



November 4, 2020

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT1120  
157 Chestnut Hill Road, Stafford, CT 06076 (the "Property")  
Latitude: 41.977398 N Longitude: 72.383130 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 170-foot level on the existing 180' Lattice tower ("Tower") at 157 Chestnut Hill Rd (aka 57 Chestnut Mountain Rd), Stafford, CT. The Tower is owned by SBA Towers V LLC ("SBA") and the property is owned by Troiano Realty Corp. AT&T intends to modify its facility by replacing (6) antennas with (2) OPA65R-BU8DA, (2) DMP65R-BU8DA, (1) OPA65R-BU4DA and (1) DMP65R-BU4DA antennas, replacing (3) RRUs with (3) B5/B12 4449 RRUs and installing (3) 8843 B2 B66A RRUs. The height of AT&Ts existing and proposed antennas & RRUs will be 167'.

This modification includes B2, B5, and B12 hardware that is both 4G (LTE) and 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The facility received approval from the Town of Stafford Planning & Zoning Commission on September 11, 2001 and by the Council under Petition 573 on August 1, 2002. There were no conditions that could be feasibility be violated by this modification. The AT&T modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("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 to R.C.S.A §16-50j-73, a copy of this letter is being sent the Honorable Mary Mitta, First Selectman, Town of Stafford, Mr. David Perkins, Zoning Enforcement Officer, Town of Stafford and Troiano Realty Corp, property owner. SBA Towers V LLC, the tower owner, received a copy by email.

The planned modification of the facility falls squarely within those activities explicitly provided for in R.C.S.A §16-50j-72(b)(2). Specifically:

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require an extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and foundation can support the proposed loading.

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

Sincerely,

*Hollis M. Redding*

Hollis M. Redding  
SAI Communications, LLC  
12 Industrial Way  
Salem, NH 03079  
Mobile: 860-834-6964  
[hredding@saigrp.com](mailto:hredding@saigrp.com)

Enclosures

Cc: Honorable Mary Mitta, First Selectman, Town of Stafford, elected official  
Mr. David Perkins, Zoning Enforcement Officer, Town of Stafford  
Troiano Realty Corp, as property owner  
SBA Towers V LLC. as tower owner

## Power Density

### Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							4.51%
AT&T UMTS	2	728	170	0.0195	880	0.5867	0.33%
AT&T LTE	2	1154	170	0.0309	1900	1.0000	0.31%
AT&T GSM	1	364	170	0.0049	880	0.5867	0.08%
AT&T UMTS	4	692	170	0.0370	1900	1.0000	0.37%
AT&T LTE	1	1615	170	0.0216	734	0.4893	0.44%
Site Total							6.05%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

### Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							4.51%
AT&T UMTS 850	1	728	167	0.0101	850	0.5667	0.18%
AT&T LTE 700	1	2951	167	0.0409	770	0.5133	0.80%
AT&T LTE 1900	3	3664	167	0.1525	1930	1.0000	1.52%
AT&T LTE 700	1	1476	167	0.0205	725	0.4883	0.42%
AT&T LTE 850	1	1000	167	0.0139	850	0.5667	0.24%
AT&T LTE AWS	1	3837	167	0.0532	2170	1.0000	0.53%
AT&T 5G 850	1	1000	167	0.0139	850	0.5667	0.24%
Site Total							8.46%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

**PROJECT INFORMATION**

SCOPE OF WORK: **ITEMS TO BE MOUNTED ON THE EXISTING LATTICE TOWER:**

- NEW AT&T ANTENNAS: (OPA65R-BU8DA) @ POS. 3 (TYP. 1 PER ALPHA & GAMMA SECTORS, TOTAL OF 2).
- NEW AT&T ANTENNAS: (DMP65R-BU8DA) @ POS. 4 (TYP. 1 PER ALPHA & GAMMA SECTORS, TOTAL OF 2).
- NEW AT&T ANTENNAS: (OPA65R-BU4DA) @ POS. 3 (TOTAL OF 1 FOR BETA SECTOR).
- NEW AT&T ANTENNAS: (DMP65R-BU4DA) @ POS. 4 (TOTAL OF 1 FOR BETA SECTOR).
- NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 8843 B2/B66A (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T (2) 1" DC POWER (TO FOLLOW EXISTING ROUTING) (TO REPLACE EXISTING).
- ADD Y-CABLES (TOTAL OF 6).
- PROPOSED ANTENNA MOUNTS SITE PRO 1 PART# VFA12-WLL-30120 (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REPLACE EXISTING).
- MOVE UMTS RET CONNECTION FROM GSM TO UMTS VIA TWIN TMA.

**ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:**

- PROPOSED 4478-B14 (700) MOUNTED ON PROPOSED H-FRAME (TOTAL OF 2) (ALPHA & BETA WILL SHARE).
- ADD SURGE ARRESTOR TSXDC-4310FM (TOTAL OF 8) (ALPHA & BETA WILL SHARE).
- ADD RBS 6630 FOR 5G.
- ADD IDLe.
- ADD XMU.
- FOLLOW SEC7 OR PD FOR BB CONFIG.

**ITEMS TO BE REMOVED:**

- EXISTING AT&T RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS (P65-17-XLH-RR) @ POS. 3 (TYP. OF 1 PER ALPHA & GAMMA SECTORS, TOTAL OF 2).
- EXISTING AT&T ANTENNAS (AM-X-CD-14-65-00T-RET) @ POS. 3 (TOTAL OF 1 PER BETA SECTOR).
- EXISTING AT&T ANTENNAS (P65-15-XLH-RR) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T TMA'S @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T (2) DC POWER.
- EXISTING (3) SECTOR FRAME.

**ITEMS TO REMAIN:**

- EXISTING AT&T ANTENNAS (P65-15-XLH-RR) @ POS. 1 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T SURGE ARRESTOR (TOTAL OF 1).
- EXISTING TMA'S (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- (12) 1-5/8" COAX CABLES & (1) FIBER RUN.

ENGINEER INFO: HERNAN CEPEDA  
HERNAN.CEPEDA@HUDSONDESIGNGROUPLLC.COM

SITE ADDRESS: 157 CHESTNUT MOUNTAIN ROAD  
STAFFORD SPRINGS, CT 06076

LATITUDE: 41.977398° N, 41° 58' 38.63" N

LONGITUDE: 72.383130° W, 72° 22' 59.27" W

TYPE OF SITE: LATTICE TOWER / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 180'-0"±

RAD CENTER: 167'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

**DRAWING INDEX**

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
A-4	DETAILS	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1



**SITE NUMBER: CT1120**

**SITE NAME: STAFFORD CHESTNUT**

**FA CODE: 10118582**

**PACE ID: MRCTB048454, MRCTB048513, MRCTB048531, MRCTB048554, MRCTB048545**

**PROJECT: LTE 2C\_3C\_4C\_4TX4RX\_5G 2020 UPGRADE**

**VICINITY MAP**

**DIRECTIONS TO SITE:**

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD 0.3 MI. TURN LEFT ONTO CAPITAL BLVD 0.3 MI. TURN LEFT ONTO WEST ST 0.2 MI. TURN LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD 26.3 MI. TAKE EXIT 47E TO MERGE ONTO CT-190 E/HAZARD AVE TOWARD HAZARDVILLE/SOMERS. CONTINUE TO FOLLOW CT-190 E. DESTINATION WILL BE ON THE LEFT.



**GENERAL NOTES**

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

**72 HOURS**



**CALL BEFORE YOU DIG**



CALL TOLL FREE 1-800-922-4455

OR CALL 811

**UNDERGROUND SERVICE ALERT**

**H2G HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553 FAX: (978) 336-5586

**SAI**  
12 INDUSTRIAL WAY SALEM, NH 03079

**SITE NUMBER: CT1120  
SITE NAME: STAFFORD CHESTNUT**

157 CHESTNUT MOUNTAIN ROAD  
STAFFORD SPRINGS, CT 06076  
TOLLAND COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

1		11/02/20	ISSUED FOR CONSTRUCTION	AM	HC	DPH		AT&T TITLE SHEET LTE 2C_3C_4C_4TX4RX_5G 2020 UPGRADE
A		10/15/20	ISSUED FOR REVIEW	AM	HC	DPH		
NO.	DATE	REVISIONS		BY	CHK	APP'D	SITE NUMBER: CT1120 DRAWING NUMBER: T-1 REV: 1	
SCALE:		AS SHOWN		DESIGNED BY: HC		DRAWN BY: AM		

**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR – SAI  
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) 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 ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**  
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS  
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

**AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;**

**AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;**

**TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL**

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS					
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

12 INDUSTRIAL WAY  
SALEM, NH 03079

**SITE NUMBER: CT1120  
 SITE NAME: STAFFORD CHESTNUT**

157 CHESTNUT MOUNTAIN ROAD  
STAFFORD SPRINGS, CT 06076  
TOLLAND COUNTY

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

AT&T

GENERAL NOTES

LTE 2C\_3C\_4C\_4TX4RX\_5G 2020 UPGRADE

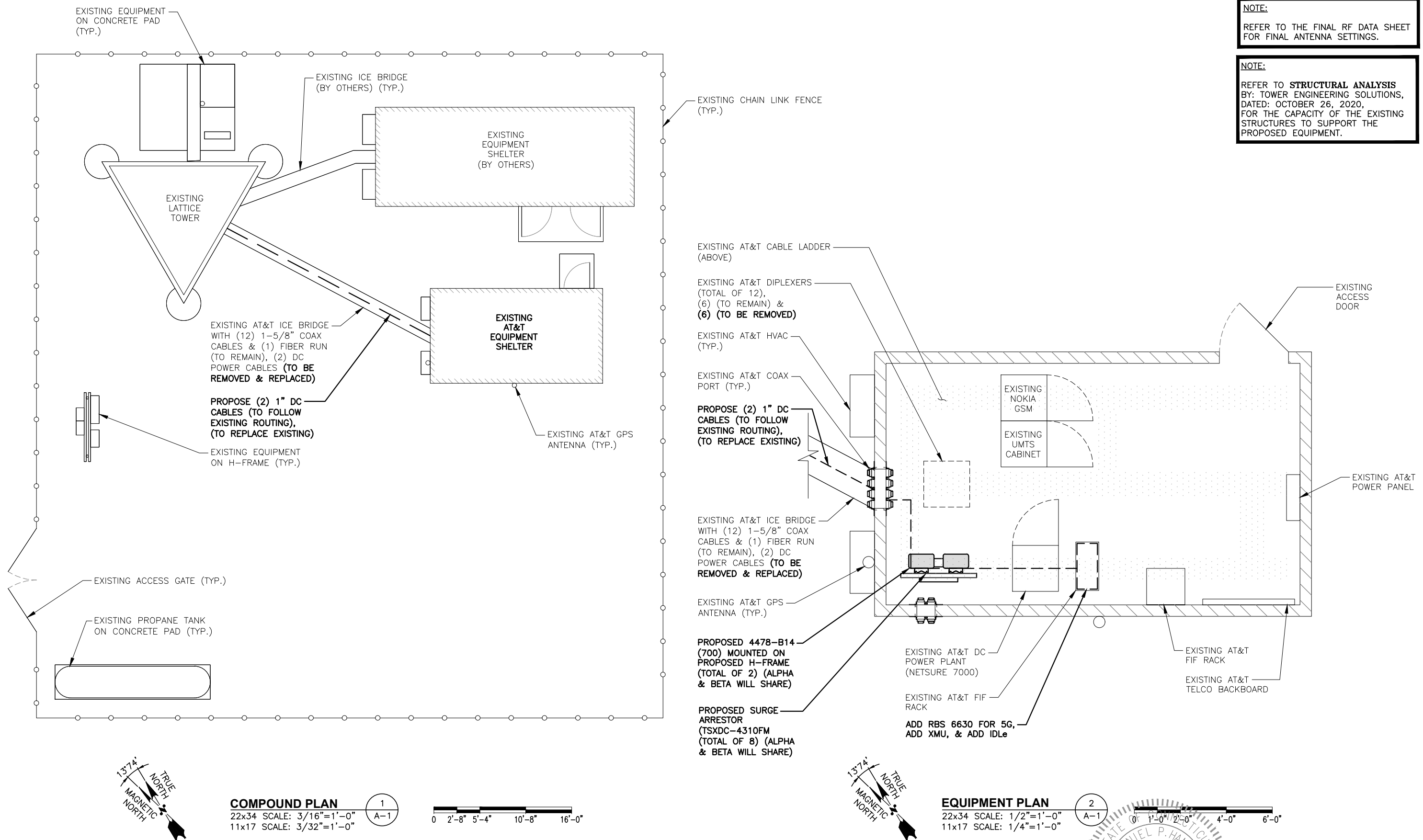
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/02/20	ISSUED FOR CONSTRUCTION	AM	HC	DPH
A	10/15/20	ISSUED FOR REVIEW	AM	HC	DPH

SCALE: AS SHOWN    DESIGNED BY: HC    DRAWN BY: AM

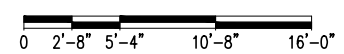
SITE NUMBER	DRAWING NUMBER	REV
CT1120	GN-1	1

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

**NOTE:**  
REFER TO **STRUCTURAL ANALYSIS** BY: TOWER ENGINEERING SOLUTIONS, DATED: OCTOBER 26, 2020, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



**COMPOUND PLAN** 1  
22x34 SCALE: 3/16"=1'-0"  
11x17 SCALE: 3/32"=1'-0"



**EQUIPMENT PLAN** 2  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"



**HG HUDSON**  
Design Group LLC  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

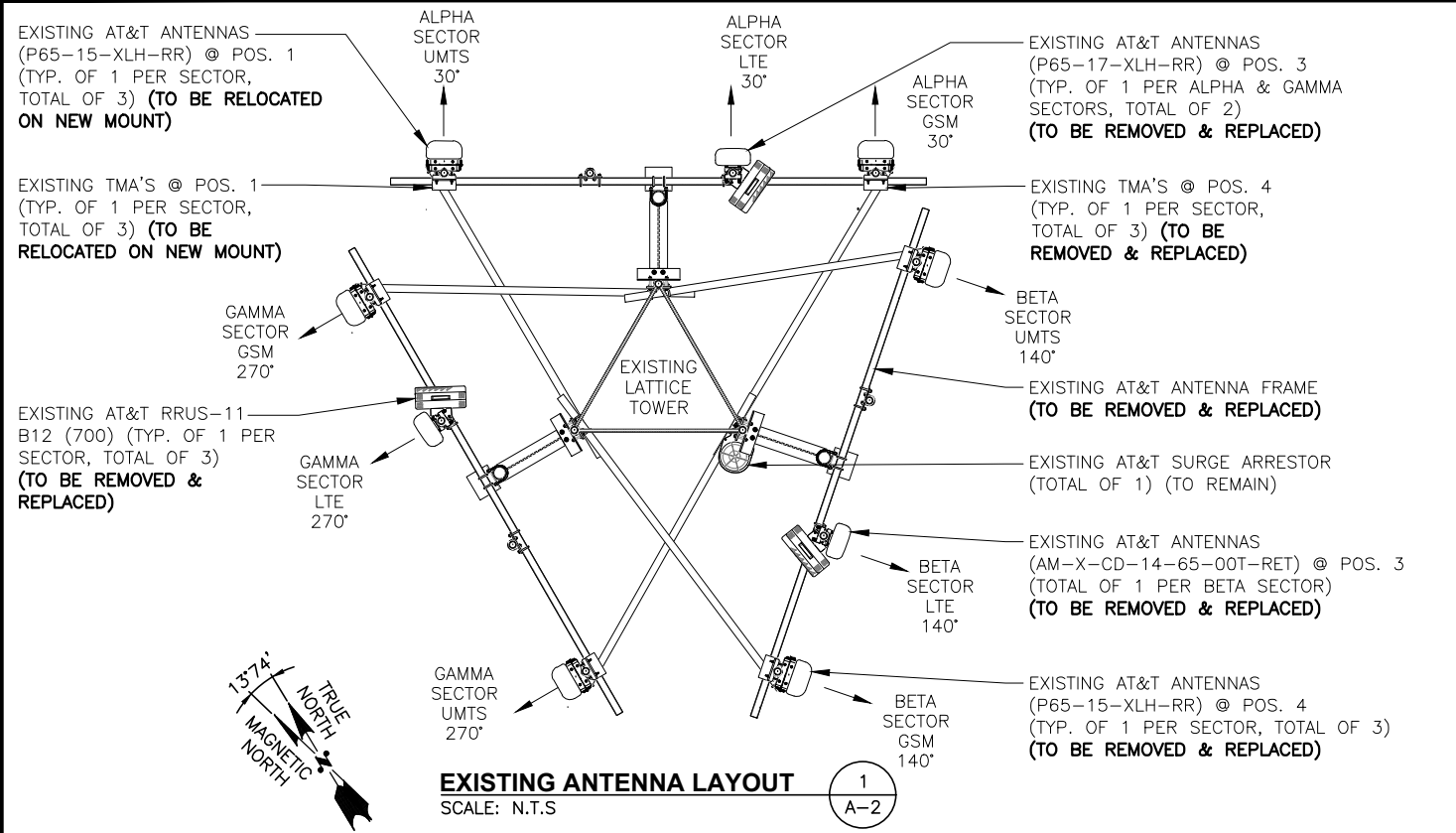
**SAI**  
12 INDUSTRIAL WAY  
SALEM, NH 03079

SITE NUMBER: CT1120  
SITE NAME: STAFFORD CHESTNUT  
157 CHESTNUT MOUNTAIN ROAD  
STAFFORD SPRINGS, CT 06076  
TOLLAND COUNTY

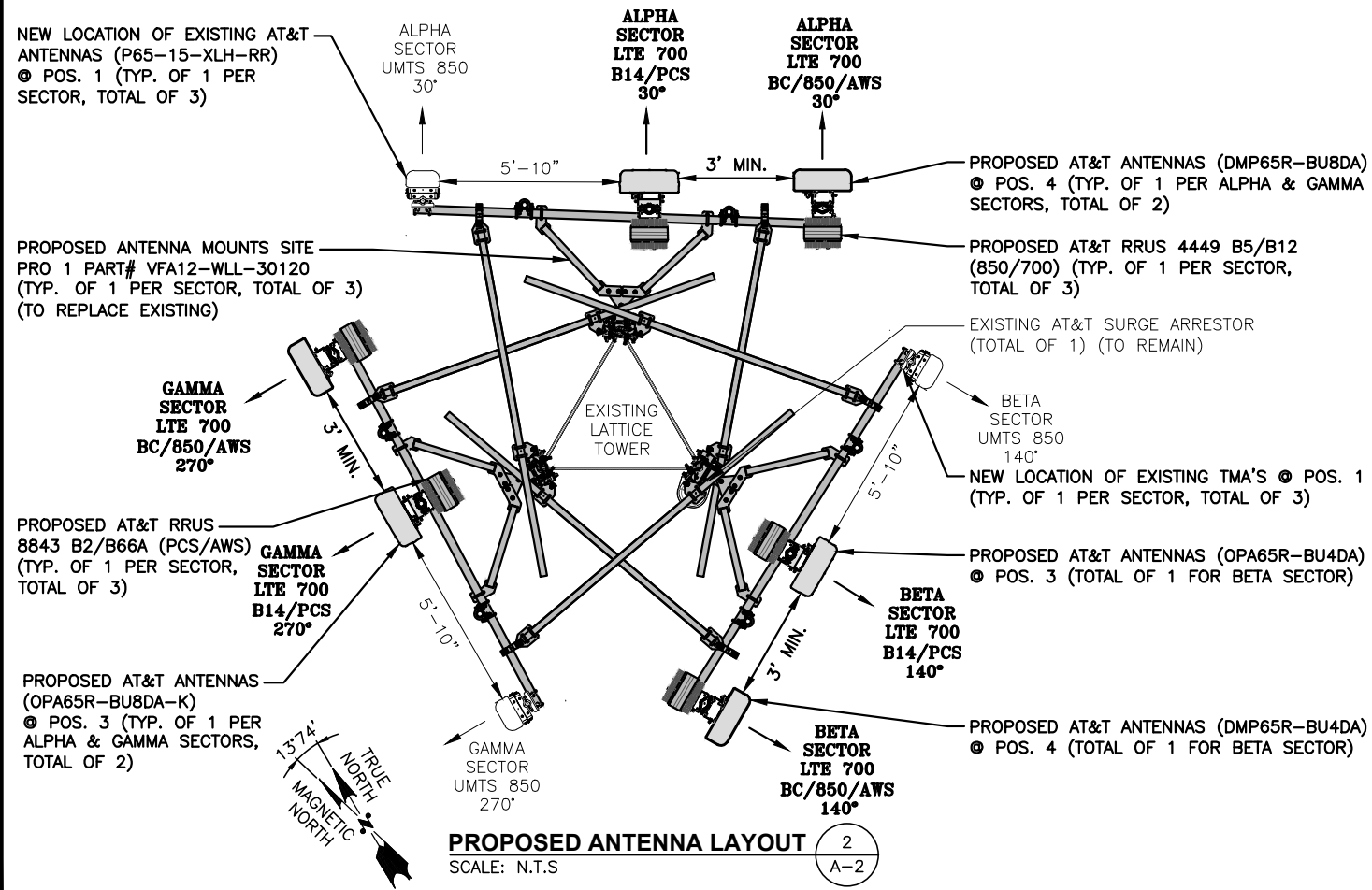
**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

1	11/02/20	ISSUED FOR CONSTRUCTION	AM	HC	DPH
A	10/15/20	ISSUED FOR REVIEW	AM	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: AM		

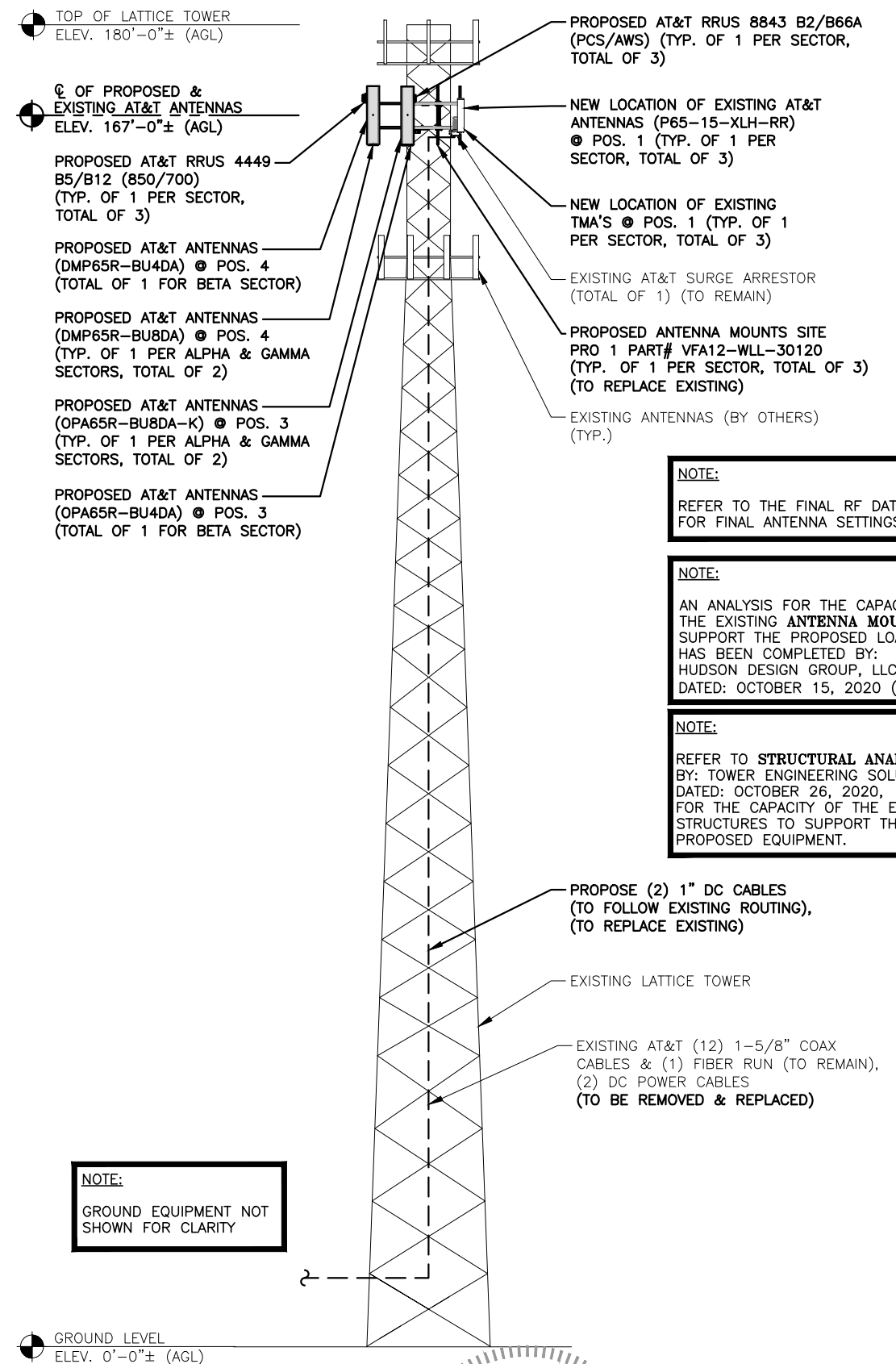
**AT&T**  
COMPOUND & EQUIPMENT PLANS  
LTE 2C\_3C\_4C\_4TX4RX\_5G 2020 UPGRADE  
SITE NUMBER: CT1120  
DRAWING NUMBER: A-1  
REV: 1



