



January 25, 2019

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

Regarding: Notice of Exempt Modification – Antenna Modification
Property Address: 945 East Center Street; Wallingford, CT 06492 (the “Property”)
Applicant: AT&T Mobility (“AT&T”, Site # CT2154)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 148-foot monopole at the above-referenced address, latitude 41.44375000°, longitude -72.79626944°. Said monopole is owned by Crown Castle and the underlying property owner is the Albert W. Beaumont.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas and upgrading ancillary equipment as follows: Removing twelve (12) diplexers and replacing them with three (3) low band combiners, adding six (6) Remote Radio Heads, and adding one (1) squid surge suppressor with associated cables. The centerline height of the existing antennas and ancillary tower-mounted equipment is and will remain at 112 feet.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72 (b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to the Honorable William W. Dickinson, Jr., Mayor of the Town of Wallingford; Kacie Hand, Wallingford Town Planner; Albert W. Beaumont, as property owner; and the tower owner, Crown Castle.

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

1. The planned modification will not result in an increase in the height of the existing structure. The antennas to be swapped and the accessory equipment to be added will be installed at the existing height of 112 feet on the 148-foot monopole.
2. The proposed modifications will not involve any changes to AT&T’s ground-space footprint, and therefore will not require an extension of the site boundary.
3. The proposed modification will not increase the noise level at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided (Exhibit 4).
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site (Exhibit 2).
6. The existing structure and its foundation can support AT&T's proposed modifications. Please see enclosed structural analysis completed by Tower Engineering Professionals, dated January 9, 2019 (Exhibit 3).
7. A copy of the parcel map and property owner information is included in the attached (Exhibit 1). Proof of mailing this filing and enclosures to the applicable municipal officials, as well as the property owner, is also included (Exhibit 5).

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

Sincerely,

Kristen White

Kristen White
Site Acquisition Specialist
Empire Telecom USA, LLC
kwhite@empiretelecomm.com

Enclosures: Exhibit 1 – Field Card and GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation
Exhibit 5 – Certificate of Mailing to municipal officials and property owner(s).

cc:

Hon. William W. Dickinson, Jr.
Wallingford Town Hall
45 South Main Street, Room #310
Wallingford, CT 06492

Kacie Hand, Town Planner
Wallingford Town Hall
45 South Main Street, Room #G-40
Wallingford, CT 06492

Crown Castle
3 Corporate Park Drive,
Suite 101
Clifton Park, NY 12065
Attn: Paul Pedicone

Albert W. Beaumont
945 East Center Street
Wallingford, CT 06492

EXHIBIT 1

945 East Center St; Wallingford, CT 06492



Legend

Location

Notes

2,198

0 1,099 2,198

Feet

1: 13,185



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description	Element	Cd.	Ch.	Description
Style	03		Colonial				
Model	01		Residential				
Grade	B						
Stories	2		2 Stories				
Occupancy	1						
Exterior Wall 1	14		Wood Shingle				
Exterior Wall 2							
Roof Structure	04		Hip				
Roof Cover	03		Asphalt				
Interior Wall 1	03		Plastered				
Interior Wall 2	05		Drywall				
Interior Flr 1	12		Hardwood				
Interior Flr 2	09		Pine/Soft Wood				
Heat Fuel	02		Oil				
Heat Type	05		Hot Water				
AC Type	01		None				
Total Bedrooms	06		6 Bedrooms				
Total Bthrms	2						
Total Half Baths	0						
Total Xtra Fixtrs							
Total Rooms	12						
Bath Style	02		Average				
Kitchen Style	02		Average				
Whirlpool Tub							
Fireplaces	2						

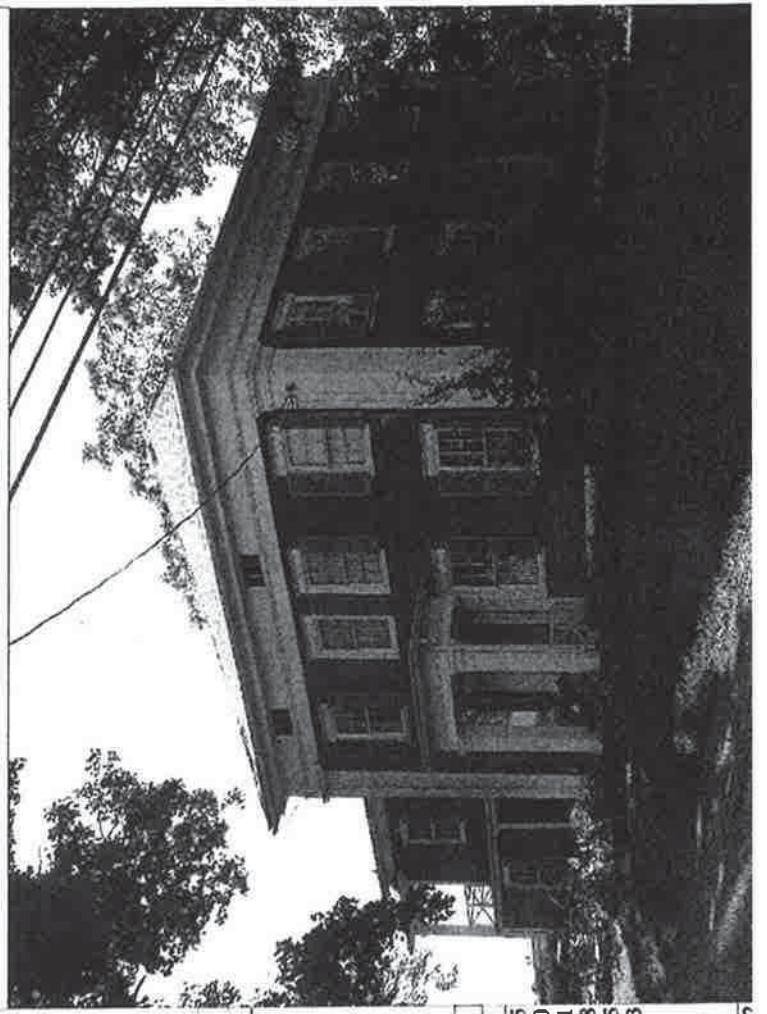
Code	Description	Sub	Sub Description	LB	Units	Unit Price	Yr	Gde	Dp	Rt	%Cnd	Apr	Value
GRN3	Pipe + Plastic	G5		L	2,400	4.00	1996	C			A	50	4,800
GRN3	Pipe + Plastic	G6		L	2,880	4.00	1996	C			F	30	3,500
IMP	Implement She			L	1,296	6.00	1940	C			A	50	3,900
SHD1	Shed Frame			L	1,008	10.00	1940	C			A	50	5,000
IMP	Implement She			L	840	6.00	1940	C			A	50	2,500
IMP	Implement She			L	720	6.00	1940	C			NV	0	0
IMP	Implement She			L	840	6.00	1940	C			NV	0	0
IMP	Implement She			L	1,350	6.00	1940	C			NV	0	0
SHD1	Shed Frame			L	100	10.00	1940	C			NV	0	0

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

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprac. Value
BAS	First Floor	1,364	1,364	1,364	92.63	126,345
CRL	Crawl Space	0	464	0	0.00	0
FOP	Porch, Open	0	250	50	18.53	4,631
FUS	Upper Story, Finished	1,316	1,316	1,316	92.63	121,898
UAT	Attic, Unfinished	0	900	135	13.89	12,505
UBM	Basement, Unfinished	0	900	180	18.53	16,673

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprac. Value
BAS	First Floor	1,364	1,364	1,364	92.63	126,345
CRL	Crawl Space	0	464	0	0.00	0
FOP	Porch, Open	0	250	50	18.53	4,631
FUS	Upper Story, Finished	1,316	1,316	1,316	92.63	121,898
UAT	Attic, Unfinished	0	900	135	13.89	12,505
UBM	Basement, Unfinished	0	900	180	18.53	16,673
					5 194	3 045
Total					7 680	307 157



BAS	12	FUS	26
CRL	11	BAS	26
FOP	14	CRL	26
UAT	4	FOP	7
FUS	16	UBM	30
BAS	30		

TOPO.	UTILITIES	STRT./ROAD	LOCATION	Code	Appraised Value	Assessed Value
1 Level	2 Public Water	1 Paved	2 Suburban	1-1	110,400	77,300
				1-2	9,700	6,800
				1-3	154,300	108,000
				1-4	780,200	546,200
				4-1	100,000	70,000
				6-1	224,400	12,800
Other ID: 024001002						
Census: 1759						
Old MBLU						
TC MAP #						
IND PARKS						
ASSOC PID#						
Total					1,379,000	821,100

RECORD OF OWNERSHIP

BK-VOL/PAGE	SALE DATE	q/u	v/i	SALE PRICE	V.C.
724/ 18	03/13/1992			0	
626/ 650					

EXEMPTIONS

Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.
OTHER ASSESSMENTS								
ASSESSING NEIGHBORHOOD								
NOTES								
DOWN=VP COND/2ND FLR = F. COND								
CORRECTED FARM BUILDING SIZES FOR THE								
2006 GRAND LIST 4 NEW FARM BUILDINGS								
FOR 2007 GL								
CELL TOWER VALUED ON 151/98/2								

APPRaised VALUE SUMMARY

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2015	1-1	77,300	2013	1-1	77,300
2015	1-2	6,800	2013	1-2	6,800
2015	1-3	108,000	2013	1-3	108,000
2015	1-4	546,200	2013	1-4	528,200
2015	4-1	70,000	2013	4-1	70,000
Total:		821,100	Total:		797,900

PREVIOUS ASSESSMENTS (HISTORY)

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2015	1-1	77,300	2013	1-1	77,300
2015	1-2	6,800	2013	1-2	6,800
2015	1-3	108,000	2013	1-3	108,000
2015	1-4	546,200	2013	1-4	528,200
2015	4-1	70,000	2013	4-1	70,000
Total:		821,100	Total:		797,900

EXEMPTIONS

Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.
OTHER ASSESSMENTS								
ASSESSING NEIGHBORHOOD								
NOTES								
DOWN=VP COND/2ND FLR = F. COND								
CORRECTED FARM BUILDING SIZES FOR THE								
2006 GRAND LIST 4 NEW FARM BUILDINGS								
FOR 2007 GL								
CELL TOWER VALUED ON 151/98/2								

NET TOTAL APPRAISED PARCEL VALUE

Appraised Bldg. Value (Card)	Appraised XF (B) Value (Bldg)	Appraised OB (L) Value (Bldg)	Appraised Land Value (Bldg)	Special Land Value	Total Appraised Parcel Value
154,300	0	780,200	220,100	224,400	1,379,000
ADJUSTMENT:					
Adjustment: 0					
Net Total Appraised Parcel Value					
1,379,000					

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
27234	11/13/2012	CM	Commercial	112,000	07/30/2013	100		4 GREENHOUSES
25068	10/12/2010	RS	Residential	3,500	08/22/2011	100		BARN ROOF
25067	10/12/2010	CM	Commercial	3,200	08/22/2011	100		HOUSE ROOF
24367	02/04/2010	CM	Commercial	6,000	07/23/2010	100	07/23/2010	RPL 6 ANTENNAS
24364	02/03/2010	CM	Commercial	20,000	07/23/2010	100	07/23/2010	MODIFY FACILITY
20744	07/06/2006	CM	Commercial	10,000	09/07/2006	100	09/07/2006	RPL 6 ANTENNAS/ADI

LAND LINE VALUATION SECTION

Zone	D	Front	Depth	Units	Unit Price	Factor S.A.	Acres	Disc	Factor	Adj.	Notes-Adj	Spec Use	Spec Calc	S Adj Fact	Adj. Unit Price	Land Value
R18				18,000 SF	6.15	1.0000	5	1.0000	1.00	1.05		TFL	.95	.95	6.13	110,400
R18				0.92 AC	10,000.00	1.0000	0	1.0000	1.00	1.05				1.00	10,500.00	9,700
R18				24.50 AC	10,000.00	1.0000	0	1.0000	0.75	1.05				1.00	7,875.00	192,900
R18				1.00 AC	10,000.00	1.0000	0	1.0000	1.00	1.05				1.00	10,500.00	10,500
R18				2.00 AC	10,000.00	1.0000	0	1.0000	1.00	1.05				1.00	10,500.00	21,000
Total Card Land Units: 28.83 AC Parcel Total Land Area: 29 AC Total Land Value: 344,500																

VISION

6148
WALLINGFORD, CT

Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.
OTHER ASSESSMENTS								
Total:								

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
PREVIOUS ASSESSMENTS (HISTORY)								
Total: 1,379,000 821,100								

EXEMPTIONS
 Description Amount Code Description Number Amount Comm. Int.
 NBHD/ SUB NBHD Name Street Index Name Tracing Batch
 110/A
ASSESSING NEIGHBORHOOD
 Appraised Bldg. Value (Card) 154,300
 Appraised XF (B) Value (Bldg) 0
 Appraised OB (L) Value (Bldg) 780,200
 Appraised Land Value (Bldg) 220,100
 Special Land Value 224,400
APPRAISED VALUE SUMMARY
 Total Appraised Parcel Value 1,379,000
 Valuation Method: C
 Adjustment: 0
Net Total Appraised Parcel Value 1,379,000

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
BUILDING PERMIT RECORD								
VISIT/CHANGE HISTORY								
Date	Type	IS	ID	Cd.	Purpose/Result			

B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	Acre		Disc	Factor	C	ST.	Adj.	Notes- Adj	Special Pricing		S Adj	Land Value	
									Factor	S.A.							Spec Use	Spec Calc			Adj.
1	431V	TEL REL TW M00	R18		1.00	BL	1,600.00	FF	100,000.00	1.0000	0	1.0000	1.00	0.00	0.00	CELL SITE	FF	0.01	1.00	100,000.00	100,000
1	8000	Frontage	R18		1.600	SF	7,350	SF	0.00	1.0000	0	1.0000	1.00	1.05	0.00	CELL SITE AREA			.00	0.00	0
1	431V	TEL REL TW M00							0.00	1.0000	0	1.0000	1.00	0.00	0.00	CELL SITE AREA			.00	0.00	0
Total Card Land Units: 0.17 AC Parcel Total Land Area: 29 AC																					
																				Total Land Value:	100,000

PROPERTY INFORMATION

MAP ID: 151/98/1 Bldg #: 1 of 1 Card 3 of 3 State Use: 1010
 Vision ID: 1293 Bldg Name: WALLINGFORD, CT
 Print Date: 12/02/2016 11:27

UTILITIES **STRI./ROAD** **LOCATION** **CURRENT ASSESSMENT**

6148
 WALLINGFORD, CT

TOPO. **UTILITIES** **STRI./ROAD** **LOCATION** **CURRENT ASSESSMENT**

6148
 WALLINGFORD, CT

Other ID: 024001002

ASSOC PID#

VISION

RECORD OF OWNERSHIP

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
Total:		1,379,000	Total:		821,100

PREVIOUS ASSESSMENTS (HISTORY)

OTHER ASSESSMENTS

Year	Type	Description	Code	Amount	Number	Amount	Comm. Int.
ASSESSING NEIGHBORHOOD							
	NBHD/ SUB	NBHD Name					
	110/A	Street Index Name	Tracing				
Total:							

NOTES

APPRaised VALUE SUMMARY

Appraised Bldg. Value (Card) 154,300
 Appraised XF (B) Value (Bldg) 0
 Appraised OB (L) Value (Bldg) 780,200
 Appraised Land Value (Bldg) 220,100
 Special Land Value 224,400
 Total Appraised Parcel Value 1,379,000
 Valuation Method: C
 Adjustment: 0

Net Total Appraised Parcel Value 1,379,000

BUILDING PERMIT RECORD

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments
VISIT/CHANGE HISTORY								
		Type	IS	ID	Cd.	Date		Purpose/Result

LAND LINE VALUATION SECTION

B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A. Factor	Notes-Adj	Special Pricing Spec Calc	S-Adj Fract	Unit Price	Land Value
Total Card Land Units: 0.00 AC Parcel Total Land Area: 29 AC Total Land Value: 0															

CONSTRUCTION DETAIL (CONTINUED)

Element	Cd.	Ch.	Description
	MIXED USE		
Code	Description	Percentage	
1010	Single Family	100	

COST/MARKET VALUATION

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Cost Trend Factor

No Photo On Record

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

Code	Description	Sub	Sub	Description	L/B	Units	Unit Price	Yr	Gde	Dp	Rt	Cnd	%Cnd	Apr	Value
GRN4	Com Plastic Gc				L	8,500	6.00	2014	C			E	90		45,900
GRN3	Pipe + Plastic				L	2,880	4.00	2015	C			G	75		8,600
GRN3	Pipe + Plastic				L	2,880	4.00	2015	C			G	75		8,600
GRN3	Pipe + Plastic				L	2,880	4.00	2015	C			G	75		8,600

BUILDING SUB-AREA SUMMARY SECTION

Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprac. Value
	Ttl. Gross Livable Area	0	0	0	0	303,157

EXHIBIT 2

PROJECT NOTES

- SITE INFORMATION OBTAINED FROM THE FOLLOWING:
 - PLAN ENTITLED "WALLINGFORD" PREPARED BY CENTEK ENGINEERING OF BRANFORD, CT. LAST REVISED 09/19/2016.
 - LIMITED FIELD OBSERVATION BY MASER CONSULTING ON 05/29/2018.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION DEPARTMENT OF THE SUBMISSION OF RBDS OR PERFORMANCE OF WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY REGULATIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVEL OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUT DOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL PROTECTIVE EQUIPMENT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
- THE PROPOSED FACILITY WILL CAUSE AN INSIGNIFICANT OR MODERATE IMPACT ON THE SURROUNDING ENVIRONMENT. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
- NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
- THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
- THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
- CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERS PRIOR TO INSTALLATION.
- THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC REQUIREMENTS.
- ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
- CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
- CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS, CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.
- CONTRACTOR SHALL CONTACT STATE SPECIFIC ONE CALL SYSTEM THREE WORKING DAYS PRIOR TO ANY EARTH MOVING ACTIVITIES.

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THIS DRAWING AND ALL THE INFORMATION CONTAINED HEREIN IS AUTHORIZED FOR USE ONLY BY THE PARTY FOR WHOM THE WORK WAS CONTRACTED OR BY WHOM IT IS CERTIFIED. THIS DRAWING MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS WRITTEN CONSENT OF MASER CONSULTING CONNECTICUT.



SITE NAME: WALLINGFORD
FA NUMBER: 10035139
SITE NUMBER: CT2154
CROWN BU#: 876310
LTE: 3C/4C/5C/6C
945 EAST CENTER STREET
WALLINGFORD, CT 06492
NEW HAVEN COUNTY

VICINITY MAP



CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES:

- 2016 CONNECTICUT STATE BUILDING CODE
- 2014 NATIONAL ELECTRICAL CODE - NFPA 70
- 2012 NFPA 101
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- AMERICAN CONCRETE INSTITUTE
- TIA-222-G
- TIA 607 FOR GROUNDING
- 2016 CONNECTICUT STATE BUILDING CODE
- INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS BY IEEE C2 LATEST EDITION
- 2014 NATIONAL ELECTRICAL CODE - NFPA 70
- ANSI T1.311
- PROPOSED USE: UNMANNED TELECOM FACILITY
- HANDICAP REQUIREMENTS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION - HANDICAPPED ACCESS NOT REQUIRED.
- CONSTRUCTION TYPE: IIB
- USE GROUP: U

PROJECT INFORMATION

SITE INFORMATION
 LATITUDE: 41.1437° N
 LONGITUDE: 72.7983° W
 JURISDICTION: NEW HAVEN COUNTY

APPLICANT/LESSEE
 COMPANY: NEW CINGULAR WIRELESS PCS, LLC
 ADDRESS: 550 COCHITUATE ROAD
 CITY: STATE, ZIP: FRAMINGHAM, MA 01701

STRUCTURE OWNER
 COMPANY: T.B.D.
 ADDRESS: T.B.D.
 CITY: STATE, ZIP: T.B.D.

CLIENT REPRESENTATIVE
 COMPANY: EMPRE TELECOM
 ADDRESS: 16 ESQUIRE ROAD
 CITY: STATE, ZIP: BILLERICA, MA 01862
 CONTACT: DAVID COOPER
 E-MAIL: DCOOPER@EMPRETELECOM.COM

SITE ACQUISITION
 COMPANY: EMPRE TELECOM
 ADDRESS: 16 ESQUIRE ROAD
 CITY: STATE, ZIP: BILLERICA, MA 01862
 CONTACT: DAVID COOPER
 E-MAIL: DCOOPER@EMPRETELECOM.COM

ENGINEER
 COMPANY: MASER CONSULTING, CT
 ADDRESS: 200 MIDLAND DRIVE, SUITE 100
 CITY: STATE, ZIP: ROBERT BANK, NJ 07001-5699
 CONTACT: ROBERT ANDREWS
 PHONE: (856) 797-0712
 E-MAIL: RANDREW@MASERCONSULTING.COM

PROJECT DESCRIPTION/ SCOPE OF WORK

- INSTALL (5) NEW RBUS AT GRADE
- INSTALL (6) NEW RBUS (2) PER SECTOR
- REMOVE (3) EXISTING PANEL ANTENNAS (1) PER SECTOR
- INSTALL (3) NEW BAND COMBINERS (1) PER SECTOR
- INSTALL (1) NEW DC-4 SURGE SUPPRESSION DOOME
- INSTALL (2) NEW 48C DC CABLE
- SWAP DUS WITH 5016 AND ADD 2ND XMU
- ADD 2ND 5216 + IDL6 AND (1) RBS 6630

PROPOSED PROJECT SCORE BASED ON RBDS ID# 2310393, VERSION 2.00, LAST UPDATED 06/14/2018.

