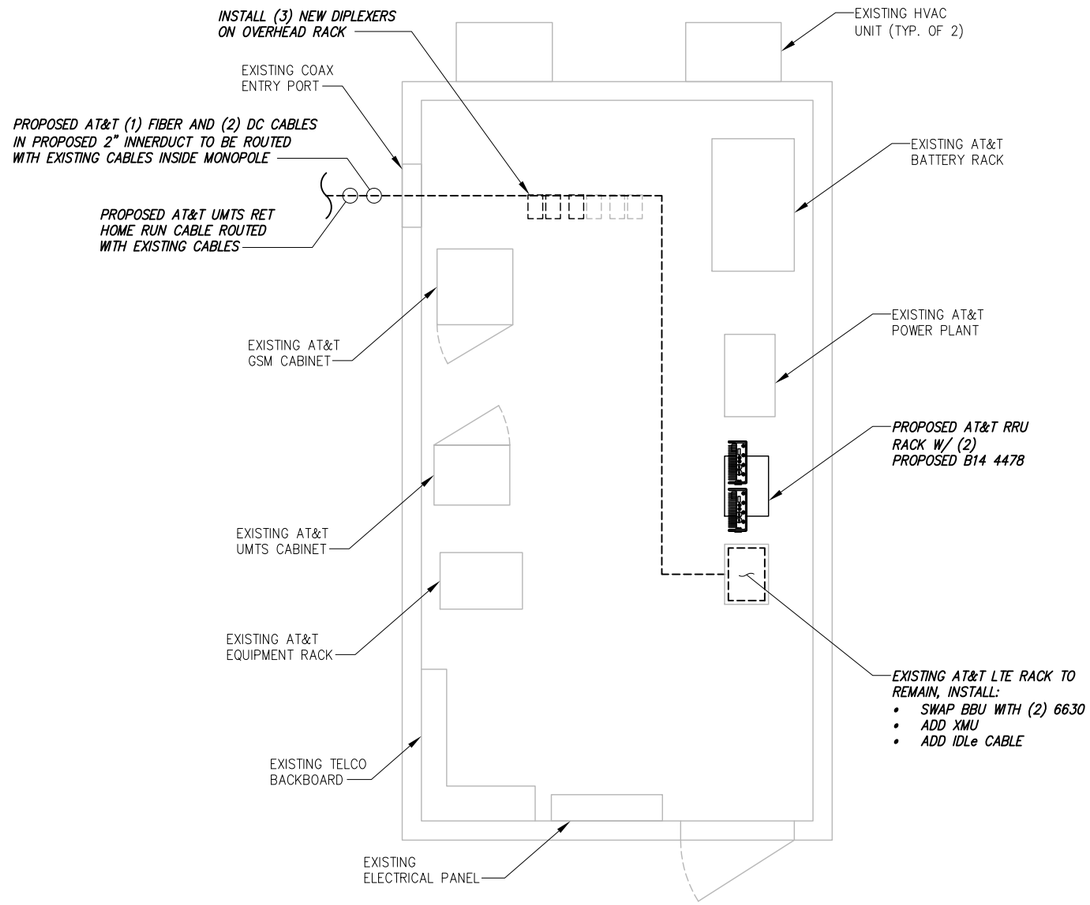
CD

Drawing Title
OVERALL SITE PLAN

Drawing Number
C2



BASEMAPPING PREPARED FROM A SITE WALK PERFORMED BY INFINIGY ENGINEERING AND PROVIDED INFORMATION, AND DOES NOT REPRESENT AN ACTUAL FIELD SURVEY.

N

TRUE NORTH

2 / -- ENLARGED EQUIPMENT PLAN
SCALE: AS NOTED

GRAPHIC SCALE:

4' 2' 0 2' 4'

SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

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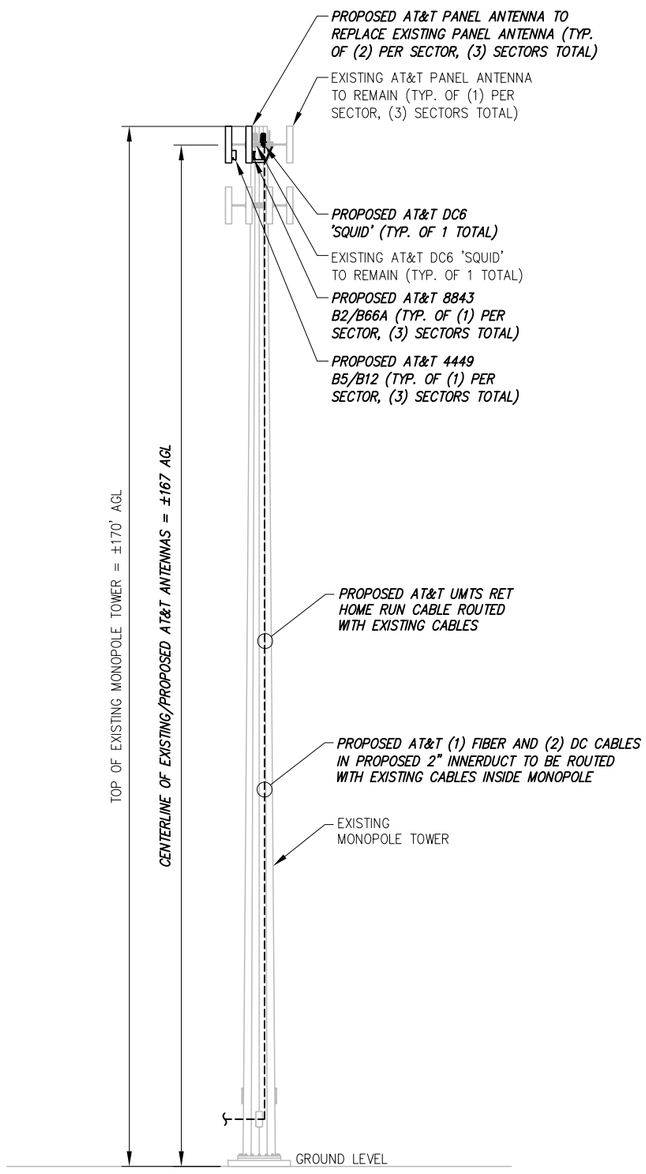
Drawing Title
ENLARGED SITE PLAN

Drawing Number
C2A

NOTE:
- *INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY STRUCTURAL ANALYSIS.*
- *FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'POST MOD MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 10/15/19. SEE SHEETS S1-S2 FOR ADDITIONAL DETAILS.*