**EXISTING ANTENNA LAYOUT**  
SCALE: N.T.S



**PROPOSED ANTENNA LAYOUT**  
SCALE: N.T.S



NOTE:  
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

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

NOTE:  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: OCTOBER 15, 2020 (REV.1)

NOTE:  
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING SOLUTIONS, DATED: OCTOBER 26, 2020, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



**HDG HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**SAI**  
12 INDUSTRIAL WAY  
SALEM, NH 03079

SITE NUMBER: CT1120  
SITE NAME: STAFFORD CHESTNUT  
157 CHESTNUT MOUNTAIN ROAD  
STAFFORD SPRINGS, CT 06076  
TOLLAND COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	11/02/20	ISSUED FOR CONSTRUCTION	AM	HC	DPH
A	10/15/20	ISSUED FOR REVIEW	AM	HC	DPH

**AT&T**  
ANTENNA LAYOUTS & ELEVATION  
LTE 2C\_3C\_4C\_4TX4RX\_5G 2020 UPGRADE  
SITE NUMBER: CT1120  
DRAWING NUMBER: A-2  
REV: 1

**ANTENNA SCHEDULE**

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA $\phi$ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	FREQUENCY	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	P65-15-XLH-RR	51X12X6	167'-0"±	30°	(2)(E)(G) LGP21901 (1)(E) TT19-08BP111-001	-	-	-	(2)1-5/8" COAX	(E) (1) RAYCAP DC6-48-60-18-8F
A2	-	-	-	-	-	-	-	-	-	-	-	
A3	PROPOSED	LTE 700 B14/PCS	OPA65R-BU8DA	96X21X7.8	167'-0"±	30°	-	(P)(1)(G) RRUS 4478 B14 (P)(1) RRUS 8843 B2/B66A	(700) (AWS/PCS)	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(2)1-5/8" COAX	
A4	PROPOSED	LTE 700 BC/850/AWS	DMP65R-BU8DA	96.0X20.7X7.7	167'-0"±	30°	-	(P)(1) RRUS 4449 B5/B12	(850/700)	14.9"x13.2"x10.4"	(2)(P) DC & (1)(E) FIBER	
B1	EXISTING	UMTS 850	P65-15-XLH-RR	51X12X6	167'-0"±	140°	(2)(E)(G) LGP21901 (1)(E) TT19-08BP111-001	-	-	-	(2)1-5/8" COAX	SHARED
B2	-	-	-	-	-	-	-	-	-	-	-	
B3	PROPOSED	LTE 700 B14/PCS	OPA65R-BU4DA	48.2X21X7.8	167'-0"±	140°	-	(P)(1) RRUS 8843 B2/B66A	(AWS/PCS)	14.9"x13.2"x10.9"	(2)1-5/8" COAX	
B4	PROPOSED	LTE 700 BC/850/AWS	DMP65R-BU4DA	48.2X20.7X7.7	167'-0"±	140°	-	(P)(1) RRUS 4449 B5/B12	(850/700)	14.9"x13.2"x10.4"	-	
C1	EXISTING	UMTS 850	P65-15-XLH-RR	51X12X6	167'-0"±	270°	(2)(E)(G) LGP21901 (1)(E) TT19-08BP111-001	-	-	-	(2)1-5/8" COAX	SHARED
C2	-	-	-	-	-	-	-	-	-	-	-	
C3	PROPOSED	LTE 700 B14/PCS	OPA65R-BU8DA	96X21X7.8	167'-0"±	270°	-	(P)(1)(G) RRUS 4478 B14 (P)(1) RRUS 8843 B2/B66A	(700) (AWS/PCS)	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(2)1-5/8" COAX	
C4	PROPOSED	LTE 700 BC/850/AWS	DMP65R-BU8DA	96.0X20.7X7.7	167'-0"±	270°	-	(P)(1) RRUS 4449 B5/B12	(850/700)	14.9"x13.2"x10.4"	-	

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

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:  
HUDSON DESIGN GROUP, LLC.  
DATED: OCTOBER 15, 2020 (REV.1)

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS BY: TOWER ENGINEERING SOLUTIONS, DATED: OCTOBER 26, 2020, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

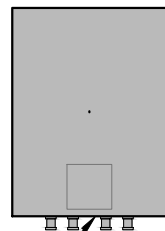
RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
3(P)	4449 B5/B12 (850/700)	14.9"x13.2"x10.4"
3(P)	8843 B2/B66A (AWS/PCS)	14.9"x13.2"x10.9"
2(P)(G)	4478 B14 (700)	18.1"x13.4"x8.3"

**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

**NOTE:**  
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

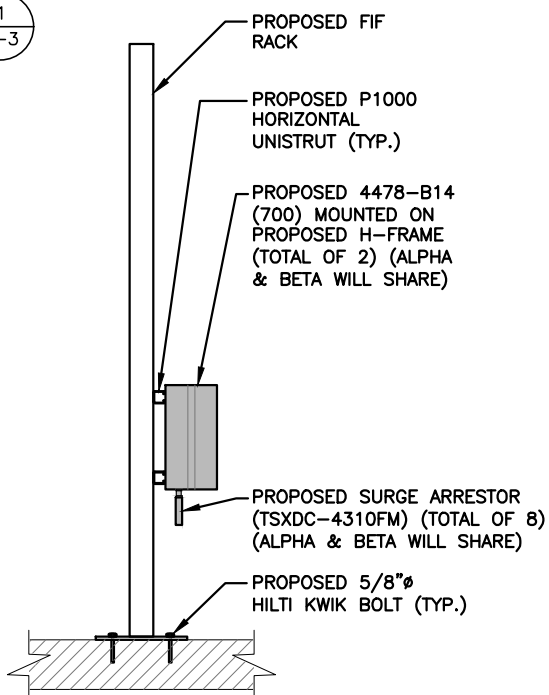
**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



**FINAL ANTENNA SCHEDULE**

SCALE: N.T.S

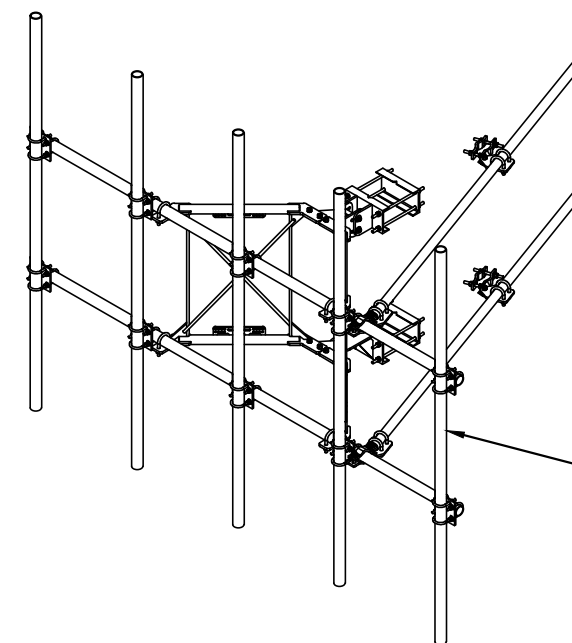
1  
A-3



**PROPOSED EQUIPMENT RACK DETAIL**

SCALE: N.T.S

3  
A-3



PROPOSED ANTENNA MOUNTS SITE PRO 1 PART# VFA12-WLL-30120 (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REPLACE EXISTING)

**PROPOSED MOUNT DETAIL**

SCALE: N.T.S

4  
A-3

**PROPOSED RRUS DETAIL**

SCALE: N.T.S

2  
A-3



45 BEECHWOOD DRIVE  
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12 INDUSTRIAL WAY  
SALEM, NH 03079

SITE NUMBER: CT1120  
SITE NAME: STAFFORD CHESTNUT

157 CHESTNUT MOUNTAIN ROAD  
STAFFORD SPRINGS, CT 06076  
TOLLAND COUNTY



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

11/02/20		ISSUED FOR CONSTRUCTION	AM	HC	DPH		AT&T
A 10/15/20		ISSUED FOR REVIEW	AM	HC	DPH		DETAILS
NO.	DATE	REVISIONS	BY	CHK	APP'D		LTE 2C_3C_4C_4TX4RX_5G 2020 UPGRADE
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: AM				SITE NUMBER: CT1120
							DRAWING NUMBER: A-3
							REV: 1

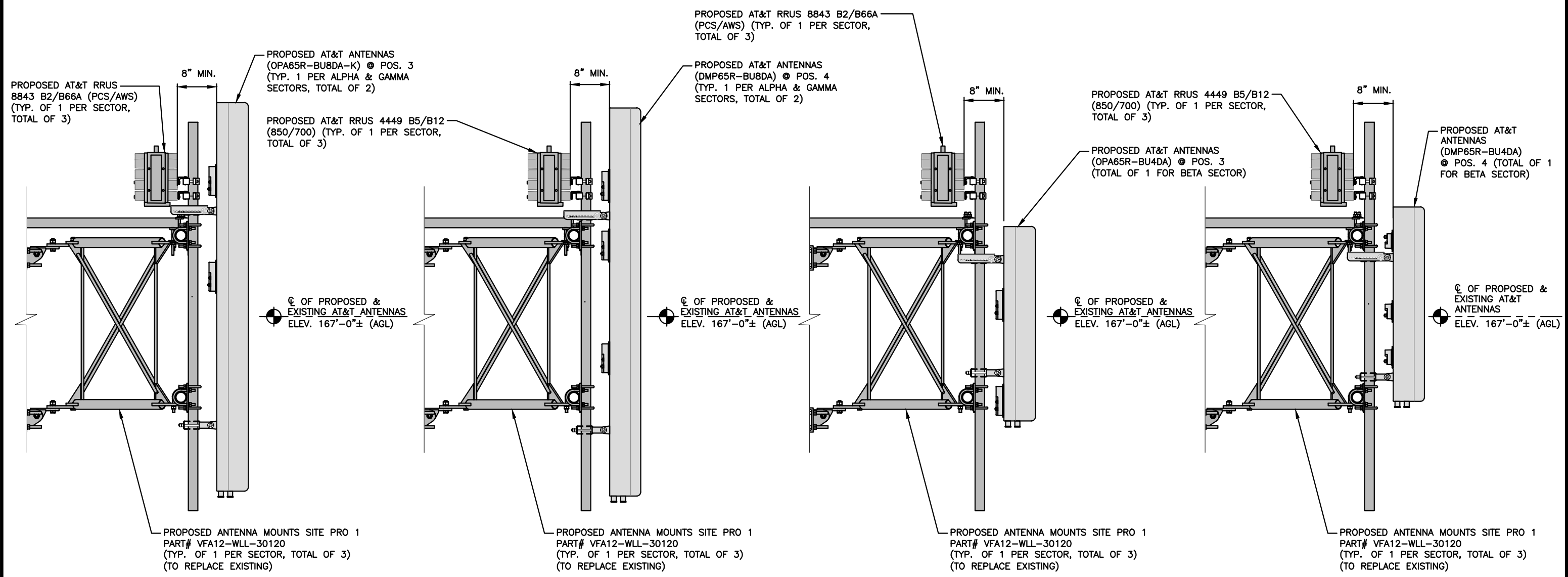


**NOTE:**  
REFER TO **STRUCTURAL ANALYSIS** BY: TOWER ENGINEERING SOLUTIONS, DATED: OCTOBER 26, 2020, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

**NOTE:**  
MINIMUM OF 8" SEPARATION REQUIRED BETWEEN THE BACK OF ANTENNA AND THE RRH.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: OCTOBER 15, 2020 (REV.1)

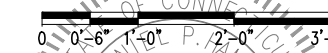
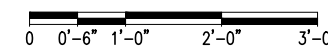
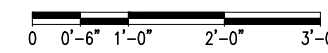
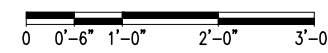


**PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 3 (ALPHA & GAMMA SECTORS)**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

**PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 4 (ALPHA & GAMMA SECTORS)**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

**PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 3 (BETA SECTOR)**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

**PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 4 (BETA SECTOR)**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"



**HG HUDSON Design Group LLC**  
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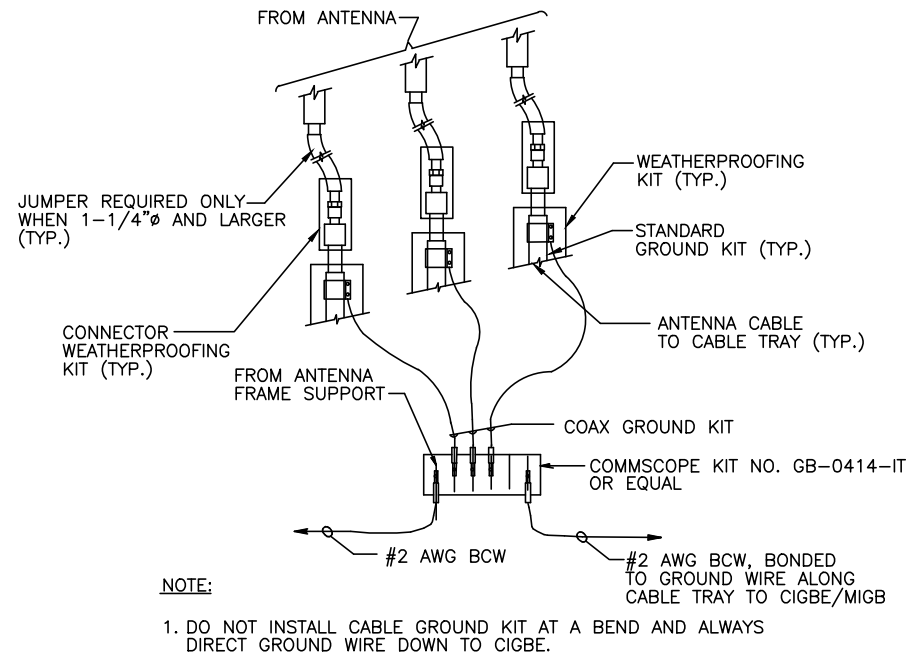
**SAI**  
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**SITE NUMBER: CT1120**  
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157 CHESTNUT MOUNTAIN ROAD  
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TOLLAND COUNTY

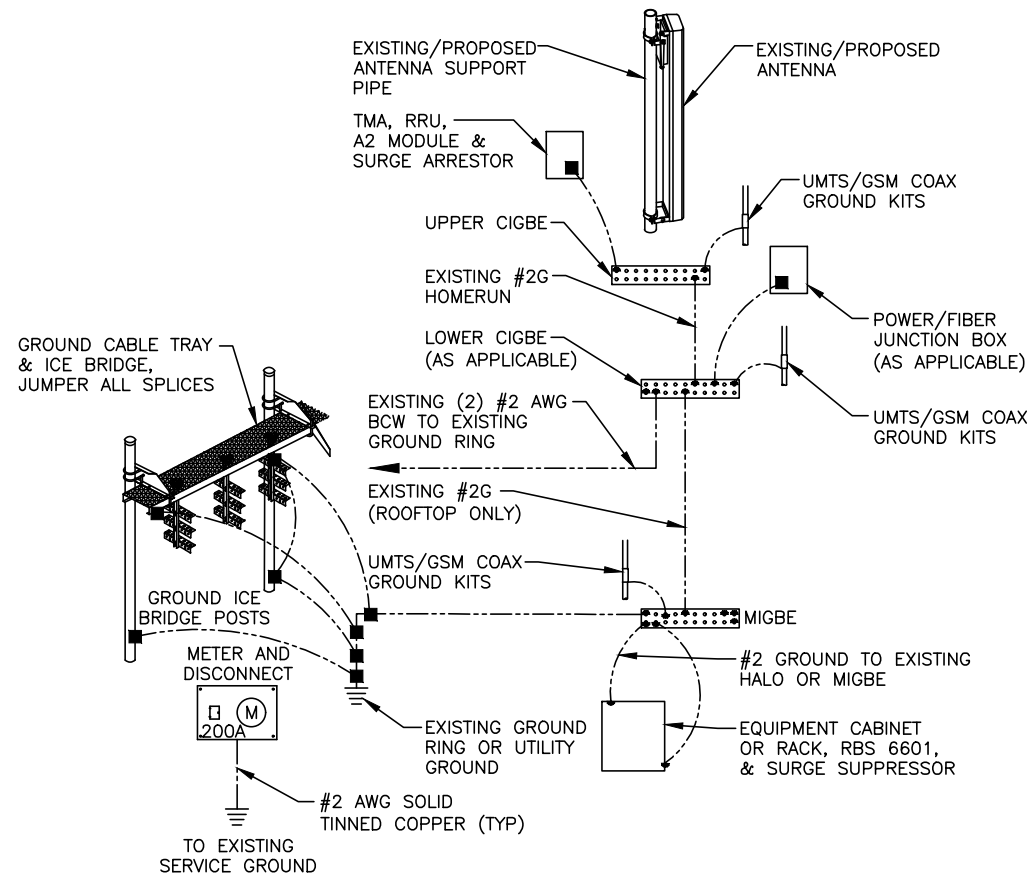
**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

1	11/02/20	ISSUED FOR CONSTRUCTION	AM	HC	DPH
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NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: AM		

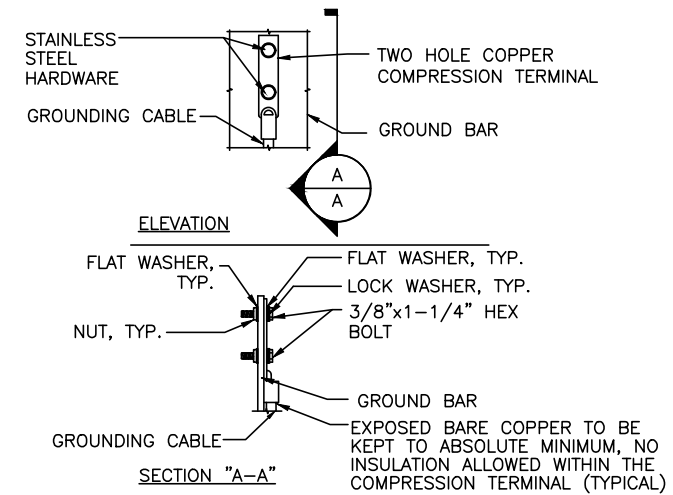
**AT&T**  
**DETAILS**  
LITE 2C\_3C\_4C\_4TX4RX\_5G 2020 UPGRADE  
SITE NUMBER: CT1120  
DRAWING NUMBER: A-4  
REV: 1



**GROUND WIRE TO GROUND BAR CONNECTION DETAIL** 1  
SCALE: N.T.S. G-1



**GROUNDING RISER DIAGRAM** 2  
SCALE: N.T.S. G-1



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

**TYPICAL GROUND BAR CONNECTION DETAIL** 3  
SCALE: N.T.S. G-1

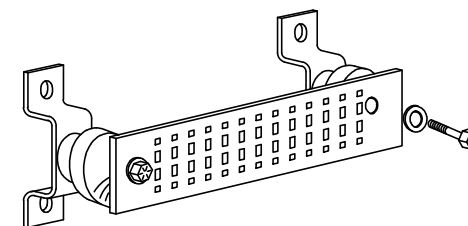
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

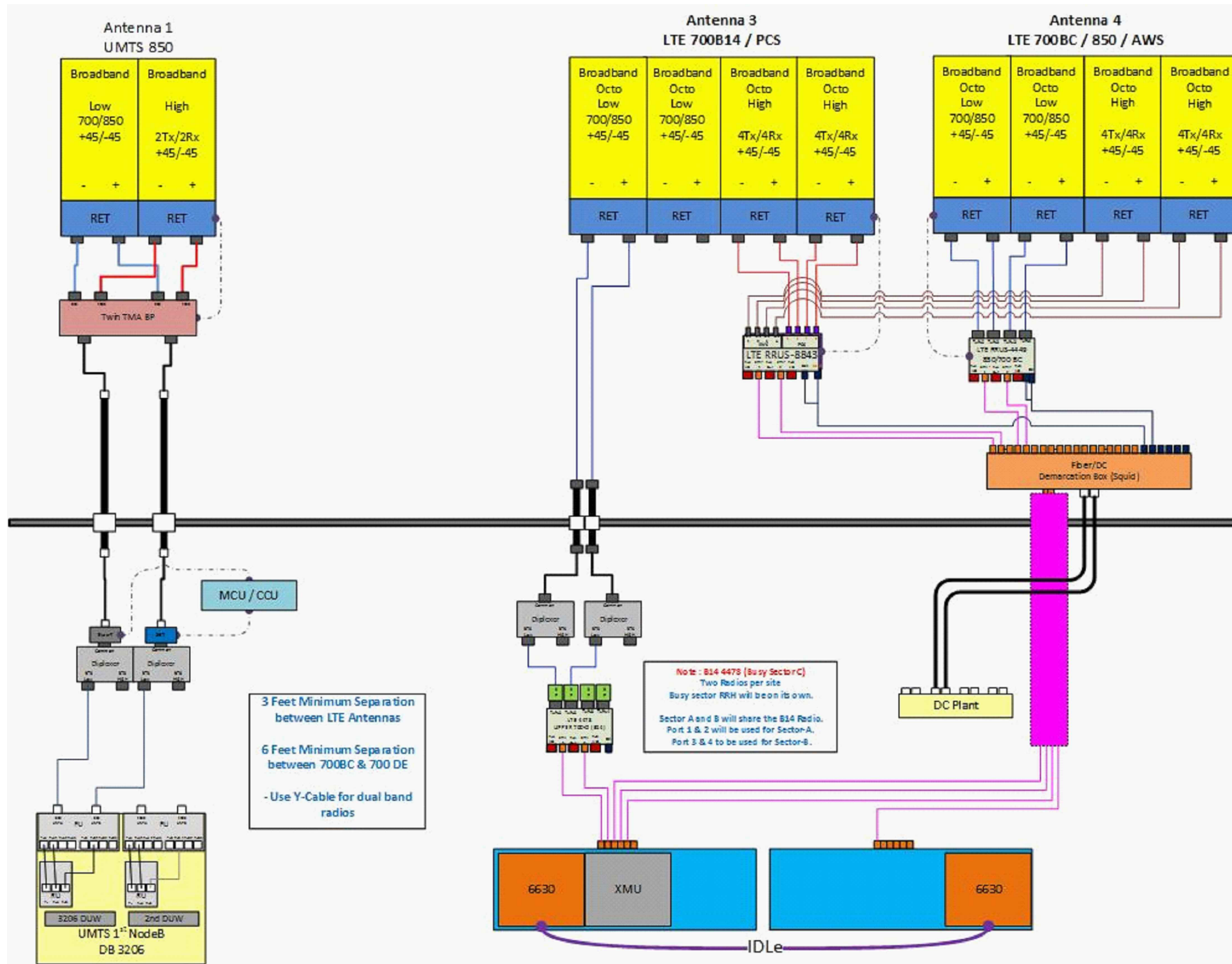
- CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
- +24V POWER SUPPLY RETURN BAR (#2 AWG)
- 48V POWER SUPPLY RETURN BAR (#2 AWG)
- RECTIFIER FRAMES.