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EQUIPMENT LAYOUT AND ELEVATION VIEW
C-3	ANTENNA LAYOUTS AND ANTENNA SCHEDULE
A-1	CONSTRUCTION DETAILS
A-2	RF FLOORING DIAGRAM
A-3	GROUNDING DETAILS AND NOTES
S-1	STRUCTURAL DETAILS

DATE	AS SHOWN	ISSUED FOR	DESCRIPTION

SITE NAME:
WALLINGFORD
FA#: 10035139
SITE #: CT 3265
945 EAST CENTER STREET
WALLINGFORD, CT 06492
NEW HAVEN COUNTY

DATE	DESCRIPTION

DATE	DESCRIPTION

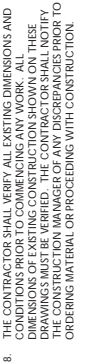
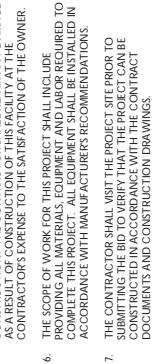
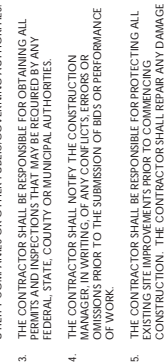
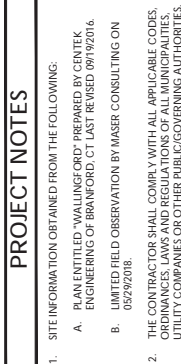
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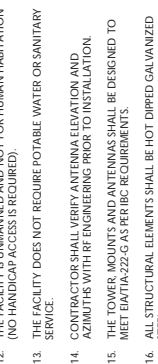
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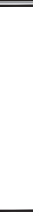
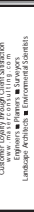


SITE NAME:
WALLINGFORD
FA#: 10035139
SITE #: CT 3265
945 EAST CENTER STREET
WALLINGFORD, CT 06492
NEW HAVEN COUNTY



DATE	DESCRIPTION

DATE	DESCRIPTION



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 Landover, MD 21040-1000
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GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE SPECIFIC (UL, LP, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TECORDIAN AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVISE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GROUND SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND IEEE 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 OHMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT. FITTINGS OR BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACKWAYS SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZE IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BITS EQUIPMENT.
6. EACH BITS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED COPPER WIRE, #10 AWG STRANDED COPPER OR LARGER FOR INDOOR BITS; 2 AWG STRANDED COPPER FOR OUTDOOR BITS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID THINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CAD WELD CONNECTIONS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED CONNECTIONS.
16. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH WALLS OR FLOORS. SUPPORT CUPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN THEY ARE REQUIRED TO BE INCLUDED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED, WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 30 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE THINNED COPPER GROUND WIRE PER NEC 250.50.
21. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - EMPIRE TELECOM
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T (NEW CINCINNATI WIRELESS PCS, LLC)
22. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
23. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
24. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
25. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND REGULATIONS.
26. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK, AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND, FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BITS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND T1 PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERRECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERRECTED USING A COMPATIBLE ZINC PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.

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SITE NAME:
 WALLINGFORD
 F.A.#: 10035139
 SITE #: CT 3265
 945 EAST CENTER STREET
 WALLINGFORD CT 06492
 NEW HAVEN COUNTY



STRUCTURAL DETAILS
 10000 Highway 100, Suite 100
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 CUSTOMER SERVICE
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 FOR THE RECORD
 PROJECT NO. 10035139
 SHEET NO. 11 OF 11
 CALL TO ORDER: 800.333.3333
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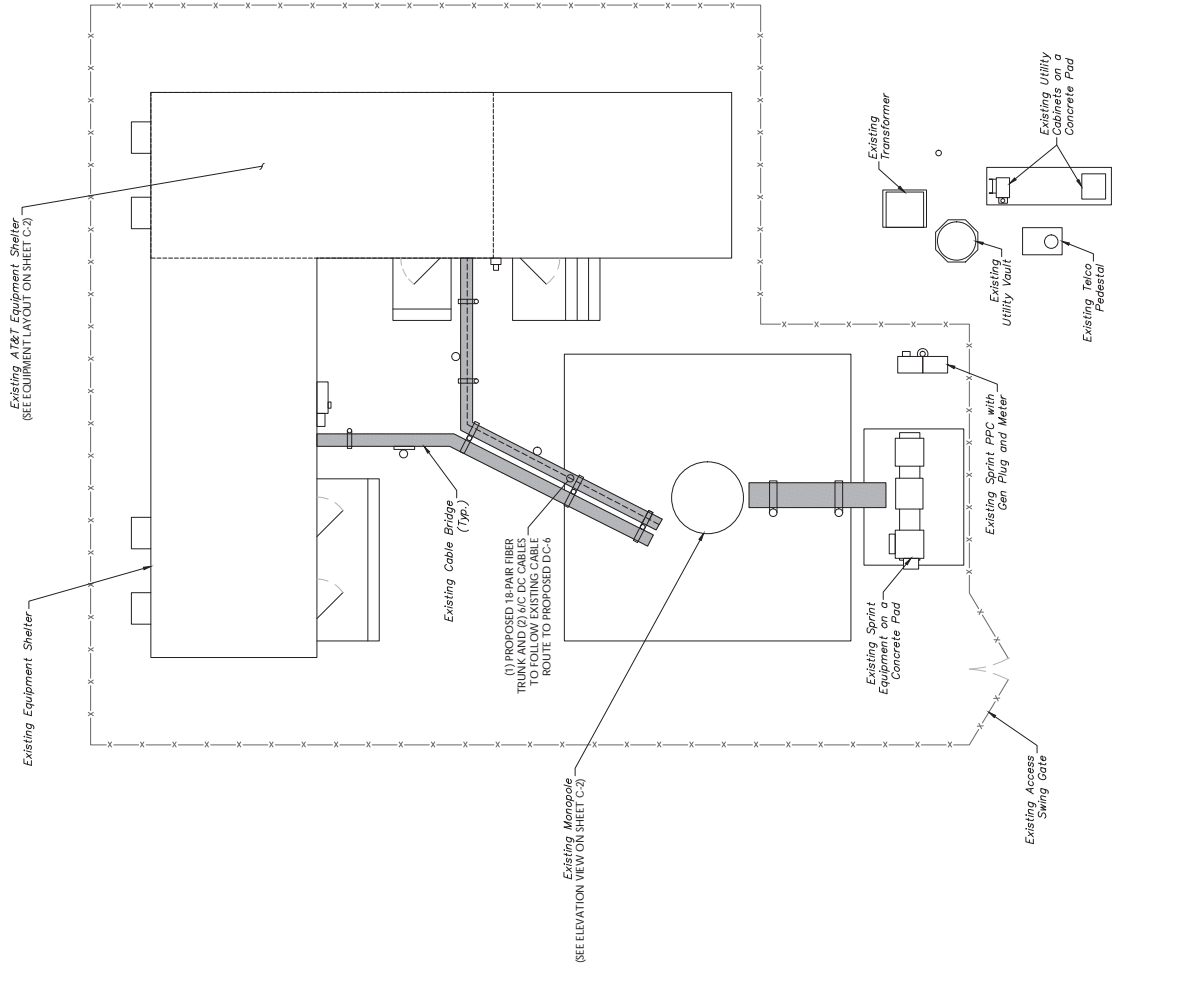
PETROS ENGINEERS
 1000 WEST 10TH AVENUE, SUITE 100
 DENVER, COLORADO 80202
 (303) 733-1100

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 F.A.#: 10035139
 SITE #: CT 3265
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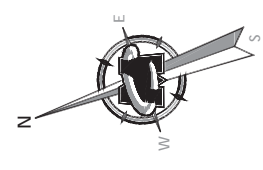


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COMPOUND PLAN
 C-1



COMPOUND PLAN
 SCALE: 1" = 5' FOR 22'X34'
 (SCALE: 1" = 10' FOR 11'X17')



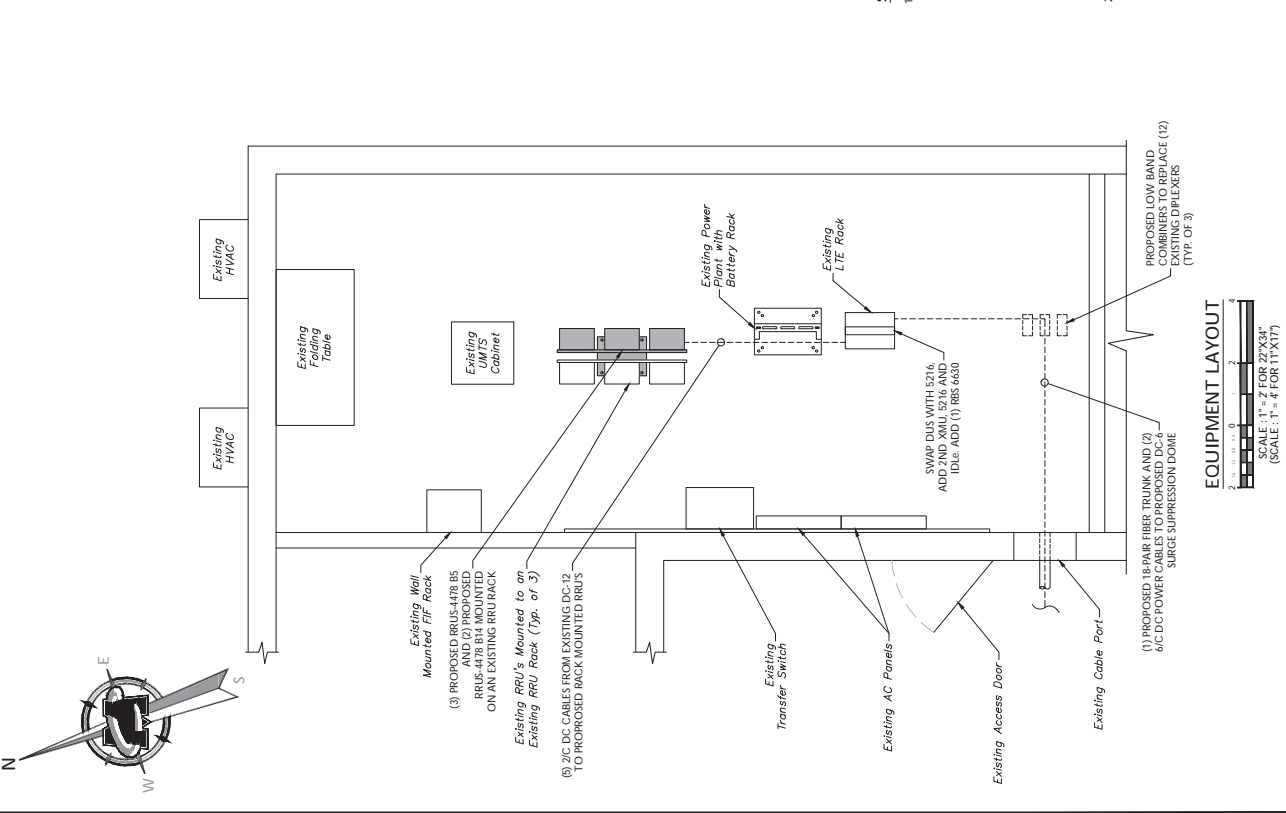
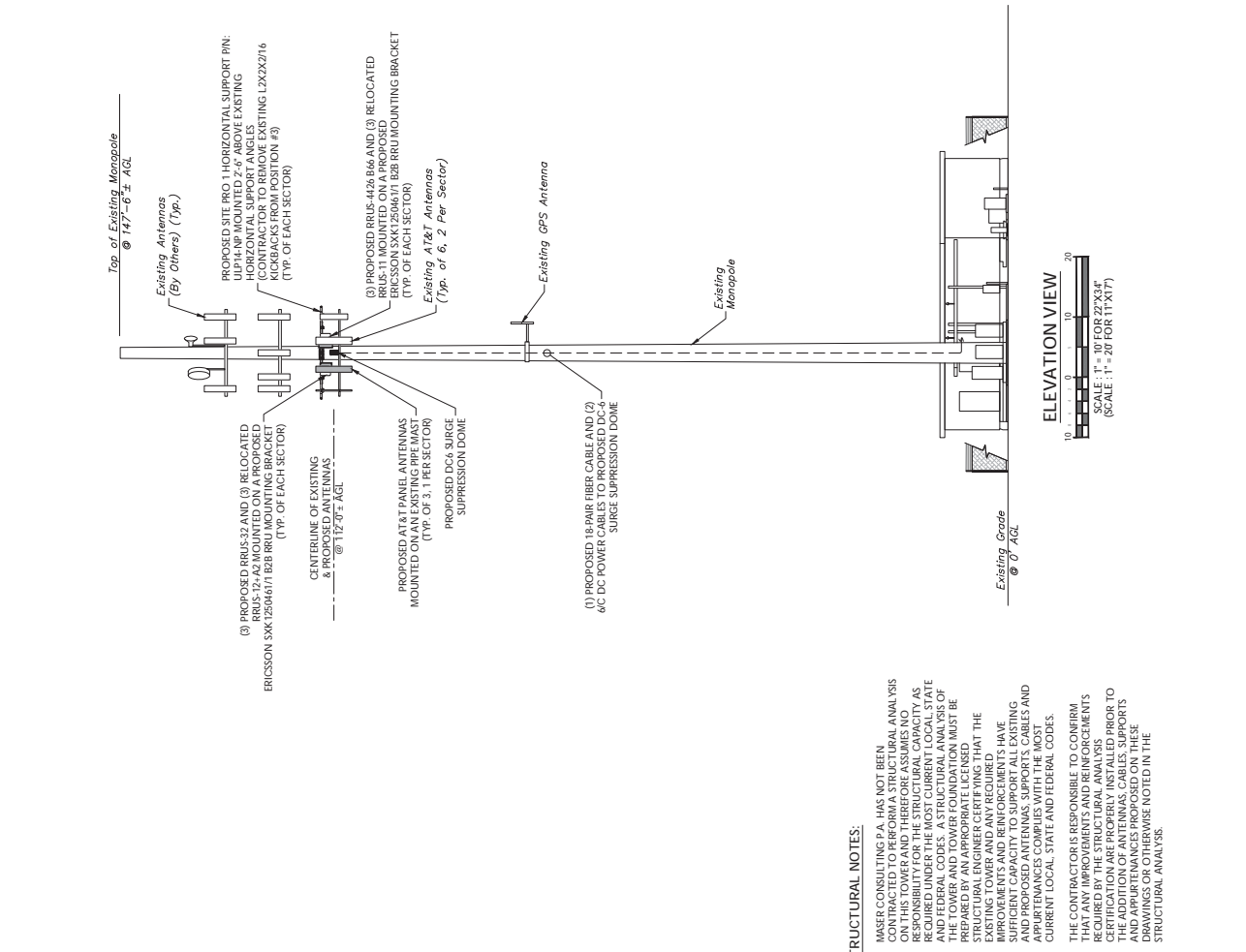
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SITE NAME:
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 F.A#: 10035139
 SITE #: CT 3265
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 WALLINGFORD, TEXAS 75086
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EQUIPMENT LAYOUT AND ELEVATION VIEW



STRUCTURAL NOTES:

1. MASTER CONSULTING P.A. HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY, AS REQUIRED FOR THE TOWER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE STATE AND FEDERAL CODES. A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION MUST BE PREPARED BY AN APPROPRIATE LICENSED PROFESSIONAL ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THE EXISTING TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS, CABLES AND CONNECTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPLICABLE CURRENT LOCAL, STATE AND FEDERAL CODES.
2. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ALL EXISTING STRUCTURAL REQUIREMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND IMPROVEMENTS PROPOSED ON THESE STRUCTURAL ANALYSIS.

EQUIPMENT LAYOUT
 SCALE: 1" = 4' FOR 27'X34"
 (SCALE: 1" = 4' FOR 11'X17")



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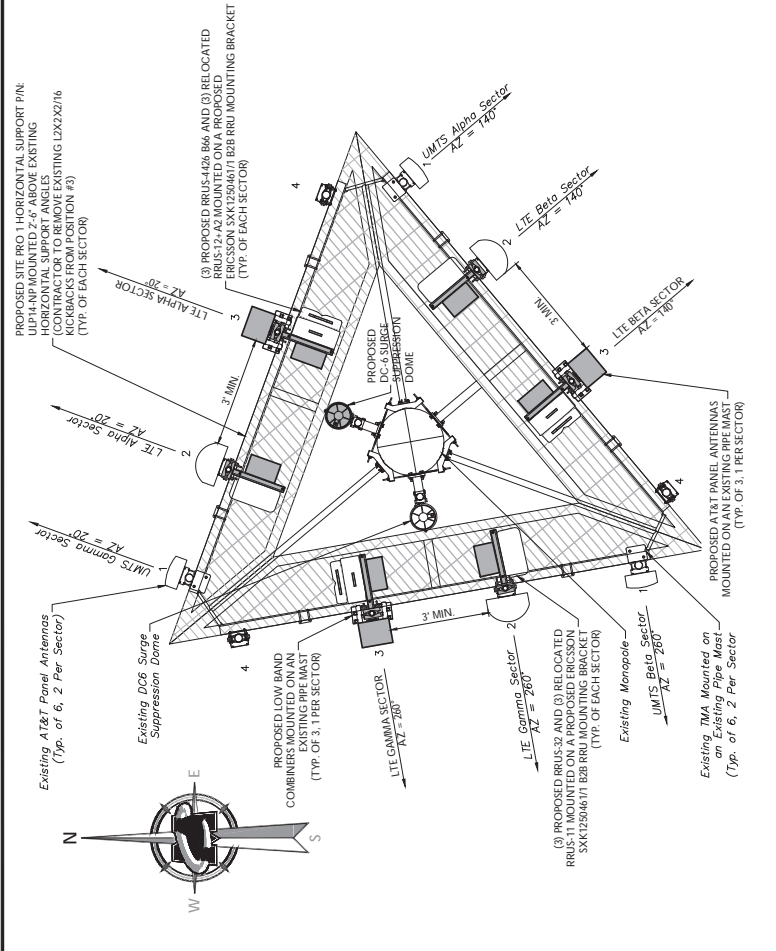


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 NEWPORT BEACH, CALIFORNIA 92646
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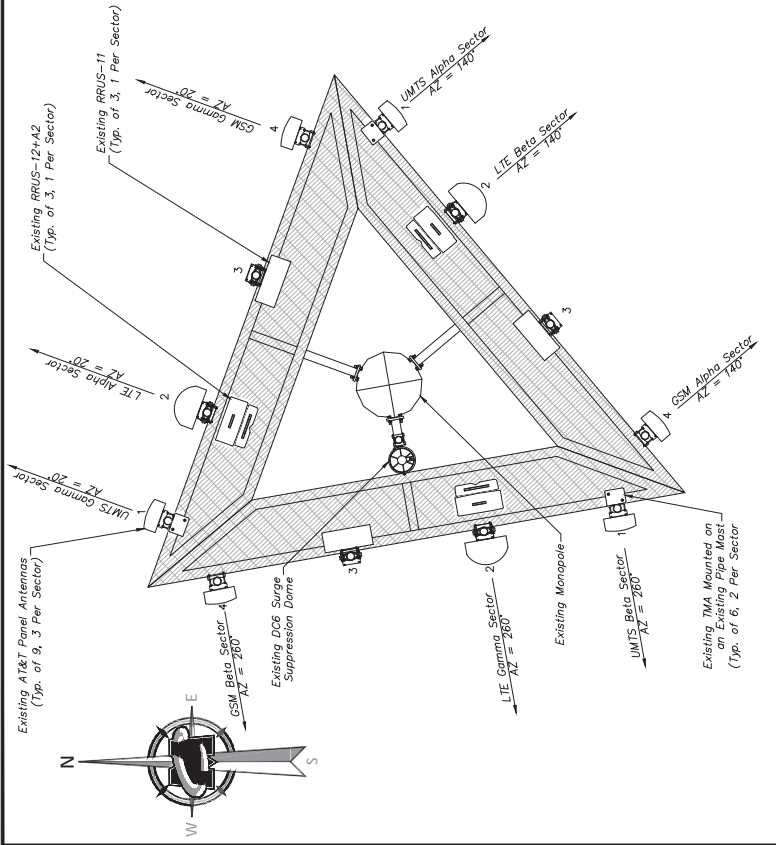
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 SITE #: CT 3265
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ANTENNA LAYOUTS AND ANTENNA SCHEDULE
 ANTENNA SCHEDULE
 C-3



