



August 13, 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 CT1030  
435 Mill Street, Southington, CT 06489 (the "Property")  
Latitude: 41-36-16.53 N Longitude: 72-53-39.61 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 98-foot level on the existing 120' lattice tower ("Tower") at 435 Mill Street, Southington, CT. The Tower and property are owned by the Town of Southington. ("Town"). AT&T intends to modify its facility by adding (3) 4478 B614 RRUs & (3) 4415 B30 RRUs. The height of AT&T's existing antennas & RRUs and proposed RRUs is 98'.

The facility received Town of Southington site plan & special permit approval on August 21, 2018. There were no conditions that could be feasibility be violated by this modification, including total facility height and mounting restrictions. The AT&T modification complies with the above-mentioned approvals. AT&T received CT Siting Council Approval under TS-CING-131-200326.

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 Mr. Mark Sciota, Town Manager & as tower & property owner, Town of Southington, and Mr. Robert A. Phillips, MS, MPA, AICP, Director of Planning, and Community Development, Town of Southington.

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: Mr. Mark Sciota, Town Manager, Town of Southington as elected official, tower & property owner  
Mr. Robert A. Phillip, Director of Planning & Community Development, Town of Southington

## 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*							10.17%
AT&T UMTS	1	1211	98	0.0515	850	0.5667	0.91%
AT&T LTE	1	1603	98	0.0681	770	0.5133	1.33%
AT&T LTE	1	1641	98	0.0697	850	0.5667	1.23%
AT&T LTE	2	2483	98	0.0211	1930	1.0000	2.11%
Site Total							15.75%

\*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*							10.17%
AT&T LTE 700	1	2951	98	0.1254	770	0.5133	2.44%
AT&T UMTS 850	1	1211	98	0.0515	850	0.5667	0.91%
AT&T LTE WCS	1	1285	98	0.0546	2355	1.0000	0.55%
AT&T LTE 850	1	1000	98	0.0425	850	0.5667	0.75%
AT&T LTE 700	1	1476	98	0.0627	770	0.5133	1.22%
AT&T LTE 1900	2	4842	98	0.4115	1930	1.0000	4.11%
AT&T 5G 850	1	1000	98	0.0425	850	0.5667	0.75%
Site Total							20.90%

\*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 PROPOSED SELF SUPPORT TOWER:  
 • NEW AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).  
 • NEW AT&T RRUS: 4415 B30 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:  
 • ADD RBS 6630 FOR 5G.

ITEMS TO BE REMOVED:  
 • NONE.

ITEMS TO BE INSTALLED AS PART OF RF MOD PROJECT:  
 • EXISTING NEW SECTOR FRAME SITEPRO1 PART# VFA12-WLL-30120 (TYP. OF 1 PER SECTOR, TOTAL OF 3).  
 • EXISTING AT&T LTE ANTENNAS TPA65R-BU8D @ POSITIONS 1 & 4 (TYP. 2 PER SECTOR, TOTAL OF 6).  
 • EXISTING AT&T LTE ANTENNAS OPA65R-BU8D @ POSITIONS 2 (TYP. 1 PER SECTOR, TOTAL OF 3).  
 • EXISTING AT&T RRUS 8843 B2/B66A (AWS/PCS) MOUNTED BACK TO BACK @ POSITIONS 4 (TYP. 1 PER SECTOR, TOTAL OF 3).  
 • EXISTING AT&T RRUS 4449 B5/B12 (850/700) MOUNTED BACK TO BACK @ POSITIONS 4 (TYP. 1 PER SECTOR, TOTAL OF 3).  
 • EXISTING AT&T SURGE ARRESTORS (DC6-48-60-18-8C-EV) (TOTAL OF 2) & (DC6-48-60-0-8C-EV) (TOTAL OF 1).  
 • EXISTING 2-1/2" STD. (2.88" O.D.) X 14'-0" LONG HORIZONTAL PIPE MAST (TOTAL OF 2 FOR GAMMA SECTOR IN LIEU OF STOCK PIPE).