**SECTION "A" - SURGE ABSORBERS**

- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



**GROUND BAR - DETAIL (AS REQUIRED)** 4  
SCALE: N.T.S. G-1



3 Feet Minimum Separation between LTE Antennas  
 6 Feet Minimum Separation between 700BC & 700 DE  
 - Use Y-Cable for dual band radios

Note: B14 4478 (Busy Sector C)  
 Two Radios per site  
 Busy sector RRH will be on its own.  
 Sector A and B will share the B14 Radio.  
 Port 1 & 2 will be used for Sector-A.  
 Port 3 & 4 to be used for Sector-B.

**NOTE:**  
 1. CONTRACTOR TO CONFIRM ALL PARTS.  
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

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

RF PLUMBING DIAGRAM 1 RF-1  
 SCALE: N.T.S



**Tower Engineering Solutions**

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

---

## **Structural Analysis Report**

**Existing 180 ft Rohn Self Supporting Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13617-A**

**Customer Site Name: Troiano Realty**

**Carrier Name: AT&T (App#: 140942-1)**

**Carrier Site ID / Name: CT1120 / STAFFORD CHESTNUT**

**Site Location: 157 Chestnut Hill Road**

**Stafford Springs, Connecticut**

**Tolland County**

**Latitude: 41.977416**

**Longitude: -72.383305**

**Exp.01/31/2021**



### **Analysis Result:**

**Max Structural Usage: 88.1% [Pass]**

**10/26/2020**

**Max Foundation Usage: 60.0% [Pass]**

**Additional Usage Caused by New Mount: +2%**

**Report Prepared By : Tawfeeq Alajaj**



**Tower Engineering Solutions**

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

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## **Structural Analysis Report**

**Existing 180 ft Rohn Self Supporting Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT13617-A**

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**Carrier Name: AT&T (App#: 140942-1)**

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**Stafford Springs, Connecticut**

**Tolland County**

**Latitude: 41.977416**

**Longitude: -72.383305**

### **Analysis Result:**

**Max Structural Usage: 88.1% [Pass]**

**Max Foundation Usage: 60.0% [Pass]**

**Additional Usage Caused by New Mount: +2%**

**Report Prepared By : Tawfeeq Alajaj**

## Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Rohn Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

<b>Tower Drawings</b>	Rohn Eng. File # 49944AE, Dwg. # C011522, dated 12/17/2001
<b>Foundation Drawing</b>	Rohn Eng. File # 49944AE, Dwg. # A012939, dated 12/17/2001
<b>Geotechnical Report</b>	Jaworski Geotech Project # 01659G, dated 10/19/2001
<b>Modification Drawings</b>	N/A

## Analysis Criteria

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

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 125.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 97.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 1" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.173$ , $S_1 = 0.064$

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

## Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	177.0	3	RFS - APXV18-206516S-C-A20 - Panel	(3) T-Arms (Commscope SF-HPM3-96)	(9) 1 5/8" (3) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - KRY 112 489/2 - TMA			
3		3	Ericsson - Radio 4449 B71+B12 - RRU			
4		3	Kathrein - 782 11056 - Bias T			
5	175.0	3	RFS - APXVAARR24_43-U-NA20 - Panel	(3) T-Frames	(12) 1 5/8" (1) 3/8" RET (1) 3" Flex Conduit (2) DC Cables	AT&T
6	169.52	9	Powerwave - P65-17-XLH - Panel			
7		3	KMW - AM-X-CD-16-6500T - Panel			
8		12	ADC - ClearGain - TMA			
9		6	Ericsson - RRUS11 - RRU			
10	150.0	1	Raycap - DC-48-60-18-8F - SP	(3) Sector Frames (Site Pro VFA12-HD)	(13) 1 5/8" (2) 1 5/8" Fiber	Verizon
11		6	Commscope - SBNHH-1D65B - Panel			
12		4	Antel - LPA-80080-4CF-EDIN-2 - Panel			
13		2	Antel - LPA-80063-4CF-EDIN-5 - Panel			
14		3	Alcatel Lucent - RRH2x60-700U - RRU			
15		3	Alcatel Lucent - RRH2x60-PCS - RRU			
16		3	Alcatel Lucent - RRH2x60-AWS - RRU			
17		6	RFS - FD9R6004/2C-3L - Diplexer			
18		1	Alcatel Lucent - KS24019-L112A - GPS			
19	1	RFS - DB-T1-6Z-8AB-OZ - SP				

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	167.0	1	CCI - OPA65R-BU4DA - Panel	(3) Sector Frame SitePro 1 VFA12-WLL-30120	(12) 1 5/8" (2) 1" DC Cables (1) 1/2"	AT&T
7		2	CCI - DMP65R-BU8DA - Panel			
8		1	CCI - DMP65R-BU4DA - Panel			
9		12	ADC/Cleargain CT-1900W800 TMA			
10		3	Ericsson 4449 B5/B12			
11		3	Ericsson RRUS 8843 B2 B66A			
12		1	Raycap DC6-48-60-18-8F ("Squid")			
13		6	Powerwave - P65-17-XLH-RR - Panel			
14		2	CCI - OPA65R-BU8DA - Panel			

See the attached coax layout for the line placement considered in the analysis.



## **Analysis Results**

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

Tower Component	Legs	Diagonals	Horizontals
Max. Usage:	<b>88.1%</b>	<b>81.8%</b>	<b>1.9%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	285.8	251.1	26.4

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

### **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.3625 degrees under the operational wind speed as specified in the Analysis Criteria.

### **Conclusions**

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

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

## Structure: CT13617-A-SBA

<b>Site Name:</b> Troiano Realty	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Type:</b> Self Support	<b>Base Shape:</b> Triangle	<b>Basic WS:</b> 97.00
<b>Height:</b> 180.00 (ft)	<b>Base Width:</b> 18.99	<b>Basic Ice WS:</b> 50.00
<b>Base Elev:</b> 0.00 (ft)	<b>Top Width:</b> 4.64	<b>Operational WS:</b> 60.00



Page: 1

### Section Properties

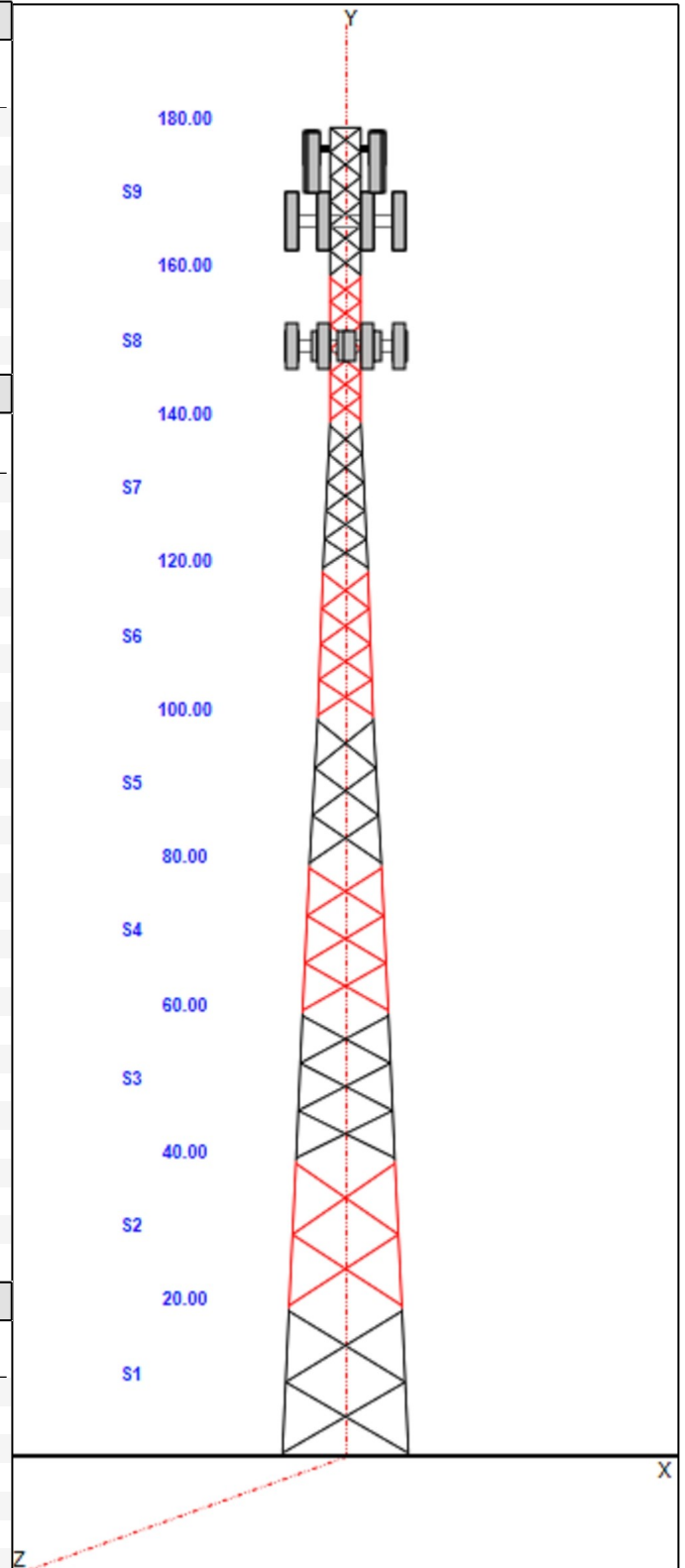
Sect	Leg Members	Diagonal Members	Horizontal Members
1	PX 8" DIA PIPE	SAE 3.5X3.5X0.25	
2	PSP ROHN 8 EHS	SAE 3X3X0.25	
3	PX 6" DIA PIPE	SAE 2.5X2.5X0.25	
4	PSP ROHN 6 EHS	SAE 2.5X2.5X0.1875	
5	PX 5" DIA PIPE	SAE 2.5X2.5X0.1875	
6	PX 4" DIA PIPE	SAE 2X2X0.1875	
7	PX 4" DIA PIPE	SAE 2X2X0.1875	
8	PST 3" DIA PIPE	SAE 2X2X0.25	
9	PST 2-1/2" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.125

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.00	180.00	1	Lightning Rod
180.00	180.00	1	Beacon
177.00	177.00	1	MC-K12M-12-96
177.00	177.00	3	APXV18-206516S-C-A20
177.00	177.00	3	KRY 112 89/4
177.00	177.00	3	4449
177.00	177.00	3	782 10254
177.00	175.00	3	APXVAARR24_43-U-NA20
167.00	167.00	1	OPA65R-BU4DA
167.00	167.00	2	DMP65R-BU8DA
167.00	167.00	1	DMP65R-BU4DA
167.00	167.00	12	ADC/Cleargain CT-1900W800
167.00	167.00	3	Ericsson 4449 B5/B12
167.00	167.00	3	Ericsson RRUS 8843 B2 B66A
167.00	167.00	1	RaycaDC6-48-60-18-8F ("Squid")
167.00	167.00	3	VFA12-WLL-30120
167.00	167.00	6	P65-17-XLH-RR
167.00	167.00	2	OPA65R-BU8DA
150.00	150.00	1	(3) VFA12-HD
150.00	150.00	6	SBNHH-1D65B
150.00	150.00	4	LPA-80080-4CF-EDIN-0
150.00	150.00	2	LPA-80063-4CF-EDIN-X
150.00	150.00	3	RRH2x60-850
150.00	150.00	3	RRH2X60-PCS
150.00	150.00	3	RRH2X60-AWS
150.00	150.00	6	FD9R6004/2C-3L 3.1#
150.00	150.00	1	KS-24019 L112D
150.00	150.00	1	DB-T1-6Z-8AB-0Z

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
0.00	177.00	9	1 1/8" Coax
0.00	177.00	3	1 1/8" Fiber
0.00	175.00	1	W/G Ladder
0.00	167.00	12	1 1/8" Coax
0.00	167.00	2	1" DC Cables
0.00	167.00	1	1/2" Coax
0.00	150.00	4	1 1/8" Coax
0.00	150.00	9	1 1/8" Coax
0.00	150.00	2	1 1/8" Fiber



**Structure: CT13617-A-SBA**

**Site Name:** Troiano Realty      **Code:** EIA/TIA-222-G      10/26/2020  
**Type:** Self Support      **Base Shape:** Triangle      **Basic WS:** 97.00  
**Height:** 180.00 (ft)      **Base Width:** 18.99      **Basic Ice WS:** 50.00  
**Base Elev:** 0.00 (ft)      **Top Width:** 4.64      **Operational WS:** 60.00      Page: 2



0.00    150.00    1    W/G Ladder

**Base Reactions**

Leg		Overturning	
Max Uplift:	-251.12 (kips)	Moment:	4462.40 (ft-kips)
Max Down:	285.78 (kips)	Total Down:	43.32 (kips)
Max Shear:	26.42 (kips)	Total Shear:	41.85 (kips)

# Structure: CT13617-A-SBA

**Site Name:** Troiano Realty

**Type:** Self Support

**Height:** 180.00 (ft)

**Base Elev:** 0.00 (ft)

**Base Shape:** Triangle

**Base Width:** 18.99

**Top Width:** 4.64

**Code:** EIA/TIA-222-G

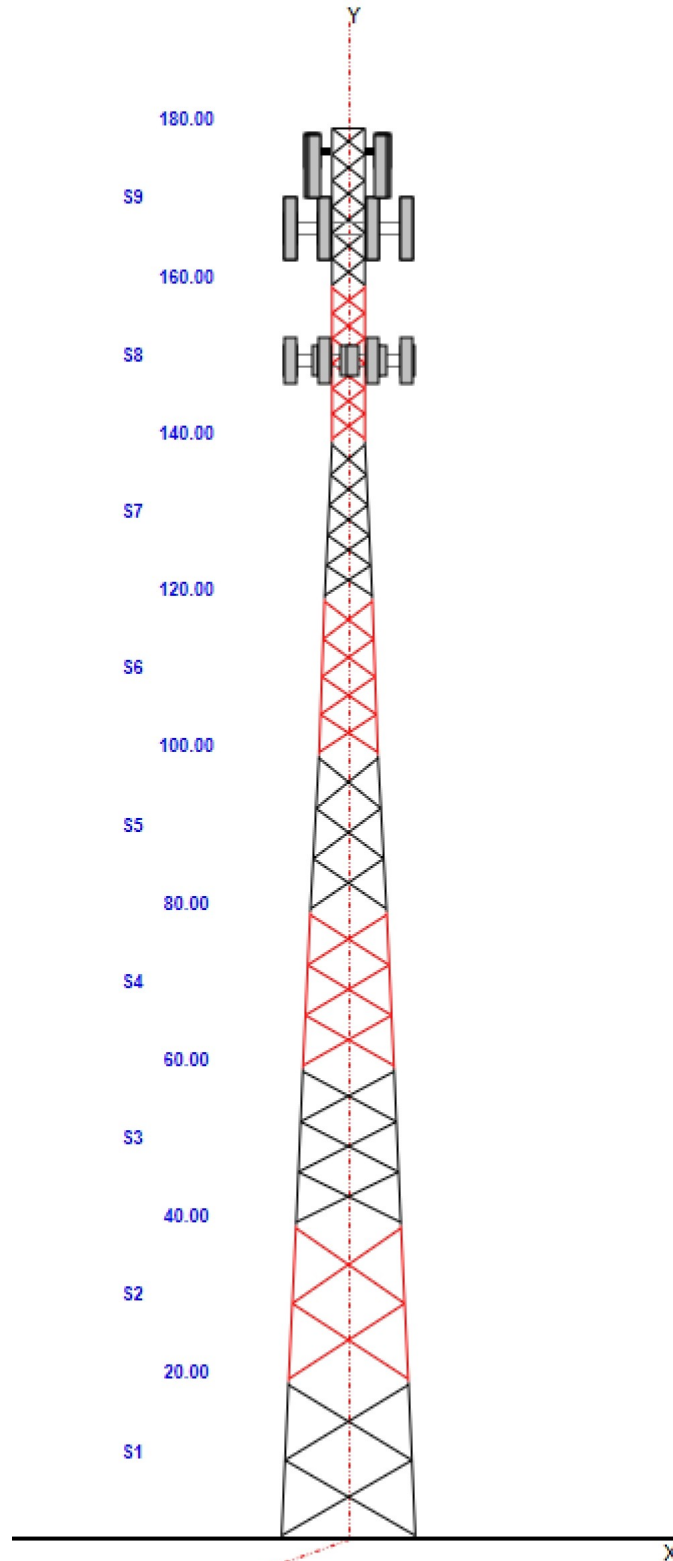
**Basic WS:** 97.00

**Basic Ice WS:** 50.00

**Operational WS:** 60.00

10/26/2020

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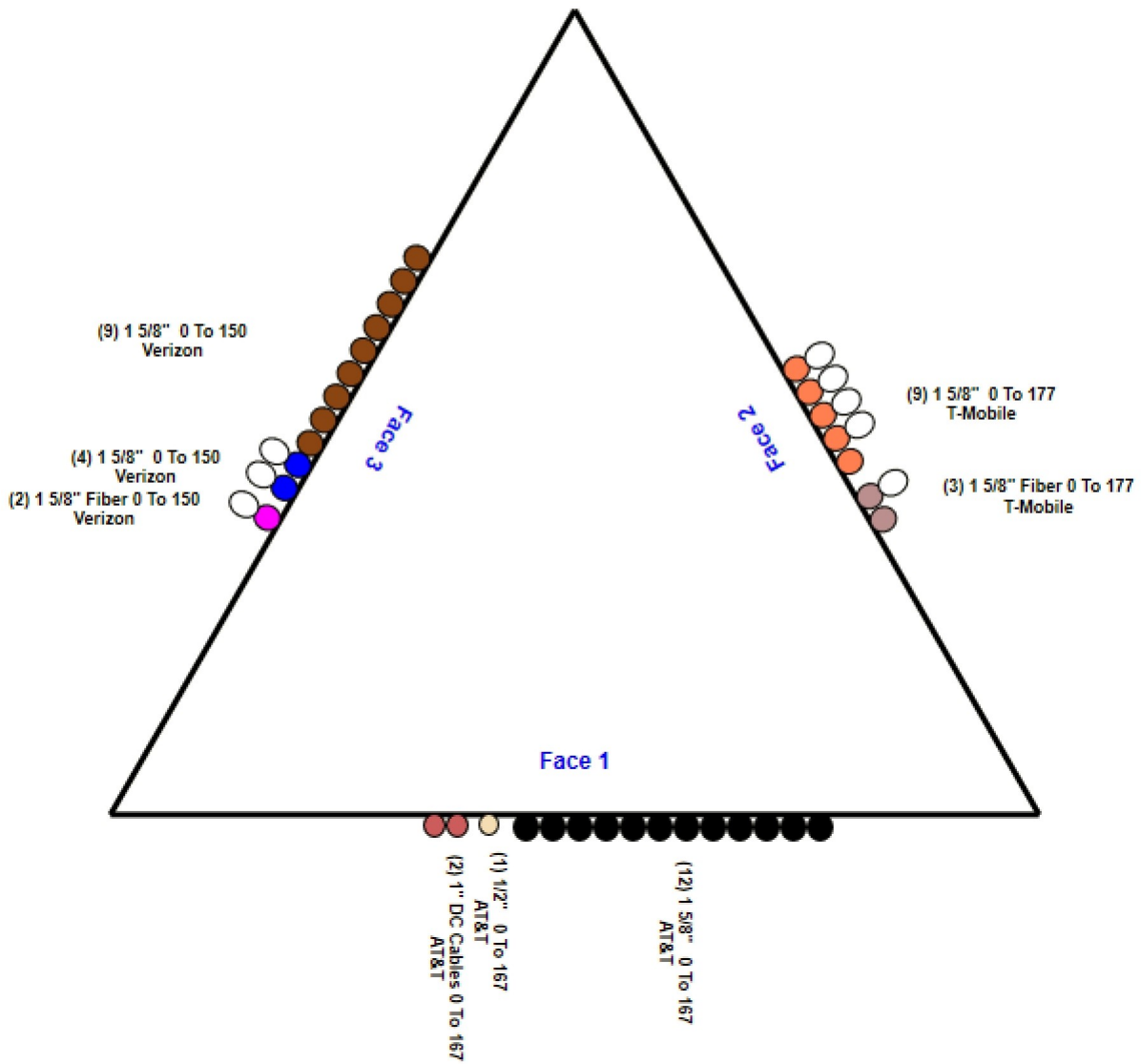
# Structure: CT13617-A-SBA - Coax Line Placement

**Type:** Self Support  
**Site Name:** Troiano Realty  
**Height:** 180.00 (ft)

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## Loading Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
180.00	Lightning Rod	1	5.00	0.500	33.28	2.856	72.000	1.000	1.000	1.00	1.00	0.000
180.00	Beacon	1	36.00	2.720	215.83	4.002	28.000	17.500	17.500	1.00	1.00	0.000
177.00	MC-K12M-12-96	1	550.00	15.550	1275.73	41.931	0.000	0.000	0.000	0.75	0.75	0.000
177.00	APXV18-206516S-C-A20	3	18.70	3.610	113.31	6.118	53.100	6.900	3.200	0.80	0.78	0.000
177.00	KRY 112 89/4	3	15.40	0.650	39.19	1.476	11.000	6.100	3.900	0.80	0.50	0.000
177.00	4449	3	70.00	1.650	201.95	2.428	15.000	13.200	9.300	0.80	0.67	0.000
177.00	782 10254	3	2.90	0.130	8.29	0.524	4.300	3.000	1.700	0.80	0.50	0.000
177.00	APXVAARR24_43-U-NA20	3	128.00	20.240	762.93	22.834	95.900	24.000	7.800	0.80	0.70	-2.000
167.00	OPA65R-BU4DA	1	52.50	8.440	315.44	9.752	48.200	21.000	7.800	0.80	1.00	0.000
167.00	DMP65R-BU8DA	2	95.70	17.870	575.01	20.649	96.000	20.700	7.700	0.80	0.82	0.000
167.00	DMP65R-BU4DA	1	67.90	8.280	407.98	9.568	48.000	20.700	7.700	0.80	1.00	0.000
167.00	ADC/Cleargain CT-1900W800	12	15.40	1.100	125.73	1.890	11.700	11.300	2.800	0.80	0.67	0.000
167.00	Ericsson 4449 B5/B12	3	73.20	1.970	151.16	2.739	17.900	13.200	10.600	0.80	0.67	0.000
167.00	Ericsson RRUS 8843 B2 B66A	3	72.00	1.640	135.25	2.311	14.900	13.200	10.900	0.80	0.67	0.000
167.00	RaycaDC6-48-60-18-8F ("Squid")	1	31.80	0.920	115.27	1.511	24.000	11.000	11.000	0.80	1.00	0.000
167.00	VFA12-WLL-30120	3	774.00	18.900	1795.30	50.964	0.000	0.000	0.000	0.75	0.75	0.000
167.00	P65-17-XLH-RR	6	59.00	11.440	351.44	15.807	96.000	12.000	6.000	0.80	0.82	0.000
167.00	OPA65R-BU8DA	2	76.50	18.090	459.65	20.903	96.000	21.000	7.800	0.80	0.82	0.000
150.00	(3) VFA12-HD	1	2322.0	50.700	5347.78	135.64	0.000	0.000	0.000	0.75	1.00	0.000
150.00	SBNHH-1D65B	6	40.60	8.080	317.83	9.847	72.000	11.900	7.100	0.80	0.83	0.000
150.00	LPA-80080-4CF-EDIN-0	4	12.00	2.610	166.16	3.808	47.200	5.500	13.200	0.80	1.53	0.000
150.00	LPA-80063-4CF-EDIN-X	2	20.00	6.150	263.92	8.674	47.400	15.200	13.100	0.80	0.94	0.000
150.00	RRH2x60-850	3	48.00	1.730	116.04	2.458	18.500	11.200	8.900	0.80	0.67	0.000
150.00	RRH2X60-PCS	3	55.00	2.200	146.94	3.224	22.000	12.000	9.400	0.80	0.67	0.000
150.00	RRH2X60-AWS	3	55.00	3.500	161.69	4.552	37.000	11.000	6.000	0.80	0.67	0.000
150.00	FD9R6004/2C-3L 3.1#	6	3.10	0.360	13.80	0.951	5.800	6.500	1.500	0.80	0.50	0.000
150.00	KS-24019 L112D	1	0.50	0.120	9.37	0.394	6.000	3.600	3.600	0.80	0.50	0.000
150.00	DB-T1-6Z-8AB-OZ	1	18.90	4.800	180.34	7.034	24.000	24.000	10.000	0.80	0.50	0.000
<b>Totals:</b>		<b>82</b>	<b>8,254.60</b>		<b>27,666.08</b>						<b>Number of Appurtenances :</b>	<b>28</b>