PROPOSED ANTENNA LAYOUT
 NOT TO SCALE



EXISTING ANTENNA LAYOUT
 NOT TO SCALE

SECTOR	EXISTING ANTENNA	PROPOSED ANTENNA	TECHNOLOGY	ANTENNA HEIGHT	ANTENNA WEIGHT	ANTENNA SCHEDULE		TRANSMISSIONS SCHEDULE	
						DEPTH	WIDTH	STATUS	STATUS
Sector 1	POWERLINE 7770	POWERLINE 7770	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	CD	CD	UMTS	11.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
Sector 2	POWERLINE 7770	POWERLINE 7770	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	CD	CD	UMTS	11.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
Sector 3	POWERLINE 7770	POWERLINE 7770	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	CD	CD	UMTS	11.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
Sector 4	POWERLINE 7770	POWERLINE 7770	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	CD	CD	UMTS	11.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING
	HWAS-SE-020H	HWAS-SE-020H	UMTS	15.00	35.00	11.00	1.00	11'	1 1/4" GSM EXISTING

ANTENNA SCHEDULE
 NOT TO SCALE

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PETROS ENGINEERS

REGISTERED PROFESSIONAL ENGINEER
 STATE OF CONNECTICUT
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 FAX: 203.261.1101
 www.petros-engineers.com

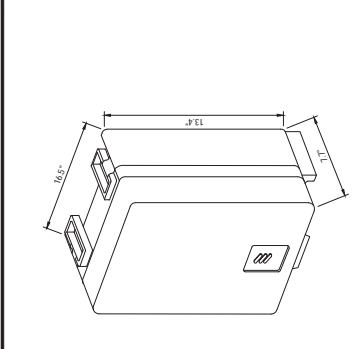
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 F.A.#: 10035139
 SITE #: CT 3265
 945 EAST CENTER STREET
 WALLINGFORD, CT 06495
 NEW HAVEN COUNTY

RED BANK CHECKS

ACCOUNT NO. 10000000000000000000
 CHECK NO. 10000000000000000000
 DATE: 10/20/2024
 AMOUNT: \$1000.00
 PAY TO THE ORDER OF: [REDACTED]
 \$1000.00
 ONE THOUSAND AND 00/100 DOLLARS
 PETROS ENGINEERS
 945 EAST CENTER STREET
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 FAX: 203.261.1101
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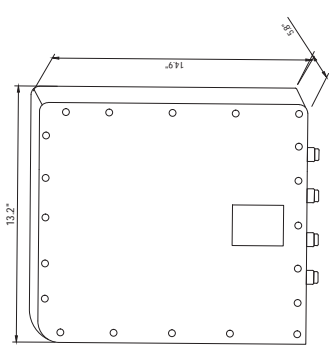
DETAILS

A-1



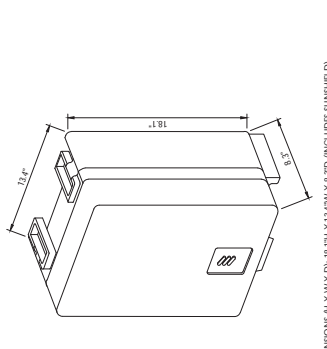
RRU-4478-B5 DETAIL
 NOT TO SCALE

DIMENSIONS (H X W X D): 18.4" H X 13.4" W X 1.1" D (INCLUDES SUNSHIELD)
 WEIGHT: 59.9 LBS



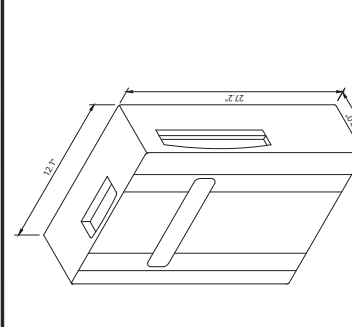
RRU-4426-B66 DETAIL
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 WEIGHT: 48 LBS



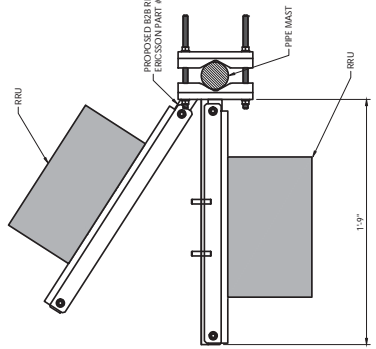
RRU-4478-B14 DETAIL
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DIMENSIONS (H X W X D): 18.1" H X 1.1" W X 9.3" D (INCLUDES SUNSHIELD)
 WEIGHT: 54 LBS

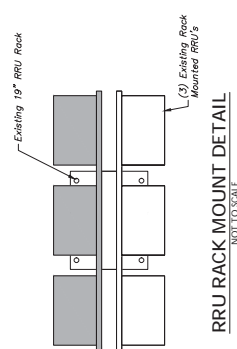
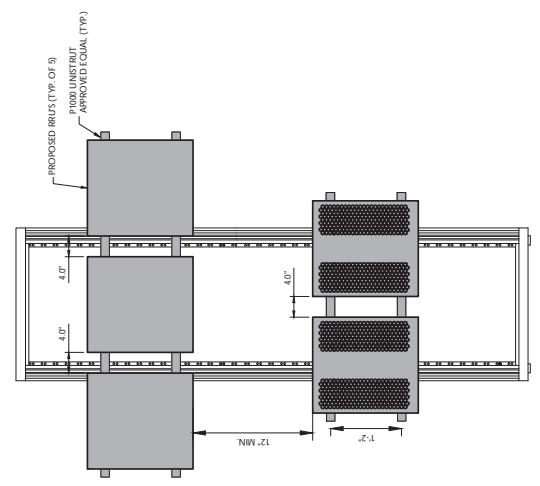


RRU-32 DETAIL
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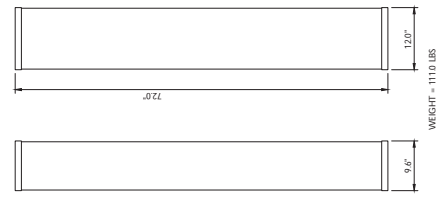
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 WEIGHT: 33 LBS



RRU MOUNTING DETAIL
 NOT TO SCALE

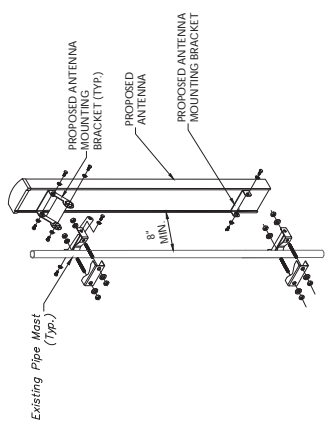


RRU RACK MOUNT DETAIL
 NOT TO SCALE



ANTENNA DETAIL
 NOT TO SCALE

WEIGHT - 111.0 LBS
 QUINTEL QS66122



ANTENNA MOUNTING DETAIL
 NOT TO SCALE

8" MINIMUM SEPARATION REQUIRED FROM BACK OF PANEL ANTENNA TO ANY EXISTING/PROPOSED EQUIPMENT

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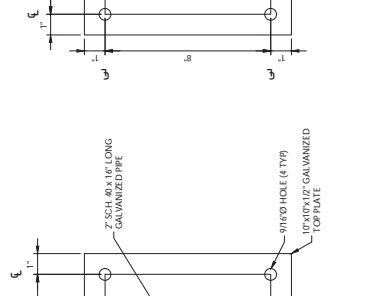
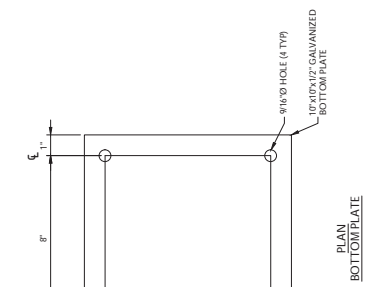
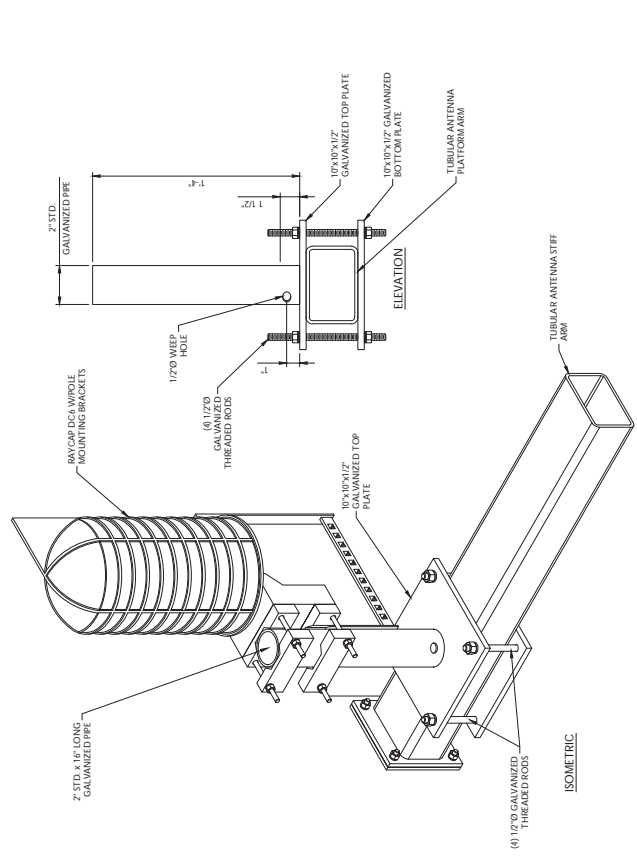
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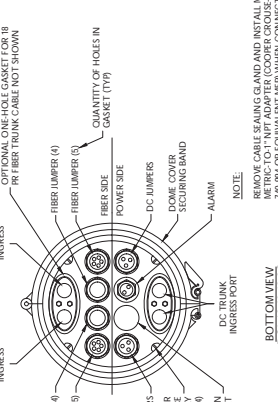
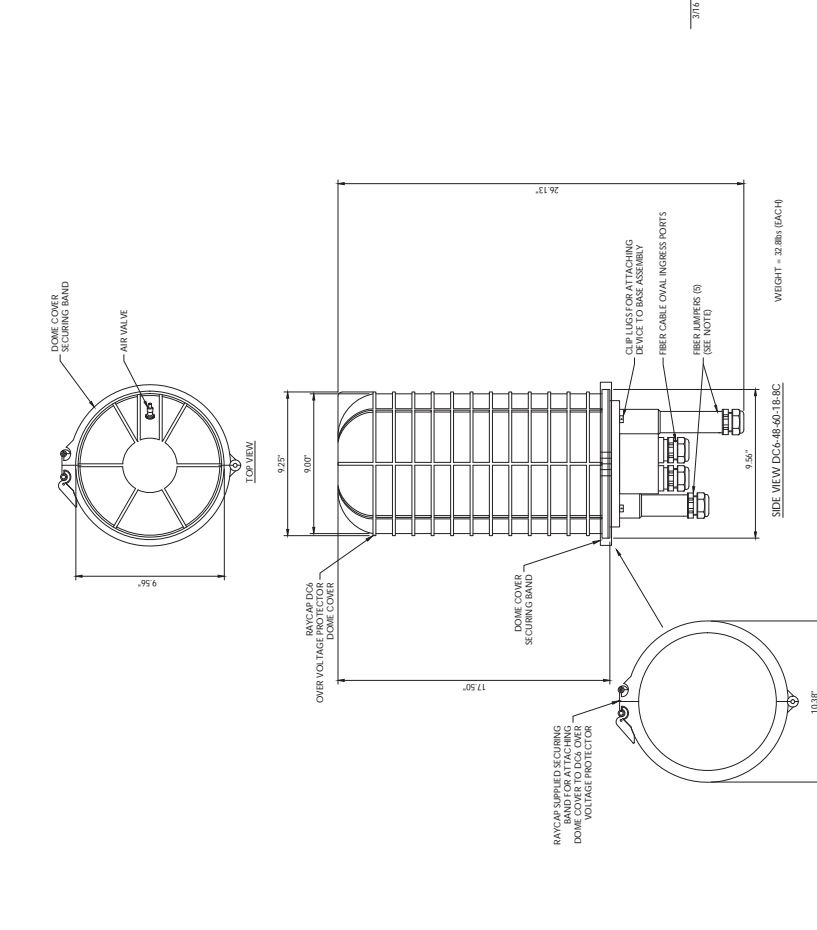
SITE NAME:
 WALLINGFORD
 F.A.#: 10035139
 SITE #: CT 3265
 945 EAST CENTER STREET
 WALLINGFORD, CT 06492
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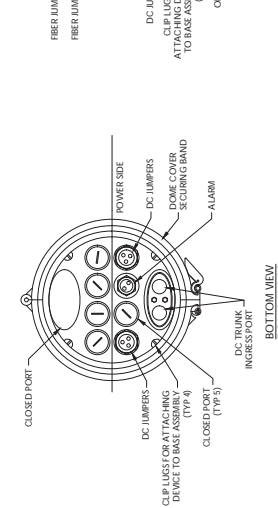
DETAILS
 A-2



DC6 SURGE SUPPRESSION DOME MOUNTING DETAIL (TUBE)
 NOT TO SCALE



DC6 SURGE SUPPRESSION DOME DETAIL
 NOT TO SCALE



DC6 SURGE SUPPRESSION DOME DETAIL
 NOT TO SCALE

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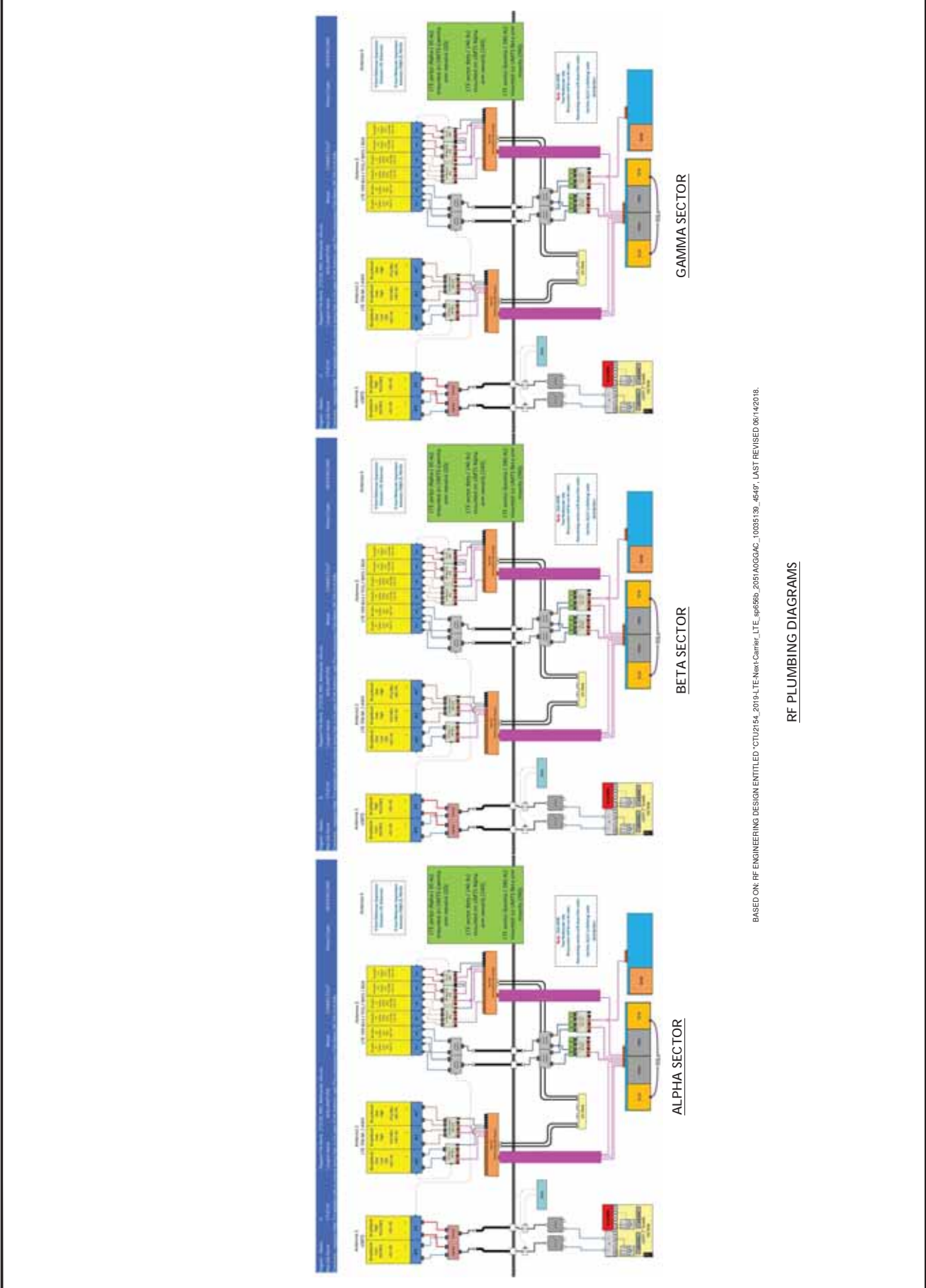
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SITE NAME:
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RF PLUMBING DIAGRAM
A-3




BASED ON: RF ENGINEERING DESIGN ENTITLED "CT112154_2019-LTE-Next-Carrier_LTE_49656b_2019/00GAC_10035139_4549", LAST REVISED 06/14/2018.


RF PLUMBING DIAGRAMS




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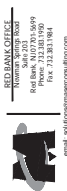
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DATE: 10/20/2014
DRAWN BY: 158393DDA



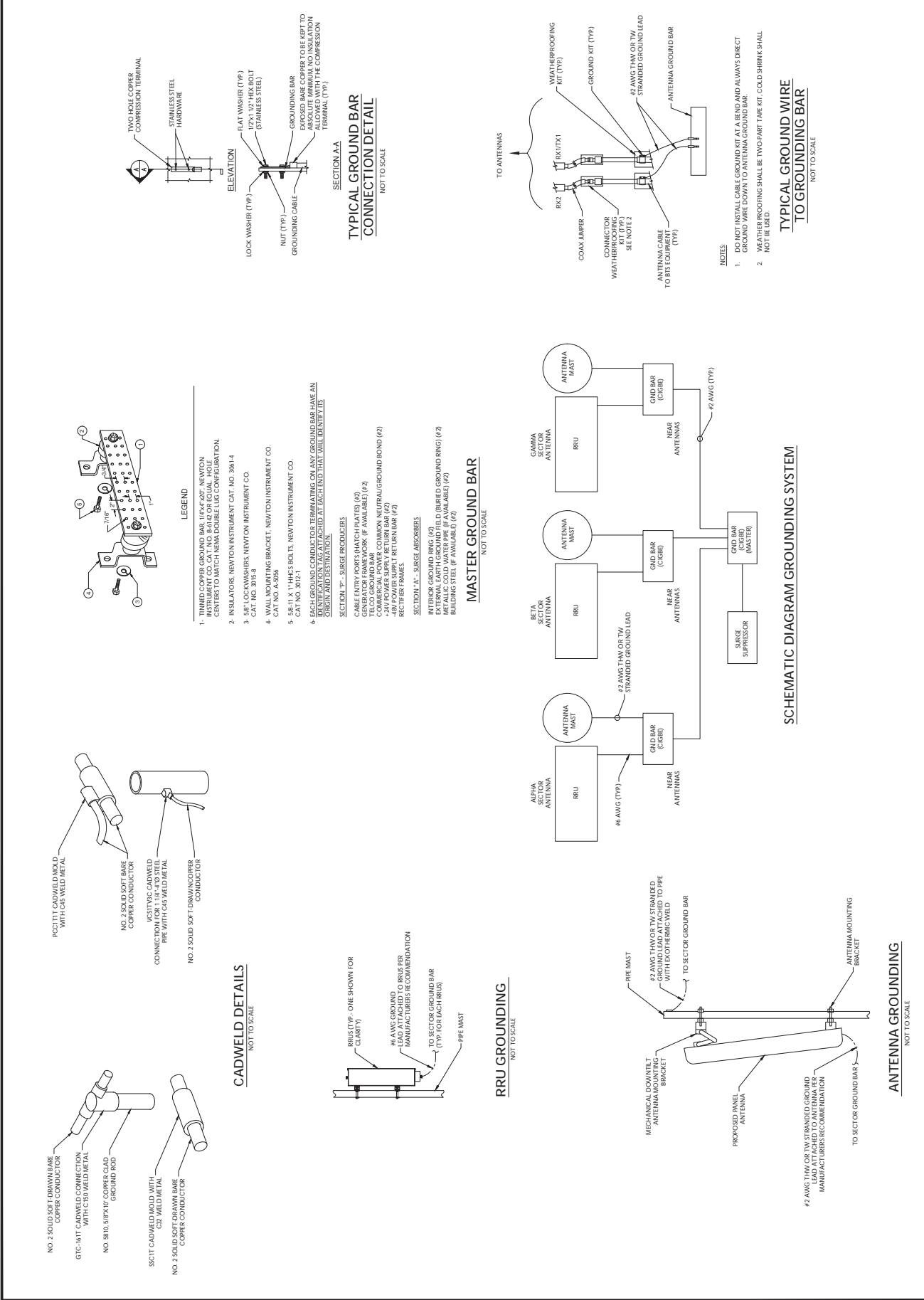
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GROUNDING DETAILS