SITE ADDRESS: 435 MILL STREET  
SOUTHINGTON, CT 06489

LATITUDE: 41.604591° N, 41° 36' 16.53" N

LONGITUDE: 72.894336° W, 72° 53' 39.61" W

TYPE OF SITE: SELF SUPPORT TOWER / EQUIPMENT SHELTER

STRUCTURE HEIGHT: 120'-0"±

RAD CENTER: 98'-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 PLAN	1
A-2	EQUIPMENT PLAN	1
A-3	ANTENNA LAYOUTS & ELEVATION	1
A-4	DETAILS	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1



**SITE NUMBER: CT1030**

**SITE NAME: SOUTHINGTON MILL ST. H2O TANK**

**FA CODE: 10035264**

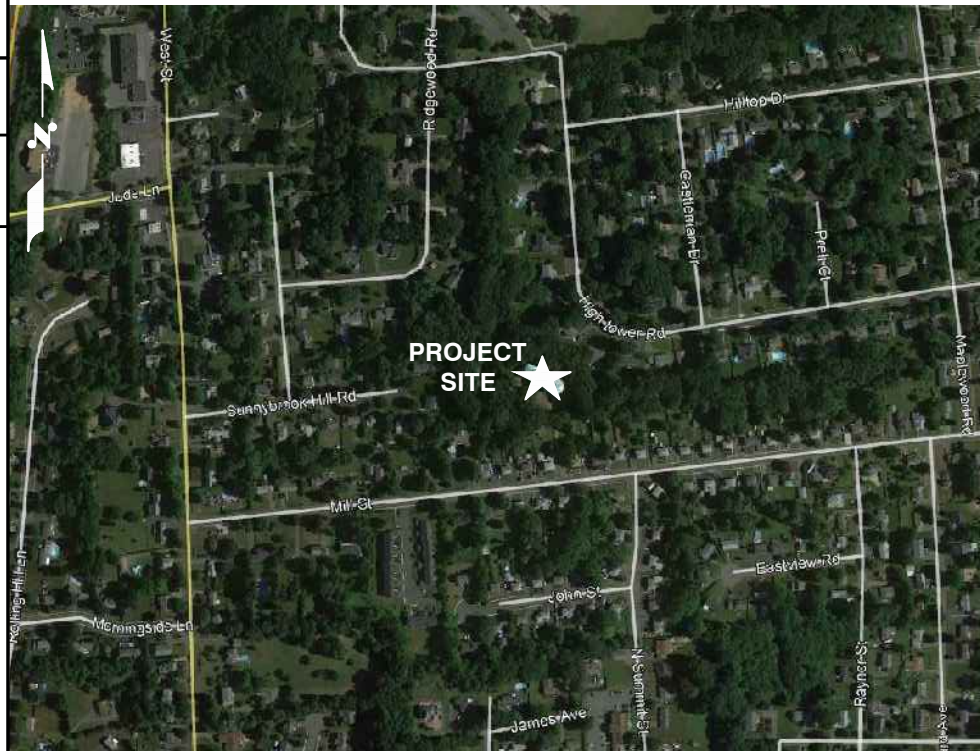
**PACE ID: MRCTB026827, MRCTB032169**

**PROJECT: LTE 4C\_5C 2020 UPGRADE**

**VICINITY MAP**

**DIRECTIONS TO SITE:**

HEAD SOUTH TOWARD ENTERPRISE DR. TURN LEFT ONTO ENTERPRISE DR. TURN LEFT ONTO CAPITAL BLVD. USE THE LEFT 2 LANES TO TURN LEFT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I-91 S. MERGE ONTO I-91 S. TAKE EXIT 22N TO MERGE ONTO CT-9 N TOWARD NEW BRITAIN. USE THE LEFT 2 LANES TO TAKE EXIT 28 FOR CT-72 TOWARD BRISTOL. CONTINUE ONTO CT-72 W. MERGE ONTO I-84. TAKE EXIT 31 FOR CT-229/WEST STREET. USE ANY LANE TO TURN LEFT ONTO CT-229 S/WEST ST. CONTINUE TO FOLLOW WEST ST. TURN LEFT ONTO MILL ST. DESTINATION WILL BE ON THE LEFT.



**GENERAL NOTES**

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. 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**



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



12 INDUSTRIAL WAY  
SALEM, NH 03079

**SITE NUMBER: CT1030**  
**SITE NAME: SOUTHINGTON MILL ST. H2O TANK**

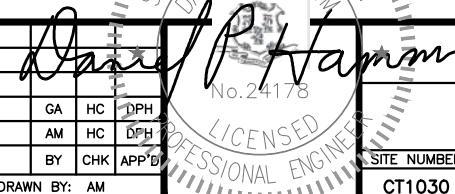
435 MILL STREET  
SOUTHINGTON, CT 06489  
HARTFORD COUNTY



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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/23/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	06/23/20	ISSUED FOR REVIEW	AM	HC	DPH

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



AT&T

TITLE SHEET  
LTE 4C\_5C 2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1030	T-1	1

**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		

**HGD 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: CT1030  
 SITE NAME: SOUTHWINGTON MILL ST. H20 TANK**  
 435 MILL STREET SOUTHWINGTON, CT 06489 HARTFORD COUNTY