NOTE:
- 3' MINIMUM SEPARATION BETWEEN ALL LTE ANTENNAS
- 6' MINIMUM SEPARATION BETWEEN 700 BC/700 DE ANTENNAS



1 ELEVATION VIEW
NOT TO SCALE

FINAL ANTENNA CONFIGURATION & CABLE SCHEDULE BASED ON LTE RFDS DATED 09/08/19, V 3.00

SECTOR	ANTENNA POSITION	ANTENNA STATUS & TECHNOLOGY	ANTENNA MANF/MODEL	TMA/ DIPLEXER	RRUS	AZIMUTH	ANTENNA ℄ HEIGHT	CABLE FEEDER TYPE	CABLE FEEDER LENGTH	RAYCAP UNIT
ALPHA	A-1	(E) UMTS 850	POWERWAVE 7770	(1) (E) TT08-19DB111-001	--	50°	±167'	(2) (E) 1-5/8" COAX CABLES	±200'	(1) (E) DC6 'SQUID', *(1) (P) DC6 'SQUID'*
	A-2	--	--	--	--	--	--	--	--	
	A-3	*(P) LTE 700/1900*	*CCI HPA-65R-BU6AA*	*(1) (P) DBCT108F1V92-1 (GROUND)*	*(1) (P) B14 4478 (GROUND) (1) (P) 8843 B2/B66A*	*50°*	*±167'*	(2) (E) 1-5/8" COAX CABLES	±200'	
	A-4	*(P) LTE 700/850/ AWS/5G 850*	*CCI DMP65R-BU6DA*	--	*(1) (P) 4449 B5/B12*	*50°*	*±167'*	(1) (E) FIBER CABLE (2) (E) DC CABLES	--	
BETA	B-1	(E) UMTS 850	POWERWAVE 7770	(1) (E) TT08-19DB111-001	--	170°	±167'	(2) (E) 1-5/8" COAX CABLES	±200'	
	B-2	--	--	--	--	--	--	--	--	
	B-3	*(P) LTE 700/1900*	*CCI HPA-65R-BU6AA*	*(1) (P) DBCT108F1V92-1 (GROUND)*	*(1) (P) B14 4478 (GROUND) (1) (P) 8843 B2/B66A*	*170°*	*±167'*	(2) (E) 1-5/8" COAX CABLES	±200'	
	B-4	*(P) LTE 700/850/ AWS/5G 850*	*CCI DMP65R-BU6DA*	--	*(1) (P) 4449 B5/B12*	*170°*	*±167'*	*(1) (P) FIBER CABLE (2) (P) DC CABLES*	--	
GAMMA	G-1	(E) UMTS 850	POWERWAVE 7770	(1) (E) TT08-19DB111-001	--	290°	±167'	(2) (E) 1-5/8" COAX CABLES	±200'	
	G-2	--	--	--	--	--	--	--	--	
	G-3	*(P) LTE 700/1900*	*COMMSCOPE SBNHH-1D65A*	*(1) (P) DBCT108F1V92-1 (GROUND)*	*(1) (P) 8843 B2/B66A*	*290°*	*±167'*	(2) (E) 1-5/8" COAX CABLES	±200'	
	G-4	*(P) LTE 700/850/ AWS/5G 850*	*CCI DMP65R-BU4DA*	--	*(1) (P) 4449 B5/B12*	*290°*	*±167'*	SEE A-4 FOR CABLE INFORMATION	--	

2 AT&T ANTENNA SCHEDULE
NOT TO SCALE

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JOHN S. STEVENS — STATE OF CONNECTICUT — LICENSED PROFESSIONAL ENGINEER — 24703 — 11/06/2019

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Checked: AJD Date: 09/27/19

Project Number: 499-006

Project Title:
BARKHAMSTED
GAVITT ROAD
CTL01280
FA# 10133911
44 GAVITT ROAD
BARKHAMSTED, CT 06063

Prepared For: smartlink

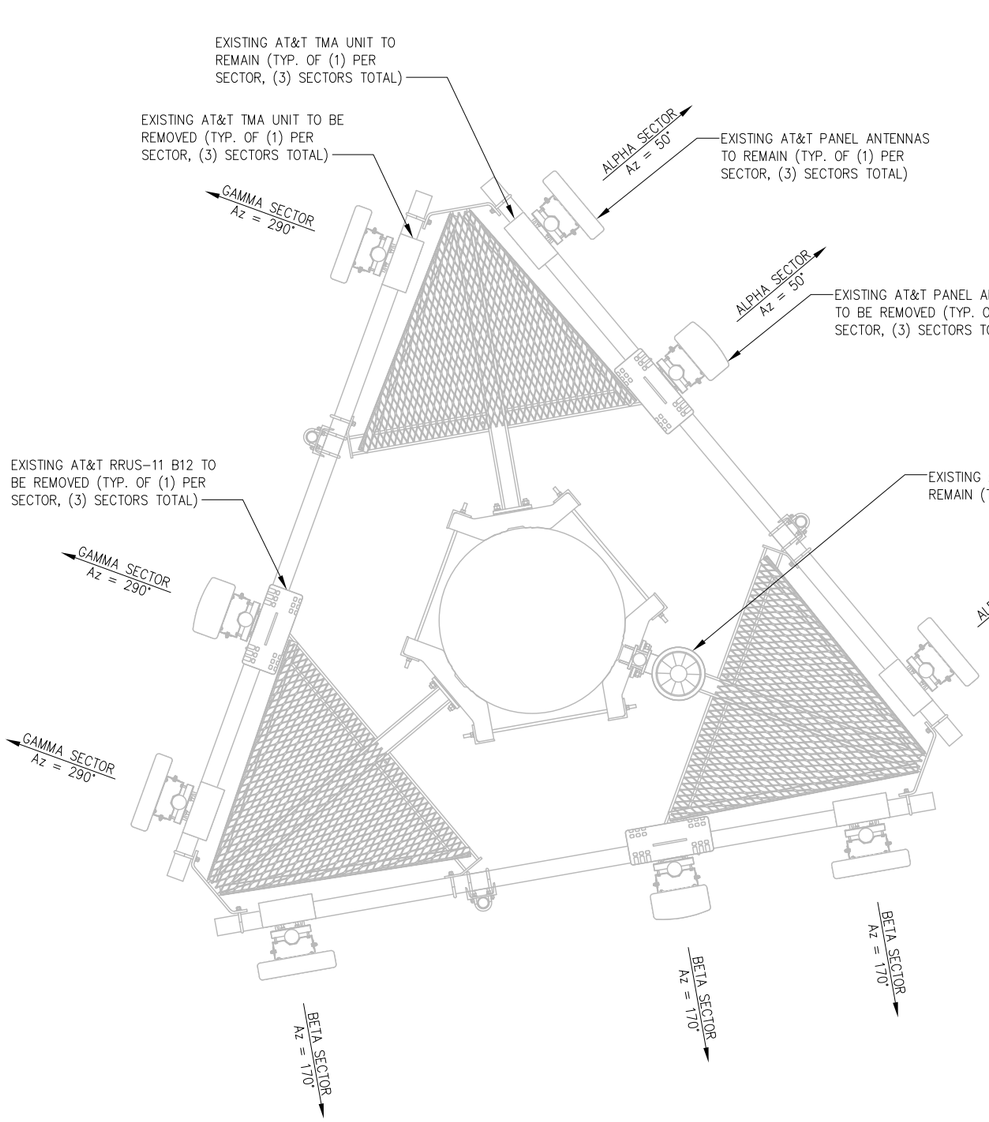
Drawing Scale: AS NOTED
Date: 11/06/19
CD