## Loading Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



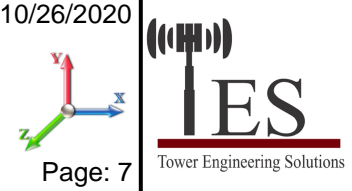
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### Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
0.00	177.00	1 5/8" Coax	9	1.98	1.04	50.00	2	Block		N	0.50	0.63	
0.00	177.00	1 5/8" Fiber	3	2.00	1.10	50.00	2	Block		N	0.50	0.96	
0.00	175.00	W/G Ladder	1	1.00	6.00	100.00	2	Individual NR		N	0.50	1.00	
0.00	167.00	1 5/8" Coax	12	1.98	1.04	100.00	1	Individual IR		N	0.50	1.00	
0.00	167.00	1" DC Cables	2	1.00	0.40	100.00	1	Individual IR		N	0.50	1.00	
0.00	167.00	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	0.50	1.00	
0.00	150.00	1 5/8" Coax	4	1.98	1.04	50.00	3	Block		N	0.50	0.96	
0.00	150.00	1 5/8" Coax	9	1.98	1.04	100.00	3	Individual IR		N	0.50	0.43	
0.00	150.00	1 5/8" Fiber	2	2.00	1.10	50.00	3	Block		N	0.50	1.00	
0.00	150.00	W/G Ladder	1	0.50	6.00	100.00	3	Individual NR		N	0.50	1.00	

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.6W Normal Wind	1.2D + 1.6W 97 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	1.00	1.00	0.00	35.64	114.32	0.00	6,128.2	0.0	1955.48	1622.14	3,577.62
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	1.00	1.00	0.00	30.59	114.32	0.00	4,991.0	0.0	1675.20	1623.51	3,298.71
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	1.00	1.00	0.00	29.25	114.32	0.00	4,706.8	0.0	1853.59	1878.62	3,732.22
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	1.00	1.00	0.00	26.86	114.32	0.00	3,834.4	0.0	1839.85	2068.19	3,908.04
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	1.00	1.00	0.00	23.41	114.32	0.00	3,557.0	0.0	1706.46	2222.15	3,928.61
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	1.00	1.00	0.00	20.91	114.32	0.00	3,418.5	0.0	1561.50	2353.28	3,914.79
1 7	130.0	21.81	10.857	15.03	0.00	0.21	2.55	1.00	1.00	0.00	19.20	114.32	0.00	2,977.4	0.0	1454.31	2468.33	3,922.64
1 8	150.0	22.72	10.707	11.67	0.00	0.23	2.51	1.00	1.00	0.00	17.47	93.67	0.00	2,354.8	0.0	1354.54	2079.99	3,434.53
1 9	170.0	23.55	10.221	9.58	0.00	0.20	2.59	1.00	1.00	0.00	15.73	39.89	0.00	1,443.7	0.0	1303.11	885.68	2,188.79
														<b>33,411.8</b>	<b>0.0</b>			<b>31,905.92</b>

<b>Load Case:</b> 1.2D + 1.6W 60° Wind	1.2D + 1.6W 97 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.80	1.00	0.00	31.05	114.32	0.00	6,128.2	0.0	1703.45	1622.14	3,325.59
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.80	1.00	0.00	27.01	114.32	0.00	4,991.0	0.0	1479.23	1623.51	3,102.74
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.80	1.00	0.00	25.57	114.32	0.00	4,706.8	0.0	1620.00	1878.62	3,498.62
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.80	1.00	0.00	23.62	114.32	0.00	3,834.4	0.0	1618.11	2068.19	3,686.29
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.80	1.00	0.00	20.64	114.32	0.00	3,557.0	0.0	1504.63	2222.15	3,726.78
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.80	1.00	0.00	18.64	114.32	0.00	3,418.5	0.0	1392.41	2353.28	3,745.70
1 7	130.0	21.81	10.857	15.03	0.00	0.21	2.55	0.80	1.00	0.00	17.03	114.32	0.00	2,977.4	0.0	1289.87	2468.33	3,758.20
1 8	150.0	22.72	10.707	11.67	0.00	0.23	2.51	0.80	1.00	0.00	15.33	93.67	0.00	2,354.8	0.0	1188.50	2079.99	3,268.49
1 9	170.0	23.55	10.221	9.58	0.00	0.20	2.59	0.80	1.00	0.00	13.69	39.89	0.00	1,443.7	0.0	1133.78	885.68	2,019.46
														<b>33,411.8</b>	<b>0.0</b>			<b>30,131.86</b>

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>10/26/2020</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.6W 90° Wind	1.2D + 1.6W 97 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

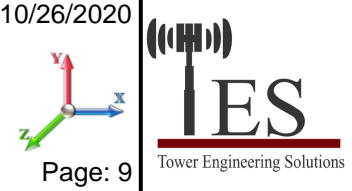
Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.85	1.00	0.00	32.20	114.32	0.00	6,128.2	0.0	1766.46	1622.14	3,388.59
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.85	1.00	0.00	27.90	114.32	0.00	4,991.0	0.0	1528.22	1623.51	3,151.73
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.85	1.00	0.00	26.49	114.32	0.00	4,706.8	0.0	1678.40	1878.62	3,557.02
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.85	1.00	0.00	24.43	114.32	0.00	3,834.4	0.0	1673.54	2068.19	3,741.73
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.85	1.00	0.00	21.34	114.32	0.00	3,557.0	0.0	1555.08	2222.15	3,777.24
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.85	1.00	0.00	19.21	114.32	0.00	3,418.5	0.0	1434.69	2353.28	3,787.97
1 7	130.0	21.81	10.857	15.03	0.00	0.21	2.55	0.85	1.00	0.00	17.58	114.32	0.00	2,977.4	0.0	1330.98	2468.33	3,799.31
1 8	150.0	22.72	10.707	11.67	0.00	0.23	2.51	0.85	1.00	0.00	15.86	93.67	0.00	2,354.8	0.0	1230.01	2079.99	3,310.00
1 9	170.0	23.55	10.221	9.58	0.00	0.20	2.59	0.85	1.00	0.00	14.20	39.89	0.00	1,443.7	0.0	1176.11	885.68	2,061.79
<b>33,411.8</b>														<b>0.0</b>	<b>30,575.38</b>			

<b>Load Case:</b> 0.9D + 1.6W Normal Wind	0.9D + 1.6W 97 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	1.00	1.00	0.00	35.64	114.32	0.00	4,596.1	0.0	1955.48	1622.14	3,577.62
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	1.00	1.00	0.00	30.59	114.32	0.00	3,743.3	0.0	1675.20	1623.51	3,298.71
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	1.00	1.00	0.00	29.25	114.32	0.00	3,530.1	0.0	1853.59	1878.62	3,732.22
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	1.00	1.00	0.00	26.86	114.32	0.00	2,875.8	0.0	1839.85	2068.19	3,908.04
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	1.00	1.00	0.00	23.41	114.32	0.00	2,667.7	0.0	1706.46	2222.15	3,928.61
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	1.00	1.00	0.00	20.91	114.32	0.00	2,563.9	0.0	1561.50	2353.28	3,914.79
1 7	130.0	21.81	10.857	15.03	0.00	0.21	2.55	1.00	1.00	0.00	19.20	114.32	0.00	2,233.0	0.0	1454.31	2468.33	3,922.64
1 8	150.0	22.72	10.707	11.67	0.00	0.23	2.51	1.00	1.00	0.00	17.47	93.67	0.00	1,766.1	0.0	1354.54	2079.99	3,434.53
1 9	170.0	23.55	10.221	9.58	0.00	0.20	2.59	1.00	1.00	0.00	15.73	39.89	0.00	1,082.8	0.0	1303.11	885.68	2,188.79
<b>25,058.8</b>														<b>0.0</b>	<b>31,905.92</b>			

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>10/26/2020</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.6W 60° Wind	0.9D + 1.6W 97 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

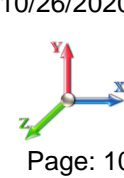
Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.80	1.00	0.00	31.05	114.32	0.00	4,596.1	0.0	1703.45	1622.14	3,325.59
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.80	1.00	0.00	27.01	114.32	0.00	3,743.3	0.0	1479.23	1623.51	3,102.74
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.80	1.00	0.00	25.57	114.32	0.00	3,530.1	0.0	1620.00	1878.62	3,498.62
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.80	1.00	0.00	23.62	114.32	0.00	2,875.8	0.0	1618.11	2068.19	3,686.29
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.80	1.00	0.00	20.64	114.32	0.00	2,667.7	0.0	1504.63	2222.15	3,726.78
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.80	1.00	0.00	18.64	114.32	0.00	2,563.9	0.0	1392.41	2353.28	3,745.70
1 7	130.0	21.81	10.857	15.03	0.00	0.21	2.55	0.80	1.00	0.00	17.03	114.32	0.00	2,233.0	0.0	1289.87	2468.33	3,758.20
1 8	150.0	22.72	10.707	11.67	0.00	0.23	2.51	0.80	1.00	0.00	15.33	93.67	0.00	1,766.1	0.0	1188.50	2079.99	3,268.49
1 9	170.0	23.55	10.221	9.58	0.00	0.20	2.59	0.80	1.00	0.00	13.69	39.89	0.00	1,082.8	0.0	1133.78	885.68	2,019.46
														<b>25,058.8</b>	<b>0.0</b>			<b>30,131.86</b>

<b>Load Case:</b> 0.9D + 1.6W 90° Wind	0.9D + 1.6W 97 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Area (sqft)		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice Area (sqft)		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	14.33	22.969	28.80	0.00	0.14	2.81	0.85	1.00	0.00	32.20	114.32	0.00	4,596.1	0.0	1766.46	1622.14	3,388.59
1 2	30.0	14.34	17.891	28.80	0.00	0.14	2.81	0.85	1.00	0.00	27.90	114.32	0.00	3,743.3	0.0	1528.22	1623.51	3,151.73
1 3	50.0	16.60	18.433	22.12	0.00	0.14	2.81	0.85	1.00	0.00	26.49	114.32	0.00	3,530.1	0.0	1678.40	1878.62	3,557.02
1 4	70.0	18.27	16.186	22.12	0.00	0.15	2.76	0.85	1.00	0.00	24.43	114.32	0.00	2,875.8	0.0	1673.54	2068.19	3,741.73
1 5	90.0	19.63	13.845	18.59	0.00	0.16	2.73	0.85	1.00	0.00	21.34	114.32	0.00	2,667.7	0.0	1555.08	2222.15	3,777.24
1 6	110.0	20.79	11.319	18.56	0.00	0.19	2.64	0.85	1.00	0.00	19.21	114.32	0.00	2,563.9	0.0	1434.69	2353.28	3,787.97
1 7	130.0	21.81	10.857	15.03	0.00	0.21	2.55	0.85	1.00	0.00	17.58	114.32	0.00	2,233.0	0.0	1330.98	2468.33	3,799.31
1 8	150.0	22.72	10.707	11.67	0.00	0.23	2.51	0.85	1.00	0.00	15.86	93.67	0.00	1,766.1	0.0	1230.01	2079.99	3,310.00
1 9	170.0	23.55	10.221	9.58	0.00	0.20	2.59	0.85	1.00	0.00	14.20	39.89	0.00	1,082.8	0.0	1176.11	885.68	2,061.79
														<b>25,058.8</b>	<b>0.0</b>			<b>30,575.38</b>

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>10/26/2020</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi Normal Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

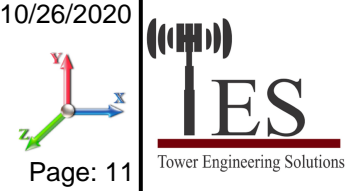
Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	3.81	22.969	64.80	36.00	0.23	2.50	1.00	1.00	1.77	60.59	184.23	5.92	14,347.	8219.3	489.50	467.28	956.77
1 2	30.0	3.81	17.891	66.61	37.81	0.25	2.44	1.00	1.00	1.98	56.84	190.41	6.60	13,713.	8722.3	449.42	486.50	935.93
1 3	50.0	4.41	18.433	67.93	45.82	0.29	2.32	1.00	1.00	2.08	58.96	193.53	6.95	13,915.	9209.0	512.11	572.66	1,084.77
1 4	70.0	4.86	16.186	65.64	43.51	0.32	2.24	1.00	1.00	2.16	55.92	195.67	7.19	13,049.	9214.6	517.92	637.77	1,155.70
1 5	90.0	5.22	13.845	58.89	40.29	0.35	2.17	1.00	1.00	2.21	50.11	197.32	7.37	12,456.	8899.1	482.85	690.91	1,173.76
1 6	110.0	5.52	11.319	60.55	41.98	0.43	2.01	1.00	1.00	2.26	50.62	198.66	7.52	12,256.	8838.3	477.79	700.24	1,178.04
1 7	130.0	5.79	10.857	56.69	41.66	0.52	1.87	1.00	1.00	2.29	50.40	199.80	7.65	11,735.	8758.4	464.73	617.56	1,082.28
1 8	150.0	6.04	10.707	53.45	41.79	0.60	1.80	1.00	1.00	2.33	50.55	161.30	7.76	9,950.7	7595.9	467.47	453.26	920.74
1 9	170.0	6.26	10.221	54.06	44.48	0.61	1.80	1.00	1.00	2.36	50.74	68.13	2.75	6,435.9	4992.2	485.30	197.73	683.03
														<b>107,860.7</b>	<b>74449.0</b>			

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi 60° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	3.81	22.969	64.80	36.00	0.23	2.50	0.80	1.00	1.77	55.99	184.23	5.92	14,347.	8219.3	452.38	467.28	919.66
1 2	30.0	3.81	17.891	66.61	37.81	0.25	2.44	0.80	1.00	1.98	53.26	190.41	6.60	13,713.	8722.3	421.13	486.50	907.64
1 3	50.0	4.41	18.433	67.93	45.82	0.29	2.32	0.80	1.00	2.08	55.27	193.53	6.95	13,915.	9209.0	480.09	572.66	1,052.75
1 4	70.0	4.86	16.186	65.64	43.51	0.32	2.24	0.80	1.00	2.16	52.68	195.67	7.19	13,049.	9214.6	487.94	637.77	1,125.71
1 5	90.0	5.22	13.845	58.89	40.29	0.35	2.17	0.80	1.00	2.21	47.34	197.32	7.37	12,456.	8899.1	456.16	690.91	1,147.08
1 6	110.0	5.52	11.319	60.55	41.98	0.43	2.01	0.80	1.00	2.26	48.35	198.66	7.52	12,256.	8838.3	456.43	700.24	1,156.67
1 7	130.0	5.79	10.857	56.69	41.66	0.52	1.87	0.80	1.00	2.29	48.23	199.80	7.65	11,735.	8758.4	444.70	617.56	1,062.26
1 8	150.0	6.04	10.707	53.45	41.79	0.60	1.80	0.80	1.00	2.33	48.41	161.30	7.76	9,950.7	7595.9	447.67	453.26	900.93
1 9	170.0	6.26	10.221	54.06	44.48	0.61	1.80	0.80	1.00	2.36	48.69	68.13	2.75	6,435.9	4992.2	465.74	197.73	663.48
														<b>107,860.7</b>	<b>74449.0</b>			

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi 90° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	3.81	22.969	64.80	36.00	0.23	2.50	0.85	1.00	1.77	57.14	184.23	5.92	14,347.7	8219.3	461.66	467.28	928.94
1 2	30.0	3.81	17.891	66.61	37.81	0.25	2.44	0.85	1.00	1.98	54.16	190.41	6.60	13,713.3	8722.3	428.21	486.50	914.71
1 3	50.0	4.41	18.433	67.93	45.82	0.29	2.32	0.85	1.00	2.08	56.19	193.53	6.95	13,915.5	9209.0	488.10	572.66	1,060.76
1 4	70.0	4.86	16.186	65.64	43.51	0.32	2.24	0.85	1.00	2.16	53.49	195.67	7.19	13,049.9	9214.6	495.44	637.77	1,133.21
1 5	90.0	5.22	13.845	58.89	40.29	0.35	2.17	0.85	1.00	2.21	48.03	197.32	7.37	12,456.6	8899.1	462.83	690.91	1,153.75
1 6	110.0	5.52	11.319	60.55	41.98	0.43	2.01	0.85	1.00	2.26	48.92	198.66	7.52	12,256.6	8838.3	461.77	700.24	1,162.01
1 7	130.0	5.79	10.857	56.69	41.66	0.52	1.87	0.85	1.00	2.29	48.77	199.80	7.65	11,735.5	8758.4	449.71	617.56	1,067.27
1 8	150.0	6.04	10.707	53.45	41.79	0.60	1.80	0.85	1.00	2.33	48.94	161.30	7.76	9,950.7	7595.9	452.62	453.26	905.88
1 9	170.0	6.26	10.221	54.06	44.48	0.61	1.80	0.85	1.00	2.36	49.20	68.13	2.75	6,435.9	4992.2	470.63	197.73	668.36
														<b>107,860.7</b>	<b>74449.0</b>			<b>8,994.88</b>

<b>Load Case:</b> 1.0D + 1.0W Normal Wind	1.0D + 1.0W 60 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total		Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
			Flat Area (sqft)	Round Area (sqft)								Linear Area (sqft)	Linear Area (sqft)					
1 1	10.0	5.48	22.969	28.80	0.00	0.14	2.81	1.00	1.00	0.00	38.72	114.32	0.00	5,106.8	0.0	507.97	387.91	895.87
1 2	30.0	5.49	17.891	28.80	0.00	0.14	2.81	1.00	1.00	0.00	33.65	114.32	0.00	4,159.2	0.0	440.69	388.23	828.92
1 3	50.0	6.35	18.433	22.12	0.00	0.14	2.81	1.00	1.00	0.00	30.97	114.32	0.00	3,922.3	0.0	469.20	449.24	918.44
1 4	70.0	6.99	16.186	22.12	0.00	0.15	2.76	1.00	1.00	0.00	28.75	114.32	0.00	3,195.4	0.0	470.95	494.57	965.52
1 5	90.0	7.51	13.845	18.59	0.00	0.16	2.73	1.00	1.00	0.00	24.42	114.32	0.00	2,964.1	0.0	425.64	531.39	957.03
1 6	110.0	7.96	11.319	18.56	0.00	0.19	2.64	1.00	1.00	0.00	21.94	114.32	0.00	2,848.7	0.0	391.90	562.75	954.65
1 7	130.0	8.34	10.857	15.03	0.00	0.21	2.55	1.00	1.00	0.00	19.53	114.32	0.00	2,481.2	0.0	353.60	590.26	943.86
1 8	150.0	8.69	10.707	11.67	0.00	0.23	2.51	1.00	1.00	0.00	17.47	93.67	0.00	1,962.3	0.0	323.91	497.39	821.31
1 9	170.0	9.01	10.221	9.58	0.00	0.20	2.59	1.00	1.00	0.00	15.73	39.89	0.00	1,203.1	0.0	311.62	211.80	523.41
														<b>27,843.1</b>	<b>0.0</b>			<b>7,809.01</b>

## Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>10/26/2020</b>
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 12



<b>Load Case:</b> 1.0D + 1.0W 60° Wind	1.0D + 1.0W 60 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	10.0	5.48	22.969	28.80	0.00	0.14	2.81	0.80	1.00	0.00	34.12	114.32	0.00	5,106.8	0.0	447.70	387.91	835.61
1 2	30.0	5.49	17.891	28.80	0.00	0.14	2.81	0.80	1.00	0.00	30.07	114.32	0.00	4,159.2	0.0	393.83	388.23	782.06
1 3	50.0	6.35	18.433	22.12	0.00	0.14	2.81	0.80	1.00	0.00	27.28	114.32	0.00	3,922.3	0.0	413.34	449.24	862.58
1 4	70.0	6.99	16.186	22.12	0.00	0.15	2.76	0.80	1.00	0.00	25.51	114.32	0.00	3,195.4	0.0	417.92	494.57	912.50
1 5	90.0	7.51	13.845	18.59	0.00	0.16	2.73	0.80	1.00	0.00	21.65	114.32	0.00	2,964.1	0.0	377.38	531.39	908.77
1 6	110.0	7.96	11.319	18.56	0.00	0.19	2.64	0.80	1.00	0.00	19.68	114.32	0.00	2,848.7	0.0	351.47	562.75	914.22
1 7	130.0	8.34	10.857	15.03	0.00	0.21	2.55	0.80	1.00	0.00	17.35	114.32	0.00	2,481.2	0.0	314.28	590.26	904.53
1 8	150.0	8.69	10.707	11.67	0.00	0.23	2.51	0.80	1.00	0.00	15.33	93.67	0.00	1,962.3	0.0	284.21	497.39	781.60
1 9	170.0	9.01	10.221	9.58	0.00	0.20	2.59	0.80	1.00	0.00	13.69	39.89	0.00	1,203.1	0.0	271.12	211.80	482.92
														<b>27,843.1</b>	<b>0.0</b>			<b>7,384.77</b>

<b>Load Case:</b> 1.0D + 1.0W 90° Wind	1.0D + 1.0W 60 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Linear Area (sqft)	Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1 1	10.0	5.48	22.969	28.80	0.00	0.14	2.81	0.85	1.00	0.00	35.27	114.32	0.00	5,106.8	0.0	462.77	387.91	850.67
1 2	30.0	5.49	17.891	28.80	0.00	0.14	2.81	0.85	1.00	0.00	30.97	114.32	0.00	4,159.2	0.0	405.54	388.23	793.78
1 3	50.0	6.35	18.433	22.12	0.00	0.14	2.81	0.85	1.00	0.00	28.20	114.32	0.00	3,922.3	0.0	427.30	449.24	876.54
1 4	70.0	6.99	16.186	22.12	0.00	0.15	2.76	0.85	1.00	0.00	26.32	114.32	0.00	3,195.4	0.0	431.18	494.57	925.75
1 5	90.0	7.51	13.845	18.59	0.00	0.16	2.73	0.85	1.00	0.00	22.34	114.32	0.00	2,964.1	0.0	389.44	531.39	920.83
1 6	110.0	7.96	11.319	18.56	0.00	0.19	2.64	0.85	1.00	0.00	20.24	114.32	0.00	2,848.7	0.0	361.58	562.75	924.32
1 7	130.0	8.34	10.857	15.03	0.00	0.21	2.55	0.85	1.00	0.00	17.90	114.32	0.00	2,481.2	0.0	324.11	590.26	914.36
1 8	150.0	8.69	10.707	11.67	0.00	0.23	2.51	0.85	1.00	0.00	15.86	93.67	0.00	1,962.3	0.0	294.14	497.39	791.53
1 9	170.0	9.01	10.221	9.58	0.00	0.20	2.59	0.85	1.00	0.00	14.20	39.89	0.00	1,203.1	0.0	281.25	211.80	493.04
														<b>27,843.1</b>	<b>0.0</b>			<b>7,490.83</b>