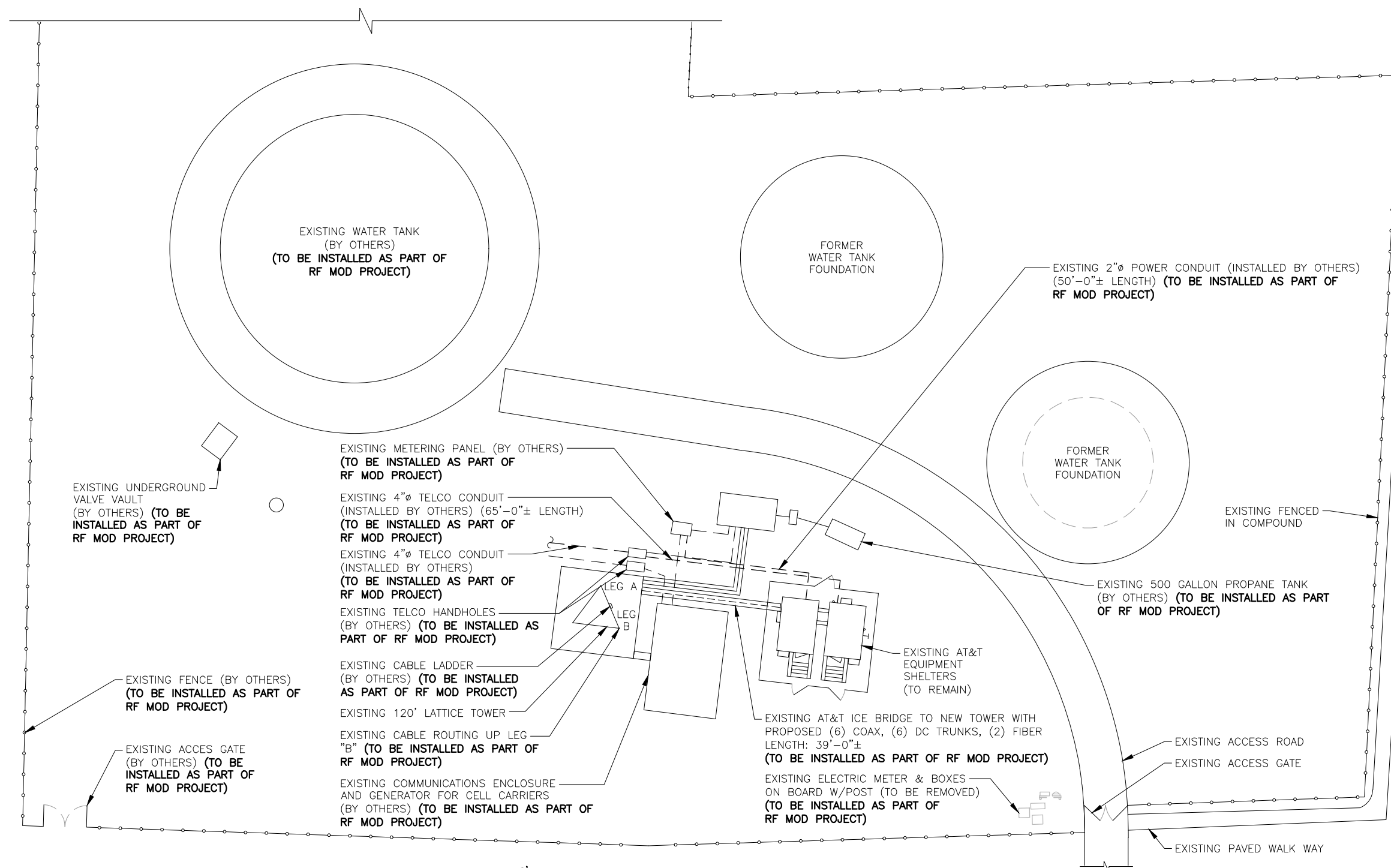
**at&t**  
 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067

**AT&T**  
 GENERAL NOTES  
 LTE 4C\_5C 2020 UPGRADE

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/23/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
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SCALE: AS SHOWN DESIGNED BY: HC DRAWN BY: AM

SITE NUMBER	DRAWING NUMBER	REV
CT1030	GN-1	1



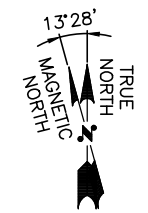
**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
REFER TO **MOUNT ANALYSIS** BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 29, 2020 FOR THE CAPACITY OF THE PROPOSED MOUNT TO SUPPORT THE PROPOSED EQUIPMENT.