Drawing Title
ELEVATION VIEW

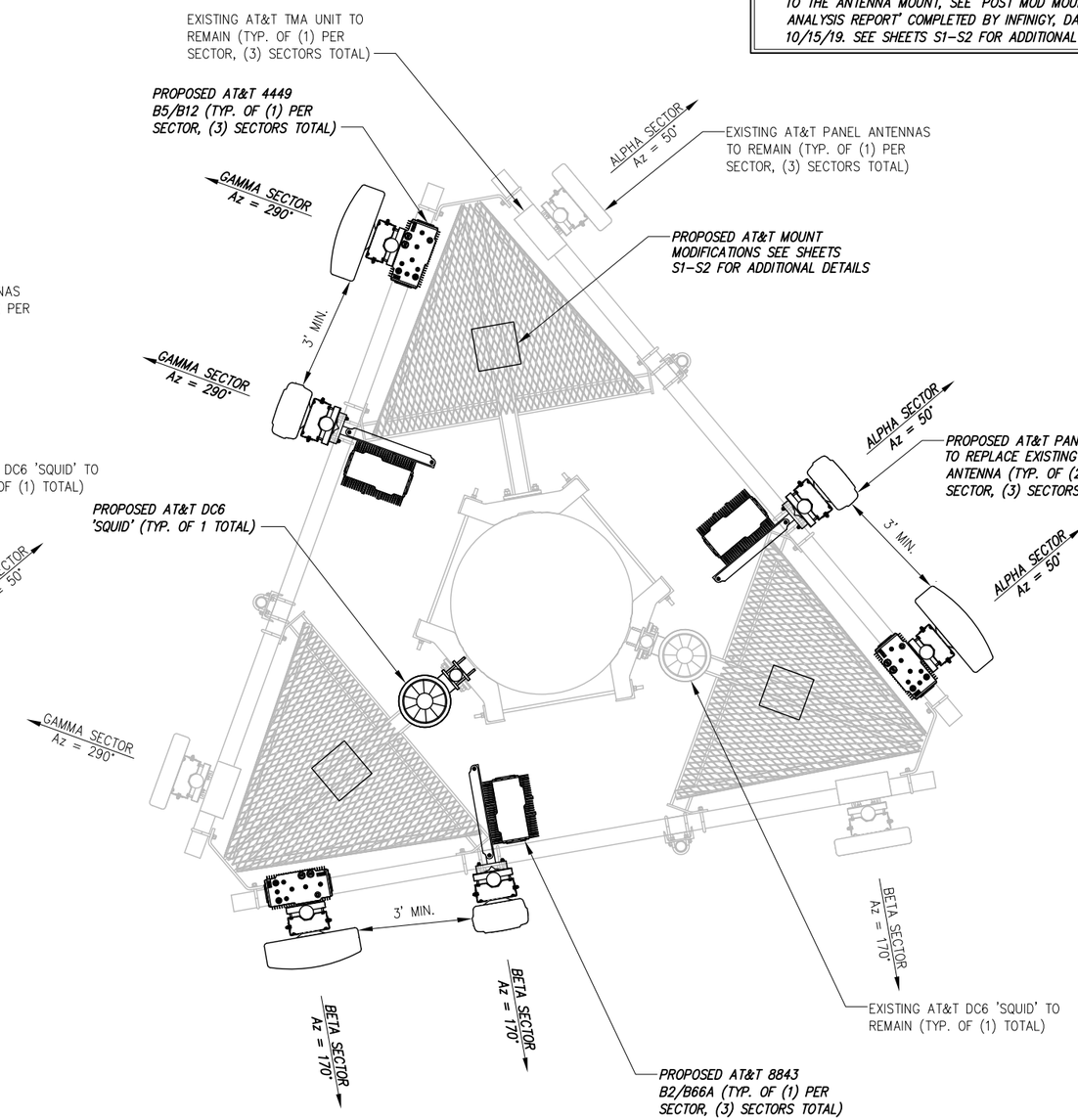
Drawing Number
C3

NOTE:
- 3' MINIMUM SEPARATION BETWEEN ALL LTE ANTENNAS
- 6' MINIMUM SEPARATION BETWEEN 700 BC/700 DE ANTENNAS

NOTE:
- *INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY STRUCTURAL ANALYSIS.*
- *FOR ADDITIONAL STRUCTURAL INFORMATION PERTAINING TO THE ANTENNA MOUNT, SEE 'POST MOD MOUNT ANALYSIS REPORT' COMPLETED BY INFINIGY, DATED 10/15/19. SEE SHEETS S1-S2 FOR ADDITIONAL DETAILS.*



1 EXISTING ANTENNA ORIENTATION PLAN
NOT TO SCALE



2 PROPOSED ANTENNA ORIENTATION PLAN
NOT TO SCALE

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11/06/2019
24705
LICENSED PROFESSIONAL ENGINEER

No.	Submittal / Revision	App'd	Date
2	ISSUED FOR PERMIT	ASW	11/06/19
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0	ISSUED FOR REVIEW	BMM	09/27/19

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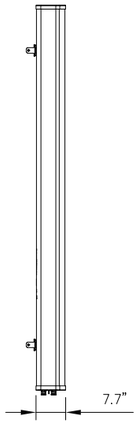
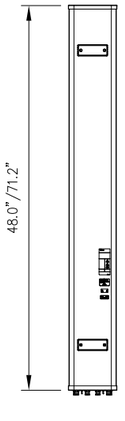
Date: 11/06/19
CD

Drawing Title
ANTENNA ORIENTATION PLAN

Drawing Number
C4

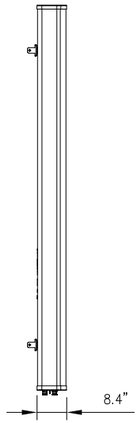


SIDE



REAR

TOP



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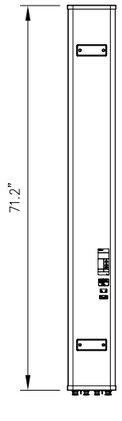

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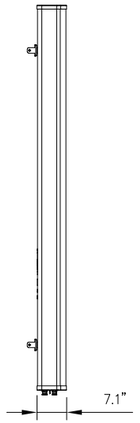