## Force/Stress Compression Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### LEG MEMBERS

Sect	Top Elev	Member	Force		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls	
			(kips)				X	Y	Z					
1	20	PX - 8" DIA PIPE	-279.77	1.2D + 1.6W	Normal Wind	9.64	100	100	100	40.20	50.00	510.21	54.8	Member X
2	40	PSP - ROHN 8 EHS	-256.56	1.2D + 1.6W	Normal Wind	9.64	100	100	100	39.63	50.00	389.94	65.8	Member X
3	60	PX - 6" DIA PIPE	-234.05	1.2D + 1.6W	Normal Wind	6.43	100	100	100	35.21	50.00	345.23	67.8	Member X
4	80	PSP - ROHN 6 EHS	-206.86	1.2D + 1.6W	Normal Wind	6.43	100	100	100	34.67	50.00	276.67	74.8	Member X
5	100	PX - 5" DIA PIPE	-181.88	1.2D + 1.6W	Normal Wind	6.43	100	100	100	41.96	50.00	241.74	75.2	Member X
6	120	PX - 5" DIA PIPE	-159.60	1.2D + 1.6W	Normal Wind	4.82	100	100	100	31.42	50.00	255.81	62.4	Member X
7	140	PX - 4" DIA PIPE	-122.16	1.2D + 1.6W	Normal Wind	3.86	100	100	100	31.27	50.00	184.75	66.1	Member X
8	160	PST - 3" DIA PIPE	-88.30	1.2D + 1.6W	Normal Wind	0.38	100	100	100	3.88	50.00	100.24	88.1	Member X
9	180	PST - 2-1/2" DIA PIPE	-20.83	1.2D + 1.6W	Normal Wind	3.33	100	100	100	42.24	50.00	67.30	30.9	Member X

### Splices

Sect	Top Elev	Load Case	Top Splice				Load Case	Bottom Splice			
			Force (kips)	Cap (kips)	Use %	Bolt Type		Force (kips)	Cap (kips)	Use %	Bolt Type
1	20	1.2D + 1.6W Normal Wind	263.20	0.00	0.0		1.2D + 1.6W Normal Wind	286.41	0.00		
2	40	1.2D + 1.6W Normal Wind	239.57	0.00	0.0		1.2D + 1.6W Normal Wind	263.20	0.00	1	A325
3	60	1.2D + 1.6W Normal Wind	211.96	0.00	0.0		1.2D + 1.6W Normal Wind	239.57	0.00	1	A325
4	80	1.2D + 1.6W Normal Wind	185.79	0.00	0.0		1.2D + 1.6W Normal Wind	211.96	0.00	1	A325
5	100	1.2D + 1.6W Normal Wind	165.51	0.00	0.0		1.2D + 1.6W Normal Wind	185.79	0.00	1	A325
6	120	1.2D + 1.6W Normal Wind	125.79	0.00	0.0		1.2D + 1.6W Normal Wind	165.51	0.00	1	A325
7	140	1.2D + 1.6W Normal Wind	88.83	0.00	0.0		1.2D + 1.6W Normal Wind	125.79	0.00	1	A325
8	160	1.2D + 1.6W Normal Wind	24.68	0.00	0.0		1.2D + 1.6W Normal Wind	88.83	0.00	7/8	A325
9	180	1.2D + 1.0Di + 1.0Wi 60° Wind	0.54	0.00	0.0		1.2D + 1.6W Normal Wind	24.68	0.00	3/4	A325

### HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Shear Bear		Use %	Controls			
											Num Holes	Cap (kips)					
1	20								0.00	0	0						
2	40								0.00	0	0						
3	60								0.00	0	0						
4	80								0.00	0	0						
5	100								0.00	0	0						
6	120								0.00	0	0						
7	140								0.00	0	0						
8	160								0.00	0	0						
9	180	SAE - 1.75X1.75X0.125	-0.07	1.2D + 1.6W 60° Wind	4.64	100	100	100	160.63	36.00	3.68	1	1	12.43	5.22	2	Member Z

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Shear Bear		Use %	Controls			
											Num Holes	Cap (kips)					
1	20	SAE - 3.5X3.5X0.25	-6.83	0.9D + 1.6W 90° Wind	19.98	50	50	25	109.99	36.00	28.96	1	1	17.89	12.6	54	Bolt Bear
2	40	SAE - 3X3X0.25	-5.91	0.9D + 1.6W 90° Wind	19.05	50	50	50	193.07	36.00	8.73	1	1	17.89	12.6	68	Member Z
3	60	SAE - 2.5X2.5X0.25	-5.85	0.9D + 1.6W 90° Wind	15.86	50	50	50	193.85	36.00	7.15	1	1	12.43	10.4	82	Member Z
4	80	SAE - 2.5X2.5X0.1875	-5.04	0.9D + 1.6W 90° Wind	14.09	50	50	50	170.79	36.00	6.99	1	1	12.43	7.84	72	Member Z
5	100	SAE - 2.5X2.5X0.1875	-3.69	1.2D + 1.6W Normal Wind	10.88	50	50	50	131.83	36.00	11.71	1	1	12.43	7.84	47	Bolt Bear
6	120	SAE - 2X2X0.1875	-5.41	1.2D + 1.6W 90° Wind	8.48	50	50	50	129.10	36.00	9.57	1	1	12.43	7.84	69	Bolt Bear
7	140	SAE - 2X2X0.1875	-4.58	1.2D + 1.6W Normal Wind	6.22	50	50	50	101.08	36.00	13.43	1	1	12.43	7.84	58	Bolt Bear
8	160	SAE - 2X2X0.25	-6.75	1.2D + 1.6W 90° Wind	5.65	50	50	50	94.97	36.00	18.94	1	1	12.43	10.4	65	Bolt Bear
9	180	SAE - 1.75X1.75X0.1875	-3.86	1.2D + 1.6W 90° Wind	5.72	50	50	50	105.01	36.00	11.24	1	1	12.43	7.84	49	Bolt Bear



## Force/Stress Compression Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
						X	Y	Z								

## Force/Stress Tension Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	20	PX - 8" DIA PIPE	252.38	0.9D + 1.6W 60° Wind	50	574.20	44.0	Member
2	40	PSP - ROHN 8 EHS	232.86	0.9D + 1.6W 60° Wind	50	437.40	53.2	Member
3	60	PX - 6" DIA PIPE	213.20	0.9D + 1.6W 60° Wind	50	378.00	56.4	Member
4	80	PSP - ROHN 6 EHS	189.74	0.9D + 1.6W 60° Wind	50	302.09	62.8	Member
5	100	PX - 5" DIA PIPE	167.03	0.9D + 1.6W 60° Wind	50	274.95	60.7	Member
6	120	PX - 5" DIA PIPE	149.55	0.9D + 1.6W 60° Wind	50	274.95	54.4	Member
7	140	PX - 4" DIA PIPE	113.47	0.9D + 1.6W 60° Wind	50	198.45	57.2	Member
8	160	PST - 3" DIA PIPE	79.16	0.9D + 1.6W 60° Wind	50	100.35	78.9	Member
9	180	PST - 2-1/2" DIA PIPE	16.86	0.9D + 1.6W 60° Wind	50	76.68	22.0	Member

### Splices

Sect	Top Elev	Top Splice					Bottom Splice						
		Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	20	0.9D + 1.6W 60° Wind	232.54	0.00	0.0			0.9D + 1.6W 60° Wind	252.3	0.00			
2	40	0.9D + 1.6W 60° Wind	212.94	0.00	0.0			0.9D + 1.6W 60° Wind	232.5	424.08	54.8	1 A325	8
3	60	0.9D + 1.6W 60° Wind	189.50	0.00	0.0			0.9D + 1.6W 60° Wind	212.9	424.08	50.2	1 A325	8
4	80	0.9D + 1.6W 60° Wind	166.80	0.00	0.0			0.9D + 1.6W 60° Wind	189.5	318.06	59.6	1 A325	6
5	100	0.9D + 1.6W 60° Wind	149.51	0.00	0.0			0.9D + 1.6W 60° Wind	166.8	318.06	52.4	1 A325	6
6	120	0.9D + 1.6W 60° Wind	113.26	0.00	0.0			0.9D + 1.6W 60° Wind	149.5	212.04	70.5	1 A325	4
7	140	0.9D + 1.6W 60° Wind	79.40	0.00	0.0			0.9D + 1.6W 60° Wind	113.2	212.04	53.4	1 A325	4
8	160	0.9D + 1.6W 60° Wind	20.46	0.00	0.0			0.9D + 1.6W 60° Wind	79.40	166.24	47.8	7/8 A325	4
9	180		0.00	0.00	0.0			0.9D + 1.6W 60° Wind	20.46	120.40	17.0	3/4 A325	4

### HORIZONTAL MEMBERS

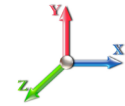
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	-			36	0.00	0	0					
2	40	-			36	0.00	0	0					
3	60	-			36	0.00	0	0					
4	80	-			36	0.00	0	0					
5	100	-			36	0.00	0	0					
6	120	-			36	0.00	0	0					
7	140	-			36	0.00	0	0					
8	160	-			36	0.00	0	0					
9	180	SAE - 1.75X1.75X0.125	0.07	0.9D + 1.6W 60° Wind	36	10.64	1	1	12.43	5.22	4.56	1.4	Blck Shear

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	20	SAE - 3.5X3.5X0.25	6.66	0.9D + 1.6W 90° Wind	36	48.00	1	1	17.89	12.62	18.76	52.8	Bolt Bear
2	40	SAE - 3X3X0.25	5.76	0.9D + 1.6W 90° Wind	36	39.84	1	1	17.89	12.62	16.04	45.6	Bolt Bear
3	60	SAE - 2.5X2.5X0.25	5.88	0.9D + 1.6W 90° Wind	36	32.71	1	1	12.43	10.45	13.19	56.2	Bolt Bear
4	80	SAE - 2.5X2.5X0.1875	4.96	1.2D + 1.6W 90° Wind	36	24.84	1	1	12.43	7.84	9.89	63.4	Bolt Bear
5	100	SAE - 2.5X2.5X0.1875	3.25	0.9D + 1.6W 60° Wind	36	24.84	1	1	12.43	7.84	9.89	41.5	Bolt Bear
6	120	SAE - 2X2X0.1875	5.32	1.2D + 1.6W 90° Wind	36	18.58	1	1	12.43	7.84	7.85	67.9	Bolt Bear
7	140	SAE - 2X2X0.1875	4.21	0.9D + 1.6W 90° Wind	36	18.58	1	1	12.43	7.84	7.85	53.8	Bolt Bear
8	160	SAE - 2X2X0.25	6.49	1.2D + 1.6W 90° Wind	36	24.55	1	1	12.43	10.45	10.47	62.1	Bolt Bear
9	180	SAE - 1.75X1.75X0.1875	3.85	1.2D + 1.6W 90° Wind	36	15.64	1	1	12.43	7.84	6.83	56.3	Blck Shear

## Seismic Section Forces

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case: 1.2D + 1.0E**

<b>Dead Load Factor</b>	1.20	<b>Sds</b> 0.184	<b>Ss</b> 0.1730	<b>Fa</b> 1.6000	<b>Ke</b> 0.0000
<b>Seismic Load Factor</b>	1.00	<b>Sd1</b> 0.102	<b>S1</b> 0.0640	<b>Fv</b> 2.4000	<b>Kg</b> 0.0000
<b>Seismic Importance Factor</b>	1.00	<b>SA</b> 0.139	<b>R</b> 3.0000	<b>Vs</b> 2.0102	<b>f1</b> 1.3589

Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	5106.8	0.01	0.05	0.03	20.45
2	30.00	4159.2	0.05	0.07	0.04	33.14
3	50.00	3922.3	0.15	0.07	0.03	47.13
4	70.00	3195.3	0.29	0.05	0.01	54.36
5	90.00	2964.1	0.47	-0.01	0.01	63.14
6	110.00	2848.7	0.71	-0.09	0.03	70.80
7	130.00	2481.1	0.99	-0.11	0.12	82.06
8	150.00	5127.9	1.31	0.14	0.35	291.67
9	170.00	6292.1	1.69	1.07	0.79	672.95

**Load Case: 0.9D + 1.0E**

<b>Dead Load Factor</b>	0.90	<b>Sds</b> 0.184	<b>Ss</b> 0.1730	<b>Fa</b> 1.6000	<b>Ke</b> 0.0000
<b>Seismic Load Factor</b>	1.00	<b>Sd1</b> 0.102	<b>S1</b> 0.0640	<b>Fv</b> 2.4000	<b>Kg</b> 0.0000
<b>Seismic Importance Factor</b>	1.00	<b>SA</b> 0.139	<b>R</b> 3.0000	<b>Vs</b> 2.0102	<b>f1</b> 1.3589

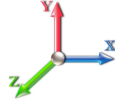
Sect #	Elev (ft)	Wz (lb)	Lateral			Fsz (lb)
			a	b	c	
1	10.00	5106.8	0.01	0.05	0.03	20.45
2	30.00	4159.2	0.05	0.07	0.04	33.14
3	50.00	3922.3	0.15	0.07	0.03	47.13
4	70.00	3195.3	0.29	0.05	0.01	54.36
5	90.00	2964.1	0.47	-0.01	0.01	63.14
6	110.00	2848.7	0.71	-0.09	0.03	70.80
7	130.00	2481.1	0.99	-0.11	0.12	82.06
8	150.00	5127.9	1.31	0.14	0.35	291.67
9	170.00	6292.1	1.69	1.07	0.79	672.95

## Support Forces Summary

**Structure:** CT13617-A-SBA  
**Site Name:** Troiano Realty  
**Height:** 180.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 0.85

**Topography:** 1

**Code:** EIA/TIA-222-G  
**Exposure:** B  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II

10/26/2020  
  
 Page: 17



Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.6W Normal Wind	1	-0.01	285.78	-26.42	
	1a	9.31	-121.24	-7.71	
	1b	-9.30	-121.23	-7.72	
1.2D + 1.6W 60° Wind	1	-1.85	145.54	-13.16	
	1a	-12.32	145.75	4.98	
	1b	-20.54	-247.97	-11.86	
1.2D + 1.6W 90° Wind	1	-2.19	14.44	-0.89	
	1a	-19.89	243.73	10.24	
	1b	-18.44	-214.85	-9.35	
0.9D + 1.6W Normal Wind	1	-0.01	281.69	-26.18	
	1a	9.50	-124.61	-7.83	
	1b	-9.50	-124.60	-7.84	
0.9D + 1.6W 60° Wind	1	-1.85	141.70	-12.92	
	1a	-12.12	141.91	4.86	
	1b	-20.74	-251.12	-11.98	
0.9D + 1.6W 90° Wind	1	-2.20	10.83	-0.66	
	1a	-19.68	239.71	10.12	
	1b	-18.64	-218.06	-9.46	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.00	122.30	-7.42	
	1a	2.78	5.37	-2.23	
	1b	-2.77	5.42	-2.23	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.52	82.79	-3.71	
	1a	-3.48	82.82	1.41	
	1b	-6.10	-32.52	-3.52	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.61	44.35	-0.13	
	1a	-5.66	111.14	2.92	
	1b	-5.44	-22.40	-2.79	
1.2D + 1.0E	1	0.00	25.83	4.19	
	1a	4.74	8.74	-2.74	
	1b	-4.74	8.74	-2.74	
0.9D + 1.0E	1	0.00	22.20	4.42	
	1a	4.95	5.14	-2.86	
	1b	-4.95	5.14	-2.86	
1.0D + 1.0W Normal Wind	1	0.00	77.18	-6.97	
	1a	1.76	-20.54	-1.59	
	1b	-1.76	-20.53	-1.60	
1.0D + 1.0W 60° Wind	1	-0.47	43.58	-3.75	
	1a	-3.48	43.63	1.47	
	1b	-4.49	-51.11	-2.59	
1.0D + 1.0W 90° Wind	1	-0.55	12.03	-0.77	
	1a	-5.31	67.09	2.75	
	1b	-3.98	-43.02	-1.98	

### Max Reactions

Leg

Overturing

---

Max Uplift: -251.12 (kips)

Max Down: 285.78 (kips)

Max Shear: 26.42 (kips)

Moment: 4462.40 (ft-kips)

Total Down: 43.32 (kips)

Total Shear: 41.85 (kips)

## Analysis Summary

<b>Structure:</b> CT13617-A-SBA	<b>Code:</b> EIA/TIA-222-G	10/26/2020
<b>Site Name:</b> Troiano Realty	<b>Exposure:</b> B	
<b>Height:</b> 180.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		<b>Page:</b> 19



### Max Reactions

	Leg	Overturning
Max Uplift:	-251.12 (kips)	Moment: 4462.40 (ft-kips)
Max Down:	285.78 (kips)	Total Down: 43.32 (kips)
Max Shear:	26.42 (kips)	Total Shear: 41.85 (kips)

### Anchor Bolts

Bolt Size (in.): 1.00	Number Bolts: 8
Yield Strength (Ksi): 109.00	Tensile Strength (Ksi): 125.00
Detail Type: A	

**Interaction Ratio: 0.58**


### Max Usages

Max Leg: 88.1% (1.2D + 1.6W Normal Wind - Sect 8)  
 Max Diag: 81.8% (0.9D + 1.6W 90° Wind - Sect 3)  
 Max Horiz: 1.9% (1.2D + 1.6W 60° Wind - Sect 9)

### Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0E - Normal To Face	150.00	0.0700	-0.0012	0.0817
	166.67	0.0961	-0.0011	0.0953
	176.67	0.1128	-0.0010	0.0960
	180.00	0.1184	-0.0010	0.0960
0.9D + 1.6W 97 mph Wind at 60° From Face	150.00	1.3229	-0.0830	1.3352
	166.67	1.7386	-0.1298	1.4915
	176.67	1.9986	-0.1681	1.5296
	180.00	2.0852	-0.1706	1.4715
0.9D + 1.6W 97 mph Wind at 90° From Face	150.00	1.3327	-0.0362	1.3461
	166.67	1.7521	-0.0362	1.5034
	176.67	2.0142	-0.0362	1.5772
	180.00	2.1017	-0.0362	1.4670
0.9D + 1.6W 97 mph Wind at Normal To Face	150.00	1.3566	0.0321	1.3620
	166.67	1.7810	0.0319	1.5171
	176.67	2.0445	0.0319	1.4415
	180.00	2.1322	-0.0309	1.5431
1.0D + 1.0W 60 mph Wind at 60° From Face	150.00	0.3170	-0.0093	0.3194
	166.67	0.4166	-0.0115	0.3575
	176.67	0.4787	-0.0135	0.3659
	180.00	0.4994	-0.0136	0.3518
1.0D + 1.0W 60 mph Wind at 90° From Face	150.00	0.3188	-0.0079	0.3214
	166.67	0.4189	-0.0074	0.3594
	176.67	0.4815	-0.0073	0.3765
	180.00	0.5023	-0.0073	0.3499

1.0D + 1.0W 60 mph Wind at Normal To Face	150.00	0.3248	0.0070	0.3254
	166.67	0.4260	0.0067	0.3625
	176.67	0.4890	0.0065	0.3439
	180.00	0.5099	-0.0063	0.3684
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	150.00	0.3877	-0.0111	0.3903
	166.67	0.5092	-0.0132	0.4382
	176.67	0.5850	-0.0151	0.4425
	180.00	0.6103	-0.0152	0.4305
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	150.00	0.3885	-0.0098	0.3914
	166.67	0.5103	-0.0094	0.4388
	176.67	0.5864	-0.0092	0.4503
	180.00	0.6117	-0.0092	0.4285
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	150.00	0.3914	0.0087	0.3930
	166.67	0.5139	0.0084	0.4392
	176.67	0.5900	0.0083	0.4231
	180.00	0.6153	-0.0080	0.4421
-----				
1.2D + 1.0E - Normal To Face	150.00	0.0702	0.0012	0.0822
	166.67	0.0964	0.0011	0.0957
	176.67	0.1132	-0.0010	0.0964
	180.00	0.1188	-0.0010	0.0964
-----				
1.2D + 1.6W 97 mph Wind at 60° From Face	150.00	1.3268	-0.0833	1.3404
	166.67	1.7443	-0.1303	1.4978
	176.67	2.0053	-0.1687	1.5357
	180.00	2.0923	-0.1713	1.4774
-----				
1.2D + 1.6W 97 mph Wind at 90° From Face	150.00	1.3367	-0.0364	1.3514
	166.67	1.7577	-0.0363	1.5097
	176.67	2.0210	-0.0363	1.5833
	180.00	2.1088	-0.0363	1.4730
-----				
1.2D + 1.6W 97 mph Wind at Normal To Face	150.00	1.3607	0.0322	1.3674
	166.67	1.7868	0.0321	1.5230
	176.67	2.0514	0.0321	1.4476
	180.00	2.1394	-0.0310	1.5492
-----				

	<b>Mat Foundation Design for Self Supporting Tower</b>			Date 10/26/2020
	Customer Name:	SBA Communications Corp	EIA/TIA Standard:	EIA-222-G
	Site Name:		Structure Height (Ft.):	180
	Site Number:	CT13617-A-SBA	Engineer Name:	T. Alajaj
	Engr. Number:	99064	Engineer Login ID:	

**Foundation Info Obtained from:**

**Analysis or Design?**

**Number of Tower Legs:**

**Base Reactions (Factored):**

(1). Individual Leg:

Axial Load (Kips):	285.8	Uplift Force (Kips):	251.1
Shear Force (Kips):	26.4		

(2). Tower Base:

Total Vertical Load (Kips):	43.3	Total Shear Force (Kips):	41.9
Moment (Kips-ft):	4462.4		

**Foundation Geometries:**

Leg distance (Center-to-Center ft.):	19.0	Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	Round 4.0	Pier Height A. G. (ft.):	0.00
Tower center to mat center (ft):	0	Depth of Base BG (ft.):	6.0
Length of Pad (ft.):	27	Width of Pad (ft.):	27
Thickness of Pad (ft):	3.00		

**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi):	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	12	Tie Spacing (in):	3.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

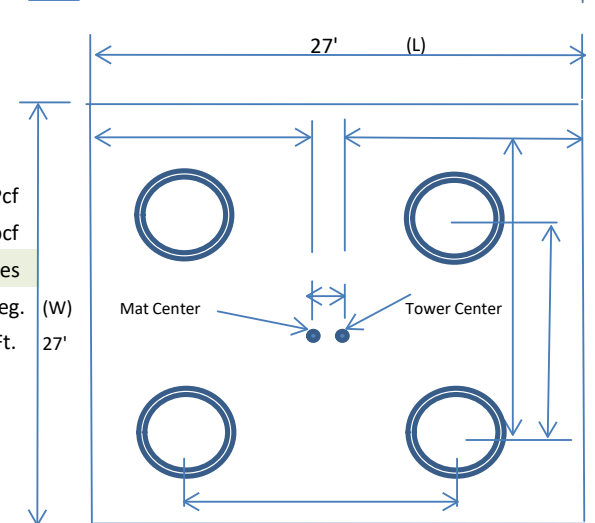
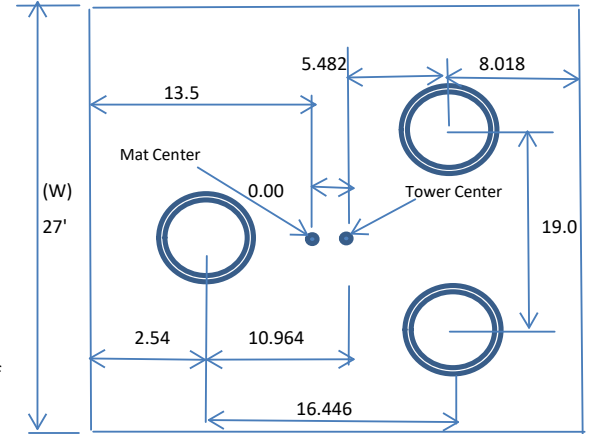
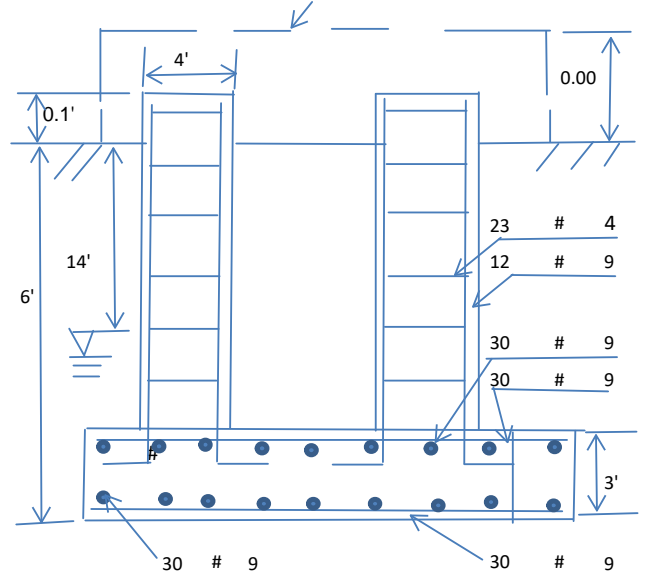
Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30
---------------------------	----	---------------------------	----

**Soil Design Parameters:**

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf
Water Table B.G.S. (ft):	14.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	16000	Consider ties in concrete shear strength:	Yes	
Consider Soil Lateral Resistance ?	Yes	Enter soil C (psf) or Phi (deg.):	30.0	Deg. (W)
		Depth to ignor lateral resistance	1.0	Ft. 27'





<b>Foundation Analysis and Design:</b>	Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2073.90	Total Dry Soil Weight (Kips):	248.87	
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00	
Total Effective Soil Weight (Kips):	248.87	Weight from the Concrete Block at Top (K):	0.00	
Total Dry Concrete Volume (cu. Ft.):	2300.10	Total Dry Concrete Weight (Kips):	345.02	
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00	
Total Effective Concrete Weight (Kips):	345.02	Total Vertical Load on Base (Kips):	637.20	

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2584.00	<	Allowable Factored Soil Bearing (psf):	12000	0.22	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7800.5	>	Design Factored Momont (kips-ft):	4690	0.60	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.66					OK!