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 Website: www.guy.edu

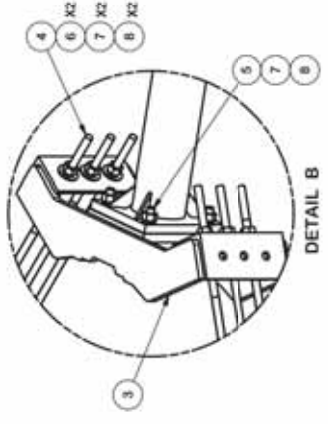
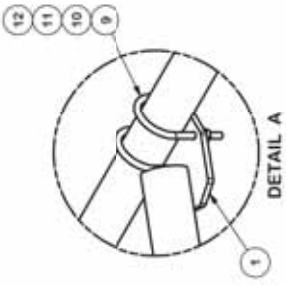
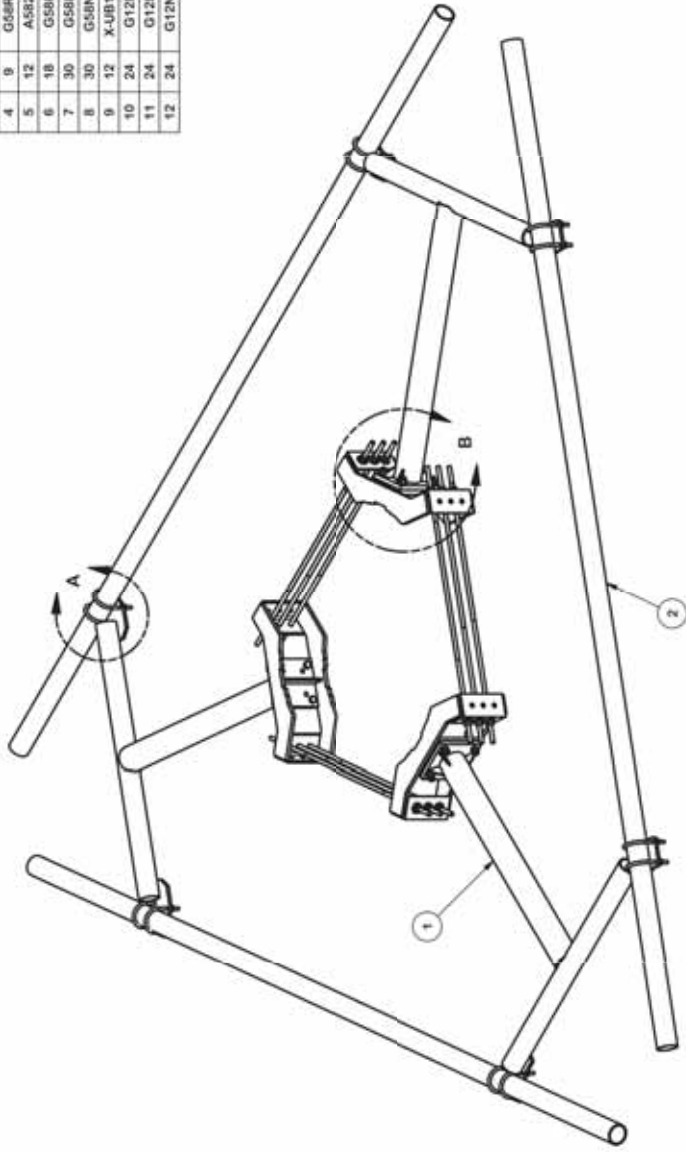
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 REGISTERED PROFESSIONAL ENGINEER
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 1115 W. WOODRIDGE DRIVE, SUITE 100
 ATLANTA, GA 30329
 PHONE: 404.525.1234
 FAX: 404.525.1234
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SITE NAME:
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 Fax: 754.281.1861
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GROUNDING DETAILS
 SHEET NO. S-1

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-U/LP	SUPPORT ARM WELDMENT - .36"		103.07	309.20
2	3	P3174	3-1/2" X 174" SCH 40 GALVANIZED PIPE	174 in	109.97	329.90
3	3	X-LWRM	RING MOUNT WELDMENT		69.81	206.42
4	9	G58R-24	5/8" X 24" GALV THREADED ROD		2.20	19.76
4	9	G58R-48	5/8" X 48" GALV THREADED ROD		4.38	39.52
5	12	A58234	5/8" X 2-3/4" HDG A325 HEX BOLT	2.34 in	0.36	4.27
6	18	G58FW	5/8" HDG USS FLATWASHER		0.07	1.27
7	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
8	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
9	12	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	3.08
10	24	G12FW	1/2" HDG USS FLATWASHER		0.03	0.82
11	24	G12LW	1/2" HDG LOCKWASHER		0.01	0.33
12	24	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.72
					TOTAL WT. #	927.83



DESCRIPTION:
 ULTRA LOW PROFILE
 RIDGED T-ARM

DESIGNER: CEK
CHECKED BY: BMC
DATE: 7/7/2015

CLASS: SUB
NO.: 81 01

END. APPROVAL:
CUSTOMER: ULP14-NP

DATE: 7/7/2015

ENGINEER: ULP14-NP

DATE: 7/7/2015

LOCATION:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Dallas, TX
 Fort Worth, TX
 Houston, TX

Engineering Support Team:
 1-888-752-7466

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 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
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 DRILLED AND GAS CUT HOLES (± 0.0307") - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES (± 0.0107") - NO CONING OF HOLES
 BENDS ARE ± 1/2 DEGREE
 ALL OTHER MACHINING (± 0.0307")
 ALL OTHER ASSEMBLY (± 0.0607")

PROVIDE PART NUMBERS FOR ALL DIMENSIONS IN THIS DRAWING AND INDICATE THE DIMENSION OF ALL DIMENSIONS AND CONSIDERED A TRADE SECRET. ANY USE OF THIS DRAWING WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

SITE PRO 1 P/N: ULP14-NP
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EXHIBIT 3

Date: **January 8, 2019**

Rebecca Klein
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Analysis Report

Carrier Designation: *AT&T Mobility Co-Locate*
Carrier Site Number: CT2154
Carrier Site Name: Wallingford

Crown Castle Designation:
Crown Castle BU Number: 876310
Crown Castle Site Name: Beaumont Farm
Crown Castle JDE Job Number: 550200
Crown Castle Work Order Number: 1676693
Crown Castle Order Number: 472828 Rev. 0

Engineering Firm Designation: **TEP Project Number:** 72875.203869

Site Data: **945 East Center St., Wallingford, New Haven County, CT 06492**
Latitude 41° 26' 37.36", Longitude -72° 47' 46.56"
147 Foot - Monopole Tower

Dear Rebecca Klein,

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

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

LC7: Proposed Equipment Configuration

Sufficient Capacity

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2015 International Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Giovanni Palmieri, E.I.T. / TML

Respectfully submitted by:

Aaron T. Rucker, P.E.



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1) INTRODUCTION

This tower is a 147-ft monopole tower designed by Paul J. Ford. The tower has been modified per reinforcement drawings prepared by URS Greiner Woodward Clyde in December of 1999. The tower was previously extended 14-ft, bringing the overall tower height to 147-ft. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	125 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
111.0	113.5	1	Site Pro 1	ULP14-NP	12 2 4	1-1/4 3/8 3/4
	112.0	3	CCI Antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	Powerwave Technologies	7770.00 w/ Mount Pipe		
		3	Quintel Technology	QS66512-2 w/ Mount Pipe		
		6	Powerwave Technologies	LGP21401		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 4426 B66		
		3	Ericsson	RRUS-11		
		3	Ericsson	RRUS12/RRUS A2		
		3	Kaelus	DBCT108F1V92-1		
	2	Raycap	DC6-48-60-18-8F			
111.0	1	Tower Mounts	Platform Mount [LP 1201-1]			

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
130.0	132.0	1	Andrew	VHLP1-23	6 3 1 3	5/16 1/2 7/8 1-1/4
		1	Andrew	VHLP2-23		
		1	Andrew	VHLP2.5-23		
	130.0	1	RFS Celwave	APXV9ERR18-C-A20		
		1	RFS Celwave	APXVSPP18-C-A20		
		3	RFS Celwave	APXVTM14-C-120		
		2	Alcatel Lucent	1900MHz RRH (65MHz)		
		2	Alcatel Lucent	800 External Notch Filter		
		2	Alcatel Lucent	800MHZ RRH		
		3	Alcatel Lucent	TD-RRH8x20-25		
		6	RFS Celwave	ACU-A20-N		
		1	Tower Mounts	Miscellaneous [NA 510-3]		
	128.0	1	Tower Mounts	Platform Mount [LP 1201-1]		
		3	Argus Technologies	LLPX310R		
	127.0	3	Samsung Telecommunications	FDD_R6_RRH		
		1	RFS Celwave	APXVSPP18-C-A20		
		1	Alcatel Lucent	1900MHz RRH (65MHz)		
		1	Alcatel Lucent	800 External Notch Filter		
1		Alcatel Lucent	800MHZ RRH			
121.0	121.0	3	RFS Celwave	ACU-A20-N		
		2	Antel	BXA-70063/6CFx2 w/ Mount Pipe		
		1	Antel	BXA-70063/6CFx4 w/ Mount Pipe		
		2	Antel	LPA-80063/6CF w/ Mount Pipe		
		4	Antel	LPA-80080-6CF-EDIN w/ Mount Pipe		
		6	Commscope	SBNHH-1D65B w/ Mount Pipe		
		3	Alcatel Lucent	B13 RRH 4X30		
		3	Alcatel Lucent	B66A RRH4X45		
		3	Alcatel Lucent	RRH2x60-1900A-4R		
		2	RFS Celwave	DB-T1-6Z-8AB-0Z		
119.0	119.0	1	Tower Mounts	Platform Mount [LP 1201-1]		
		3	Alcatel Lucent	RRH2x40-AWS		
70.0	70.0	1	Tower Mounts	Side Arm Mount [SO 102-3]		
		1	Kathrein	OG-860/1920/GPS-A		
		1	Tower Mounts	Side Arm Mount [SO 701-1]	1	1/2

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	Dr. Clarence Welti, P.E., P.C.	1531484	CCISites
Tower Foundation Drawings	Paul J. Ford and Company	1855118	CCISites
Tower Manufacturer Drawings	Paul J. Ford and Company	1855980	CCISites
Tower Reinforcement Drawings	URS Greiner Woodward Clyde	2015154	CCISites

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
- 3) All tower components are in sufficient condition to carry their full design capacity.
- 4) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 5) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
- 6) The extension designed by URS Greiner Woodward Clyde in CCI Doc ID 2015154 was assumed to be installed as designed.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (lb)	ϕP_{allow} (lb)	% Capacity	Pass / Fail
L1	147 - 133	Pole	TP12.75x12.75x0.5	1	-1025.33	636437.52	2.3	Pass
L2	133 - 85.5	Pole	TP29.418x19.537x0.313	2	-18520.50	1750759.42	66.2	Pass
L3	85.5 - 42.75	Pole	TP37.687x28.013x0.375	3	-28365.60	2694163.38	85.3	Pass
L4	42.75 - 0	Pole	TP45.83x35.949x0.438	4	-43763.80	3927923.82	86.0	Pass
							Summary	
						Pole (L4)	86.0	Pass
						RATING =	86.0	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	130	4.6	Pass
1,2	Anchor Rods	-	78.7	Pass
1,2	Base Plate	-	78.7	Pass
1,2	Base Foundation Soil Interaction	-	85.8	Pass
1,2	Base Foundation Structural	-	64.6	Pass

Structure Rating (max from all components) =	86.0%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H Section 15.5

4.1) Recommendations

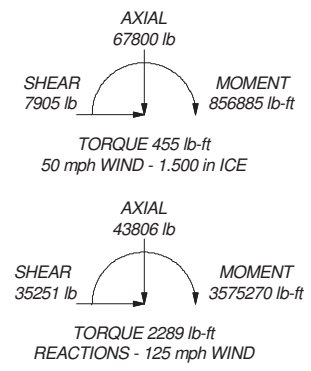
- 1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	1	2	3	4	20282.6
Length (ft)	14.00	47.50	46.50	47.50	9210.9
Number of Sides	1	12	12	12	
Thickness (in)	0.500	0.313	0.375	0.438	
Socket Length (ft)		3.75	4.75		
Top Dia (in)	12.750	19.537	28.013	35.949	
Bot Dia (in)	12.750	29.418	37.687	45.830	
Grade	A53-B-35		A607-65		
Weight (lb)	916.7	3890.3	6204.8		



ALL REACTIONS ARE FACTORED



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVTM14-C-120	130	2.4" Dia. x 6-ft	119
APXVTM14-C-120	130	2.4" Dia. x 6-ft	119
APXVTM14-C-120	130	2.4" Dia. x 6-ft	119
APXV9ERR18-C-A20	130	Side Arm Mount [SO 102-3]	119
APXVSPP18-C-A20	130	RRH2X40-AWS	119
APXVSPP18-C-A20	130	RRH2X40-AWS	119
LLPX310R	130	RRH2X40-AWS	119
LLPX310R	130	3.5" pipe x 15-ft	113.5
LLPX310R	130	3.5" pipe x 15-ft	113.5
TD-RRH8x20-25	130	3.5" pipe x 15-ft	113.5
TD-RRH8x20-25	130	3.5" Dia. x 3-ft Pipe	113.5
TD-RRH8x20-25	130	3.5" Dia. x 3-ft Pipe	113.5
FDD_R6_RRH	130	3.5" Dia. x 3-ft Pipe	113.5
FDD_R6_RRH	130	3.5" Dia. x 3-ft Pipe	113.5
FDD_R6_RRH	130	3.5" Dia. x 3-ft Pipe	113.5
800 EXTERNAL NOTCH FILTER	130	3.5" Dia. x 3-ft Pipe	113.5
800 EXTERNAL NOTCH FILTER	130	Side Arm Mount [SO 102-3]	113.5
800 EXTERNAL NOTCH FILTER	130	RRUS 4426 B66	111
(3) ACU-A20-N	130	RRUS 4426 B66	111
(3) ACU-A20-N	130	DBCT108F1V92-1	111
(3) ACU-A20-N	130	DBCT108F1V92-1	111
800MHZ RRH	130	DBCT108F1V92-1	111
800MHZ RRH	130	(2) LGP21401	111
800MHZ RRH	130	(2) LGP21401	111
1900MHZ RRH (65MHz)	130	(2) LGP21401	111
1900MHZ RRH (65MHz)	130	DC6-48-60-18-8F	111
1900MHZ RRH (65MHz)	130	RRUS-11	111
Platform Mount [LP 1201-1]	130	RRUS-11	111
Miscellaneous [NA 510-3]	130	RRUS-11	111
VHLP1-23	130	DC6-48-60-18-8F	111
VHLP2-23	130	RRUS12/RRUS A2	111
VHLP2-5-23	130	RRUS12/RRUS A2	111
(2) LPA-80080-6CF-EDIN w/ Mount Pipe	121	RRUS12/RRUS A2	111
(2) LPA-80080-6CF-EDIN w/ Mount Pipe	121	2.4" Dia. x 6" Mount Pipe	111
(2) LPA-80063/6CF w/ Mount Pipe	121	2.4" Dia. x 6" Mount Pipe	111
(2) SBNHH-1D65B w/ Mount Pipe	121	2.4" Dia. x 6" Mount Pipe	111
(2) SBNHH-1D65B w/ Mount Pipe	121	HPA-65R-BUU-H6 w/ Mount Pipe	111
(2) SBNHH-1D65B w/ Mount Pipe	121	HPA-65R-BUU-H6 w/ Mount Pipe	111
B13 RRH 4X30	121	HPA-65R-BUU-H6 w/ Mount Pipe	111
B13 RRH 4X30	121	OS66512-2 w/ Mount Pipe	111
B13 RRH 4X30	121	OS66512-2 w/ Mount Pipe	111
B66A RRH4X45	121	OS66512-2 w/ Mount Pipe	111
B66A RRH4X45	121	RRUS 32	111
B66A RRH4X45	121	RRUS 32	111
RRH2x60-1900A-4R	121	RRUS 32	111
RRH2x60-1900A-4R	121	RRUS 4426 B66	111
RRH2x60-1900A-4R	121	Platform Mount [LP 1201-1]	111
DB-T1-6Z-8AB-0Z	121	7770.00 w/ Mount Pipe	111
DB-T1-6Z-8AB-0Z	121	7770.00 w/ Mount Pipe	111
Platform Mount [LP 1201-1]	121	7770.00 w/ Mount Pipe	111
BXA-70063/6CFx2 w/ Mount Pipe	121	Side Arm Mount [SO 701-1]	70
BXA-70063/6CFx2 w/ Mount Pipe	121	OG-860/1920/GPS-A	70
BXA-70063/6CFx4 w/ Mount Pipe	121		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-35	35 ksi	60 ksi	A607-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 86%

Tower Engineering Professionals, Inc.		Beaumont Farm (BU 876310)	
326 Tryon Road Raleigh, NC 27603		Project: TEP No. 72875.203869	
Phone: (919) 661-6351		Client: Crown Castle	Drawn by: tmlester
FAX: (919) 661-6350		Code: TIA-222-H	Date: 01/07/19
Tower Engineering Professionals		Path: C:\Users\tmlster\Desktop\Beaumont Farm\876310_LC4.7.dwg	App'd: NTS Scale: NTS Dwg No. E-1

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	Client Crown Castle	Designed by tmlester

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

- Tower is located in New Haven County, Connecticut.
- Tower base elevation above sea level: 244.00 ft.
- Basic wind speed of 125 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.05.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|---|---|

Tapered Pole Section Geometry

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Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	147.00-133.00	14.00	0.000	Round	12.750	12.750	0.500		A53-B-35 (35 ksi)
L2	133.00-85.50	47.50	3.750	12	19.537	29.418	0.313	1.250	A607-65 (65 ksi)
L3	85.50-42.75	46.50	4.750	12	28.013	37.687	0.375	1.500	A607-65 (65 ksi)
L4	42.75-0.00	47.50		12	35.949	45.830	0.438	1.750	A607-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	12.750	19.242	361.544	4.335	6.375	56.713	723.088	9.615	0.000	0
L2	12.750	19.242	361.544	4.335	6.375	56.713	723.088	9.615	0.000	0
L2	20.116	19.345	912.551	6.882	10.120	90.172	1849.075	9.521	4.398	14.075
L2	30.346	29.287	3166.774	10.420	15.239	207.814	6416.742	14.414	7.047	22.549
L3	29.677	33.373	3253.816	9.894	14.511	224.235	6593.112	16.425	6.502	17.34
L3	38.884	45.054	8006.057	13.358	19.522	410.107	16222.442	22.174	9.095	24.254
L4	38.086	50.027	8052.429	12.713	18.622	432.425	16316.405	24.622	8.462	19.341
L4	47.292	63.947	16817.916	16.251	23.740	708.423	34077.658	31.473	11.110	25.394

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _r	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 147.00-133.00				1	1	1			
L2 133.00-85.50				1	1	1			
L3 85.50-42.75				1	1	1			
L4 42.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
Misc Safety Line 3/8	A	No	Surface Ar (CaAa)	133.00 - 0.00	1	1	-0.250 -0.250	0.375		0.220

Feed Line/Linear Appurtenances - Entered As Area

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
130									
7983A(1/2")	C	No	No	Inside Pole	130.00 - 0.00	3	No Ice	0.00	0.084
							1/2" Ice	0.00	0.084
							1" Ice	0.00	0.084
							2" Ice	0.00	0.084
9207(5/16")	C	No	No	Inside Pole	130.00 - 0.00	6	No Ice	0.00	0.600
							1/2" Ice	0.00	0.600
							1" Ice	0.00	0.600
							2" Ice	0.00	0.600
HB114-08U3M12-xxF(7/8")	C	No	No	Inside Pole	130.00 - 0.00	1	No Ice	0.00	0.683
							1/2" Ice	0.00	0.683
							1" Ice	0.00	0.683
							2" Ice	0.00	0.683
HB114-1-0813U4-M5J(1 1/4")	C	No	No	Inside Pole	130.00 - 0.00	3	No Ice	0.00	1.200
							1/2" Ice	0.00	1.200
							1" Ice	0.00	1.200
							2" Ice	0.00	1.200
2" Flexible Conduit	C	No	No	Inside Pole	130.00 - 0.00	2	No Ice	0.00	0.340
							1/2" Ice	0.00	0.340
							1" Ice	0.00	0.340
							2" Ice	0.00	0.340
121									
FLC 158-50J(1-5/8")	A	No	No	Inside Pole	121.00 - 0.00	12	No Ice	0.00	0.920
							1/2" Ice	0.00	0.920
							1" Ice	0.00	0.920
							2" Ice	0.00	0.920
HB158-1-08U8-S8J18(1-5/8")	A	No	No	Inside Pole	121.00 - 0.00	2	No Ice	0.00	1.300
							1/2" Ice	0.00	1.300
							1" Ice	0.00	1.300
							2" Ice	0.00	1.300
111									
FLC 114-50J(1-1/4")	C	No	No	Inside Pole	111.00 - 0.00	12	No Ice	0.00	0.700
							1/2" Ice	0.00	0.700
							1" Ice	0.00	0.700
							2" Ice	0.00	0.700
WR-VG86ST-BRD(3/4")	C	No	No	Inside Pole	111.00 - 0.00	4	No Ice	0.00	0.584
							1/2" Ice	0.00	0.584
							1" Ice	0.00	0.584
							2" Ice	0.00	0.584
FB-L98B-002-75000(3/8")	C	No	No	Inside Pole	111.00 - 0.00	2	No Ice	0.00	0.059
							1/2" Ice	0.00	0.059
							1" Ice	0.00	0.059
							2" Ice	0.00	0.059
70									
LDF4-50A(1/2")	C	No	No	Inside Pole	70.00 - 0.00	1	No Ice	0.00	0.150
							1/2" Ice	0.00	0.150
							1" Ice	0.00	0.150
							2" Ice	0.00	0.150