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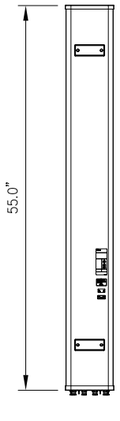


REAR

TOP

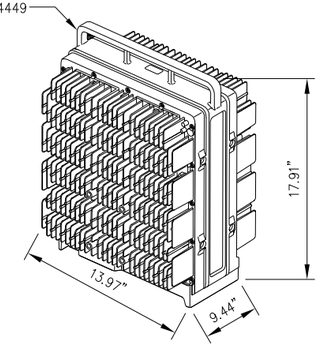
CCI MODEL NO.:	DMP65R-BU4DA/DMP65R-BU6DA
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	48.0"x20.7"x7.7"/71.2"x20.7"x7.7"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	67.9 LBS/79.4 LBS
CONNECTOR:	7-16 DIN FEMALE

CCI MODEL NO.:	HPA-65R-BU6AA
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	71.2"x11.7"x8.4"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	43.0 LBS
CONNECTOR:	7-16 DIN FEMALE

COMMSCOPE MODEL NO.:	SBNHH-1D65A
RADOME MATERIAL:	FIBERGLASS
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	55.0"x11.9"x7.1"
WEIGHT, W/ PRE-MOUNTED BRACKETS:	33.5 LBS
CONNECTOR:	7-16 DIN FEMALE

1 ANTENNA DETAIL
NOT TO SCALE

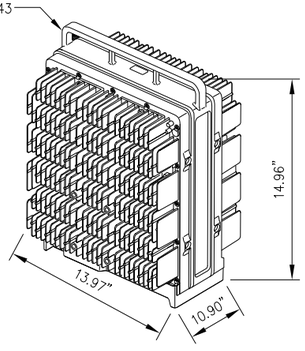
PROPOSED
RADIO 4449



RADIO 4449 SPECIFICATIONS
- HxWxD, (INCHES) : 17.91"x13.97"x9.44"
- WEIGHT (LBS) : 70.54
- COLOR : GRAY

2 ERICSSON RADIO 4449 DETAIL
NOT TO SCALE

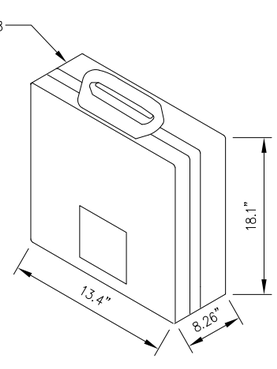
PROPOSED
RADIO 8843



RADIO 8843 SPECIFICATIONS
- HxWxD, (INCHES) : 14.96"x13.97"x10.90"
- WEIGHT (LBS) : 71.87
- COLOR : GRAY

3 ERICSSON RADIO 8843 DETAIL
NOT TO SCALE

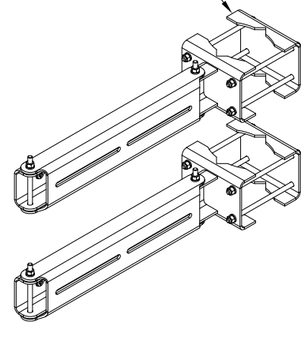
PROPOSED
RADIO 4478



RADIO 4478-B14 SPECIFICATIONS
- HxWxD, (INCHES) : 18.1"x13.4"x8.26"
- WEIGHT (LBS) : 59.5
- COLOR : GRAY
- MOUNTING BRACKET: SXK1250244/1

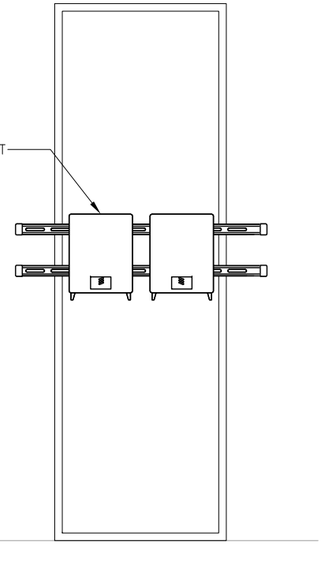
4 ERICSSON RADIO 4478-B14 DETAIL
NOT TO SCALE

PROPOSED BACK
TO BACK RRH
MOUNT, SITE PRO1
RRUDSM, OR EQUAL



5 BACK TO BACK PIPE MOUNT DETAIL
NOT TO SCALE

PROPOSED RRUS MOUNTED
TO PROPOSED EQUIPMENT
RACK WITH P1000 UNISTRUT



6 RRU MOUNTING DETAIL
NOT TO SCALE

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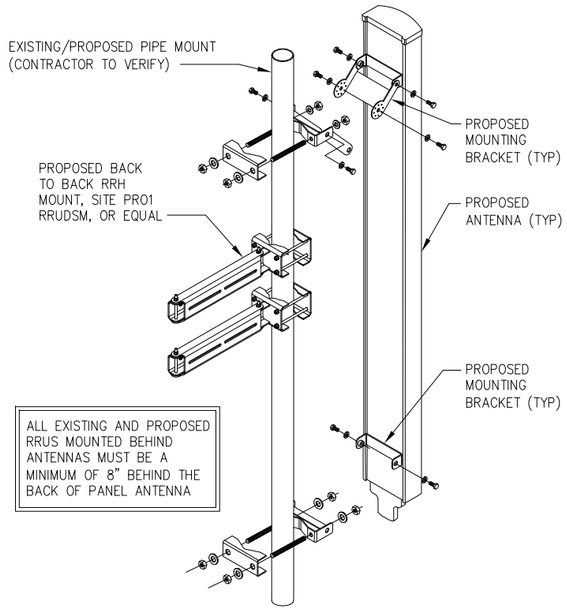
GAVITT ROAD
CTL01280
FA# 10133911
44 GAVITT ROAD
BARKHAMSTED, CT 06063

Prepared For: smartlink

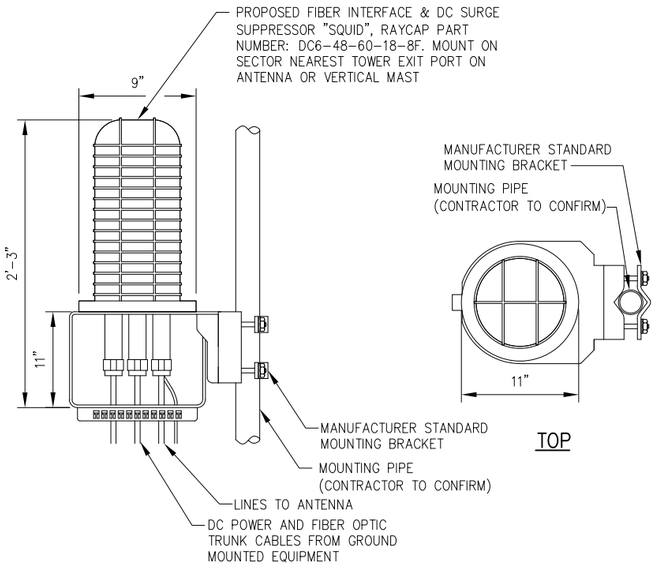
Drawing Scale: AS NOTED
Date: 11/06/19
CD