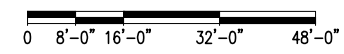
**NOTE:**  
REFER TO **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC, DATED: JULY 21, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

**\*\*SPECIAL CONSTRUCTION/PLANNING NOTE:**  
EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF RF MOD PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF RF MOD PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.

- EXISTING METERING PANEL (BY OTHERS) (TO BE INSTALLED AS PART OF RF MOD PROJECT)
- EXISTING 4"Ø TELCO CONDUIT (INSTALLED BY OTHERS) (65'-0"± LENGTH) (TO BE INSTALLED AS PART OF RF MOD PROJECT)
- EXISTING 4"Ø TELCO CONDUIT (INSTALLED BY OTHERS) (TO BE INSTALLED AS PART OF RF MOD PROJECT)
- EXISTING TELCO HANDHOLES (BY OTHERS) (TO BE INSTALLED AS PART OF RF MOD PROJECT)
- EXISTING CABLE LADDER (BY OTHERS) (TO BE INSTALLED AS PART OF RF MOD PROJECT)
- EXISTING 120' LATTICE TOWER
- EXISTING CABLE ROUTING UP LEG "B" (TO BE INSTALLED AS PART OF RF MOD PROJECT)
- EXISTING COMMUNICATIONS ENCLOSURE AND GENERATOR FOR CELL CARRIERS (BY OTHERS) (TO BE INSTALLED AS PART OF RF MOD PROJECT)



**COMPOUND PLAN**  
22x34 SCALE: 1/16"=1'-0"  
11x17 SCALE: 1/32"=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: CT1030**  
**SITE NAME: SOUTHWINGTON MILL ST. H2O TANK**  
  
435 MILL STREET  
SOUTHWINGTON, CT 06489  
HARTFORD COUNTY

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

STATE OF CONNECTICUT  
DANIEL P. HAMM  
No. 24178  
LICENSED PROFESSIONAL ENGINEER

1	07/23/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
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NO.	DATE	REVISIONS	BY	CHK	APP'D

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

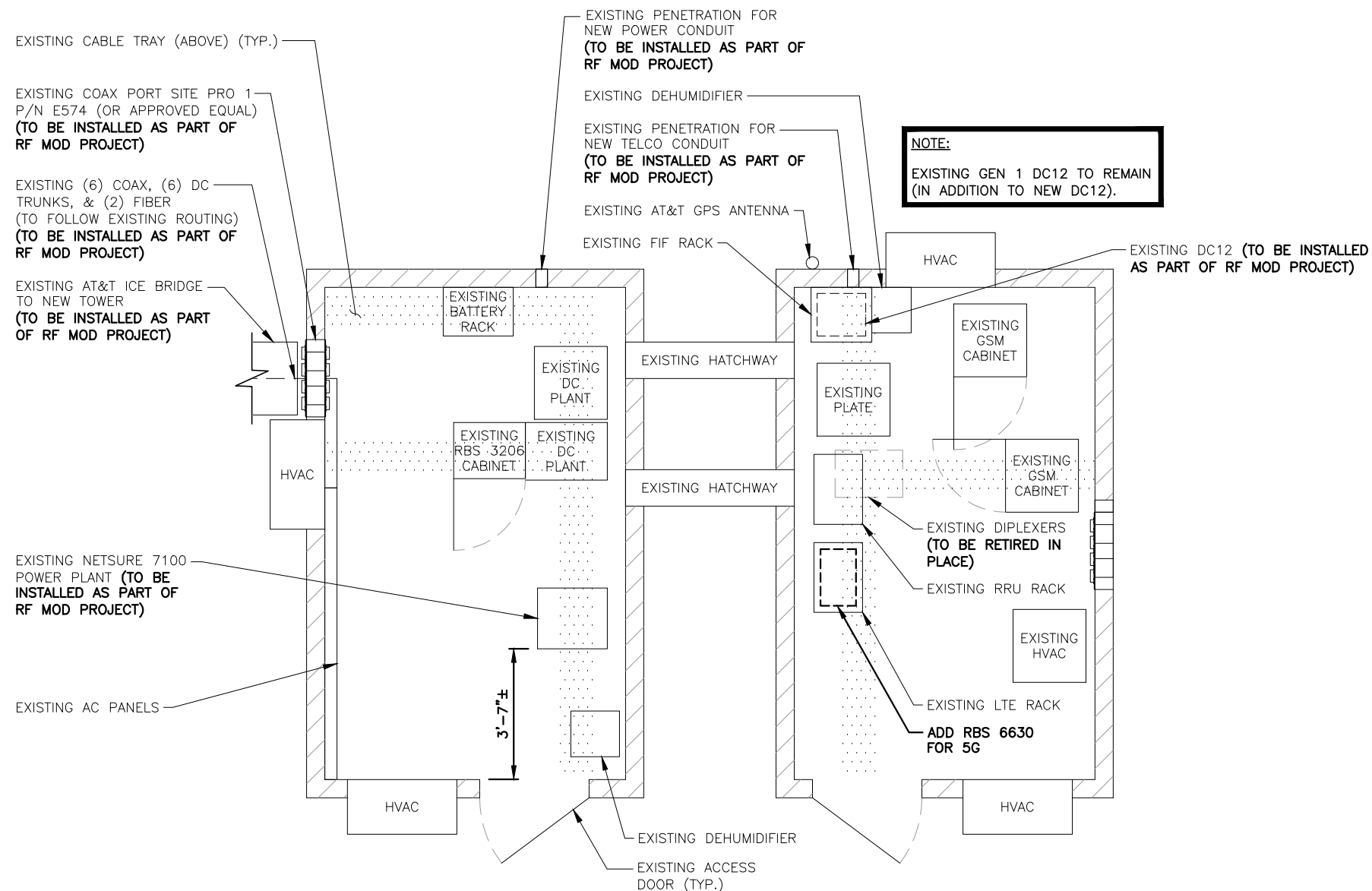
**AT&T**  
**COMPOUND PLAN**  
**LTE 4C\_5C DRAWING UPGRADE**  
SITE NUMBER: CT1030    DRAWING NUMBER: A-1    REV: 1