Feed Line/Linear Appurtenances Section Areas

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight lb
L1	147.00-133.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	133.00-85.50	A	0.000	0.000	1.781	0.000	494.67
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	669.02
L3	85.50-42.75	A	0.000	0.000	1.603	0.000	592.51
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	844.90
L4	42.75-0.00	A	0.000	0.000	1.603	0.000	592.51
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	847.23

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight lb
L1	147.00-133.00	A	1.473	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	133.00-85.50	A	1.435	0.000	0.000	15.417	0.000	645.47
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	669.02
L3	85.50-42.75	A	1.361	0.000	0.000	13.876	0.000	728.24
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	844.90
L4	42.75-0.00	A	1.221	0.000	0.000	13.243	0.000	715.97
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	847.23

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	147.00-133.00	0.000	0.000	0.000	0.000
L2	133.00-85.50	-0.229	0.000	-1.287	0.000
L3	85.50-42.75	-0.229	0.000	-1.350	0.000
L4	42.75-0.00	-0.229	0.000	-1.333	0.000

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L2	18	Safety Line 3/8	85.50 - 133.00	1.0000	1.0000
L3	18	Safety Line 3/8	42.75 - 85.50	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb	
130									
APXVTM14-C-120	A	From Centroid-Face	4.00	0.000	130.00	No Ice	6.34	3.61	56.20
			0.000			1/2" Ice	6.72	3.97	95.73
			0.000			1" Ice	7.10	4.33	140.32
						2" Ice	7.88	5.07	245.49
						No Ice	6.34	3.61	56.20
APXVTM14-C-120	B	From Centroid-Face	4.00	0.000	130.00	No Ice	6.34	3.61	56.20
			0.000			1/2" Ice	6.72	3.97	95.73
			0.000			1" Ice	7.10	4.33	140.32
						2" Ice	7.88	5.07	245.49
						No Ice	6.34	3.61	56.20
APXVTM14-C-120	C	From Centroid-Face	4.00	0.000	130.00	No Ice	6.34	3.61	56.20
			0.000			1/2" Ice	6.72	3.97	95.73
			0.000			1" Ice	7.10	4.33	140.32
						2" Ice	7.88	5.07	245.49
						No Ice	6.34	3.61	56.20
APXV9ERR18-C-A20	A	From Centroid-Face	4.00	0.000	130.00	No Ice	8.02	5.81	62.00
			0.000			1/2" Ice	8.48	6.27	113.99
			0.000			1" Ice	8.94	6.73	172.12
						2" Ice	9.89	7.68	307.57
						No Ice	8.02	5.28	57.00
APXVSP18-C-A20	B	From Centroid-Face	4.00	0.000	130.00	No Ice	8.02	5.28	57.00
			0.000			1/2" Ice	8.48	5.74	106.52
			-3.000			1" Ice	8.94	6.20	162.12
						2" Ice	9.89	7.14	292.33
						No Ice	8.02	5.28	57.00
APXVSP18-C-A20	C	From Centroid-Face	4.00	0.000	130.00	No Ice	8.02	5.28	57.00
			0.000			1/2" Ice	8.48	5.74	106.52
			0.000			1" Ice	8.94	6.20	162.12
						2" Ice	9.89	7.14	292.33
						No Ice	8.02	5.28	57.00
LLPX310R	A	From Centroid-Face	4.00	0.000	130.00	No Ice	4.31	1.96	28.66
			0.000			1/2" Ice	4.60	2.23	54.63
			-2.000			1" Ice	4.90	2.50	84.59
						2" Ice	5.52	3.06	157.22
						No Ice	4.31	1.96	28.66
LLPX310R	B	From Centroid-Face	4.00	0.000	130.00	No Ice	4.31	1.96	28.66
			0.000			1/2" Ice	4.60	2.23	54.63
			-2.000			1" Ice	4.90	2.50	84.59
						2" Ice	5.52	3.06	157.22
						No Ice	4.31	1.96	28.66
LLPX310R	C	From Centroid-Face	4.00	0.000	130.00	No Ice	4.31	1.96	28.66
			0.000			1/2" Ice	4.60	2.23	54.63
			-2.000			1" Ice	4.90	2.50	84.59
						2" Ice	5.52	3.06	157.22
						No Ice	4.31	1.96	28.66
TD-RRH8x20-25	A	From Centroid-Face	1.00	0.000	130.00	No Ice	3.70	1.29	66.00
			0.000			1/2" Ice	3.95	1.46	89.94
			0.000			1" Ice	4.20	1.64	117.22
						2" Ice	4.72	2.02	182.59
						No Ice	3.70	1.29	66.00
TD-RRH8x20-25	B	From Centroid-Face	1.00	0.000	130.00	No Ice	3.70	1.29	66.00
			0.000			1/2" Ice	3.95	1.46	89.94

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
		ce	0.000				1" Ice 4.20	1.64	117.22
							2" Ice 4.72	2.02	182.59
TD-RRH8x20-25	C	From	1.00		0.000	130.00	No Ice 3.70	1.29	66.00
		Centroid-Fa	0.000				1/2" Ice 3.95	1.46	89.94
		ce	0.000				1" Ice 4.20	1.64	117.22
							2" Ice 4.72	2.02	182.59
FDD_R6_RRH	A	From	4.00		0.000	130.00	No Ice 1.53	0.68	33.00
		Centroid-Fa	0.000				1/2" Ice 1.69	0.80	44.50
		ce	-2.000				1" Ice 1.85	0.92	58.31
							2" Ice 2.20	1.19	93.60
FDD_R6_RRH	B	From	4.00		0.000	130.00	No Ice 1.53	0.68	33.00
		Centroid-Fa	0.000				1/2" Ice 1.69	0.80	44.50
		ce	-2.000				1" Ice 1.85	0.92	58.31
							2" Ice 2.20	1.19	93.60
FDD_R6_RRH	C	From	4.00		0.000	130.00	No Ice 1.53	0.68	33.00
		Centroid-Fa	0.000				1/2" Ice 1.69	0.80	44.50
		ce	-2.000				1" Ice 1.85	0.92	58.31
							2" Ice 2.20	1.19	93.60
800 EXTERNAL NOTCH FILTER	A	From	1.00		0.000	130.00	No Ice 0.66	0.32	11.00
		Centroid-Fa	0.000				1/2" Ice 0.76	0.40	16.81
		ce	0.000				1" Ice 0.87	0.48	24.26
							2" Ice 1.11	0.67	44.81
800 EXTERNAL NOTCH FILTER	B	From	1.00		0.000	130.00	No Ice 0.66	0.32	11.00
		Centroid-Fa	0.000				1/2" Ice 0.76	0.40	16.81
		ce	-3.000				1" Ice 0.87	0.48	24.26
							2" Ice 1.11	0.67	44.81
800 EXTERNAL NOTCH FILTER	C	From	1.00		0.000	130.00	No Ice 0.66	0.32	11.00
		Centroid-Fa	0.000				1/2" Ice 0.76	0.40	16.81
		ce	0.000				1" Ice 0.87	0.48	24.26
							2" Ice 1.11	0.67	44.81
(3) ACU-A20-N	A	From	4.00		0.000	130.00	No Ice 0.07	0.12	1.04
		Centroid-Fa	0.000				1/2" Ice 0.10	0.16	2.32
		ce	0.000				1" Ice 0.15	0.21	4.41
							2" Ice 0.26	0.34	11.80
(3) ACU-A20-N	B	From	4.00		0.000	130.00	No Ice 0.07	0.12	1.04
		Centroid-Fa	0.000				1/2" Ice 0.10	0.16	2.32
		ce	-3.000				1" Ice 0.15	0.21	4.41
							2" Ice 0.26	0.34	11.80
(3) ACU-A20-N	C	From	4.00		0.000	130.00	No Ice 0.07	0.12	1.04
		Centroid-Fa	0.000				1/2" Ice 0.10	0.16	2.32
		ce	0.000				1" Ice 0.15	0.21	4.41
							2" Ice 0.26	0.34	11.80
800MHZ RRH	A	From	1.00		0.000	130.00	No Ice 2.13	1.77	53.00
		Centroid-Fa	0.000				1/2" Ice 2.32	1.95	74.19
		ce	0.000				1" Ice 2.51	2.13	98.39
							2" Ice 2.92	2.51	156.61
800MHZ RRH	B	From	1.00		0.000	130.00	No Ice 2.13	1.77	53.00
		Centroid-Fa	0.000				1/2" Ice 2.32	1.95	74.19
		ce	-3.000				1" Ice 2.51	2.13	98.39
							2" Ice 2.92	2.51	156.61
800MHZ RRH	C	From	1.00		0.000	130.00	No Ice 2.13	1.77	53.00
		Centroid-Fa	0.000				1/2" Ice 2.32	1.95	74.19
		ce	0.000				1" Ice 2.51	2.13	98.39
							2" Ice 2.92	2.51	156.61
1900MHz RRH (65MHz)	A	From	1.00		0.000	130.00	No Ice 2.31	2.38	60.00
		Centroid-Fa	0.000				1/2" Ice 2.52	2.58	83.90
		ce	0.000				1" Ice 2.73	2.79	111.08

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	Client	Crown Castle	Designed by	tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft</i> <i>ft</i> <i>ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C_AA_A Front</i> <i>ft²</i>	<i>C_AA_A Side</i> <i>ft²</i>	<i>Weight</i> <i>lb</i>	
1900MHz RRH (65MHz)	B	From Centroid-Face	1.00 0.000 -3.000	0.000	130.00	2" Ice 3.17 No Ice 2.31 1/2" Ice 2.52 1" Ice 2.73 2" Ice 3.17	3.24 2.38 2.58 2.79 3.24	176.02 60.00 83.90 111.08 176.02	
1900MHz RRH (65MHz)	C	From Centroid-Face	1.00 0.000 0.000	0.000	130.00	No Ice 2.31 1/2" Ice 2.52 1" Ice 2.73 2" Ice 3.17	2.38 2.58 2.79 3.24	60.00 83.90 111.08 176.02	
Platform Mount [LP 1201-1]	C	None		0.000	130.00	No Ice 23.10 1/2" Ice 26.80 1" Ice 30.50 2" Ice 37.90	23.10 26.80 30.50 37.90	2100.00 2500.00 2900.00 3700.00	
Miscellaneous [NA 510-3]	C	None		0.000	130.00	No Ice 19.70 1/2" Ice 28.20 1" Ice 36.70 2" Ice 53.70	19.70 28.20 36.70 53.70	519.20 721.60 924.00 1328.80	
121									
BXA-70063/6CFx2 w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 7.83 1/2" Ice 8.39 1" Ice 8.91 2" Ice 9.97	5.42 6.58 7.45 9.24	42.55 101.64 168.43 328.71	
BXA-70063/6CFx2 w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 7.83 1/2" Ice 8.39 1" Ice 8.91 2" Ice 9.97	5.42 6.58 7.45 9.24	42.55 101.64 168.43 328.71	
BXA-70063/6CFx4 w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 7.81 1/2" Ice 8.36 1" Ice 8.87 2" Ice 9.93	5.40 6.55 7.41 9.18	42.25 101.12 167.67 327.41	
(2) LPA-80080-6CF-EDIN w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 4.56 1/2" Ice 5.10 1" Ice 5.61 2" Ice 6.65	10.27 11.44 12.32 14.14	46.22 112.73 187.10 363.03	
(2) LPA-80080-6CF-EDIN w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 4.56 1/2" Ice 5.10 1" Ice 5.61 2" Ice 6.65	10.27 11.44 12.32 14.14	46.22 112.73 187.10 363.03	
(2) LPA-80063/6CF w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 10.06 1/2" Ice 10.75 1" Ice 11.40 2" Ice 12.62	10.45 11.74 12.87 14.82	56.20 151.25 254.99 492.51	
(2) SBNHH-1D65B w/ Mount Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 8.29 1/2" Ice 8.85 1" Ice 9.37 2" Ice 10.45	7.00 8.19 9.08 10.90	76.26 144.68 221.06 401.37	
(2) SBNHH-1D65B w/ Mount Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 8.29 1/2" Ice 8.85 1" Ice 9.37 2" Ice 10.45	7.00 8.19 9.08 10.90	76.26 144.68 221.06 401.37	
(2) SBNHH-1D65B w/ Mount Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 8.29 1/2" Ice 8.85 1" Ice 9.37 2" Ice 10.45	7.00 8.19 9.08 10.90	76.26 144.68 221.06 401.37	
B13 RRH 4X30	A	From Centroid-Leg	4.00 0.000 0.000	0.000	121.00	No Ice 2.06 1/2" Ice 2.24 1" Ice 2.43	1.32 1.48 1.64	55.60 72.88 92.95	

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	Client	Crown Castle	Designed by	tmlester

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight		
			Horz	Vert						ft	ft
B13 RRH 4X30	B	From Centroid-Le g	4.00	0.000	0.000	121.00	2" Ice	2.84	2.00	142.28	
			0.000	0.000			No Ice	2.06	1.32	55.60	
			0.000	0.000			1/2" Ice	2.24	1.48	72.88	
			0.000	0.000			1" Ice	2.43	1.64	92.95	
			0.000	0.000			2" Ice	2.84	2.00	142.28	
B13 RRH 4X30	C	From Centroid-Le g	4.00	0.000	0.000	121.00	No Ice	2.06	1.32	55.60	
			0.000	0.000			1/2" Ice	2.24	1.48	72.88	
			0.000	0.000			1" Ice	2.43	1.64	92.95	
			0.000	0.000			2" Ice	2.84	2.00	142.28	
			0.000	0.000			No Ice	2.54	1.61	56.80	
B66A RRH4X45	A	From Centroid-Le g	4.00	0.000	0.000	121.00	1/2" Ice	2.75	1.79	76.92	
			0.000	0.000			1" Ice	2.97	1.98	100.15	
			0.000	0.000			2" Ice	3.43	2.37	156.66	
			0.000	0.000			No Ice	2.54	1.61	56.80	
			0.000	0.000			1/2" Ice	2.75	1.79	76.92	
B66A RRH4X45	B	From Centroid-Le g	4.00	0.000	0.000	121.00	1" Ice	2.97	1.98	100.15	
			0.000	0.000			2" Ice	3.43	2.37	156.66	
			0.000	0.000			No Ice	2.54	1.61	56.80	
			0.000	0.000			1/2" Ice	2.75	1.79	76.92	
			0.000	0.000			1" Ice	2.97	1.98	100.15	
B66A RRH4X45	C	From Centroid-Le g	4.00	0.000	0.000	121.00	2" Ice	3.43	2.37	156.66	
			0.000	0.000			No Ice	2.54	1.61	56.80	
			0.000	0.000			1/2" Ice	2.75	1.79	76.92	
			0.000	0.000			1" Ice	2.97	1.98	100.15	
			0.000	0.000			2" Ice	3.43	2.37	156.66	
RRH2x60-1900A-4R	A	From Centroid-Le g	4.00	0.000	0.000	121.00	No Ice	1.87	1.27	46.00	
			0.000	0.000			1/2" Ice	2.05	1.42	62.25	
			0.000	0.000			1" Ice	2.23	1.59	81.21	
			0.000	0.000			2" Ice	2.62	1.94	128.05	
			0.000	0.000			No Ice	1.87	1.27	46.00	
RRH2x60-1900A-4R	B	From Centroid-Le g	4.00	0.000	0.000	121.00	1/2" Ice	2.05	1.42	62.25	
			0.000	0.000			1" Ice	2.23	1.59	81.21	
			0.000	0.000			2" Ice	2.62	1.94	128.05	
			0.000	0.000			No Ice	1.87	1.27	46.00	
			0.000	0.000			1/2" Ice	2.05	1.42	62.25	
RRH2x60-1900A-4R	C	From Centroid-Le g	4.00	0.000	0.000	121.00	1" Ice	2.23	1.59	81.21	
			0.000	0.000			2" Ice	2.62	1.94	128.05	
			0.000	0.000			No Ice	1.87	1.27	46.00	
			0.000	0.000			1/2" Ice	2.05	1.42	62.25	
			0.000	0.000			1" Ice	2.23	1.59	81.21	
DB-T1-6Z-8AB-0Z	C	From Centroid-Le g	4.00	0.000	0.000	121.00	2" Ice	2.62	1.94	128.05	
			0.000	0.000			No Ice	4.80	2.00	44.00	
			0.000	0.000			1/2" Ice	5.07	2.19	80.13	
			0.000	0.000			1" Ice	5.35	2.39	120.22	
			0.000	0.000			2" Ice	5.93	2.81	213.04	
DB-T1-6Z-8AB-0Z	A	From Centroid-Le g	4.00	0.000	0.000	121.00	No Ice	4.80	2.00	44.00	
			0.000	0.000			1/2" Ice	5.07	2.19	80.13	
			0.000	0.000			1" Ice	5.35	2.39	120.22	
			0.000	0.000			2" Ice	5.93	2.81	213.04	
			0.000	0.000			No Ice	23.10	23.10	2100.00	
Platform Mount [LP 1201-1]	C	None		0.000	0.000	121.00	1/2" Ice	26.80	26.80	2500.00	
				0.000			1" Ice	30.50	30.50	2900.00	
				0.000			2" Ice	37.90	37.90	3700.00	
				0.000			No Ice	2.16	1.42	44.00	
				0.000			1/2" Ice	2.36	1.59	61.40	
119	A	From Leg	1.00	0.000	0.000	119.00	1" Ice	2.57	1.77	81.69	
RRH2X40-AWS			0.000	0.000			2" Ice	3.00	2.14	131.76	
			0.000	0.000			No Ice	2.16	1.42	44.00	
			0.000	0.000			1/2" Ice	2.36	1.59	61.40	
			0.000	0.000			1" Ice	2.57	1.77	81.69	
RRH2X40-AWS	B	From Leg	1.00	0.000	0.000	119.00	2" Ice	3.00	2.14	131.76	
				0.000			0.000	No Ice	2.16	1.42	44.00
				0.000			0.000	1/2" Ice	2.36	1.59	61.40
				0.000			0.000	1" Ice	2.57	1.77	81.69
				0.000			0.000	2" Ice	3.00	2.14	131.76
RRH2X40-AWS	C	From Leg	1.00	0.000	0.000	119.00	No Ice	2.16	1.42	44.00	
				0.000			0.000	1/2" Ice	2.36	1.59	61.40
				0.000			0.000	1" Ice	2.57	1.77	81.69
				0.000			0.000	2" Ice	3.00	2.14	131.76
				0.000			0.000	No Ice	2.16	1.42	44.00

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	Client	Crown Castle	Designed by	tmlester