Drawing Title
EQUIPMENT DETAILS

Drawing Number
C5



1 ANTENNA MOUNTING DETAIL
NOT TO SCALE



SIDE

2 SQUID DETAIL
NOT TO SCALE

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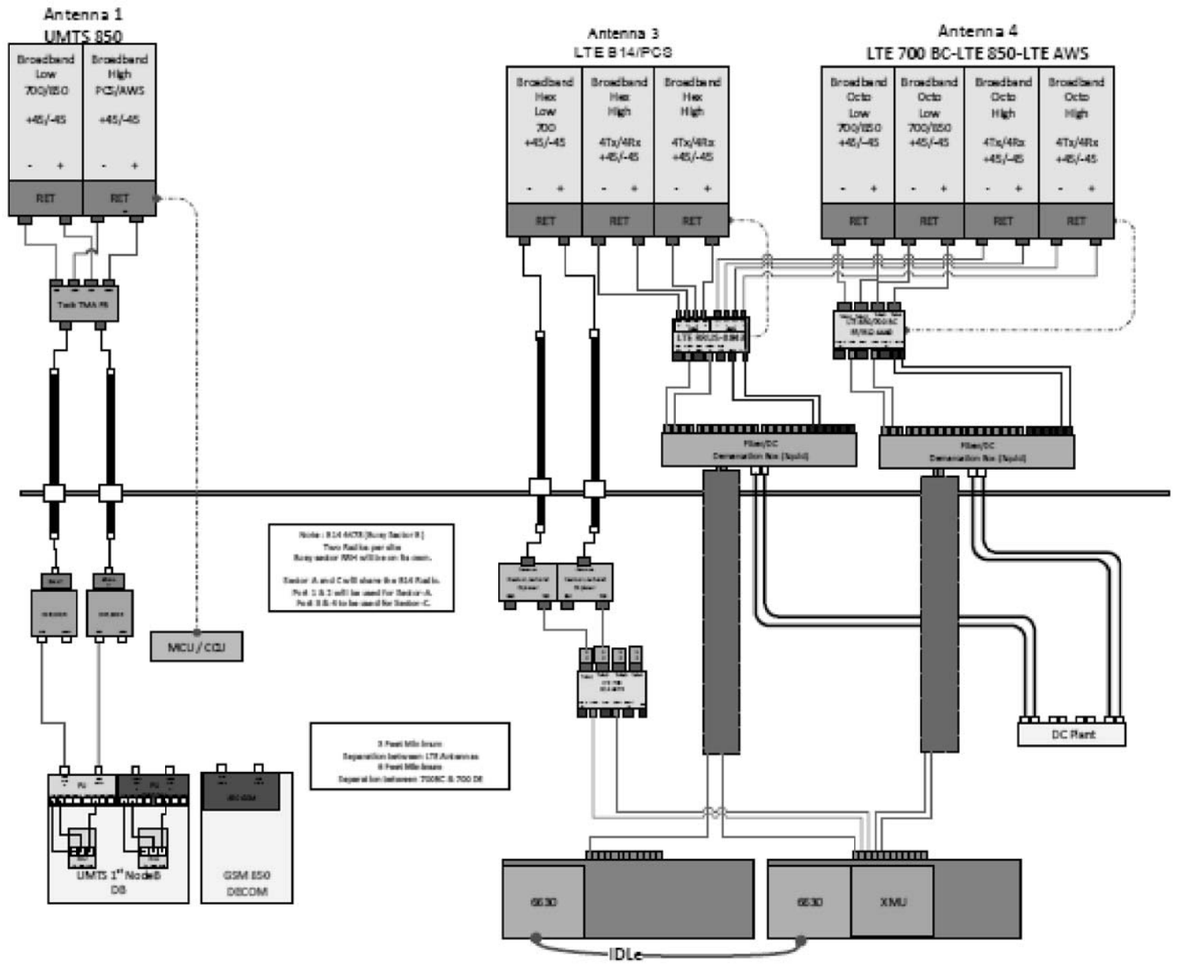
Date:
11/06/19

CD

Drawing Title
EQUIPMENT DETAILS

Drawing Number
C5A



ALPHA/BETA/GAMMA

1 PLUMBING DIAGRAM (FINAL CONFIGURATION)
NOT TO SCALE

*BASED ON LTE RFDS, DATED 09/08/2019, V3.00

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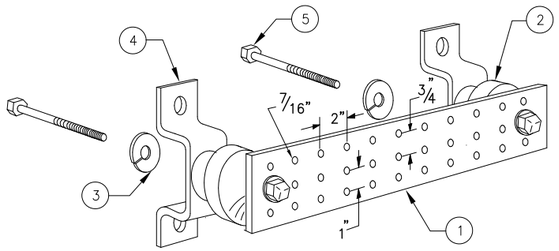
Drawing Title
PLUMBING DIAGRAM

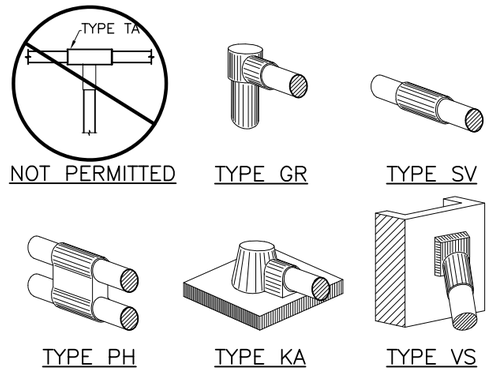
Drawing Number
C6



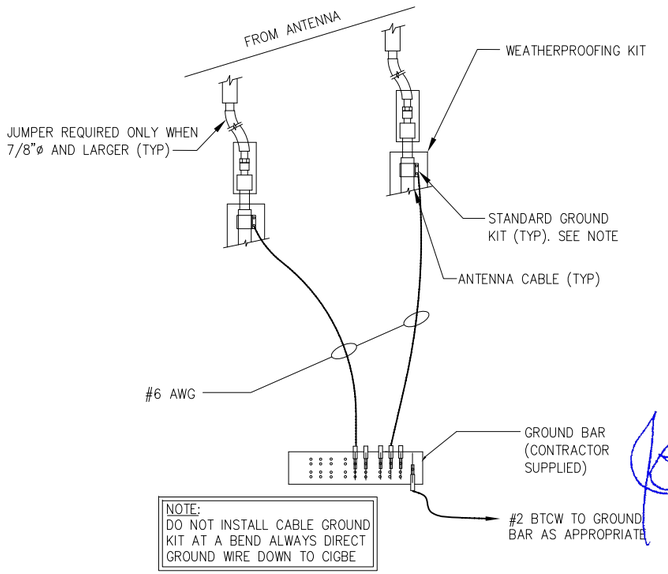
LEGEND

1 – SOLID TINNED COPPER GROUND BAR, 1/4"x 4"x 20" MIN., NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2 – INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061–4
3 – 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015–8
4 – WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A–6056
5 – 5/8–11 X 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012–1
6 – GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY
7 – GROUND BARS SHALL NEITHER BE FIELD FABRICATED NOR NEW HOLES DRILLED
8 – GROUND LUGS SHALL MATCH THE HOLE SPACING ON THE BAR
9 – HARDWARE DIAMETER SHALL BE MINIMUM 3/8"