**NOTE:**  
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REFER TO **MOUNT ANALYSIS** BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 29, 2020 FOR THE CAPACITY OF THE PROPOSED MOUNT TO SUPPORT THE PROPOSED EQUIPMENT.

**NOTE:**  
REFER TO **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC, DATED: JULY 21, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

**\*\*SPECIAL CONSTRUCTION/PLANNING NOTE:**  
EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF RF MOD PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF RF MOD PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.



**NOTE:**  
EXISTING GEN 1 DC12 TO REMAIN (IN ADDITION TO NEW DC12).



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



*Daniel P. Hamm*  
STATE OF CONNECTICUT  
DANIEL P. HAMM  
No. 24178  
LICENSED PROFESSIONAL ENGINEER

1	07/23/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	06/23/20	ISSUED FOR REVIEW	AM	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D

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





**ANTENNA SCHEDULE**

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (LxWxD)	ANTENNA $\phi$ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	FREQUENCY	SIZE (INCHES) (LxWxD)	FEEDER	RAYCAP
A1	EXISTING	LTE B14/AWS	**TPA65R-BU8D	96X21X7.8	98'-0"±	60°	-	(P)(1) 4478 B14	700	18.1"x13.4"x8.3"	-	** (E) (1) RAYCAP DC6-48-60-18-8C-EV
A2	EXISTING	UMTS 850/700 DE/WCS	**OPA65R-BU8D	95.9X11.7X8.4	98'-0"±	60°	-	(P)(1) 4415 B30	WCS	16.5"x13.4"x5.9"	** (E) (2) 1-5/8 COAX	
A3	-	-	-	-	-	-	-	-	-	-	-	
A4	EXISTING	LTE 700 BC/850/PCS	**TPA65R-BU8D	96X21X7.8	98'-0"±	60°	-	** (E) (1) 4449 B5/B12 ** (E) (1) 8843 B2/B66A	850/700 AWS/PCS	-	** (E) (2) DC POWER & (1) FIBER	
B1	EXISTING	LTE B14/AWS	**TPA65R-BU8D	96X21X7.8	98'-0"±	210°	-	(P)(1) 4478 B14	700	18.1"x13.4"x8.3"	-	** (E) (1) RAYCAP DC6-48-60-18-8C-EV
B2	EXISTING	UMTS 850/700 DE/WCS	**OPA65R-BU8D	95.9X11.7X8.4	98'-0"±	210°	-	(P)(1) 4415 B30	WCS	16.5"x13.4"x5.9"	** (E) (2) 1-5/8 COAX	
B3	-	-	-	-	-	-	-	-	-	-	-	
B4	EXISTING	LTE 700 BC/850/PCS	**TPA65R-BU8D	96X21X7.8	98'-0"±	210°	-	** (E) (1) 4449 B5/B12 ** (E) (1) 8843 B2/B66A	850/700 AWS/PCS	-	** (E) (2) DC POWER & (1) FIBER	
C1	EXISTING	LTE B14/AWS	**TPA65R-BU8D	96X21X7.8	98'-0"±	320°	-	(P)(1) 4478 B14	700	18.1"x13.4"x8.3"	-	** (E) (1) RAYCAP DC6-48-60-0-8C-EV
C2	EXISTING	UMTS 850/700 DE/WCS	**OPA65R-BU8D	95.9X11.7X8.4	98'-0"±	320°	-	(P)(1) 4415 B30	WCS	16.5"x13.4"x5.9"	** (E) (2) 1-5/8 COAX	
C3	-	-	-	-	-	-	-	-	-	-	-	
C4	EXISTING	LTE 700 BC/850/PCS	**TPA65R-BU8D	96X21X7.8	98'-0"±	320°	-	** (E) (1) 4449 B5/B12 ** (E) (1) 8843 B2/B66A	850/700 AWS/PCS	-	** (E) (2) DC POWER	