**Check the capacities of Reinforceing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	705.6	>	Design Factored Moment (Mu, Kips-Ft)	77.8	0.11 OK!
Calculated Shear Capacity (Kips):	332.3	>	Design Factored Shear (Kips):	26.4	0.08 OK!
Calculated Tension Capacity (Tn, Kips):	648.0	>	Design Factored Tension (Tu Kips):	251.1	0.39 OK!
Calculated Compression Capacity (Pn, Kips):	2383.6	>	Design Factored Axial Load (Pu Kips):	285.8	0.12 OK!
Moment & Tension Strength Combination:	0.11	OK!	Check Tie Spacing (Design/Req'd):	0.25	
Pier Reinforcement Ratio:	0.007		Reinforcement Ratio is satisfied per ACI		

(2).Concrete Pad:

One-Way Design Shear Capacity (L or W Direction, Kips):	863.5	>	One-Way Factored Shear (L/W-Dir Kips)	237.8	0.28	OK!
One-Way Design Shear Capacity (Diagonal Dir., Kips):	609.8	>	One-Way Factored Shear (Dia. Dir, Kips)	174.5	0.29	OK!
Lower Steel Pad Reinforcement Ratio (L or W-Direct. ):	0.0029		Lower Steel Reinf. Ratio (Dia. Dir.):	0.0028		
Lower Steel Pad Moment Capacity (L or W-Dir. Kips-ft):	4232.0	>	Moment at Bottom ( L-Direct. K-Ft):	1180.3	0.28	OK!
Lower Steel Pad Moment Capacity (Dia. Direction,K-ft):	3838.3	>	Moment at Bottom ( Dia. Dir. K-Ft):	1033.8	0.27	OK!
Upper Steel Pad Reinforcement Ratio (L or W -Direction):	0.0029		Upper Steel Reinf. Ratio (Dia. Dir.):	0.0028		
Upper Steel Pad Moment Capacity (L or W-Dir., Kips-ft):	4232.0	>	Moment at the top (L-Dir Kips-Ft):	515.8	0.12	OK!
Upper Steel Pad Moment Capacity (Dia. Direction, K-ft):	3838.3	>	Moment at the top (Dia. Dir., K-Ft):	322.8	0.08	OK!
Punching Failure Capacity (Kips):	997.9	>	Punch. Failure Factored Shear (K):	285.8	0.29	OK!

October 12, 2020  
**October 15, 2020 (Rev.1)**



SAI Communications  
12 Industrial Way  
Salem NH, 03079

RE:     Site Number:             CT1120 (LTE 2C/3C/4C/ 5G NR)  
          FA Number:             10118582  
          PACE Number:         MRCTB048454  
          PT Number:            2051A0WFGG  
          Site Name:            STAFFORD CHESTNUT  
          Site Address:         157 Chestnut Mountain Road  
                                      Stafford Springs, CT 06076

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the new AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) P65-15-XLH-RR Antennas (51.0"x12.0"x6.0" – Wt. = 30 lbs. /each)
- (3) TT19-08BP1111-001 TMA's (9.9"x6.7"x5.4" - Wt. = 16 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs. /each) (Tower Mount)
- **(2) OPA65R-BU8DA Antennas (96.0"x21.0"x7.8" – Wt. = 77 lbs. /each)**
- **(1) OPA65R-BU4DA Antennas (48.0"x21.0"x7.8" – Wt. = 53 lbs. /each)**
- **(2) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(1) DMP65R-BU4DA Antennas (48.0"x20.7"x7.7" – Wt. = 68 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**

*\*Proposed equipment shown in bold*

Mount fabrication drawings prepared by SitePro1 P/N VFA12-WLL-30120, dated May 3, 2018 were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30-degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.77 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods,  $S_s$ , of 0.173 and a spectral response acceleration parameter at a period of 1 second,  $S_1$ , of 0.064.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the New SitePro1 VFA12-WLL-30120 mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
<b>New (LTE 2C/3C/4C/ 5G NR) Mount Rating</b>	94	LC25	87%	<b>PASS</b>

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N VFA12-WLL-30120, dated May 3, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mount will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,  
Hudson Design Group LLC



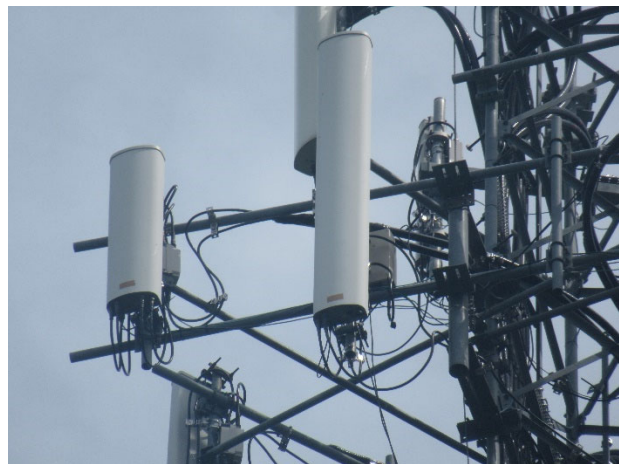
Michael Cabral  
Vice President



Daniel P. Hamm, PE  
Principal

**FIELD PHOTOS:**

*\*Existing mount to be removed and replaced*







**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**

Date: 10/15/2020  
 Project Name: STAFFORD CHESTNUT  
 Project No.: CT1120  
 Designed By: KM Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$K_z =$  **1.150**

$z =$  170 (ft)  
 $z_g =$  1200 (ft)  
 $\alpha =$  7.0

$K_{zmin} \leq K_z \leq 2.01$

Table 2-4

Exposure	Z <sub>g</sub>	α	K <sub>zmin</sub>	K <sub>c</sub>
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

**2.6.6.2 Topographic Factor:**

Table 2-5

Topo. Category	K <sub>t</sub>	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

$K_{zt} =$  #DIV/0!

$K_h =$  #DIV/0!

*(If Category 1 then K<sub>zt</sub> = 1.0)*

$K_c =$  0.9 (from Table 2-4)

$K_t =$  0 (from Table 2-5)

$f =$  0 (from Table 2-5)

Category = 1

$z =$  170

$z_s =$  900 (Mean elevation of base of structure above sea level)

$H =$  0 (Ht. of the crest above surrounding terrain)

$K_{zt} =$  1.00 (from 2.6.6.2.1)

$K_e =$  0.97 (from 2.6.8)

**2.6.10 Design Ice Thickness**

Max Ice Thickness =

$t_i =$  1.50 in

Importance Factor =

$I =$  1.0 (from Table 2-3)

$K_{iz} =$  1.18 (from Sec. 2.6.10)

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

$t_{iz} =$  1.77 in



Date: 10/15/2020  
 Project Name: STAFFORD CHESTNUT  
 Project No.: CT1120  
 Designed By: KM Checked By: MSC



**2.6.9 Gust Effect Factor**

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$  Latticed Structures > 600 ft

$G_h = 0.85$  Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$  ht. of structure

$h =$  180

$G_h =$  0.85

2.6.9.2 Guyed Masts

$G_h =$  0.85

2.6.9.3 Pole Structures

$G_h =$  1.1

2.6.9 Appurtenances

$G_h =$  1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings ( $ht. : width$  ratio > 5))

$G_h =$  1.35

$G_h =$  1.00

**2.6.11.2 Design Wind Force on Appurtenances**

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

$q_z =$	37.85
$q_z (ice) =$	6.06
$q_z (30) =$	2.18

$K_z =$	1.150 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	0.97 (from 2.6.8)
$K_d =$	0.85 (from Table 2-2)
$V_{max} =$	125 mph (Ultimate Wind Speed)
$V_{max (ice)} =$	50 mph
$V_{30} =$	30 mph

**Table 2-2**

Structure Type	Wind Direction Probability Factor, $K_d$
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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 Designed By: KM Checked By: MSC



**Determine Ca:**

**Table 2-9**

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r <sub>s</sub> ) ≥ 0.85	1.4 - 4.0(r <sub>s</sub> ) ≥ 0.90	2.0 - 6.0(r <sub>s</sub> ) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	4.14/(C <sup>0.485</sup> )	3.66/(C <sup>0.415</sup> )	46.8/(C <sup>1.0</sup> )
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.  
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance.)

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.77 in**      Angle = **0 (deg)**      Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	4.25	1.28	206	46	12
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	4.57	1.29	685	133	39
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	676	131	39
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.29	1.20	318	64	18
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.32	1.20	313	63	18
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	62	16	4
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	0.00	1.20	0	3	0
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.36	1.20	75	18	4
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	0.00	1.20	0	4	0
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	1.83	1.20	17	6	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	43	11	2
PL 11-1/4x5/8	0.6	12.0		0.05	0.05	2.00	4		
PL 3-1/2x5/8	0.6	12.0		0.05	0.05	2.00	4		
2-1/2" pipe	2.9	12.0		0.24	0.24	1.20	11		
2" Pipe	2.4	12.0		0.20	0.20	1.20	9		
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	3		
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	2		

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 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.77 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	206	117	183
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	685	310	591
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	676	307	584
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	318	134	272
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	313	133	268
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	62	51	59
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	31	51	36
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	75	53	69
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	38	53	41
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	17	21	18

WIND LOADS WITH ICE:

P65-15-XLH-RR Antenna	54.5	15.5	9.5	5.88	3.61	3.51	5.72	1.24	1.34	44	29	41
OPA65R-BU8DA Antenna	99.5	24.5	11.3	16.96	7.83	4.06	8.78	1.27	1.46	130	69	115
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.77	4.11	8.86	1.27	1.46	129	69	114
OPA65R-BU4DA Antenna	51.5	24.5	11.3	8.78	4.06	2.10	4.55	1.20	1.29	64	32	56
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.67	4.02	2.13	4.59	1.20	1.29	63	31	55
B2/B66A 8843 RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	16	13	15
B2/B66A 8843 RRH (Shielded)	18.4	8.4	14.4	1.07	1.85	2.20	1.28	1.20	1.20	8	13	9
B5/B12 4449 RRH	21.4	16.7	12.9	2.49	1.93	1.28	1.66	1.20	1.20	18	14	17
B5/B12 4449 RRH (Shielded)	21.4	8.4	12.9	1.25	1.93	2.56	1.66	1.20	1.20	9	14	10
TT19-08BP111-001 TMA	13.4	8.9	10.2	0.83	0.95	1.50	1.31	1.20	1.20	6	7	6

WIND LOADS AT 30 MPH:

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	11
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	39	18	34
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	39	18	34
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	18	8	16
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	18	8	15
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	3	2
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	2	3	2
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1

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 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 60 (deg)      Ice Thickness = 1.77 in.      Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	206	117	139
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	685	310	404
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	676	307	400
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	318	134	272
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	313	133	268
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	62	51	54
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	47	51	50
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	75	53	58
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	56	53	54
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	17	21	20

WIND LOADS WITH ICE:

P65-15-XLH-RR Antenna	54.5	15.5	9.5	5.88	3.61	3.51	5.72	1.24	1.34	44	29	33
OPA65R-BU8DA Antenna	99.5	24.5	11.3	16.96	7.83	4.06	8.78	1.27	1.46	130	69	85
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.77	4.11	8.86	1.27	1.46	129	69	84
OPA65R-BU4DA Antenna	51.5	24.5	11.3	8.78	4.06	2.10	4.55	1.20	1.29	64	32	56
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.67	4.02	2.13	4.59	1.20	1.29	63	31	55
B2/B66A 8843 RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	16	13	14
B2/B66A 8843 RRH (Shielded)	18.4	12.6	14.4	1.61	1.85	1.47	1.28	1.20	1.20	12	13	13
B5/B12 4449 RRH	21.4	16.7	12.9	2.49	1.93	1.28	1.66	1.20	1.20	18	14	15
B5/B12 4449 RRH (Shielded)	21.4	12.6	12.9	1.87	1.93	1.71	1.66	1.20	1.20	14	14	14
TT19-08BP111-001 TMA	13.4	8.9	10.2	0.83	0.95	1.50	1.31	1.20	1.20	6	7	7

WIND LOADS AT 30 MPH:

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	8
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	39	18	23
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	39	18	23
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	18	8	16
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	18	8	15
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	3	3	3
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	3	3	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1

Date: 10/15/2020  
 Project Name: STAFFORD CHESTNUT  
 Project No.: CT1120  
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 90 (deg)

Ice Thickness = 1.77 in.

Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	206	117	117
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	685	310	310
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	676	307	307
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	318	134	272
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	313	133	268
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	62	51	51
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	1.13	0.00	1.37	1.20	1.20	0	51	51
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	75	53	53
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	0.00	1.90	1.20	1.20	0	53	53
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	17	21	21

WIND LOADS WITH ICE:

P65-15-XLH-RR Antenna	54.5	15.5	9.5	5.88	3.61	3.51	5.72	1.24	1.34	44	29	29
OPA65R-BU8DA Antenna	99.5	24.5	11.3	16.96	7.83	4.06	8.78	1.27	1.46	130	69	69
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.77	4.11	8.86	1.27	1.46	129	69	69
OPA65R-BU4DA Antenna	51.5	24.5	11.3	8.78	4.06	2.10	4.55	1.20	1.29	64	32	56
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.67	4.02	2.13	4.59	1.20	1.29	63	31	55
B2/B66A 8843 RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	16	13	13
B2/B66A 8843 RRH (Shielded)	18.4	3.5	14.4	0.45	1.85	5.22	1.28	1.32	1.20	4	13	13
B5/B12 4449 RRH	21.4	16.7	12.9	2.49	1.93	1.28	1.66	1.20	1.20	18	14	14
B5/B12 4449 RRH (Shielded)	21.4	3.5	12.9	0.53	1.93	6.06	1.66	1.36	1.20	4	14	14
TT19-08BP111-001 TMA	13.4	8.9	10.2	0.83	0.95	1.50	1.31	1.20	1.20	6	7	7

WIND LOADS AT 30 MPH:

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	7
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	39	18	18
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	39	18	18
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	18	8	16
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	18	8	15
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Shielded)	14.9	0.0	10.9	0.00	1.13	0.00	1.37	1.20	1.20	0	3	3
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Shielded)	17.9	0.0	9.4	0.00	1.17	0.00	1.90	1.20	1.20	0	3	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1

Date: 10/15/2020  
 Project Name: STAFFORD CHESTNUT  
 Project No.: CT1120  
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 120 (deg)      Ice Thickness = 1.77 in.      Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	206	117	139
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	685	310	404
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	676	307	400
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	318	134	272
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	313	133	268
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	62	51	54
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	47	51	50
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	75	53	58
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	56	53	54
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	17	21	20

WIND LOADS WITH ICE:

P65-15-XLH-RR Antenna	54.5	15.5	9.5	5.88	3.61	3.51	5.72	1.24	1.34	44	29	33
OPA65R-BU8DA Antenna	99.5	24.5	11.3	16.96	7.83	4.06	8.78	1.27	1.46	130	69	85
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.77	4.11	8.86	1.27	1.46	129	69	84
OPA65R-BU4DA Antenna	51.5	24.5	11.3	8.78	4.06	2.10	4.55	1.20	1.29	64	32	56
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.67	4.02	2.13	4.59	1.20	1.29	63	31	55
B2/B66A 8843 RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	16	13	14
B2/B66A 8843 RRH (Shielded)	18.4	12.6	14.4	1.61	1.85	1.47	1.28	1.20	1.20	12	13	13
B5/B12 4449 RRH	21.4	16.7	12.9	2.49	1.93	1.28	1.66	1.20	1.20	18	14	15
B5/B12 4449 RRH (Shielded)	21.4	12.6	12.9	1.87	1.93	1.71	1.66	1.20	1.20	14	14	14
TT19-08BP111-001 TMA	13.4	8.9	10.2	0.83	0.95	1.50	1.31	1.20	1.20	6	7	7

WIND LOADS AT 30 MPH:

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	8
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	39	18	23
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	39	18	23
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	18	8	16
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	18	8	15
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Shielded)	14.9	9.9	10.9	1.02	1.13	1.51	1.37	1.20	1.20	3	3	3
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Shielded)	17.9	9.9	9.4	1.23	1.17	1.81	1.90	1.20	1.20	3	3	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1

Date: 10/15/2020  
 Project Name: STAFFORD CHESTNUT  
 Project No.: CT1120  
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 150 (deg)      Ice Thickness = 1.77 in.      Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	206	117	183
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	685	310	591
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	676	307	584
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	318	134	272
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	313	133	268
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	62	51	59
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	31	51	36
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	75	53	69
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	38	53	41
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	17	21	18

WIND LOADS WITH ICE:

P65-15-XLH-RR Antenna	54.5	15.5	9.5	5.88	3.61	3.51	5.72	1.24	1.34	44	29	41
OPA65R-BU8DA Antenna	99.5	24.5	11.3	16.96	7.83	4.06	8.78	1.27	1.46	130	69	115
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.77	4.11	8.86	1.27	1.46	129	69	114
OPA65R-BU4DA Antenna	51.5	24.5	11.3	8.78	4.06	2.10	4.55	1.20	1.29	64	32	56
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.67	4.02	2.13	4.59	1.20	1.29	63	31	55
B2/B66A 8843 RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	16	13	15
B2/B66A 8843 RRH (Shielded)	18.4	8.4	14.4	1.07	1.85	2.20	1.28	1.20	1.20	8	13	9
B5/B12 4449 RRH	21.4	16.7	12.9	2.49	1.93	1.28	1.66	1.20	1.20	18	14	17
B5/B12 4449 RRH (Shielded)	21.4	8.4	12.9	1.25	1.93	2.56	1.66	1.20	1.20	9	14	10
TT19-08BP111-001 TMA	13.4	8.9	10.2	0.83	0.95	1.50	1.31	1.20	1.20	6	7	6

WIND LOADS AT 30 MPH:

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	11
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	39	18	34
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	39	18	34
OPA65R-BU4DA Antenna	48.0	21.0	7.8	7.00	2.60	2.29	6.15	1.20	1.36	18	8	16
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	18	8	15
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66A 8843 RRH (Shielded)	14.9	6.6	10.9	0.68	1.13	2.26	1.37	1.20	1.20	2	3	2
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Shielded)	17.9	6.6	9.4	0.82	1.17	2.71	1.90	1.21	1.20	2	3	2
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1

Date: 10/15/2020

Project Name: STAFFORD CHESTNUT

Project No.: CT1120

Designed By: KM Checked By: MSC



### ICE WEIGHT CALCULATIONS

Thickness of ice: 1.77 in.  
Density of ice: 56 pcf

#### P65-15-XLH-RR Antenna

Weight of ice based on total radial SF area:  
Height (in): 51.0  
Width (in): 12.0  
Depth (in): 6.0  
Total weight of ice on object: 140 lbs  
Weight of object: 30.0 lbs  
Combined weight of ice and object: 170 lbs

#### OPA65R-BU8DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 96.0  
Width (in): 21.0  
Depth (in): 7.8  
Total weight of ice on object: 418 lbs  
Weight of object: 77.0 lbs  
Combined weight of ice and object: 495 lbs

#### DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 96.0  
Width (in): 20.7  
Depth (in): 7.7  
Total weight of ice on object: 413 lbs  
Weight of object: 96.0 lbs  
Combined weight of ice and object: 509 lbs

#### OPA65R-BU4DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 48.0  
Width (in): 21.0  
Depth (in): 7.8  
Total weight of ice on object: 209 lbs  
Weight of object: 53.0 lbs  
Combined weight of ice and object: 262 lbs

#### DMP65R-BU4DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 48.0  
Width (in): 20.7  
Depth (in): 7.7  
Total weight of ice on object: 206 lbs  
Weight of object: 68.0 lbs  
Combined weight of ice and object: 274 lbs

#### B2/B66A 8843 RRH

Weight of ice based on total radial SF area:  
Height (in): 14.9  
Width (in): 13.2  
Depth (in): 10.9  
Total weight of ice on object: 51 lbs  
Weight of object: 72.0 lbs  
Combined weight of ice and object: 123 lbs

#### B5/B12 4449 RRH

Weight of ice based on total radial SF area:  
Height (in): 17.9  
Width (in): 13.2  
Depth (in): 9.4  
Total weight of ice on object: 58 lbs  
Weight of object: 73.0 lbs  
Combined weight of ice and object: 131 lbs

#### TT19-08BP111-001 TMA

Weight of ice based on total radial SF area:  
Height (in): 9.9  
Width (in): 5.4  
Depth (in): 6.7  
Total weight of ice on object: 19 lbs  
Weight of object: 16.0 lbs  
Combined weight of ice and object: 35 lbs

#### Squid Surge Arrestor

Weight of ice based on total radial SF area:  
Depth (in): 24.0  
Diameter(in): 9.7  
Total weight of ice on object: 50 lbs  
Weight of object: 33 lbs  
Combined weight of ice and object: 83 lbs

#### PL 11-1/4x5/8

Weight of ice based on total radial SF area:  
Height (in): 11.25  
Width (in): 0.625  
Per foot weight of ice on object: 28 plf

#### PL 3-1/2x5/8

Weight of ice based on total radial SF area:  
Height (in): 3.5  
Width (in): 0.625  
Per foot weight of ice on object: 12 plf

#### 2-1/2" pipe

Per foot weight of ice:  
diameter (in): 2.88  
Per foot weight of ice on object: 10 plf

#### 2" pipe

Per foot weight of ice:  
diameter (in): 2.38  
Per foot weight of ice on object: 9 plf

#### 3/4" Round Bar

Per foot weight of ice:  
diameter (in): 0.75  
Per foot weight of ice on object: 5 plf