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C_AA_A Front</i> <i>ft²</i>	<i>C_AA_A Side</i> <i>ft²</i>	<i>Weight</i> <i>lb</i>	
2.4" Dia. x 6-ft	A	From Leg	0.50 0.000 0.000	0.000	119.00	2" Ice	3.00	2.14	131.76
						No Ice	1.43	1.43	21.96
						1/2" Ice	1.92	1.92	32.79
						1" Ice	2.29	2.29	47.67
						2" Ice	3.06	3.06	90.24
2.4" Dia. x 6-ft	B	From Leg	0.50 0.000 0.000	0.000	119.00	No Ice	1.43	1.43	21.96
						1/2" Ice	1.92	1.92	32.79
						1" Ice	2.29	2.29	47.67
						2" Ice	3.06	3.06	90.24
						No Ice	1.43	1.43	21.96
2.4" Dia. x 6-ft	C	From Leg	0.50 0.000 0.000	0.000	119.00	1/2" Ice	1.92	1.92	32.79
						1" Ice	2.29	2.29	47.67
						2" Ice	3.06	3.06	90.24
						No Ice	1.43	1.43	21.96
						1/2" Ice	1.92	1.92	32.79
Side Arm Mount [SO 102-3]	C	None		0.000	119.00	1" Ice	2.29	2.29	47.67
						2" Ice	3.06	3.06	90.24
						No Ice	3.00	3.00	81.00
						1/2" Ice	3.48	3.48	111.00
						1" Ice	3.96	3.96	141.00
111						2" Ice	4.92	4.92	201.00
7770.00 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	No Ice	5.75	4.25	55.38
						1/2" Ice	6.18	5.01	102.81
						1" Ice	6.61	5.71	156.64
						2" Ice	7.49	7.16	286.58
						No Ice	5.75	4.25	55.38
7770.00 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	1/2" Ice	6.18	5.01	102.81
						1" Ice	6.61	5.71	156.64
						2" Ice	7.49	7.16	286.58
						No Ice	5.75	4.25	55.38
						1/2" Ice	6.18	5.01	102.81
7770.00 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	1" Ice	6.61	5.71	156.64
						2" Ice	7.49	7.16	286.58
						No Ice	5.75	4.25	55.38
						1/2" Ice	6.18	5.01	102.81
						1" Ice	6.61	5.71	156.64
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	2" Ice	7.49	7.16	286.58
						No Ice	9.90	8.11	76.55
						1/2" Ice	10.47	9.30	158.03
						1" Ice	11.01	10.21	247.79
						2" Ice	12.11	12.01	455.80
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	No Ice	9.90	8.11	76.55
						1/2" Ice	10.47	9.30	158.03
						1" Ice	11.01	10.21	247.79
						2" Ice	12.11	12.01	455.80
						No Ice	9.90	8.11	76.55
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	1/2" Ice	10.47	9.30	158.03
						1" Ice	11.01	10.21	247.79
						2" Ice	12.11	12.01	455.80
						No Ice	9.90	8.11	76.55
						1/2" Ice	10.47	9.30	158.03
QS66512-2 w/ Mount Pipe	A	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	1" Ice	11.01	10.21	247.79
						2" Ice	12.11	12.01	455.80
						No Ice	8.37	8.46	136.55
						1/2" Ice	8.93	9.66	212.24
						1" Ice	9.46	10.55	296.07
QS66512-2 w/ Mount Pipe	B	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	2" Ice	10.53	12.35	491.79
						No Ice	8.37	8.46	136.55
						1/2" Ice	8.93	9.66	212.24
						1" Ice	9.46	10.55	296.07
						2" Ice	10.53	12.35	491.79
QS66512-2 w/ Mount Pipe	C	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	No Ice	8.37	8.46	136.55
						1/2" Ice	8.93	9.66	212.24
						1" Ice	9.46	10.55	296.07
						2" Ice	10.53	12.35	491.79
						No Ice	8.37	8.46	136.55
RRUS 32	A	From Centroid-Le g	4.00 0.000 1.000	0.000	111.00	1" Ice	10.53	12.35	491.79
						2" Ice	10.53	12.35	491.79
						1/2" Ice	3.08	1.97	77.39
						1" Ice	3.32	2.17	102.93

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	Client	Crown Castle	Designed by	tmlster

<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i> <i>ft ft ft</i>	<i>Azimuth Adjustment</i> <i>°</i>	<i>Placement</i> <i>ft</i>	<i>C_AA_A Front</i> <i>ft²</i>	<i>C_AA_A Side</i> <i>ft²</i>	<i>Weight</i> <i>lb</i>	
RRUS 32	B	From Centroid-Le g	4.00	0.000	111.00	2" Ice	3.81	2.58	164.59
			0.000			No Ice	2.86	1.78	55.12
			1.000			1/2" Ice	3.08	1.97	77.39
						1" Ice	3.32	2.17	102.93
						2" Ice	3.81	2.58	164.59
RRUS 32	C	From Centroid-Le g	4.00	0.000	111.00	No Ice	2.86	1.78	55.12
			0.000			1/2" Ice	3.08	1.97	77.39
			1.000			1" Ice	3.32	2.17	102.93
						2" Ice	3.81	2.58	164.59
						No Ice	1.64	0.73	48.40
RRUS 4426 B66	A	From Centroid-Le g	4.00	0.000	111.00	1/2" Ice	1.80	0.84	61.22
			0.000			1" Ice	1.97	0.97	76.43
			1.000			2" Ice	2.33	1.24	114.82
						No Ice	1.64	0.73	48.40
						1/2" Ice	1.80	0.84	61.22
RRUS 4426 B66	B	From Centroid-Le g	4.00	0.000	111.00	1" Ice	1.97	0.97	76.43
			0.000			2" Ice	2.33	1.24	114.82
			1.000			No Ice	1.64	0.73	48.40
						1/2" Ice	1.80	0.84	61.22
						1" Ice	1.97	0.97	76.43
RRUS 4426 B66	C	From Centroid-Le g	4.00	0.000	111.00	2" Ice	2.33	1.24	114.82
			0.000			No Ice	1.64	0.73	48.40
			1.000			1/2" Ice	1.80	0.84	61.22
						1" Ice	1.97	0.97	76.43
						2" Ice	2.33	1.24	114.82
DBCT108F1V92-1	A	From Centroid-Le g	4.00	0.000	111.00	No Ice	0.64	0.60	28.66
			0.000			1/2" Ice	0.74	0.71	35.88
			1.000			1" Ice	0.85	0.81	44.90
						2" Ice	1.09	1.05	69.08
						No Ice	0.64	0.60	28.66
DBCT108F1V92-1	B	From Centroid-Le g	4.00	0.000	111.00	1/2" Ice	0.74	0.71	35.88
			0.000			1" Ice	0.85	0.81	44.90
			1.000			2" Ice	1.09	1.05	69.08
						No Ice	0.64	0.60	28.66
						1/2" Ice	0.74	0.71	35.88
DBCT108F1V92-1	C	From Centroid-Le g	4.00	0.000	111.00	1" Ice	0.85	0.81	44.90
			0.000			2" Ice	1.09	1.05	69.08
			1.000			No Ice	0.64	0.60	28.66
						1/2" Ice	0.74	0.71	35.88
						1" Ice	0.85	0.81	44.90
(2) LGP21401	A	From Centroid-Le g	4.00	0.000	111.00	2" Ice	1.09	1.05	69.08
			0.000			No Ice	1.10	0.21	14.10
			1.000			1/2" Ice	1.24	0.27	21.26
						1" Ice	1.38	0.35	30.32
						2" Ice	1.69	0.52	54.89
(2) LGP21401	B	From Centroid-Le g	4.00	0.000	111.00	No Ice	1.10	0.21	14.10
			0.000			1/2" Ice	1.24	0.27	21.26
			1.000			1" Ice	1.38	0.35	30.32
						2" Ice	1.69	0.52	54.89
						No Ice	1.10	0.21	14.10
(2) LGP21401	C	From Centroid-Le g	4.00	0.000	111.00	1/2" Ice	1.24	0.27	21.26
			0.000			1" Ice	1.38	0.35	30.32
			1.000			2" Ice	1.69	0.52	54.89
						No Ice	1.10	0.21	14.10
						1/2" Ice	1.24	0.27	21.26
DC6-48-60-18-8F	A	From Centroid-Le g	4.00	0.000	111.00	1" Ice	1.38	0.35	30.32
			0.000			2" Ice	1.69	0.52	54.89
			1.000			No Ice	1.21	1.21	32.80
						1/2" Ice	1.89	1.89	54.76
						1" Ice	2.11	2.11	79.58
RRUS-11	A	From Centroid-Le g	4.00	0.000	111.00	2" Ice	2.57	2.57	138.43
			0.000			No Ice	2.79	1.19	50.00
			1.000			1/2" Ice	3.00	1.34	70.87
						1" Ice	3.21	1.50	94.78
						2" Ice	3.67	1.84	152.50
RRUS-11	B	From Centroid-Le g	4.00	0.000	111.00	No Ice	2.79	1.19	50.00
			0.000			1/2" Ice	3.00	1.34	70.87
			1.000			1" Ice	3.21	1.50	94.78
						2" Ice	3.67	1.84	152.50
						No Ice	2.79	1.19	50.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
RRUS-11	C	From	4.00	0.000	111.00	No Ice	2.79	1.19	50.00
		Centroid-Le	0.000			1/2" Ice	3.00	1.34	70.87
		g	1.000			1" Ice	3.21	1.50	94.78
						2" Ice	3.67	1.84	152.50
DC6-48-60-18-8F	A	From	4.00	0.000	111.00	No Ice	1.21	1.21	32.80
		Centroid-Le	0.000			1/2" Ice	1.89	1.89	54.76
		g	1.000			1" Ice	2.11	2.11	79.58
						2" Ice	2.57	2.57	138.43
RRUS12/RRUS A2	A	From	4.00	0.000	111.00	No Ice	3.14	1.84	71.50
		Centroid-Le	0.000			1/2" Ice	3.36	2.01	98.98
		g	1.000			1" Ice	3.59	2.20	129.87
						2" Ice	4.07	2.59	202.68
RRUS12/RRUS A2	B	From	4.00	0.000	111.00	No Ice	3.14	1.84	71.50
		Centroid-Le	0.000			1/2" Ice	3.36	2.01	98.98
		g	1.000			1" Ice	3.59	2.20	129.87
						2" Ice	4.07	2.59	202.68
RRUS12/RRUS A2	C	From	4.00	0.000	111.00	No Ice	3.14	1.84	71.50
		Centroid-Le	0.000			1/2" Ice	3.36	2.01	98.98
		g	1.000			1" Ice	3.59	2.20	129.87
						2" Ice	4.07	2.59	202.68
2.4" Dia. x 6' Mount Pipe	A	From	4.00	0.000	111.00	No Ice	1.43	1.43	21.90
		Centroid-Le	0.000			1/2" Ice	1.93	1.93	37.81
		g	0.000			1" Ice	2.31	2.31	55.56
						2" Ice	3.14	3.14	99.64
2.4" Dia. x 6' Mount Pipe	B	From	4.00	0.000	111.00	No Ice	1.43	1.43	21.90
		Centroid-Le	0.000			1/2" Ice	1.93	1.93	37.81
		g	0.000			1" Ice	2.31	2.31	55.56
						2" Ice	3.14	3.14	99.64
2.4" Dia. x 6' Mount Pipe	C	From	4.00	0.000	111.00	No Ice	1.43	1.43	21.90
		Centroid-Le	0.000			1/2" Ice	1.93	1.93	37.81
		g	0.000			1" Ice	2.31	2.31	55.56
						2" Ice	3.14	3.14	99.64
3.5" pipe x 15-ft	A	From	4.00	0.000	113.50	No Ice	4.96	0.00	113.70
		Centroid-Le	0.000			1/2" Ice	7.24	0.00	153.69
		g	0.000			1" Ice	8.80	0.00	203.38
						2" Ice	11.65	0.00	332.48
3.5" pipe x 15-ft	B	From	4.00	0.000	113.50	No Ice	4.96	0.00	113.70
		Centroid-Le	0.000			1/2" Ice	7.24	0.00	153.69
		g	0.000			1" Ice	8.80	0.00	203.38
						2" Ice	11.65	0.00	332.48
3.5" pipe x 15-ft	C	From	4.00	0.000	113.50	No Ice	4.96	0.00	113.70
		Centroid-Le	0.000			1/2" Ice	7.24	0.00	153.69
		g	0.000			1" Ice	8.80	0.00	203.38
						2" Ice	11.65	0.00	332.48
3.5" Dia. x 3-ft Pipe	A	From	2.00	0.000	113.50	No Ice	0.00	0.74	30.90
		Centroid-Fa	0.000			1/2" Ice	0.00	0.96	38.75
		ce	0.000			1" Ice	0.00	1.16	48.93
						2" Ice	0.00	1.59	76.94
3.5" Dia. x 3-ft Pipe	B	From	2.00	0.000	113.50	No Ice	0.00	0.74	30.90
		Centroid-Fa	0.000			1/2" Ice	0.00	0.96	38.75
		ce	0.000			1" Ice	0.00	1.16	48.93
						2" Ice	0.00	1.59	76.94
3.5" Dia. x 3-ft Pipe	C	From	2.00	0.000	113.50	No Ice	0.00	0.74	30.90
		Centroid-Fa	0.000			1/2" Ice	0.00	0.96	38.75
		ce	0.000			1" Ice	0.00	1.16	48.93
						2" Ice	0.00	1.59	76.94
3.5" Dia. x 3-ft Pipe	A	From	2.00	0.000	113.50	No Ice	0.74	0.00	30.90

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
3.5" Dia. x 3-ft Pipe	B	Centroid-Face	0.000	0.000	113.50	1/2" Ice	0.96	38.75
			0.000			1" Ice	1.16	48.93
		From	2.00			2" Ice	1.59	76.94
		Centroid-Face	0.000			No Ice	0.74	30.90
3.5" Dia. x 3-ft Pipe	C	Centroid-Face	0.000	0.000	113.50	1/2" Ice	0.96	38.75
			0.000			1" Ice	1.16	48.93
		From	2.00			2" Ice	1.59	76.94
		Centroid-Face	0.000			No Ice	0.74	30.90
Side Arm Mount [SO 102-3]	C	None		0.000	113.50	1/2" Ice	0.96	38.75
						1" Ice	1.16	48.93
						2" Ice	1.59	76.94
						No Ice	3.00	81.00
Platform Mount [LP 1201-1]	C	None		0.000	111.00	1/2" Ice	3.48	111.00
						1" Ice	3.96	141.00
						2" Ice	4.92	201.00
						No Ice	23.10	2100.00
70 OG-860/1920/GPS-A	C	From Face	3.00	0.000	70.00	1/2" Ice	26.80	2500.00
			0.000			1" Ice	30.50	2900.00
			0.000			2" Ice	37.90	3700.00
			0.000			No Ice	0.31	1.65
Side Arm Mount [SO 701-1]	C	From Face	1.50	0.000	70.00	1/2" Ice	0.46	5.00
			0.000			1" Ice	0.49	9.77
			0.000			2" Ice	0.70	24.32
			0.000			No Ice	0.85	65.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight lb	
130											
VHLP1-23	A	Paraboloid w/Shroud (HP)	From	4.00	20.000		130.00	1.27	No Ice	1.28	14.00
			Centroid	0.000					1/2" Ice	1.45	19.34
			-Face	2.000					1" Ice	1.62	24.68
									2" Ice	1.96	35.36
VHLP2-23	C	Paraboloid w/Shroud (HP)	From	4.00	-90.000		130.00	2.18	No Ice	3.73	31.00
			Centroid	0.000					1/2" Ice	4.02	51.64
			-Face	2.000					1" Ice	4.31	72.27
									2" Ice	4.90	113.54
VHLP2.5-23	C	Paraboloid w/Shroud (HP)	From	4.00	-45.000		130.00	2.92	No Ice	6.68	47.60
			Centroid	0.000					1/2" Ice	7.07	83.89
			-Face	2.000					1" Ice	7.46	120.17
									2" Ice	8.23	192.74

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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	147 - 133	Pole	Max Tension	36	0.04	-1.79	0.48
			Max. Compression	26	-1458.42	2.70	-1.00
			Max. Mx	20	-1025.33	4352.88	0.51
			Max. My	2	-1026.41	3.26	4340.27
			Max. Vy	20	-621.72	4352.88	0.51
			Max. Vx	2	-619.91	3.26	4340.27
			Max. Torque	22			-0.00
L2	133 - 85.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38880.95	1762.95	-53.87
			Max. Mx	20	-18520.51	798174.91	2543.53
			Max. My	2	-18582.88	1604.89	787491.59
			Max. Vy	20	-26370.71	798174.91	2543.53
			Max. Vx	2	-26076.67	1604.89	787491.59
			Max. Torque	23			2397.73
L3	85.5 - 42.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50452.17	1967.38	-357.53
			Max. Mx	20	-28365.65	1995703.84	1787.91
			Max. My	2	-28401.05	118.35	1971665.74
			Max. Vy	20	-30944.54	1995703.84	1787.91
			Max. Vx	2	-30615.17	118.35	1971665.74
			Max. Torque	23			2303.67
L4	42.75 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67800.40	2189.86	-228.82
			Max. Mx	20	-43763.81	3575029.77	1189.76
			Max. My	2	-43764.64	-1631.94	3535671.50
			Max. Vy	20	-35291.16	3575029.77	1189.76
			Max. Vx	2	-34978.19	-1631.94	3535671.50
			Max. Torque	23			2294.38

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	36	67800.40	7905.09	5.04
	Max. H _x	20	43806.02	35238.75	-13.16
	Max. H _z	2	43806.02	-37.00	34926.35
	Max. M _x	2	3535671.50	-37.00	34926.35
	Max. M _z	8	3560151.18	-35138.32	51.76
	Max. Torsion	23	2288.87	30461.11	17348.24
	Min. Vert	25	32854.51	17578.50	30134.66
	Min. H _x	8	43806.02	-35138.32	51.76
	Min. H _z	14	43806.02	37.53	-34878.70
	Min. M _x	14	-3529358.86	37.53	-34878.70
	Min. M _z	20	-3575029.77	35238.75	-13.16
	Min. Torsion	11	-1856.02	-30353.42	-17285.56

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	36505.02	0.00	0.00	136.51	321.29	0.00

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
1.2 Dead+1.0 Wind 0 deg - No Ice	43806.02	37.00	-34926.35	-3535671.50	-1632.38	-1276.78
0.9 Dead+1.0 Wind 0 deg - No Ice	32854.51	37.00	-34926.35	-3482849.55	-1742.89	-1279.10
1.2 Dead+1.0 Wind 30 deg - No Ice	43806.02	17667.31	-30296.91	-3067305.82	-1790963.21	13.47
0.9 Dead+1.0 Wind 30 deg - No Ice	32854.51	17667.31	-30296.91	-3021493.75	-1764294.43	13.53
1.2 Dead+1.0 Wind 60 deg - No Ice	43806.02	30557.85	-17490.08	-1768709.89	-3099388.87	1290.13
0.9 Dead+1.0 Wind 60 deg - No Ice	32854.51	30557.85	-17490.08	-1742335.35	-3053134.63	1292.70
1.2 Dead+1.0 Wind 90 deg - No Ice	43806.02	35138.32	-51.76	-3970.74	-3560151.18	1749.35
0.9 Dead+1.0 Wind 90 deg - No Ice	32854.51	35138.32	-51.76	-3973.68	-3507024.52	1753.23
1.2 Dead+1.0 Wind 120 deg - No Ice	43806.02	30353.42	17285.56	1745813.12	-3073994.50	1851.67
0.9 Dead+1.0 Wind 120 deg - No Ice	32854.51	30353.42	17285.56	1719693.39	-3028125.98	1856.02
1.2 Dead+1.0 Wind 150 deg - No Ice	43806.02	17479.56	30091.13	3042013.15	-1770158.09	1653.14
0.9 Dead+1.0 Wind 150 deg - No Ice	32854.51	17479.56	30091.13	2996511.73	-1743772.49	1656.94
1.2 Dead+1.0 Wind 180 deg - No Ice	43806.02	-37.53	34878.70	3529358.86	2509.62	1141.77
0.9 Dead+1.0 Wind 180 deg - No Ice	32854.51	-37.53	34878.70	3476557.65	2402.24	1144.06
1.2 Dead+1.0 Wind 210 deg - No Ice	43806.02	-17721.93	30289.02	3066519.11	1799497.39	-282.53
0.9 Dead+1.0 Wind 210 deg - No Ice	32854.51	-17721.93	30289.02	3020637.37	1772464.66	-283.13
1.2 Dead+1.0 Wind 240 deg - No Ice	43806.02	-30610.47	17481.78	1767818.30	3107631.46	-1353.38
0.9 Dead+1.0 Wind 240 deg - No Ice	32854.51	-30610.47	17481.78	1741387.60	3061015.50	-1356.29
1.2 Dead+1.0 Wind 270 deg - No Ice	43806.02	-35238.75	13.16	-1190.46	3575029.77	-2017.05
0.9 Dead+1.0 Wind 270 deg - No Ice	32854.51	-35238.75	13.16	-1164.20	3521437.44	-2021.41
1.2 Dead+1.0 Wind 300 deg - No Ice	43806.02	-30461.11	-17348.24	-1754295.17	3089850.60	-2284.17
0.9 Dead+1.0 Wind 300 deg - No Ice	32854.51	-30461.11	-17348.24	-1728099.98	3043509.80	-2288.87
1.2 Dead+1.0 Wind 330 deg - No Ice	43806.02	-17578.50	-30134.66	-3047751.91	1784828.86	-2190.11
0.9 Dead+1.0 Wind 330 deg - No Ice	32854.51	-17578.50	-30134.66	-3002232.13	1757993.34	-2194.18
1.2 Dead+1.0 Ice+1.0 Temp	67800.40	-0.01	0.00	228.82	2189.86	0.01
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	67800.40	-0.30	-7844.15	-846598.23	2971.12	-268.50
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	67800.40	3955.31	-6799.17	-733745.24	-424827.48	-17.68
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	67800.40	6849.92	-3920.66	-422468.62	-737986.02	237.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	67800.40	7886.16	-1.76	557.34	-849338.17	340.87
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	67800.40	6818.81	3895.10	420133.36	-733903.89	372.54
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	67800.40	3932.88	6767.71	730113.18	-422461.03	342.82