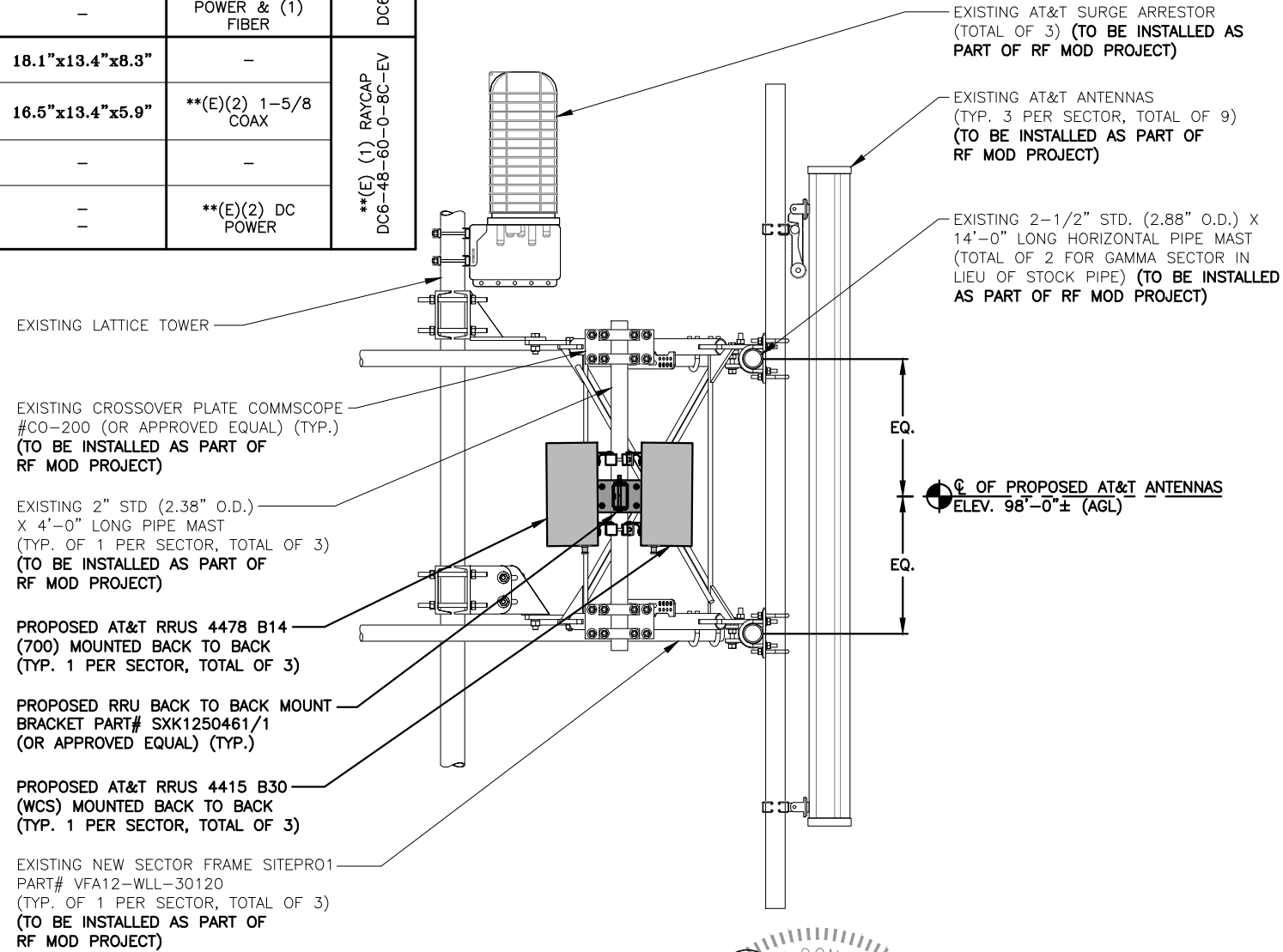
**\*\*SPECIAL CONSTRUCTION/PLANNING NOTE:**  
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**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
REFER TO **MOUNT ANALYSIS** BY: HUDSON DESIGN GROUP, LLC, DATED: MAY 29, 2020 FOR THE CAPACITY OF THE PROPOSED MOUNT TO SUPPORT THE PROPOSED EQUIPMENT.