#### 5/8" Round Bar

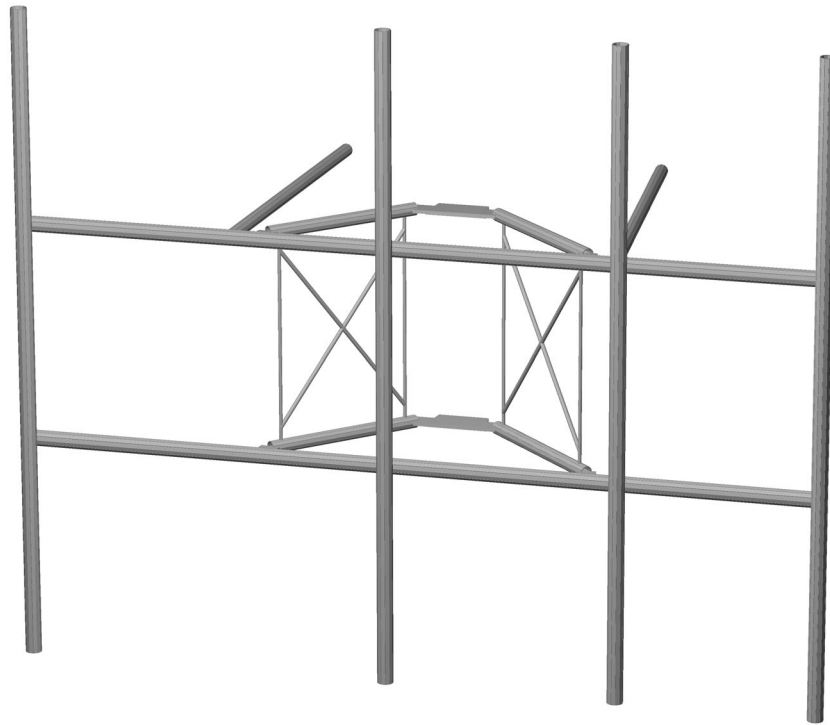
Per foot weight of ice:  
diameter (in): 0.625  
Per foot weight of ice on object: 5 plf

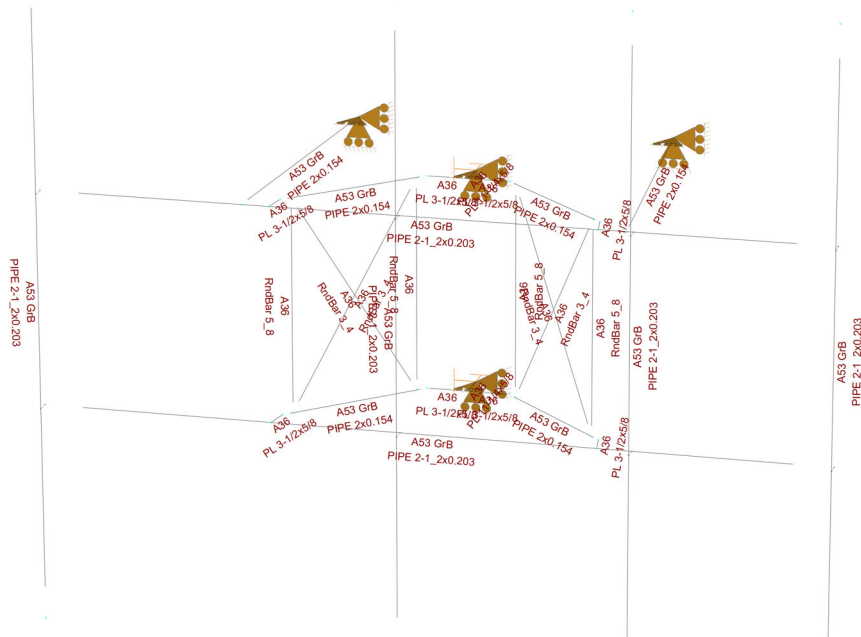


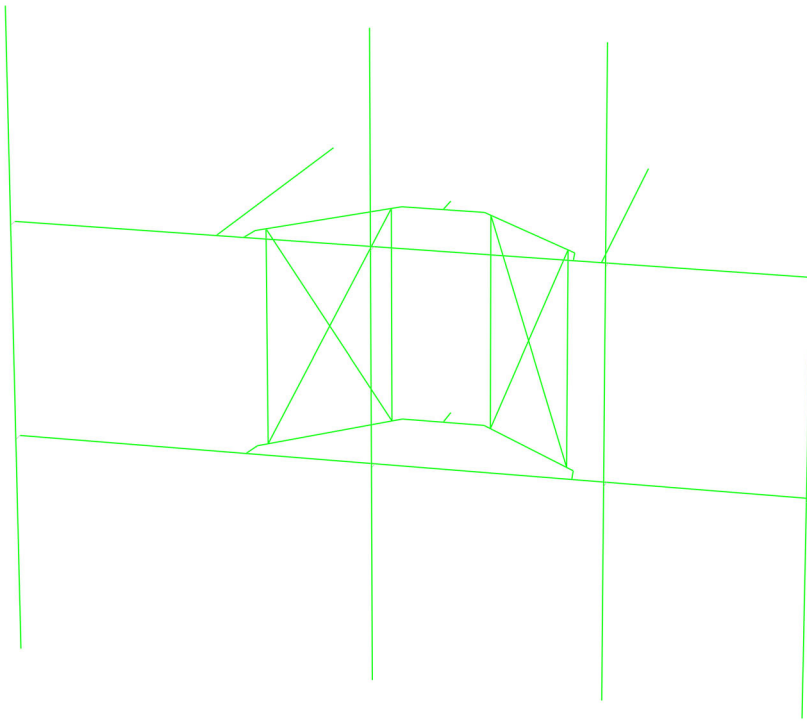


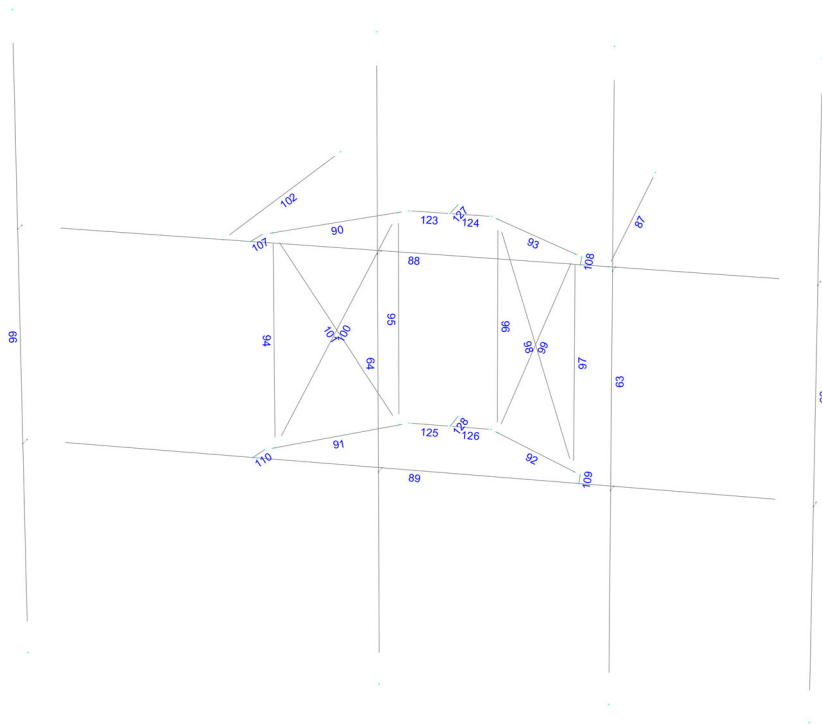
**HUDSON**  
Design Group LLC

**Mount Calculations  
(Proposed Conditions)**









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Units system: English

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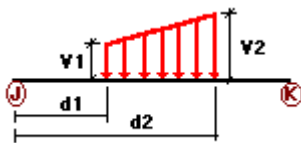
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	63	z	-0.011	0.00	0.00	No	0.00	No
	87	z	-0.009	0.00	0.00	No	0.00	No
	88	z	-0.011	0.00	0.00	No	0.00	No
	89	z	-0.011	0.00	0.00	No	0.00	No
	90	z	-0.009	0.00	0.00	No	0.00	No
	91	z	-0.009	0.00	0.00	No	0.00	No
	92	z	-0.009	0.00	0.00	No	0.00	No
	93	z	-0.009	0.00	0.00	No	0.00	No
	94	z	-0.002	0.00	0.00	No	0.00	No
	95	z	-0.002	0.00	0.00	No	0.00	No
	96	z	-0.002	0.00	0.00	No	0.00	No
	97	z	-0.002	0.00	0.00	No	0.00	No
	98	z	-0.003	0.00	0.00	No	0.00	No
	99	z	-0.003	0.00	0.00	No	0.00	No
	100	z	-0.003	0.00	0.00	No	0.00	No
	101	z	-0.003	0.00	0.00	No	0.00	No
	102	z	-0.009	0.00	0.00	No	0.00	No
	107	z	-0.004	0.00	0.00	No	0.00	No
	108	z	-0.004	0.00	0.00	No	0.00	No
	109	z	-0.004	0.00	0.00	No	0.00	No
	110	z	-0.004	0.00	0.00	No	0.00	No
	123	z	-0.004	0.00	0.00	No	0.00	No
	124	z	-0.004	0.00	0.00	No	0.00	No
	125	z	-0.004	0.00	0.00	No	0.00	No
	126	z	-0.004	0.00	0.00	No	0.00	No
	127	z	-0.004	0.00	0.00	No	0.00	No
	128	z	-0.004	0.00	0.00	No	0.00	No
W30	63	z	-0.011	0.00	0.00	No	0.00	No
	87	z	-0.009	0.00	0.00	No	0.00	No
	88	z	-0.011	0.00	0.00	No	0.00	No
	89	z	-0.011	0.00	0.00	No	0.00	No
	90	z	-0.009	0.00	0.00	No	0.00	No
	91	z	-0.009	0.00	0.00	No	0.00	No
	92	z	-0.009	0.00	0.00	No	0.00	No
	93	z	-0.009	0.00	0.00	No	0.00	No
	94	z	-0.002	0.00	0.00	No	0.00	No
	95	z	-0.002	0.00	0.00	No	0.00	No
	96	z	-0.002	0.00	0.00	No	0.00	No
	97	z	-0.002	0.00	0.00	No	0.00	No
	98	z	-0.003	0.00	0.00	No	0.00	No
	99	z	-0.003	0.00	0.00	No	0.00	No
	100	z	-0.003	0.00	0.00	No	0.00	No
	101	z	-0.003	0.00	0.00	No	0.00	No
	102	z	-0.009	0.00	0.00	No	0.00	No
	107	z	-0.004	0.00	0.00	No	0.00	No
	108	z	-0.004	0.00	0.00	No	0.00	No
	109	z	-0.004	0.00	0.00	No	0.00	No
	110	z	-0.004	0.00	0.00	No	0.00	No
	123	z	-0.004	0.00	0.00	No	0.00	No
	124	z	-0.004	0.00	0.00	No	0.00	No
	125	z	-0.004	0.00	0.00	No	0.00	No
	126	z	-0.004	0.00	0.00	No	0.00	No
	127	z	-0.004	0.00	0.00	No	0.00	No
	128	z	-0.004	0.00	0.00	No	0.00	No
W60	63	x	-0.011	0.00	0.00	No	0.00	No
	87	x	-0.009	0.00	0.00	No	0.00	No
	88	x	-0.011	0.00	0.00	No	0.00	No
	89	x	-0.011	0.00	0.00	No	0.00	No
	90	x	-0.009	0.00	0.00	No	0.00	No
	91	x	-0.009	0.00	0.00	No	0.00	No

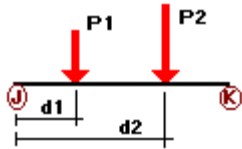




	98	x	-0.003	0.00	0.00	No	0.00	No
	99	x	-0.003	0.00	0.00	No	0.00	No
	100	x	-0.003	0.00	0.00	No	0.00	No
	101	x	-0.003	0.00	0.00	No	0.00	No
	102	x	-0.009	0.00	0.00	No	0.00	No
	107	x	-0.004	0.00	0.00	No	0.00	No
	108	x	-0.004	0.00	0.00	No	0.00	No
	109	x	-0.004	0.00	0.00	No	0.00	No
	110	x	-0.004	0.00	0.00	No	0.00	No
	123	x	-0.004	0.00	0.00	No	0.00	No
	124	x	-0.004	0.00	0.00	No	0.00	No
	125	x	-0.004	0.00	0.00	No	0.00	No
	126	x	-0.004	0.00	0.00	No	0.00	No
	127	x	-0.004	0.00	0.00	No	0.00	No
	128	x	-0.004	0.00	0.00	No	0.00	No
W150	63	z	0.011	0.00	0.00	No	0.00	No
	87	z	0.009	0.00	0.00	No	0.00	No
	88	z	0.011	0.00	0.00	No	0.00	No
	89	z	0.011	0.00	0.00	No	0.00	No
	90	z	0.009	0.00	0.00	No	0.00	No
	91	z	0.009	0.00	0.00	No	0.00	No
	92	z	0.009	0.00	0.00	No	0.00	No
	93	z	0.009	0.00	0.00	No	0.00	No
	94	z	0.002	0.00	0.00	No	0.00	No
	95	z	0.002	0.00	0.00	No	0.00	No
	96	z	0.002	0.00	0.00	No	0.00	No
	97	z	0.002	0.00	0.00	No	0.00	No
	98	z	0.003	0.00	0.00	No	0.00	No
	99	z	0.003	0.00	0.00	No	0.00	No
	100	z	0.003	0.00	0.00	No	0.00	No
	101	z	0.003	0.00	0.00	No	0.00	No
	102	z	0.009	0.00	0.00	No	0.00	No
	107	z	0.004	0.00	0.00	No	0.00	No
	108	z	0.004	0.00	0.00	No	0.00	No
	109	z	0.004	0.00	0.00	No	0.00	No
	110	z	0.004	0.00	0.00	No	0.00	No
	123	z	0.004	0.00	0.00	No	0.00	No
	124	z	0.004	0.00	0.00	No	0.00	No
	125	z	0.004	0.00	0.00	No	0.00	No
	126	z	0.004	0.00	0.00	No	0.00	No
	127	z	0.004	0.00	0.00	No	0.00	No
	128	z	0.004	0.00	0.00	No	0.00	No
Di	62	y	-0.01	0.00	0.00	No	0.00	No
	63	y	-0.01	0.00	0.00	No	0.00	No
	64	y	-0.01	0.00	0.00	No	0.00	No
	66	y	-0.01	0.00	0.00	No	0.00	No
	87	y	-0.009	0.00	0.00	No	0.00	No
	88	y	-0.01	0.00	0.00	No	0.00	No
	89	y	-0.01	0.00	0.00	No	0.00	No
	90	y	-0.009	0.00	0.00	No	0.00	No
	91	y	-0.009	0.00	0.00	No	0.00	No
	92	y	-0.009	0.00	0.00	No	0.00	No
	93	y	-0.009	0.00	0.00	No	0.00	No
	94	y	-0.005	0.00	0.00	No	0.00	No
	95	y	-0.005	0.00	0.00	No	0.00	No
	96	y	-0.005	0.00	0.00	No	0.00	No
	97	y	-0.005	0.00	0.00	No	0.00	No
	98	y	-0.005	0.00	0.00	No	0.00	No
	99	y	-0.005	0.00	0.00	No	0.00	No
	100	y	-0.005	0.00	0.00	No	0.00	No

101	y	-0.005	0.00	0.00	No	0.00	No
102	y	-0.009	0.00	0.00	No	0.00	No
107	y	-0.012	0.00	0.00	No	0.00	No
108	y	-0.012	0.00	0.00	No	0.00	No
109	y	-0.012	0.00	0.00	No	0.00	No
110	y	-0.012	0.00	0.00	No	0.00	No
123	y	-0.012	0.00	0.00	No	0.00	No
124	y	-0.012	0.00	0.00	No	0.00	No
125	y	-0.012	0.00	0.00	No	0.00	No
126	y	-0.012	0.00	0.00	No	0.00	No
127	y	-0.028	0.00	0.00	No	0.00	No
128	y	-0.028	0.00	0.00	No	0.00	No

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	62	y	-0.015	3.00	No
		y	-0.015	6.25	No
		y	-0.016	5.00	No
	64	y	-0.039	1.50	No
		y	-0.039	8.50	No
		y	-0.072	2.50	No
	66	y	-0.048	1.50	No
		y	-0.048	8.50	No
		y	-0.073	2.50	No
Wo	62	z	-0.103	3.00	No
		z	-0.103	6.25	No
		z	0.00	5.00	No
	64	z	-0.343	1.50	No
		z	-0.343	8.50	No
		z	0.00	2.50	No
	66	z	-0.338	1.50	No
		z	-0.338	8.50	No
		z	0.00	2.50	No
W30	62	3	-0.092	3.00	No
		3	-0.092	6.25	No
		3	-0.018	5.00	No
	64	3	-0.296	1.50	No
		3	-0.296	8.50	No
		3	-0.036	2.50	No
	66	3	-0.292	1.50	No
		3	-0.292	8.50	No
		3	-0.041	2.50	No
W60	62	3	-0.07	3.00	No
		3	-0.07	6.25	No
		3	-0.02	5.00	No
	64	3	-0.202	1.50	No
		3	-0.202	8.50	No
		3	-0.05	2.50	No

	66	3	-0.20	1.50	No
		3	-0.20	8.50	No
		3	-0.054	2.50	No
W90	62	x	-0.059	3.00	No
		x	-0.059	6.25	No
		x	-0.021	5.00	No
	64	x	-0.155	1.50	No
		x	-0.155	8.50	No
		x	-0.051	2.50	No
	66	x	-0.154	1.50	No
		x	-0.154	8.50	No
		x	-0.053	2.50	No
W120	62	2	-0.07	3.00	No
		2	-0.07	6.25	No
		2	-0.02	5.00	No
	64	2	-0.202	1.50	No
		2	-0.202	8.50	No
		2	-0.05	2.50	No
	66	2	-0.20	1.50	No
		2	-0.20	8.50	No
		2	-0.054	2.50	No
W150	62	2	-0.092	3.00	No
		2	-0.092	6.25	No
		2	-0.018	5.00	No
	64	2	-0.296	1.50	No
		2	-0.296	8.50	No
		2	-0.036	2.50	No
	66	2	-0.292	1.50	No
		2	-0.292	8.50	No
		2	-0.041	2.50	No
Di	62	y	-0.07	3.00	No
		y	-0.07	6.25	No
		y	-0.019	5.00	No
	64	y	-0.209	1.50	No
		y	-0.209	8.50	No
		y	-0.051	2.50	No
	66	y	-0.207	1.50	No
		y	-0.207	8.50	No
		y	-0.058	2.50	No
W10	62	z	-0.023	3.00	No
		z	-0.023	6.25	No
		z	0.00	5.00	No
	64	z	-0.067	1.50	No
		z	-0.067	8.50	No
		z	0.00	2.50	No
	66	z	-0.066	1.50	No
		z	-0.066	8.50	No
		z	0.00	2.50	No
W130	62	3	-0.021	3.00	No
		3	-0.021	6.25	No
		3	-0.006	5.00	No
	64	3	-0.058	1.50	No
		3	-0.058	8.50	No
		3	-0.009	2.50	No
	66	3	-0.057	1.50	No
		3	-0.057	8.50	No
		3	-0.01	2.50	No
W160	62	3	-0.017	3.00	No
		3	-0.017	6.25	No
		3	-0.007	5.00	No

	64	3	-0.043	1.50	No
		3	-0.043	8.50	No
		3	-0.013	2.50	No
	66	3	-0.042	1.50	No
		3	-0.042	8.50	No
		3	-0.014	2.50	No
WI90	62	x	-0.015	3.00	No
		x	-0.015	6.25	No
		x	-0.007	5.00	No
	64	x	-0.035	1.50	No
		x	-0.035	8.50	No
		x	-0.013	2.50	No
	66	x	-0.035	1.50	No
		x	-0.035	8.50	No
		x	-0.014	2.50	No
WI120	62	2	-0.017	3.00	No
		2	-0.017	6.25	No
		2	-0.007	5.00	No
	64	2	-0.043	1.50	No
		2	-0.043	8.50	No
		2	-0.013	2.50	No
	66	2	-0.042	1.50	No
		2	-0.042	8.50	No
		2	-0.014	2.50	No
WI150	62	2	-0.021	3.00	No
		2	-0.021	6.25	No
		2	-0.006	5.00	No
	64	2	-0.058	1.50	No
		2	-0.058	8.50	No
		2	-0.009	2.50	No
	66	2	-0.057	1.50	No
		2	-0.057	8.50	No
		2	-0.01	2.50	No
WL0	62	z	-0.006	3.00	No
		z	-0.006	6.25	No
		z	0.00	5.00	No
	64	z	-0.02	1.50	No
		z	-0.02	8.50	No
		z	0.00	2.50	No
	66	z	-0.02	1.50	No
		z	-0.02	8.50	No
		z	0.00	2.50	No
WL30	62	3	-0.006	3.00	No
		3	-0.006	6.25	No
		3	-0.001	5.00	No
	64	3	-0.017	1.50	No
		3	-0.017	8.50	No
		3	-0.002	2.50	No
	66	3	-0.017	1.50	No
		3	-0.017	8.50	No
		3	-0.002	2.50	No
WL60	62	3	-0.004	3.00	No
		3	-0.004	6.25	No
		3	-0.001	5.00	No
	64	3	-0.012	1.50	No
		3	-0.012	8.50	No
		3	-0.003	2.50	No
	66	3	-0.012	1.50	No
		3	-0.012	8.50	No
		3	-0.003	2.50	No

WL90	62	x	-0.004	3.00	No
		x	-0.004	6.25	No
		x	-0.001	5.00	No
64	x	-0.009	1.50	No	
	x	-0.009	8.50	No	
	x	-0.003	2.50	No	
66	x	-0.009	1.50	No	
	x	-0.009	8.50	No	
	x	-0.003	2.50	No	
WL120	62	2	-0.004	3.00	No
		2	-0.004	6.25	No
		2	-0.001	5.00	No
64	2	-0.012	1.50	No	
	2	-0.012	8.50	No	
	2	-0.003	2.50	No	
66	2	-0.012	1.50	No	
	2	-0.012	8.50	No	
	2	-0.003	2.50	No	
WL150	62	2	-0.006	3.00	No
		2	-0.006	6.25	No
		2	-0.001	5.00	No
64	2	-0.017	1.50	No	
	2	-0.017	8.50	No	
	2	-0.002	2.50	No	
66	2	-0.017	1.50	No	
	2	-0.017	8.50	No	
	2	-0.002	2.50	No	
LL1	88	y	-0.25	50.00	Yes
LL2	88	y	-0.25	100.00	Yes
LL3	88	y	-0.25	0.00	Yes
LLa1	62	y	-0.25	5.00	No
LLa2	63	y	-0.25	5.00	No
LLa3	64	y	-0.25	5.00	No
LLa4	66	y	-0.25	5.00	No

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00

WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

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### Earthquake (Dynamic analysis only)

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Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

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Current Date: 10/15/2020 4:11 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1120\LTE 2C\_3C\_4C 5G NR\Rev.1\CT1120 (Rev.1).retx

## Steel Code Check

Report: Summary - Group by member

### Load conditions to be included in design :

LC1=1.2D+Wo  
LC2=1.2D+W30  
LC3=1.2D+W60  
LC4=1.2D+W90  
LC5=1.2D+W120  
LC6=1.2D+W150  
LC7=1.2D-Wo  
LC8=1.2D-W30  
LC9=1.2D-W60  
LC10=1.2D-W90  
LC11=1.2D-W120  
LC12=1.2D-W150  
LC13=0.9D+Wo  
LC14=0.9D+W30  
LC15=0.9D+W60  
LC16=0.9D+W90  
LC17=0.9D+W120  
LC18=0.9D+W150  
LC19=0.9D-Wo  
LC20=0.9D-W30  
LC21=0.9D-W60  
LC22=0.9D-W90  
LC23=0.9D-W120  
LC24=0.9D-W150  
LC25=1.2D+Di+Wl0  
LC26=1.2D+Di+Wl30  
LC27=1.2D+Di+Wl60  
LC28=1.2D+Di+Wl90  
LC29=1.2D+Di+Wl120  
LC30=1.2D+Di+Wl150  
LC31=1.2D+Di-Wl0  
LC32=1.2D+Di-Wl30  
LC33=1.2D+Di-Wl60  
LC34=1.2D+Di-Wl90  
LC35=1.2D+Di-Wl120  
LC36=1.2D+Di-Wl150  
LC38=1.2D+1.5LL1  
LC39=1.2D+1.5LL2  
LC40=1.2D+1.5LL3  
LC41=1.2D+Wl0+1.5LLa1  
LC42=1.2D+Wl30+1.5LLa1  
LC43=1.2D+Wl60+1.5LLa1  
LC44=1.2D+Wl90+1.5LLa1  
LC45=1.2D+Wl120+1.5LLa1  
LC46=1.2D+Wl150+1.5LLa1  
LC47=1.2D-Wl0+1.5LLa1  
LC48=1.2D-Wl30+1.5LLa1  
LC49=1.2D-Wl60+1.5LLa1  
LC50=1.2D-Wl90+1.5LLa1  
LC51=1.2D-Wl120+1.5LLa1  
LC52=1.2D-Wl150+1.5LLa1  
LC53=1.2D+Wl0+1.5LLa2