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	67800.40	0.85	7835.71	845841.59	1658.49	245.33
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	67800.40	-3965.67	6797.72	734033.36	431094.58	-36.50
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	67800.40	-6860.39	3919.12	422738.81	744268.96	-251.87
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	67800.40	-7905.09	-5.04	-1075.89	856884.69	-393.04
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	67800.40	-6838.98	-3906.49	-421335.25	741632.09	-455.43
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	67800.40	-3951.44	-6775.25	-730736.43	429948.78	-445.86
Dead+Wind 0 deg - Service	36505.02	8.03	-7584.56	-762358.75	-88.86	-283.34
Dead+Wind 30 deg - Service	36505.02	3836.57	-6579.22	-661378.18	-385968.11	2.27
Dead+Wind 60 deg - Service	36505.02	6635.85	-3798.12	-381336.34	-668155.91	285.49
Dead+Wind 90 deg - Service	36505.02	7630.56	-11.23	-743.09	-767509.62	388.10
Dead+Wind 120 deg - Service	36505.02	6591.49	3753.73	376607.97	-662644.75	411.63
Dead+Wind 150 deg - Service	36505.02	3795.83	6534.57	656115.15	-381460.15	367.43
Dead+Wind 180 deg - Service	36505.02	-8.14	7574.22	761206.04	807.20	253.65
Dead+Wind 210 deg - Service	36505.02	-3848.43	6577.51	661429.74	388327.58	-63.30
Dead+Wind 240 deg - Service	36505.02	-6647.27	3796.31	381373.61	670455.24	-301.23
Dead+Wind 270 deg - Service	36505.02	-7652.35	2.86	-138.61	771256.03	-448.02
Dead+Wind 300 deg - Service	36505.02	-6614.85	-3767.34	-378218.69	666609.58	-506.26
Dead+Wind 330 deg - Service	36505.02	-3817.30	-6544.02	-657143.95	385159.83	-485.23

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-36505.02	0.00	0.00	36505.02	0.00	0.000%
2	37.00	-43806.02	-34926.35	-37.00	43806.02	34926.35	0.000%
3	37.00	-32854.51	-34926.35	-37.00	32854.51	34926.35	0.000%
4	17667.31	-43806.02	-30296.91	-17667.31	43806.02	30296.91	0.000%
5	17667.31	-32854.51	-30296.91	-17667.31	32854.51	30296.91	0.000%
6	30557.85	-43806.02	-17490.08	-30557.85	43806.02	17490.08	0.000%
7	30557.85	-32854.51	-17490.08	-30557.85	32854.51	17490.08	0.000%
8	35138.32	-43806.02	-51.76	-35138.32	43806.02	51.76	0.000%
9	35138.32	-32854.51	-51.76	-35138.32	32854.51	51.76	0.000%
10	30353.42	-43806.02	17285.56	-30353.42	43806.02	-17285.56	0.000%
11	30353.42	-32854.51	17285.56	-30353.42	32854.51	-17285.56	0.000%
12	17479.56	-43806.02	30091.13	-17479.56	43806.02	-30091.13	0.000%
13	17479.56	-32854.51	30091.13	-17479.56	32854.51	-30091.13	0.000%
14	-37.53	-43806.02	34878.70	37.53	43806.02	-34878.70	0.000%
15	-37.53	-32854.51	34878.70	37.53	32854.51	-34878.70	0.000%
16	-17721.93	-43806.02	30289.02	17721.93	43806.02	-30289.02	0.000%
17	-17721.93	-32854.51	30289.02	17721.93	32854.51	-30289.02	0.000%
18	-30610.47	-43806.02	17481.78	30610.47	43806.02	-17481.78	0.000%
19	-30610.47	-32854.51	17481.78	30610.47	32854.51	-17481.78	0.000%
20	-35238.75	-43806.02	13.16	35238.75	43806.02	-13.16	0.000%
21	-35238.75	-32854.51	13.16	35238.75	32854.51	-13.16	0.000%
22	-30461.11	-43806.02	-17348.24	30461.11	43806.02	17348.24	0.000%
23	-30461.11	-32854.51	-17348.24	30461.11	32854.51	17348.24	0.000%
24	-17578.50	-43806.02	-30134.66	17578.50	43806.02	30134.66	0.000%
25	-17578.50	-32854.51	-30134.66	17578.50	32854.51	30134.66	0.000%
26	0.00	-67800.40	0.00	0.01	67800.40	-0.00	0.000%
27	-0.30	-67800.40	-7843.96	0.30	67800.40	7844.15	0.000%
28	3955.22	-67800.40	-6799.01	-3955.31	67800.40	6799.17	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
29	6849.76	-67800.40	-3920.57	-6849.92	67800.40	3920.66	0.000%
30	7885.97	-67800.40	-1.76	-7886.16	67800.40	1.76	0.000%
31	6818.65	-67800.40	3895.01	-6818.81	67800.40	-3895.10	0.000%
32	3932.79	-67800.40	6767.55	-3932.88	67800.40	-6767.71	0.000%
33	0.85	-67800.40	7835.52	-0.85	67800.40	-7835.71	0.000%
34	-3965.58	-67800.40	6797.56	3965.67	67800.40	-6797.72	0.000%
35	-6860.22	-67800.40	3919.03	6860.39	67800.40	-3919.12	0.000%
36	-7904.90	-67800.40	-5.04	7905.09	67800.40	5.04	0.000%
37	-6838.81	-67800.40	-3906.39	6838.98	67800.40	3906.49	0.000%
38	-3951.34	-67800.40	-6775.09	3951.44	67800.40	6775.25	0.000%
39	8.03	-36505.02	-7584.55	-8.03	36505.02	7584.56	0.000%
40	3836.57	-36505.02	-6579.22	-3836.57	36505.02	6579.22	0.000%
41	6635.85	-36505.02	-3798.12	-6635.85	36505.02	3798.12	0.000%
42	7630.55	-36505.02	-11.23	-7630.56	36505.02	11.23	0.000%
43	6591.49	-36505.02	3753.73	-6591.49	36505.02	-3753.73	0.000%
44	3795.83	-36505.02	6534.57	-3795.83	36505.02	-6534.57	0.000%
45	-8.14	-36505.02	7574.21	8.14	36505.02	-7574.22	0.000%
46	-3848.43	-36505.02	6577.51	3848.43	36505.02	-6577.51	0.000%
47	-6647.27	-36505.02	3796.31	6647.27	36505.02	-3796.31	0.000%
48	-7652.34	-36505.02	2.86	7652.35	36505.02	-2.86	0.000%
49	-6614.85	-36505.02	-3767.34	6614.85	36505.02	3767.34	0.000%
50	-3817.30	-36505.02	-6544.02	3817.30	36505.02	6544.02	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.00018373
3	Yes	5	0.0000001	0.00008223
4	Yes	6	0.0000001	0.00033355
5	Yes	6	0.0000001	0.00009700
6	Yes	6	0.0000001	0.00032573
7	Yes	6	0.0000001	0.00009426
8	Yes	5	0.0000001	0.00024647
9	Yes	5	0.0000001	0.00011070
10	Yes	6	0.0000001	0.00034061
11	Yes	6	0.0000001	0.00010023
12	Yes	6	0.0000001	0.00031986
13	Yes	6	0.0000001	0.00009291
14	Yes	5	0.0000001	0.00016585
15	Yes	5	0.0000001	0.00007428
16	Yes	6	0.0000001	0.00033258
17	Yes	6	0.0000001	0.00009644
18	Yes	6	0.0000001	0.00034323
19	Yes	6	0.0000001	0.00010020
20	Yes	5	0.0000001	0.00028269
21	Yes	5	0.0000001	0.00012688
22	Yes	6	0.0000001	0.00031859
23	Yes	6	0.0000001	0.00009202
24	Yes	6	0.0000001	0.00034495
25	Yes	6	0.0000001	0.00010126
26	Yes	4	0.0000001	0.00001912
27	Yes	5	0.0000001	0.00057357
28	Yes	5	0.0000001	0.00095767
29	Yes	5	0.0000001	0.00095077

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30	Yes	5	0.0000001	0.00057495
31	Yes	5	0.0000001	0.00097194
32	Yes	5	0.0000001	0.00093939
33	Yes	5	0.0000001	0.00057267
34	Yes	5	0.0000001	0.00097947
35	Yes	5	0.0000001	0.00099298
36	Yes	5	0.0000001	0.00058389
37	Yes	5	0.0000001	0.00095561
38	Yes	5	0.0000001	0.00099615
39	Yes	4	0.0000001	0.00022127
40	Yes	5	0.0000001	0.00007269
41	Yes	5	0.0000001	0.00006801
42	Yes	4	0.0000001	0.00027349
43	Yes	5	0.0000001	0.00007954
44	Yes	5	0.0000001	0.00006538
45	Yes	4	0.0000001	0.00020806
46	Yes	5	0.0000001	0.00007225
47	Yes	5	0.0000001	0.00008008
48	Yes	4	0.0000001	0.00030637
49	Yes	5	0.0000001	0.00006501
50	Yes	5	0.0000001	0.00008224

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 133	31.036	48	1.680	0.005
L2	133 - 85.5	26.115	48	1.676	0.005
L3	89.25 - 42.75	11.862	48	1.297	0.002
L4	47.5 - 0	3.249	47	0.639	0.001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
132.00	VHLP1-23	48	25.764	1.674	0.007	54894
130.00	APXVTM14-C-120	48	25.063	1.669	0.007	35685
121.00	BXA-70063/6CFx2 w/ Mount Pipe	48	21.932	1.627	0.006	12396
119.00	RRH2X40-AWS	48	21.245	1.614	0.006	10818
113.50	3.5" pipe x 15-ft	48	19.381	1.573	0.005	8014
111.00	7770.00 w/ Mount Pipe	48	18.548	1.551	0.005	7169
70.00	OG-860/1920/GPS-A	47	7.125	1.002	0.001	3409

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	147 - 133	143.732	20	7.791	0.025

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L2	133 - 85.5	120.970	20	7.775	0.025
L3	89.25 - 42.75	55.004	20	6.020	0.008
L4	47.5 - 0	15.071	20	2.967	0.003

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
132.00	VHLP1-23	20	119.347	7.765	0.031	12519
130.00	APXVTM14-C-120	20	116.103	7.740	0.030	8088
121.00	BXA-70063/6CFx2 w/ Mount Pipe	20	101.620	7.549	0.027	2772
119.00	RRH2X40-AWS	20	98.442	7.490	0.026	2416
113.50	3.5" pipe x 15-ft	20	89.816	7.299	0.023	1785
111.00	7770.00 w/ Mount Pipe	20	85.961	7.199	0.022	1595
70.00	OG-860/1920/GPS-A	20	33.045	4.649	0.004	744

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	KI/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	147 - 133 (1)	TP12.75x12.75x0.5	14.00	0.00	0.0	19.242	-1025.33	606131.00	0.002
L2	133 - 85.5 (2)	TP29.418x19.537x0.313	47.50	0.00	0.0	28.503	-18520.50	1667390.00	0.011
L3	85.5 - 42.75 (3)	TP37.687x28.013x0.375	46.50	0.00	0.0	43.861	-28365.60	2565870.00	0.011
L4	42.75 - 0 (4)	TP45.83x35.949x0.438	47.50	0.00	0.0	63.947	-43763.80	3740880.00	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} lb-ft	φM _{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M _{uy} lb-ft	φM _{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	147 - 133 (1)	TP12.75x12.75x0.5	4352.88	197066.67	0.022	0.00	197066.67	0.000
L2	133 - 85.5 (2)	TP29.418x19.537x0.313	798179.17	1171591.67	0.681	0.00	1171591.67	0.000
L3	85.5 - 42.75 (3)	TP37.687x28.013x0.375	1995708.33	2260616.67	0.883	0.00	2260616.67	0.000
L4	42.75 - 0 (4)	TP45.83x35.949x0.438	3575266.67	4014483.33	0.891	0.00	4014483.33	0.000

Pole Shear Design Data

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Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio V_u ϕV_n	Actual T_u lb-ft	ϕT_n lb-ft	Ratio T_u ϕT_n
L1	147 - 133 (1)	TP12.75x12.75x0.5	621.72	181839.00	0.003	0.00	195840.83	0.000
L2	133 - 85.5 (2)	TP29.418x19.537x0.313	26370.70	500218.00	0.053	1754.22	1246333.33	0.001
L3	85.5 - 42.75 (3)	TP37.687x28.013x0.375	30944.50	769760.00	0.040	2023.51	2459500.00	0.001
L4	42.75 - 0 (4)	TP45.83x35.949x0.438	35303.10	1122260.00	0.031	1353.44	4481041.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{rx}	Ratio M_{uy} ϕM_{ry}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	147 - 133 (1)	0.002	0.022	0.000	0.003	0.000	0.024	1.050	4.8.2
L2	133 - 85.5 (2)	0.011	0.681	0.000	0.053	0.001	0.695	1.050	4.8.2
L3	85.5 - 42.75 (3)	0.011	0.883	0.000	0.040	0.001	0.896	1.050	4.8.2
L4	42.75 - 0 (4)	0.012	0.891	0.000	0.031	0.000	0.903	1.050	4.8.2

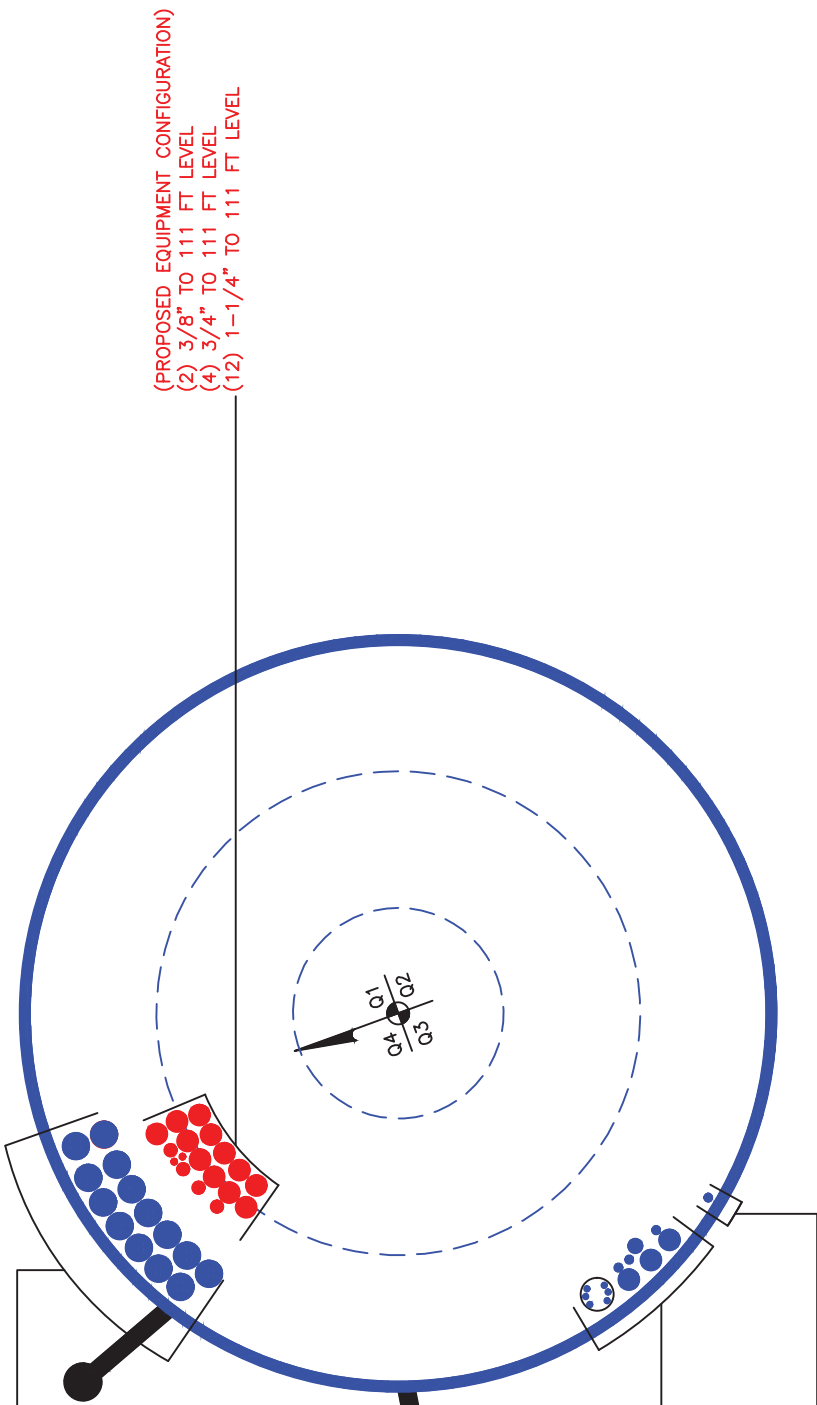
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	147 - 133	Pole	TP12.75x12.75x0.5	1	-1025.33	636437.52	2.3	Pass
L2	133 - 85.5	Pole	TP29.418x19.537x0.313	2	-18520.50	1750759.42	66.2	Pass
L3	85.5 - 42.75	Pole	TP37.687x28.013x0.375	3	-28365.60	2694163.38	85.3	Pass
L4	42.75 - 0	Pole	TP45.83x35.949x0.438	4	-43763.80	3927923.82	86.0	Pass
Summary								
Pole (L4)							86.0	Pass
RATING =							86.0	Pass

APPENDIX B
BASE LEVEL DRAWING



(OTHER CONSIDERED EQUIPMENT)
(14) 1-5/8" TO 121 FT LEVEL



(PROPOSED EQUIPMENT CONFIGURATION)
(2) 3/8" TO 111 FT LEVEL
(4) 3/4" TO 111 FT LEVEL
(12) 1-1/4" TO 111 FT LEVEL

CLIMBING PEGS
W/SAFETY CLIMB

(OTHER CONSIDERED EQUIPMENT--IN CONDUIT)
(6) 5/16" TO 130 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(3) 1/2" TO 130 FT LEVEL
(1) 7/8" TO 130 FT LEVEL
(3) 1 1/4" TO 130 FT LEVEL

(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 70 FT LEVEL

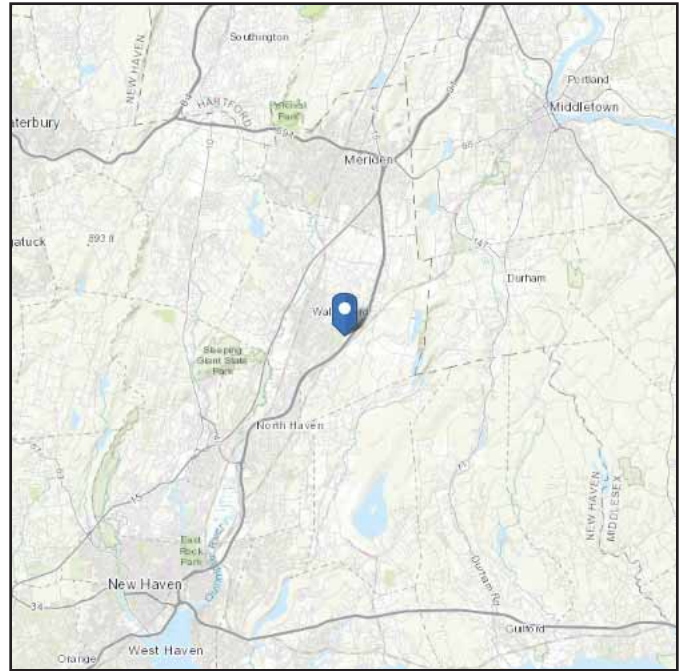
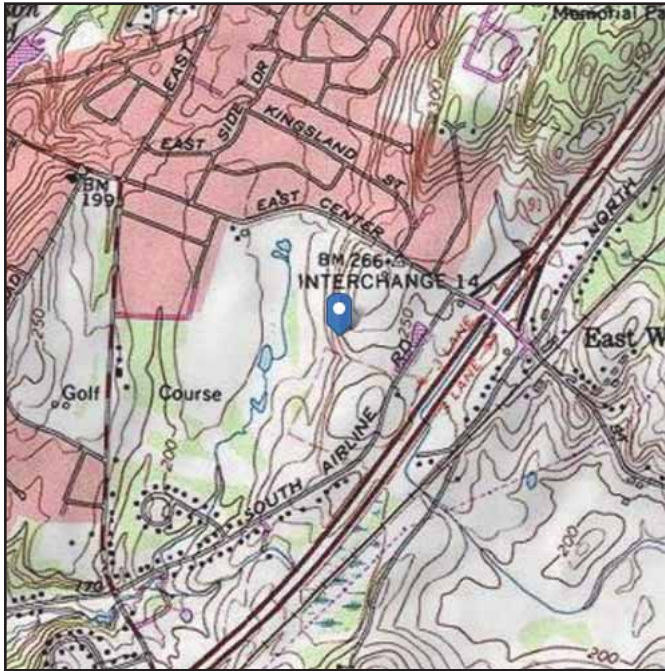
APPENDIX C
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 243.75 ft (NAVD 88)
Latitude: 41.443711
Longitude: -72.796267



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	94 Vmph
100-year MRI	102 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Wed Jan 02 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

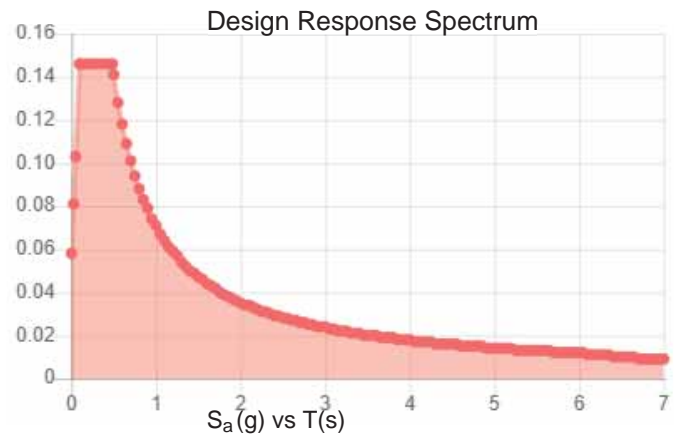
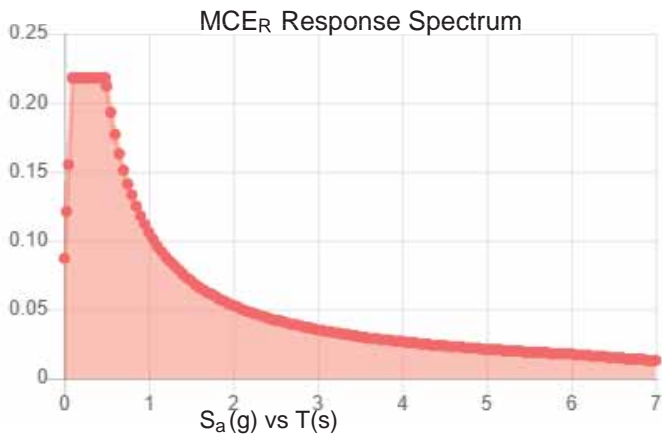
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.182	S_{DS} :	0.146
S_1 :	0.062	S_{D1} :	0.071
F_a :	1.2	T_L :	
F_v :	1.7	PGA :	0.094
S_{MS} :		PGA _M :	0.112
S_{M1} :		F _{PGA} :	1.2
		I_e :	1

Seismic Design Category B



Data Accessed:

Wed Jan 02 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Wed Jan 02 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Monopole Flange Plate Connection

Elevation = 133 ft.