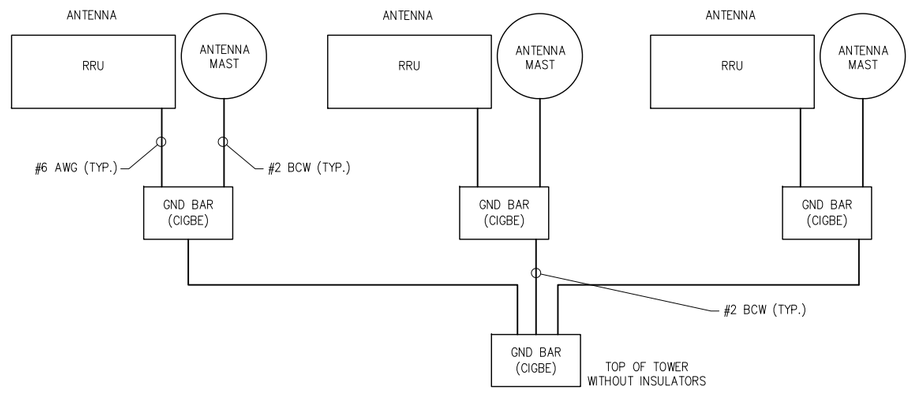
1 — GROUND BAR
NOT TO SCALE



2 — CADWELDS (TYPICAL)
NOT TO SCALE



3 — CONNECTION OF GROUND WIRES TO GROUNDING BARS @ ANTENNAS
NOT TO SCALE



4 — SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE

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CD

Drawing Title
GROUNDING DETAILS

Drawing Number
C7

GENERAL NOTES:

1. THESE DOCUMENTS WERE DESIGNED IN ACCORDANCE WITH THE LATEST VERSION OF APPLICABLE LOCAL/STATE/COUNTY/CITY BUILDING CODES, AS WELL AS ANSI/TIA-222 STANDARD, AWWA-D100 STANDARD, NDS, NEC, MSJC, AND/OR THE LATEST VERSION OF THE INTERNATIONAL BUILDING CODE, UNLESS NOTED OTHERWISE IN THE CORRESPONDING STRUCTURAL REPORT.
2. ALL CONSTRUCTION METHODS SHOULD FOLLOW STANDARDS OF GOOD CONSTRUCTION PRACTICE.
3. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN SIMILAR CONSTRUCTION.
4. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. IF OBSTRUCTIONS ARE FOUND, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD PRIOR TO CONTINUING WORK.
5. ANY CHANGES OR ADDITIONS MUST CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL CHANGES OR ADDITIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND/OR CONSTRUCTION.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY TO PROVIDE A COMPLETE AND STABLE STRUCTURE DURING CONSTRUCTION. TIA-1019-A-2011 IS AN APPROPRIATE REFERENCE FOR THOSE DESIGNS MEETING TIA STANDARDS. THE ENGINEER OF RECORD MAY PROVIDE FORMAL RIGGING PLANS AT THE REQUEST AND EXPENSE OF THE CONTRACTOR.
7. INSTALLATION SHALL NOT INTERFERE NOR DENY ADEQUATE ACCESS TO OR FROM ANY EXISTING OR PROPOSED OPERATIONAL AND SAFETY EQUIPMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ANY FABRICATION. CONTACT INFINIGY ENGINEERING IF ANY DISCREPANCIES EXIST.

STEEL CONSTRUCTION NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION, FOR THE DESIGN AND FABRICATION OF STEEL COMPONENTS.
2. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES, AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS' RECOMMENDATIONS.
3. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR STEEL WORK SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123.
5. ALL STEEL MEMBERS AND CONNECTIONS SHALL MEET THE FOLLOWING GRADES:
   - ANGLES, CHANNELS, PLATES AND BARS TO BE A36. Fy=36 KSI, U.N.O.
   - W SHAPES TO BE A992. Fy=50 KSI, U.N.O.
   - RECTANGULAR HSS TO BE A500, GRADE B. FY=46 KSI, U.N.O.
   - ROUND HSS TO BE A500, GRADE B. FY=42 KSI, U.N.O.
   - STEEL PIPE TO BE A53, GRADE B. Fy=35 KSI, U.N.O.
   - BOLTS TO BE A325-X. Fu=120 KSI, U.N.O.
   - U-BOLTS AND LAG SCREWS TO BE A307 GR A. Fu=60 KSI, U.N.O.
6. ALL WELDING SHALL BE DONE USING E70XX ELECTRODES, U.N.O.
7. ALL WELDING SHALL CONFORM TO AISC AND AWS D1.1 LATEST EDITION.
8. ALL HILTI ANCHORS TO BE CARBON STEEL, U.N.O.
   - MECHANICAL ANCHORS: KWIK BOLT-TZ, U.N.O.
   - CMU BLOCK ANCHORS: ADHESIVE – HY120, U.N.O.
   - CONCRETE ANCHORS: ADHESIVE – HY150, U.N.O.
   - CONCRETE REBAR: ADHESIVE – RE500, U.N.O.
9. ALL STUDS TO BE NELSON CAPACITOR DISCHARGE 1/4"-20 LOW CARBON STEEL COPPER-FLASH AT 55 KSI ULT/50 KSI YIELD, U.N.O.
10. BOLTS SHALL BE TIGHTENED TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
11. MINIMUM EDGE DISTANCES SHALL CONFORM TO AISC TABLE J3.4.
12. REMOVAL/REPLACEMENT OF STRUCTURAL MEMBERS SHALL BE DONE ONE MEMBER AT A TIME. CONTRACTOR IS RESPONSIBLE FOR ENSURING THE STRUCTURAL INTEGRITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION.