**NOTE:**  
REFER TO **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC, DATED: JULY 21, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

**FINAL ANTENNA SCHEDULE** 1  
SCALE: N.T.S. A-4



**RRU CHART**

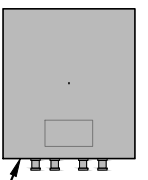
QUANTITY	MODEL	SIZE (LxWxD)
E(3)	B5/B12 4449 (850/700)	14.9"x13.2"x10.4"
E(3)	B2/B66A 8843 (AWS/PCS)	14.9"x13.2"x10.9"
P(3)	4478 B14 (700)	18.1"x13.4"x8.3"
P(3)	4415 B30 (WCS)	16.5"x13.4"x5.9"

**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

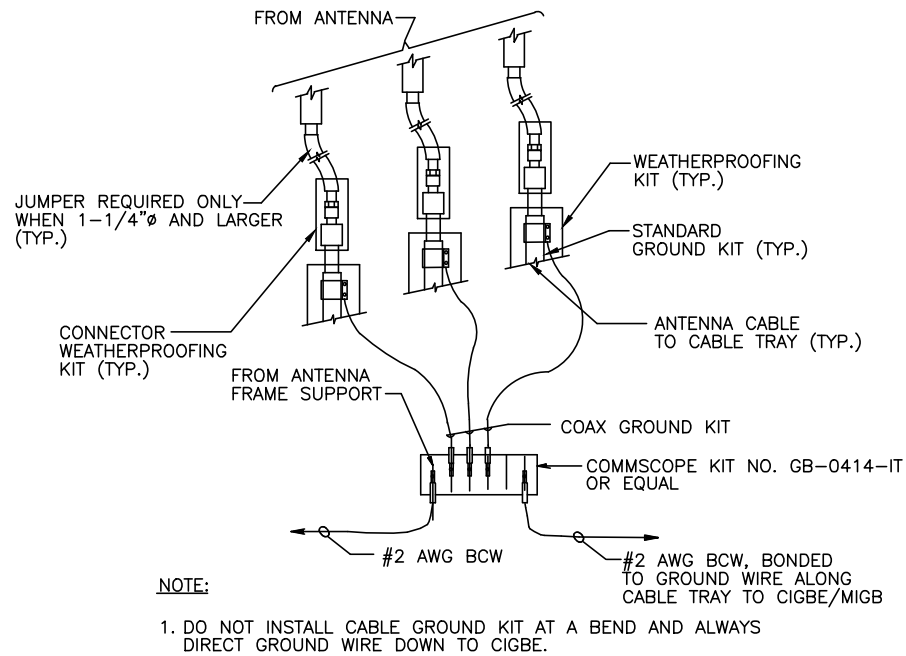
**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



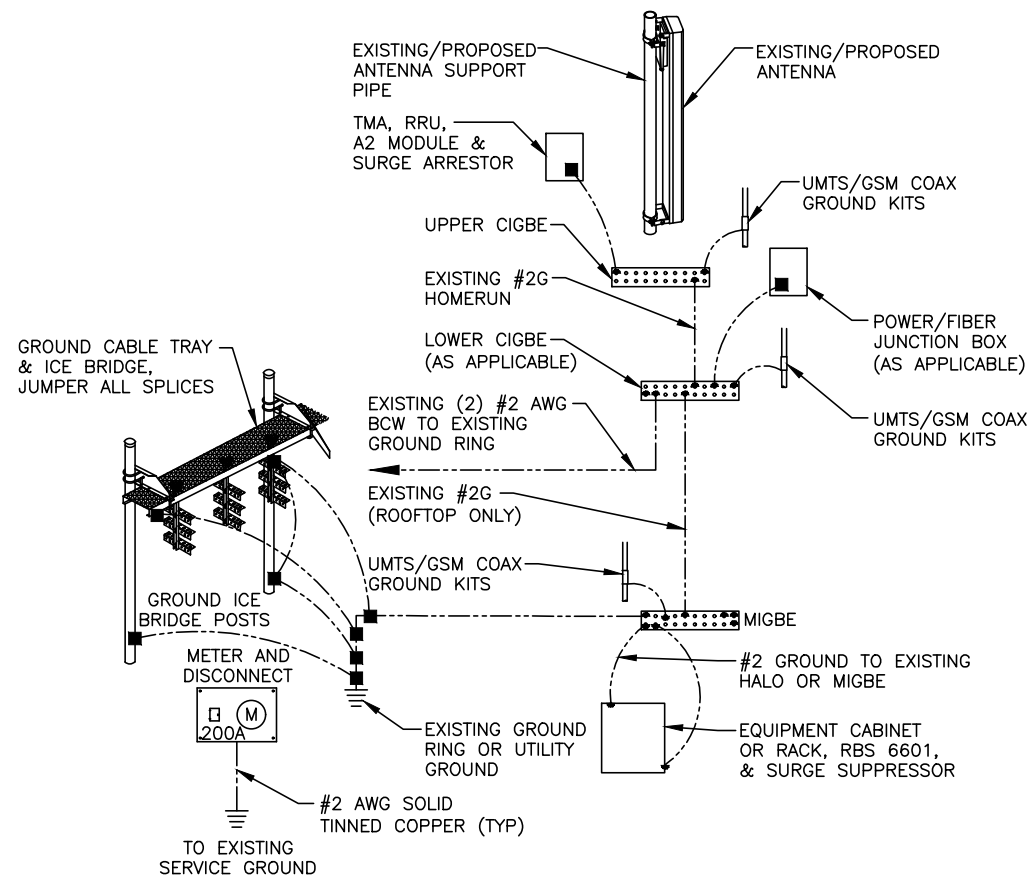
**PROPOSED RRUS DETAIL** 2  
SCALE: N.T.S. A-4