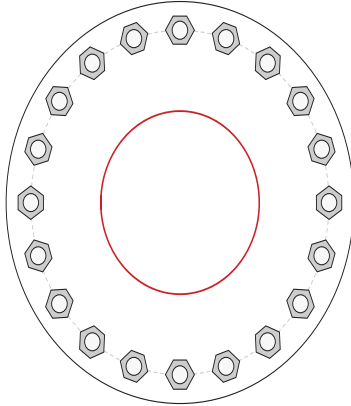


BU #	876310
Site Name	Beaumont Farm
Order #	472828 Rev. 0
TIA-222 Revision	H

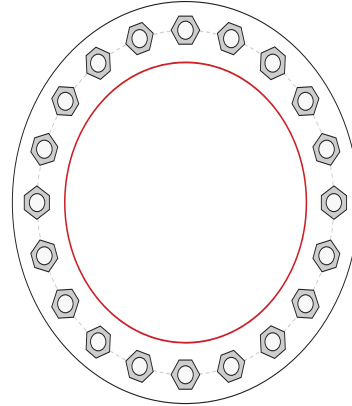
Applied Loads	
Moment (kip-ft)	4.35
Axial Force (kips)	1.03
Shear Force (kips)	0.62

*TIA-222-H Section 15.5 Applied

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(20) 1-1/4" ϕ bolts (A325 N; Fy=81 ksi, Fu=105 ksi) on 24" BC

Top Plate Data

28" OD x 1" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Bottom Plate Data

28" OD x 2" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

12.75" x 0.5" round pole (A53-B-35; Fy=35 ksi, Fu=60 ksi)

Bottom Pole Data

19.537" x 0.3125" 12-sided pole (A607-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	0.38
Allowable (kips)	76.31
Stress Rating:	0.5% Pass

Top Plate Capacity

Max Stress (ksi):	2.08	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	4.4%	Pass
Tension Side Stress Rating:	4.6%	Pass

Bottom Plate Capacity

Max Stress (ksi):	0.20	(Flexural)
Allowable Stress (ksi):	45.00	
Stress Rating:	0.4%	Pass
Tension Side Stress Rating:	0.2%	Pass

Monopole Base Plate Connection

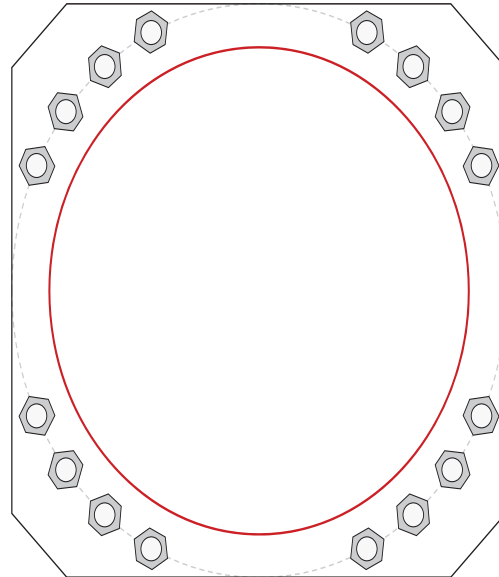


Site Info	
BU #	876310
Site Name	Beaumont Farm
Order #	472828 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0.25

Applied Loads	
Moment (kip-ft)	3575.27
Axial Force (kips)	43.76
Shear Force (kips)	35.30

*TIA-222-H Section 15.5 Applied



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data

(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 54" BC

Base Plate Data

54" OD x 3" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)

Stiffener Data

N/A

Pole Data

45.83" x 0.4375" 12-sided pole (A607-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary *(units of kips, kip-in)*

$Pu_c = 201.22$	$\phi Pn_c = 243.75$	Stress Rating
$Vu = 2.21$	$\phi Vn = 73.13$	78.7%
$Mu = n/a$	$\phi Mn = n/a$	Pass

Base Plate Summary

Max Stress (ksi):	37.17	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	78.7%	Pass

Beaumont Farm (BU 876310)

Capacity: 64.6% PASS

TEP #: 72875.203869
 Analysis: GNP 01/07/19
 Check: TML 01/07/19

ACI 318 - Appendix D Analysis

Foundation

FDN centered on Pole?	Yes
f'c:	3000 psi
FDN Crit. Width:	23.00 ft
FDN Crit. Length:	23.00 ft
hef:	76.75 in
s1:	52.67 in
s2:	21.21 in
ca1:	111.71 in
ca2:	111.63 in
ca3:	111.00 in
ca4:	143.79 in
1.5hef:	115.125 in
Anc:	68264.91 in ²
Anco:	53015.06 in ²
Post-Installed?	No
kc:	24
Nb:	1214.72 kips
Ncbg:	1834.70 kips
∅:	0.75
Design Strength:	1376.03 kips
Total Uplift, Tu:	933.10 kips
Capacity:	64.6% PASS

e'N (x):	1.755052 in
Ψ _{ec,N} (x):	0.98
e'N (y):	4.42 in
Ψ _{ec,N} (y):	0.96
ca,min:	111.00 in
Ψ _{ed,N} :	0.99
Ψ _{c,N} :	1.25
cac:	191.875 in
Ψ _{cp,N} :	1

Pier and Pad Foundation



BU # :	876310
Site Name:	Beaumont Farm
App. Number:	472828 Rev. 0

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Block Foundation?:	<input checked="" type="checkbox"/>

Superstructure Analysis Reactions		
Compression, P_{comp} :	43.806	kips
Base Shear, Vu_{comp} :	35.251	kips
Moment, M_u :	3575.27	ft-kips
Tower Height, H :	147	ft
BP Dist. Above Fdn, bp_{dist} :	2.5	in
Bolt Circle / Bearing Plate Width, BC :	54	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	192.90	35.25	17.4%	Pass
<i>Bearing Pressure (ksf)</i>	30.56	6.47	21.2%	Pass
<i>Overtuning (kip*ft)</i>	4379.62	3758.87	85.8%	Pass
<i>Pad Flexure (kip*ft)</i>	8614.79	2217.35	24.5%	Pass
<i>Pad Shear - 1-way (kips)</i>	1244.56	307.09	23.5%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.164	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	11050.07	0.00	0.0%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	85.8%
Structural Rating*:	24.5%

Pad Properties		
Depth, D :	4.5	ft
Pad Width, W :	23	ft
Pad Thickness, T :	5	ft
Pad Rebar Size (Bottom), Sp :	11	
Pad Rebar Quantity (Bottom), mp :	23	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, Fy :	60000	psi
Concrete Compressive Strength, $F'c$:	3000	psi
Dry Concrete Density, δc :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	165	pcf
Ultimate Net Bearing, Q_{net} :	40.000	ksf
Cohesion, C_u :		ksf
Friction Angle, ϕ :	30	degrees
SPT Blow Count, N_{blows} :	74	
Base Friction, μ :		
Neglected Depth, N :		ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

<--Toggle between Gross and Net

EXHIBIT 4



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2154

FA#: 10035139

Wallingford
945 East Center Street
Wallingford, CT 06492

December 20, 2018

Centerline Communications Project Number: 950006-162

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	15.29 %



December 20, 2018

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

Emissions Analysis for Site: **CT2154 – Wallingford**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **945 East Center Street, Wallingford, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

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



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **945 East Center Street, Wallingford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
LTE	700 MHz	2	40
LTE	2100 MHz (AWS)	4	30
LTE	700 MHz (Band 14)	4	40
LTE	850 MHz	2	40
LTE	1900 MHz (PCS)	4	40
5G	850 MHz	2	25
LTE	2300 MHz (WCS)	4	30

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	112
A	2	CCI HPA-65R-BUU-H6	112
A	3	Quintel QS66512-2	112
B	1	Powerwave 7770	112
B	2	CCI HPA-65R-BUU-H6	112
B	3	Quintel QS66512-2	112
C	1	Powerwave 7770	112
C	2	CCI HPA-65R-BUU-H6	112
C	3	Quintel QS66512-2	112

Table 2: Antenna Data

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



RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.47
Antenna A2	CCI HPA-65R-BUU-H6	700 MHz / 2100 MHz (AWS)	11.95 / 15.05	6	200	5,092.07	2.09
Antenna A3	Quintel QS66512-2	700 MHz (Band 14) / 850 MHz / 1900 MHz (PCS) / 2300 MHz (WCS)	10.85 / 11.35 / 13.85 / 14.85	14	570	11,268.34	4.75
Sector A Composite MPE%							7.30
Antenna B1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.47
Antenna B2	CCI HPA-65R-BUU-H6	700 MHz / 2100 MHz (AWS)	11.95 / 15.05	6	200	5,092.07	2.09
Antenna B3	Quintel QS66512-2	700 MHz (Band 14) / 850 MHz / 1900 MHz (PCS) / 2300 MHz (WCS)	10.85 / 11.35 / 13.85 / 14.85	14	570	11,268.34	4.75
Sector B Composite MPE%							7.30
Antenna C1	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.47
Antenna C2	CCI HPA-65R-BUU-H6	700 MHz / 2100 MHz (AWS)	11.95 / 15.05	6	200	5,092.07	2.09
Antenna C3	Quintel QS66512-2	700 MHz (Band 14) / 850 MHz / 1900 MHz (PCS) / 2300 MHz (WCS)	10.85 / 11.35 / 13.85 / 14.85	14	570	11,268.34	4.75
Sector C Composite MPE%							7.30

Table 3: AT&T Emissions Levels



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

Site Composite MPE%	
Carrier	MPE%
AT&T – Max Per Sector Value	7.30 %
Verizon Wireless	6.66 %
Clearwire	0.12 %
Sprint	1.21 %
Site Total MPE %:	15.29 %

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	7.30 %
AT&T Sector B Total:	7.30 %
AT&T Sector C Total:	7.30 %
Site Total:	15.29 %

Table 5: Site MPE Summary



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

AT&T _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS – Antenna 1	2	414.12	112	2.65	850 MHz	567	0.47%
AT&T 700 MHz LTE – Antenna 2	2	626.70	112	4.01	700 MHz	467	0.86%
AT&T 2100 MHz (AWS) LTE – Antenna 2	4	959.67	112	12.28	2100 MHz (AWS)	1000	1.23%
AT&T 700 MHz LTE – Antenna 3	4	486.47	112	6.23	700 MHz	467	1.33%
AT&T 850 MHz LTE – Antenna 3	2	545.83	112	3.49	850 MHz	567	0.62%
AT&T 1900 MHz (PCS) LTE – Antenna 3	4	970.64	112	12.42	1900 MHz (PCS)	1000	1.24%
AT&T 2300 MHz (WCS) LTE – Antenna 3	4	916.48	112	11.73	2300 MHz (WCS)	1000	1.17%
AT&T 850 MHz 5G – Antenna 3	2	341.15	112	2.18	850 MHz	567	0.39%
						Total:	7.30%

Table 6: AT&T Maximum Sector MPE Power Values



Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	7.30 %
Sector B:	7.30 %
Sector C:	7.30 %
AT&T Maximum Total (per sector):	7.30 %
Site Total:	15.29 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **15.29 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

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

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767

EXHIBIT 5

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
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Your driver will pickup your shipment(s) as usual.

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Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

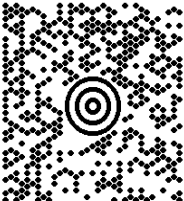
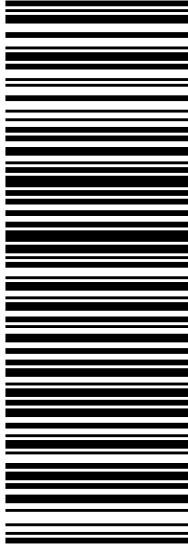
Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
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299 CHELMSFORD ST
CHELMSFORD ,MA 01824

UPS Access Point™
JERRY'S VARIETY
1172 LAWRENCE ST
LOWELL ,MA 01852

UPS Access Point™
THE UPS STORE
101 GREAT RD
BEDFORD ,MA 01730

FOLD HERE

EMPIRE TELECOM 16 ESQUIRE ROAD NORTH BILLERICA MA 01862	0.3 LBS LTR	1 OF 1
SHIP TO: ALBERT W. BEAUMONT 945 EAST CENTER ST. WALLINGFORD CT 06492-5018	CT 065 2-01 	2 TRACKING #: 1Z 870 26W 02 9017 0940
	UPS 2ND DAY AIR	
BILLING: P/P		
Reference # 1: PC 321 Reference # 2: CT2145		CS 21.0.21. WNTNVS0 09.04.01/2019

Tracking Summary

Tracking Numbers

Tracking Number: 1Z 870 26W 02 9017 094 0
Type: Package
Status: **Delivered**
Delivered On: 01/28/2019
1:54 P.M.
Delivered To: WALLINGFORD, CT, US
Received By: BEAUMONT
Service: UPS 2nd Day Air

Tracking results provided by UPS: 02/01/2019 9:23 A.M. ET

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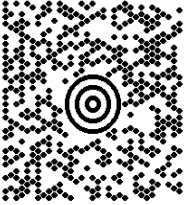
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1172 LAWRENCE ST
LOWELL ,MA 01852

UPS Access Point™
THE UPS STORE
101 GREAT RD
BEDFORD ,MA 01730

FOLD HERE

EMPIRE TELECOM 16 ESQUIRE ROAD NORTH BILLERICA MA 01862	0.3 LBS LTR	1 OF 1
SHIP TO: ATTN: PAUL PEDICONE CROWN CASTLE SUITE 101 3 CORPORATE PARK DRIVE CLIFTON PARK NY 12065	NY 122 9-02 	2 TRACKING #: 1Z 870 26W 02 9443 6530
		
BILLING: P/P		
Reference # 1: PC 321 Reference # 2: CT2154 - Crown CS 21.0.21. WNTNVS0 09.0A.01/2019		

Tracking Summary

Tracking Numbers

Tracking Number: 1Z 870 26W 02 9443 653 0
Type: Package
Status: **Delivered**
Delivered On: 01/28/2019
10:46 A.M.
Delivered To: CLIFTON PARK, NY, US
Received By: FAHD
Service: UPS 2nd Day Air

Tracking results provided by UPS: 02/01/2019 9:24 A.M. ET

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Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

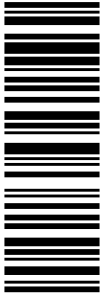
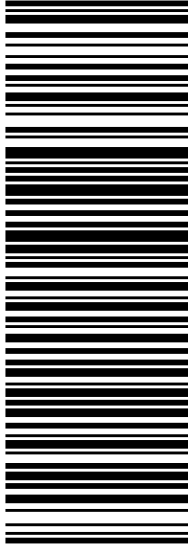

Schedule a same day and future day Pickup to have a UPS driver pickup all your CampusShip packages.
Hand the package to any UPS driver in your area.

UPS Access Point™
MACLF-LOCKR-STOP & SHOP #480
299 CHELMSFORD ST
CHELMSFORD ,MA 01824

UPS Access Point™
JERRY'S VARIETY
1172 LAWRENCE ST
LOWELL ,MA 01852

UPS Access Point™
THE UPS STORE
101 GREAT RD
BEDFORD ,MA 01730

FOLD HERE

<p>KRISTEN WHITE 978-284-3801 EMPIRE TELECOM USA, LLC 16 ESQUIRE ROAD NORTH BILLERICA MA 01862</p> <p>SHIP TO: WALLINGFORD TOWN HALL HON. WILLIAM W. DICKINSON, JR. ROOM 310 45 SOUTH MAIN STREET WALLINGFORD CT 06492-4201</p>	<p>CT 065 2-01</p> 	<p>UPS 2ND DAY AIR</p> <p>TRACKING #: 1Z 870 26W 02 9196 7525</p> <p>2</p> 	<p>BILLING: P/P</p> <p>Reference # 1: PC 321 Reference # 2: CT2154</p>  <p>CS 21.0.21. WNTNVS0 09.0A.01/2019</p>
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Tracking Summary

Tracking Numbers

Tracking Number:	1Z 870 26W 02 9196 752 5
Type:	Package
Status:	Delivered
Delivered On:	01/28/2019 12:36 P.M.
Delivered To:	WALLINGFORD, CT, US
Received By:	MEILE
Service:	UPS 2nd Day Air

Tracking results provided by UPS: 02/01/2019 9:14 A.M. ET

NOTICE: UPS authorizes you to use UPS tracking systems solely to track shipments tendered by or for you to UPS for delivery and for no other purpose. Any other use of UPS tracking systems and information is strictly prohibited.

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
3. **GETTING YOUR SHIPMENT TO UPS**
Customers with a Daily Pickup
Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.

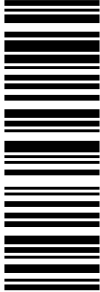
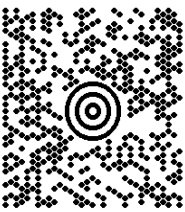
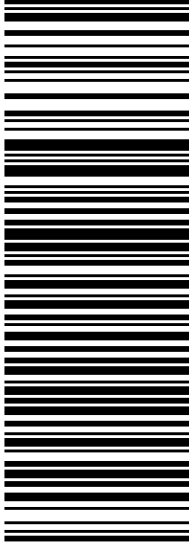

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<p>0.3 LBS LTR 1 OF 1</p> <p>KRISTEN WHITE 978-284-3801 EMPIRE TELECOM USA, LLC 16 ESQUIRE ROAD NORTH BILLERICA MA 01862</p> <p>SHIP TO: WALLINGFORD TOWN HALL KACIE HAND ROOM # G-40 45 SOUTH MAIN STREET WALLINGFORD CT 06492-4201</p>	<p>CT 065 2-01</p>  	<p>UPS 2ND DAY AIR 2</p> <p>TRACKING #: 1Z 870 26W 02 9392 6575</p> 	<p>BILLING: P/P</p> <p>Reference # 1: PC 321 Reference # 2: CT2145</p>  <p>CS 21.0.21. WNTNVS0 09.0A.01/2019</p>
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Tracking Summary

Tracking Numbers

Tracking Number: 1Z 870 26W 02 9392 657 5
Type: Package
Status: **Delivered**
Delivered On: 01/28/2019
12:39 P.M.
Delivered To: WALLINGFORD, CT, US
Received By: HAND
Service: UPS 2nd Day Air

Tracking results provided by UPS: 02/01/2019 9:27 A.M. ET

NOTICE: UPS authorizes you to use UPS tracking systems solely to track shipments tendered by or for you to UPS for delivery and for no other purpose. Any other use of UPS tracking systems and information is strictly prohibited.