LC54=1.2D+WL30+1.5LLa2  
 LC55=1.2D+WL60+1.5LLa2  
 LC56=1.2D+WL90+1.5LLa2  
 LC57=1.2D+WL120+1.5LLa2  
 LC58=1.2D+WL150+1.5LLa2  
 LC59=1.2D-WL0+1.5LLa2  
 LC60=1.2D-WL30+1.5LLa2  
 LC61=1.2D-WL60+1.5LLa2  
 LC62=1.2D-WL90+1.5LLa2  
 LC63=1.2D-WL120+1.5LLa2  
 LC64=1.2D-WL150+1.5LLa2  
 LC65=1.2D+WL0+1.5LLa3  
 LC66=1.2D+WL30+1.5LLa3  
 LC67=1.2D+WL60+1.5LLa3  
 LC68=1.2D+WL90+1.5LLa3  
 LC69=1.2D+WL120+1.5LLa3  
 LC70=1.2D+WL150+1.5LLa3  
 LC71=1.2D-WL0+1.5LLa3  
 LC72=1.2D-WL30+1.5LLa3  
 LC73=1.2D-WL60+1.5LLa3  
 LC74=1.2D-WL90+1.5LLa3  
 LC75=1.2D-WL120+1.5LLa3  
 LC76=1.2D-WL150+1.5LLa3  
 LC77=1.2D+WL0+1.5LLa4  
 LC78=1.2D+WL30+1.5LLa4  
 LC79=1.2D+WL60+1.5LLa4  
 LC80=1.2D+WL90+1.5LLa4  
 LC81=1.2D+WL120+1.5LLa4  
 LC82=1.2D+WL150+1.5LLa4  
 LC83=1.2D-WL0+1.5LLa4  
 LC84=1.2D-WL30+1.5LLa4  
 LC85=1.2D-WL60+1.5LLa4  
 LC86=1.2D-WL90+1.5LLa4  
 LC87=1.2D-WL120+1.5LLa4  
 LC88=1.2D-WL150+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>PIPE 2-1_2x0.203</b>	<b>62</b>	LC48 at 33.33%	0.21	OK	Eq. H1-1b
		<b>63</b>	LC48 at 33.33%	0.17	OK	Eq. H1-1b
		<b>64</b>	LC7 at 66.67%	0.37	OK	Eq. H1-1b
		<b>66</b>	LC7 at 33.33%	0.41	OK	Eq. H1-1b
		<b>88</b>	LC7 at 25.89%	<b>0.63</b>	<b>OK</b>	Eq. H1-1b
		<b>89</b>	LC7 at 28.75%	0.61	OK	Eq. H1-1b
	<b>PIPE 2x0.154</b>	<b>87</b>	LC5 at 50.00%	0.06	OK	Eq. H1-1b
		<b>90</b>	LC31 at 93.75%	<b>0.45</b>	<b>OK</b>	Eq. H1-1b
		<b>91</b>	LC36 at 93.75%	0.34	OK	Eq. H1-1b
		<b>92</b>	LC2 at 93.75%	0.18	OK	Eq. H1-1b
		<b>93</b>	LC39 at 93.75%	0.22	OK	Eq. H1-1b
		<b>102</b>	LC14 at 100.00%	0.09	OK	Sec. E1
	<b>PL 11-1/4x5/8</b>	<b>127</b>	LC25 at 100.00%	<b>0.35</b>	<b>OK</b>	Eq. H1-1b
		<b>128</b>	LC31 at 100.00%	0.22	OK	Eq. H1-1b
	<b>PL 3-1/2x5/8</b>	<b>107</b>	LC36 at 100.00%	0.55	OK	Eq. H1-1b
		<b>108</b>	LC2 at 100.00%	0.26	OK	Eq. H1-1b
		<b>109</b>	LC42 at 100.00%	0.33	OK	Eq. H1-1b
		<b>110</b>	LC32 at 100.00%	0.61	OK	Eq. H1-1b
		<b>123</b>	LC36 at 100.00%	0.76	OK	Eq. H1-1b
		<b>124</b>	LC41 at 0.00%	0.39	OK	Eq. H1-1b
		<b>125</b>	LC36 at 100.00%	<b>0.78</b>	<b>OK</b>	Eq. H1-1b
		<b>126</b>	LC42 at 0.00%	0.40	OK	Eq. H1-1b
	<b>RndBar 3_4</b>	<b>98</b>	LC39 at 0.00%	0.19	OK	Eq. H1-1b



<b>99</b>	LC42 at 0.00%	0.20	OK	Eq. H1-1b
<b>100</b>	LC32 at 100.00%	<b>0.50</b>	<b>OK</b>	Eq. H1-1a
<b>101</b>	LC32 at 100.00%	0.42	OK	Eq. H1-1b

***RndBar 5\_8***

<b>94</b>	LC25 at 87.50%	<b>0.87</b>	<b>OK</b>	Eq. H1-1a
<b>95</b>	LC32 at 87.50%	0.77	OK	Eq. H1-1a
<b>96</b>	LC42 at 87.50%	0.39	OK	Eq. H1-1a
<b>97</b>	LC41 at 87.50%	0.38	OK	Eq. H1-1a

## Geometry data

### GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member    0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

### Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	0.00	0.00	0.00	0
143	-0.6362	0.00	0.4783	0
144	0.00	-3.3333	0.00	0
145	-0.6362	-3.3333	0.4783	0
146	0.6362	-3.3333	0.4783	0
147	0.6362	0.00	0.4783	0
152	6.00	-6.6667	2.83	0
153	6.00	3.3333	2.83	0
154	-6.00	-6.6667	2.83	0
155	-6.00	3.3333	2.83	0
157	2.50	0.00	-2.50	0
162	-2.4126	0.00	2.2374	0
163	-2.4126	-3.3333	2.2374	0
164	2.4126	-3.3333	2.2374	0
165	2.4126	0.00	2.2374	0
166	-2.2835	0.00	2.1096	0
167	-2.2835	-3.3333	2.1096	0
168	-0.7653	0.00	0.6062	0
169	-0.7653	-3.3333	0.6062	0
170	0.7653	0.00	0.6062	0
171	0.7653	-3.3333	0.6062	0

172	2.2835	0.00	2.1096	0
173	2.2835	-3.3333	2.1096	0
174	-2.8958	0.00	2.63	0
175	-2.50	0.00	-2.50	0
180	3.00	-6.6667	2.83	0
181	3.00	3.3333	2.83	0
184	-2.4792	0.00	2.63	0
185	2.4792	0.00	2.63	0
186	2.4792	-3.3333	2.63	0
187	-2.4792	-3.3333	2.63	0
188	-0.50	-6.6667	2.83	0
189	-0.50	3.3333	2.83	0
208	0.00	0.00	0.4783	0
209	0.00	-3.3333	0.4783	0
156	2.8958	0.00	2.63	0

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
142	1	1	1	1	0	1
144	1	1	1	1	0	1
157	1	1	1	0	0	0
175	1	1	1	0	0	0

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
62	153	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	181	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
64	189	188		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	155	154		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00
96	170	171		RndBar 5_8	A36	0.00	0.00	0.00
97	172	173		RndBar 5_8	A36	0.00	0.00	0.00
98	170	173		RndBar 3_4	A36	0.00	0.00	0.00
99	171	172		RndBar 3_4	A36	0.00	0.00	0.00
100	167	168		RndBar 3_4	A36	0.00	0.00	0.00
101	166	169		RndBar 3_4	A36	0.00	0.00	0.00
102	174	175		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184		PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185		PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186		PL 3-1/2x5/8	A36	0.00	0.00	0.00

110	163	187	PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208	PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147	PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209	PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146	PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142	PL 11-1/4x5/8	A36	11.25	9.25	0.00
128	209	144	PL 11-1/4x5/8	A36	11.25	9.25	0.00

---

### Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
62	315.00	0	0.00	0.00	0.00
63	315.00	0	0.00	0.00	0.00
64	315.00	0	0.00	0.00	0.00
66	315.00	0	0.00	0.00	0.00
94	0.00	2	0.00	0.00	1.00
95	0.00	2	0.00	0.00	1.00
96	0.00	2	0.00	0.00	1.00
97	0.00	2	0.00	0.00	1.00
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00
125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00
127	90.00	0	0.00	0.00	0.00
128	90.00	0	0.00	0.00	0.00

---

### Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00

---

### Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
87	1	1	0	0	0	0	0	0	0	0	Full
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full

# 157 CHESTNUT HILL

---

**Location** 157 CHESTNUT HILL

**Mblu** 34 / / 32 / /

**Acct#** 00167400

**Owner** TROIANO REALTY CORP

**Assessment** \$331,380

**Appraisal** \$473,400

**PID** 1896

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$47,400	\$426,000	\$473,400

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$33,180	\$298,200	\$331,380

## Owner of Record

---

**Owner** TROIANO REALTY CORP  
**Co-Owner** %ANTONIO TROIANO  
**Address** 777 ENFIELD ST  
ENFIELD, CT 06082

**Sale Price** \$0  
**Certificate** 1  
**Book & Page** 110 / 503

Sale Date 01/27/1961

Instrument

### Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TROIANO REALTY CORP	\$0	1	110/ 503		01/27/1961

### Building Information

#### Building 1 : Section 1

Year Built: 1985  
Living Area: 1,008  
Replacement Cost: \$50,460  
Building Percent Good: 81  
Replacement Cost  
Less Depreciation: \$40,900

Building Attributes	
Field	Description
STYLE	Warehouse
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	

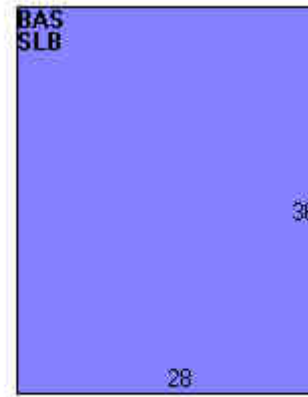
#### Building Photo



(<http://images.vgsi.com/photos2/StaffordCTPhotos/\A00\01\13\65.jpg>)

Roof Structure	Gable
Roof Cover	Asph/F GlS/Cmp
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Forced Hot Air
AC Type	Central
Bldg Use	Industrial
Total Bedrooms	
Total Baths	
1st Floor Use:	
Heat/AC	Heat/AC Pkg.
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	12
Num Fixtures	

## Building Layout



([http://images.vgsi.com/photos2/StaffordCTPhotos//Sketches/1896\\_1896.jpg](http://images.vgsi.com/photos2/StaffordCTPhotos//Sketches/1896_1896.jpg))

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	1,008	1,008
SLB	Slab	1,008	0
		2,016	1,008

## Extra Features

Extra Features

Legend



No Data for Extra Features

## Land

### Land Use

**Use Code** 301  
**Description** Industrial  
**Zone** AAA  
**Neighborhood** 502  
**Alt Land Appr Category** No

### Land Line Valuation

**Size (Acres)** 50  
**Frontage**  
**Depth**  
**Assessed Value** \$298,200  
**Appraised Value** \$426,000

## Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN3	FENCE-6' CHAIN			300 L.F.	\$1,400	1
FN4	FENCE-8' CHAIN			360 L.F.	\$2,000	1
SHD1	Shed	MS	Masonry	160 S.F.	\$1,300	1
SHD1	Shed	MS	Masonry	220 S.F.	\$1,800	1

## Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$47,400	\$426,000	\$473,400
2017	\$47,400	\$426,000	\$473,400

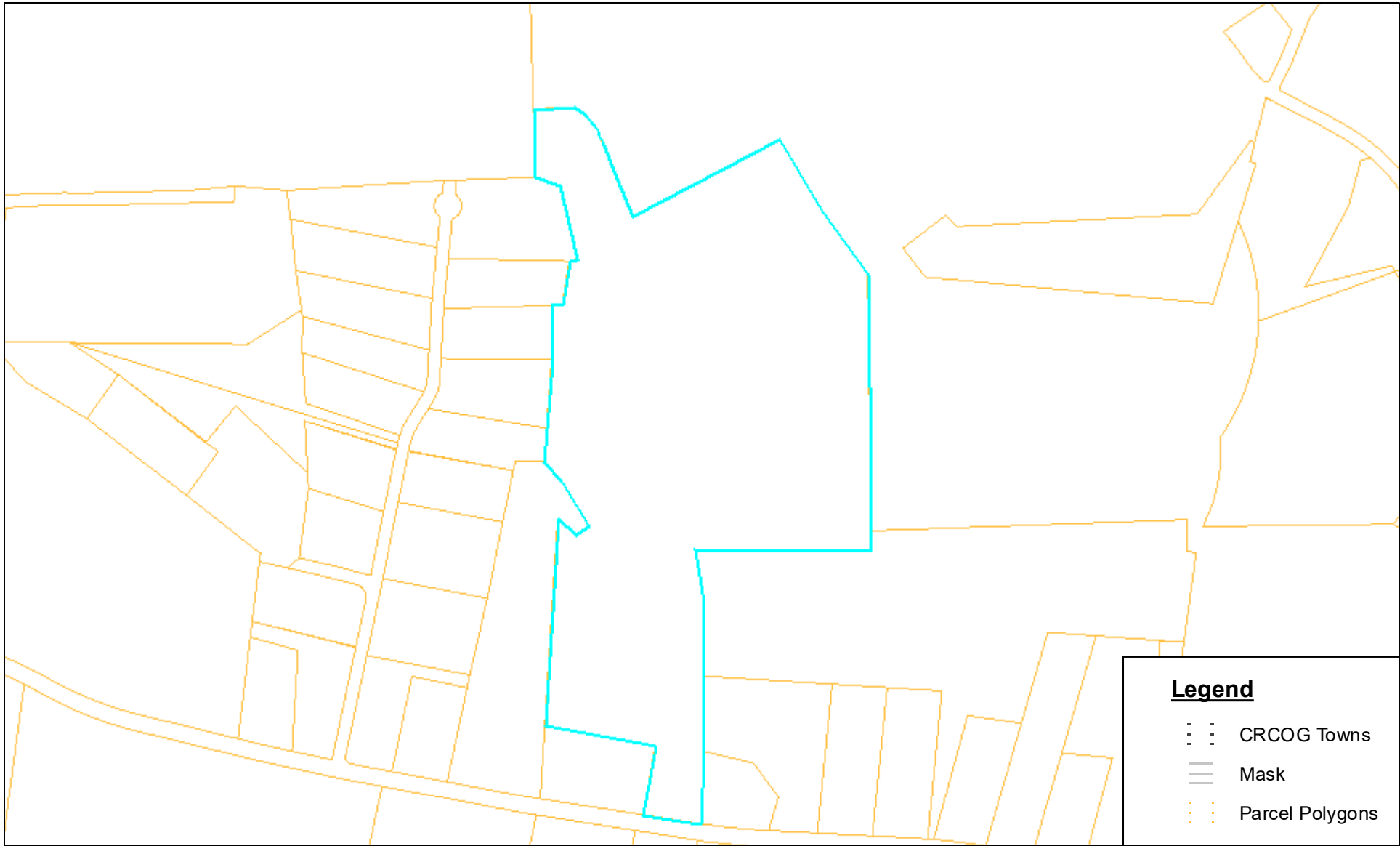
2016	\$47,400	\$426,000	\$473,400
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<b>Assessment</b>			
<b>Valuation Year</b>	<b>Improvements</b>	<b>Land</b>	<b>Total</b>
2018	\$33,180	\$298,200	\$331,380
2017	\$33,180	\$298,200	\$331,380
2016	\$33,180	\$298,200	\$331,380

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# 157 Chestnut Hill Rd



**CRCOG** **CAPITOL REGION COUNCIL OF GOVERNMENTS**  
*Working together for a better region.*

CRCOG makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Scale  
1:9,028  
Created: 10/19/2020



*Town of Stafford*  
*The Stafford Planning & Zoning Commission*

Warren Memorial Town Hall  
1 Main Street • Stafford Springs, CT 06076

(860) 684-7444  
FAX 684-9845

TOWN OF STAFFORD  
LEGAL NOTICE

Notice is hereby given that the Stafford Planning & Zoning Commission at a regularly scheduled meeting held on September 11, 2001, at 7:00 p.m. in the Veterans Meeting Room, Warren Memorial Town Hall, Stafford, CT rendered the following:

1. Approved, with condition, Special Use Permit Application of Tower Ventures, Inc. to construct 180 foot telecommunication tower within a 75' x 75' fenced compound for ground equipment. Location: 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone.

John Mocko  
Chairman

Journal Inquirer  
September 14, 2001



*Town of Stafford*  
*The Stafford Planning & Zoning Commission*

Warren Memorial Town Hall  
1 Main Street • Stafford Springs, CT 06076

Telephone: (860) 684-1775  
Fax: (860) 684-1768

**AGENDA**  
**STAFFORD PLANNING & ZONING COMMISSION**

Meeting Date: September 11, 2001  
7:00 p.m.

Veterans Meeting Room  
Warren Memorial Town Hall  
Stafford Springs, CT

**COPY**

**PUBLIC HEARING**

1. Special Use Permit Application of Tower Ventures, Inc., to construct 180 foot telecommunication tower within a 75' x 75' fenced compound for ground equipment. Location: 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone.

---

**AGENDA**

1. Review of minutes of August 28, 2001 regular meeting.
2. Discussion - Special Use Permit application of Tower Ventures, for telecommunication tower. Location: 157 Chestnut Hill, Assessors' Map #34, Lot #32, AAA Zone.
3. Adjournment.

Wendell Avery  
Zoning Enforcement Officer

Agenda Closed: 9/7/01

COPY

Town of Stafford  
Planning & Zoning Commission  
Regular Meeting  
September 11, 2001  
7:00 p.m. - Veterans Meeting Room

Members Present: Jack Mocko, Chairman  
Roger Pelizari  
Nancy Ravetto  
Peter Rossi

Also Present: Wendell Avery, Zoning Enforcement Officer

Meeting Agenda:

1. Review minutes of August 28, 2001 regular meeting.
2. Discussion - Special Use Permit application for Tower Ventures, Inc. to construct 180-foot telecommunication tower. Location 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone.
3. Adjournment.

A Public hearing was held prior to the regular meeting re Item #3, Tower Ventures, Inc., tape-recorded and filed in the office of the Town Clerk.

Chairman Mocko called the regular meeting to order at 8:20 p.m. following the public hearing.

1. **Review minutes of August 28, 2001 regular meeting.**  
Peter Rossi made a motion to accept the minutes of the August 28, 2001 meeting as presented. Second by Nancy Ravetto. Motion for approval passed unanimously.
2. **Discussion - Special Use Permit application for Tower Ventures, Inc. to construct 180-foot telecommunication tower. Location 157 Chestnut Hill.**  
Attorney Chris Smith of Pullman & Comley and David Vivian of Tower Ventures, Inc. made their presentation for the proposed cell tower to be located at 157 Chestnut Hill Road. The Board was in agreement that the Town regulations for cell towers were adhered to and took the following action on the Special Use Permit for Tower Ventures, Inc. Nancy Ravetto made a motion to approve the Special Use Permit Application of Tower Ventures Inc., to construct a 180 foot telecommunication tower within a 75' x 75' fenced compound for ground equipment with condition that utilities be placed underground. Location: 157 Chestnut Hill, Assessor's Map #34, Lot #32, AAA Zone. Second by Roger Pelizari. Motion for approval passed 3-0.
3. **Adjournment.**  
There being no further business to come before the Board, Roger Pelizari made a motion for adjournment, seconded by Nancy Ravetto. Regular meeting adjourned at 8:30 p.m.

Respectfully submitted,

*Mary Jane LaMorte*  
 Mary Jane LaMorte  
 Recording Secretary



SBA Communications Corporation  
8051 Congress Avenue  
Boca Raton, FL 33487-1307

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F + 561.995.7626

[sbasite.com](http://sbasite.com)

## LETTER OF AUTHORIZATION

**SBA Site ID:** CT13617-A, Troiano Realty

**Property Located at:** 157 Chestnut Hill Road, Stafford Springs, CT, 06076

---

**THE CITY/COUNTY OF:** Stafford Springs / Tolland

### APPLICATION FOR ZONING/USE/BUILDING PERMIT

This letter authorizes AT&T and its authorized agents to file for all necessary zoning, planning and building permits (local, state and federal) for the purposes of installing, operating and maintaining a telecommunications facility on the existing tower on the property referenced above on behalf of Troiano Realty.

All approval conditions that may be granted to AT&T in connection with above referenced facility relating to this specific application are the sole responsibility of AT&T.

SBA Towers V, LLC

A handwritten signature in black ink, appearing to read "Jason Silberstein", is written over a light blue horizontal line.

Jason Silberstein

Executive VP, Site Leasing

Date: 10/21/2020





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MERIDEN CT 06450-4723

Expected Delivery Date: 11/05/20

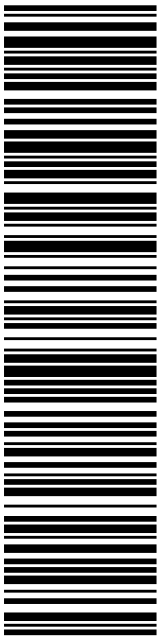
**0005**

Carrier -- Leave if No Response

**C006**

SHIP  
TO: MELANIE BACHMAN  
CT SITING COUNCIL  
10 FRANKLIN SQ  
NEW BRITAIN CT 06051-2655

USPS TRACKING #



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Electronic Rate Approved #038555749

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11/04/2020

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**PRIORITY MAIL 1-DAY™**

HOLLIS REDDING  
SAI GROUP  
39 WESTVIEW DR  
MERIDEN CT 06450-4723

Expected Delivery Date: 11/05/20

**0005**

**C002**

SHIP TO:  
ANTONIO TROIANO  
TROIANO REALTY CORP  
777 ENFIELD ST  
ENFIELD CT 06082-2904

**USPS TRACKING #**



**9405 5036 9930 0115 4284 60**

Electronic Rate Approved #038555749



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usps.com 9405 5036 9930 0115 4284 46 0077 5000 0010 6076  
US POSTAGE \$7.75  
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11/04/2020

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**PRIORITY MAIL 1-DAY™**

HOLLIS REDDING  
SAI GROUP  
39 WESTVIEW DR  
MERIDEN CT 06450-4723

Expected Delivery Date: 11/05/20

**0005**

**C002**

SHIP TO:  
HONORABLE MARY MITTA  
TOWN OF STAFFORD WARREN MEMORIAL TOWN  
1 MAIN ST  
STAFFORD SPGS CT 06076-1412

**USPS TRACKING #**



**9405 5036 9930 0115 4284 46**

Electronic Rate Approved #038555749

## Hollis Redding

---

**To:** Michael McNamara  
**Subject:** AT&T EM Filing SBA Site CT13617 Troiano Realty 157 Chestnut Hill Rd, Stafford, CT

Mike-

Attached please find an Exempt Modification which will be filed with the CT Siting Council on November 4, 2020. Thank you. Hollis

Hollis M. Redding



SAI Communications LLC  
Mobile: 860-834-6964  
[hredding@saigrp.com](mailto:hredding@saigrp.com)