CONCRETE CONSTRUCTION NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR IS NOT PERMITTED.
2. EXISTING CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH NEW PROPOSED CONCRETE SHOULD BE WIRE BRUSHED CLEAN AND TREATED WITH APPROPRIATE MECHANICAL SCRATCH COAT AND REPAIR MATERIALS OR APPROPRIATE CHEMICAL METHODS SUCH AS THE APPLICATION OF A BONDING AGENT, EX. SAKRETE OR EQUIVALENT, TO ENSURE A QUALITY BOND BETWEEN EXISTING AND PROPOSED CONCRETE SURFACES.

FIBER REINFORCED POLYMER (FRP) NOTES:

1. FRP PLATES, SHAPES, BOLTS AND NUTS (STUD/NUT ASSEMBLIES) SHALL CONFORM TO ASTM D638, 695, 790. PLATES AND SHAPES TO BE FY = 5.35 KSI LW (SAFETY FACTOR OF 8), .945 KSI CW (SAFETY FACTOR OF 8) MIN.
2. IF FIELD FABRICATION IS REQUIRED, ALL CUT EDGES AND DRILLED HOLES TO BE SEALED USING VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
3. ALL FASTENERS TO BE 1/2" DIA FRP THREADED ROD WITH FIBER REINFORCED THERMOPLASTIC NUT, SPACED AT 12 INCHES ON CENTER MAXIMUM, U.N.O., FOR PANELS AND AS DESIGNED FOR STRUCTURAL MEMBERS.
4. THE COLOR AND SURFACE PATTERN OF EXPOSED FRP PANELS SHALL MATCH THE EXTERIOR OF THE EXISTING BUILDING, U.N.O.
5. STUD/NUT ASSEMBLIES SHOULD BE LUBRICATED FOR INSTALLATION
6. ENSURE BEARING SURFACES OF THE NUTS ARE PARALLEL TO THE SURFACES BEING FASTENED.
7. TORQUE BOLTS ACCORDING TO THE FOLLOWING TABLE:

INSTALLATION TORQUE TABLE

SIZE	ULTIMATE TORQUE STRENGTH	RECOMMENDED MAXIMUM INSTALLATION TORQUE
3/8-16 UNC	8 FT-LBS	4 FT-LBS
1/2-13 UNC	18 FT-LBS	8 FT-LBS
5/8-11 UNC	35 FT-LBS	16 FT-LBS
3/4-10 UNC	50 FT-LBS	24 FT-LBS
1-8 UNC	110 FT-LBS	50 FT-LBS

8. WHEN TIGHTENING FRP STUD/NUT ASSEMBLIES, WRENCHES MUST MAKE FULL CONTACT WITH ALL NUT EDGES. A STANDARD SIX POINT SOCKET IS RECOMMENDED.
9. STUD/NUT ASSEMBLIES SHOULD BE BONDED BY APPLYING BONDING AGENT TO ENTIRE NUT AND EXPOSED STUD.
10. ALL FRP MATERIALS TO BE PROVIDED BY FIBERGRATE COMPOSITE STRUCTURES, DALLAS TX, OR APPROVED EQUAL.
11. ALL FRP SHAPES TO BE DYNAFORM PULTRUDED STRUCTURAL SHAPES.
12. ALL FRP PLATES TO BE FIBERPLATE MOLDED FRP PLATE.
13. ALL FRP PANELS TO BE FIBERPLATE CLADDING PANEL.
14. EACH FRP PANEL TO BE IDENTIFIED WITH LARR#25536 AND FIBERGRATE COMPOSITE STRUCTURAL LABEL.
15. FRP MATERIAL TO BE CLASSIFIED AS CC1 OR BETTER, AND HAVE MAXIMUM FLAME SPREAD OF 50.
16. ALL DESIGN AND CONSTRUCTION TO BE COMPLETED IN ACCORDANCE WITH LOS ANGELES RESEARCH REPORT RR25536, DATED FEBRUARY 1, 2016.
17. SPECIAL INSPECTIONS MUST BE PROVIDED FOR ALL FRP INSTALLMENTS. SEE SPECIAL INSPECTION SECTION, THIS SHEET.

RATIO OF EDGE DISTANCE TO FRP FASTENER DIAMETER

	RANGE	RECOMMENDED
EDGE DISTANCE – CL* BOLT TO END	2.0-4.0	3.0
EDGE DISTANCE – CL* BOLT TO SIDE	1.5-3.5	2.5
BOLT PITCH – CL* TO CL*	4.0-5.0	5.0

WOOD CONSTRUCTION NOTES:

1. ALL EXISTING WOOD SHAPES ARE ASSUMED TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN.
2. ALL PROPOSED WOOD SHAPES ARE TO BE DOUGLAS FIR-LARCH WITH A REFERENCE DESIGN BENDING VALUE OF 1000 PSI MIN. U.N.O.
3. ALL EXISTING AND PROPOSED GLUED LAMINATED TIMBERS ARE TO BE 24F-1.8C DOUGLAS FIR BALANCED WITH A REFERENCE DESIGN BENDING VALUE OF 2400 PSI MIN. U.N.O.

MASONRY CONSTRUCTION NOTES:

1. ALL BRICK TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 100 PSI SHALL BE USED. FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 133 PSI.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
2. ALL CMU TO BE 1500 PSI MIN. REINFORCING BAR (IF APPLICABLE) TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. ALL MORTAR TO BE 2000 PSI MIN.
   - FOR INTERIOR/ABOVE GRADE APPLICATIONS, TYPE N MORTAR HAVING MINIMUM MODULUS OF RUPTURE OF 64 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 158 PSI FOR FULLY GROUTED BLOCKS.
   - FOR EXTERIOR/BELOW GRADE APPLICATIONS TYPE M OR S MORTAR HAVING A MINIMUM MODULUS OF RUPTURE OF 84 PSI SHALL BE USED FOR UNGROUTED BLOCKS, AND 163 PSI FOR FULLY GROUTED BLOCKS.
   - BRICK AND MORTAR INSTALLATION TO CONFORM TO MSJC BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.

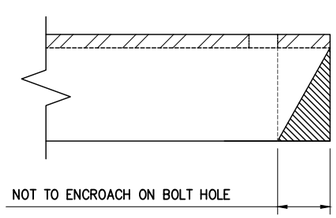
TOWER PLUMB & TENSION NOTES:

1. PLUMB AND TENSION TOWER UPON COMPLETION OF STRUCTURAL MODIFICATIONS DETAILED IN THESE DRAWINGS.
2. RETENSIONING OF EXISTING GUY WIRES SHALL BE PERFORMED AT A TIME WHEN THE WIND VELOCITY IS LESS THAN 10 MPH AT GROUND LEVEL AND WITH NO ICE ON THE STRUCTURE AND GUY WIRES.
3. PLUMB THE TOWER WHILE RETENSIONING THE EXISTING GUY WIRES. THE HORIZONTAL DISTANCE BETWEEN THE VERTICAL CENTERLINES AT ANY TWO ELEVATIONS SHALL NOT EXCEED 0.25% OF THE VERTICAL DISTANCE BETWEEN TWO ELEVATIONS FOR LATTICED STRUCTURES.
4. THE TWIST BETWEEN ANY TWO ELEVATIONS THROUGHOUT THE HEIGHT OF A LATTICE STRUCTURE SHALL NOT EXCEED 0.5 DEGREES IN 10 FEET. THE MAXIMUM TWIST OVER THE LATTICE STRUCTURE HEIGHT SHALL NOT EXCEED 5 DEGREES.

SPECIAL INSPECTIONS NOTES:

1. A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER AND APPROVED BY THE JURISDICTION, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH THE THE GOVERNING BUILDING CODE, APPLICABLE SECTION(S) AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
   a. STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELDS ONLY).
   b. HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 AND/OR A490 BOLTS) TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD.
   c. MECHANICAL AND EPOXIED ANCHORAGES.
   d. FIBER REINFORCED POLYMER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE FRP MATERIAL SPECIFIED ON THE APPROVED DESIGN DOCUMENTS IS BEING INSTALLED.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT ALL CUT EDGES AND DRILLED HOLES ARE PROPERLY SEALED USING A VINYL ESTER SEALING KIT SUPPLIED BY THE MANUFACTURER.
      - THE SPECIAL INSPECTOR MUST VERIFY THAT THE STRUCTURE IS BUILT IN ACCORDANCE WITH THE APPROVED DESIGN DOCUMENTS.
2. THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM WORK WITHOUT THE SPECIAL INSPECTIONS.

MAXIMUM ALLOWABLE ANGLE CLIP



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STATE OF CONNECTICUT
JOHN S. STEVENS
24705
LICENSED PROFESSIONAL ENGINEER
10-15-19

No.	Submittal / Revision	App'd	Date
0	ISSUED FOR REVIEW	TM	10/10/19

Drawn: LAM Date: 10/10/19
Designed: TM Date: 10/10/19
Checked: TM Date: 10/10/19

Project Number: 1106-A0001-B

Project Title:
BARKHAMSTED GAVITT RD
FA # 10133911
CTL01280
44 GAVITT ROAD
BARKHAMSTED, CT 6063

Prepared For: smartlink

Drawing Scale: AS NOTED
Date: 10/10/19
0

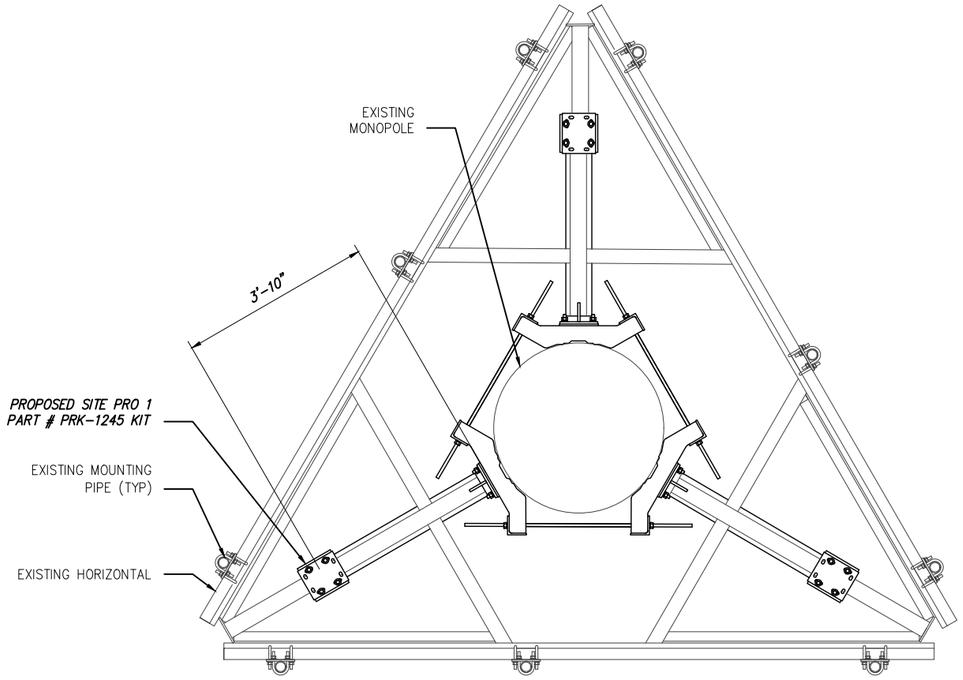
Drawing Title
GENERAL NOTES

Drawing Number
S-1

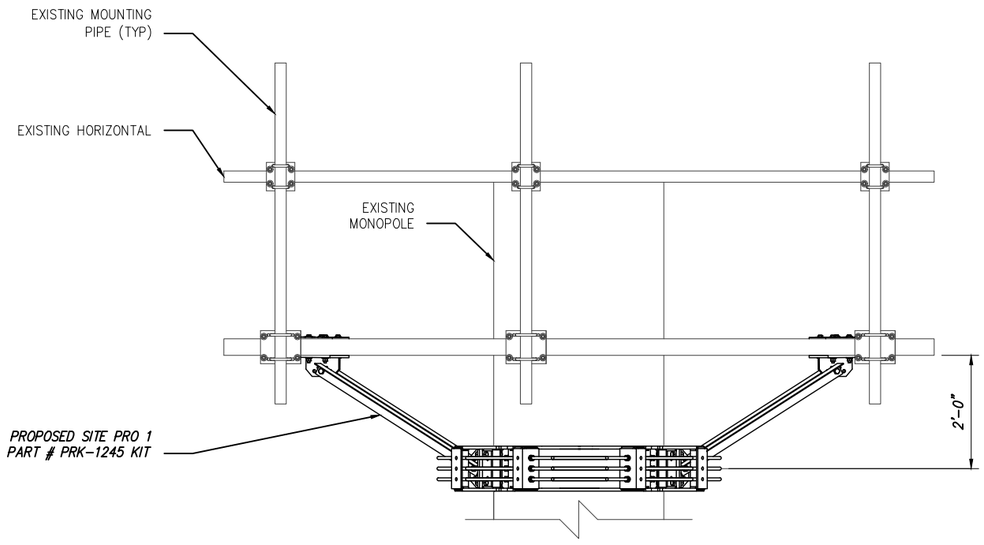
NOTES:

1. VARIOUS EXISTING CONDITIONS AND PROPOSED MODIFICATIONS ARE NOT SHOWN FOR CLARITY.

2. ALL SITE PRO 1 PARTS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



1 PLAN VIEW
SCALE: NOT TO SCALE



2 ELEVATION VIEW
SCALE: NOT TO SCALE

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Drawing Title
MOUNT MODIFICATION DETAILS

Drawing Number
S-2