**PROPOSED RRUS MOUNTING DETAIL** 3  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

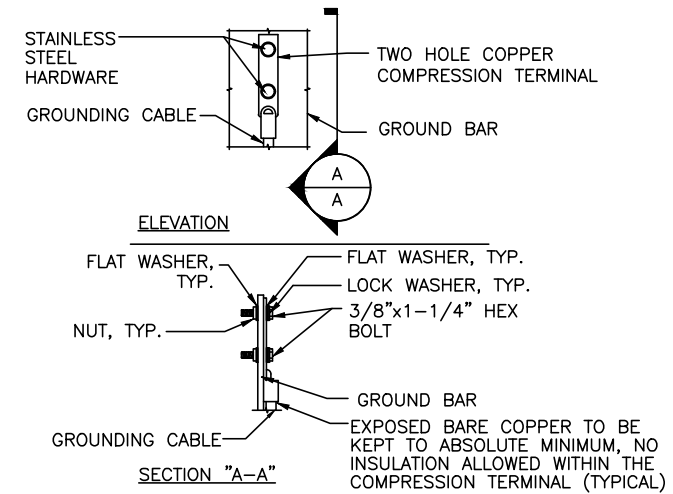
<p>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586</p>	<p>12 INDUSTRIAL WAY SALEM, NH 03079</p>	<p>SITE NUMBER: CT1030 SITE NAME: SOUTHWINGTON MILL ST. H20 TANK</p> <p>435 MILL STREET SOUTHWINGTON, CT 06489 HARTFORD COUNTY</p>	<p>500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067</p>		<p align="right">AT&amp;T</p>																							
					<p align="right">DETAILS</p> <p align="center">LTE 4C_5C 2020 UPGRADE</p>																							
<table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>REVISIONS</th> <th>BY</th> <th>CHK</th> <th>APP'D</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>07/23/20</td> <td>ISSUED FOR CONSTRUCTION</td> <td>GA</td> <td>HC</td> <td>DPH</td> </tr> <tr> <td>A</td> <td>06/23/20</td> <td>ISSUED FOR REVIEW</td> <td>AM</td> <td>HC</td> <td>DPH</td> </tr> </tbody> </table>				NO.	DATE	REVISIONS	BY	CHK	APP'D	1	07/23/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH	A	06/23/20	ISSUED FOR REVIEW	AM	HC	DPH	<table border="1"> <tr> <td>SITE NUMBER</td> <td>DRAWING NUMBER</td> <td>REV</td> </tr> <tr> <td>CT1030</td> <td>A-4</td> <td>1</td> </tr> </table>	SITE NUMBER	DRAWING NUMBER	REV	CT1030	A-4	1
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CT1030	A-4	1																										
<p>SCALE: AS SHOWN    DESIGNED BY: HC    DRAWN BY: AM</p>				<p>DATE: 07/23/20</p>																								



**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. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

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

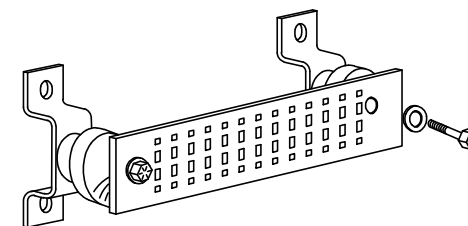
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**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.

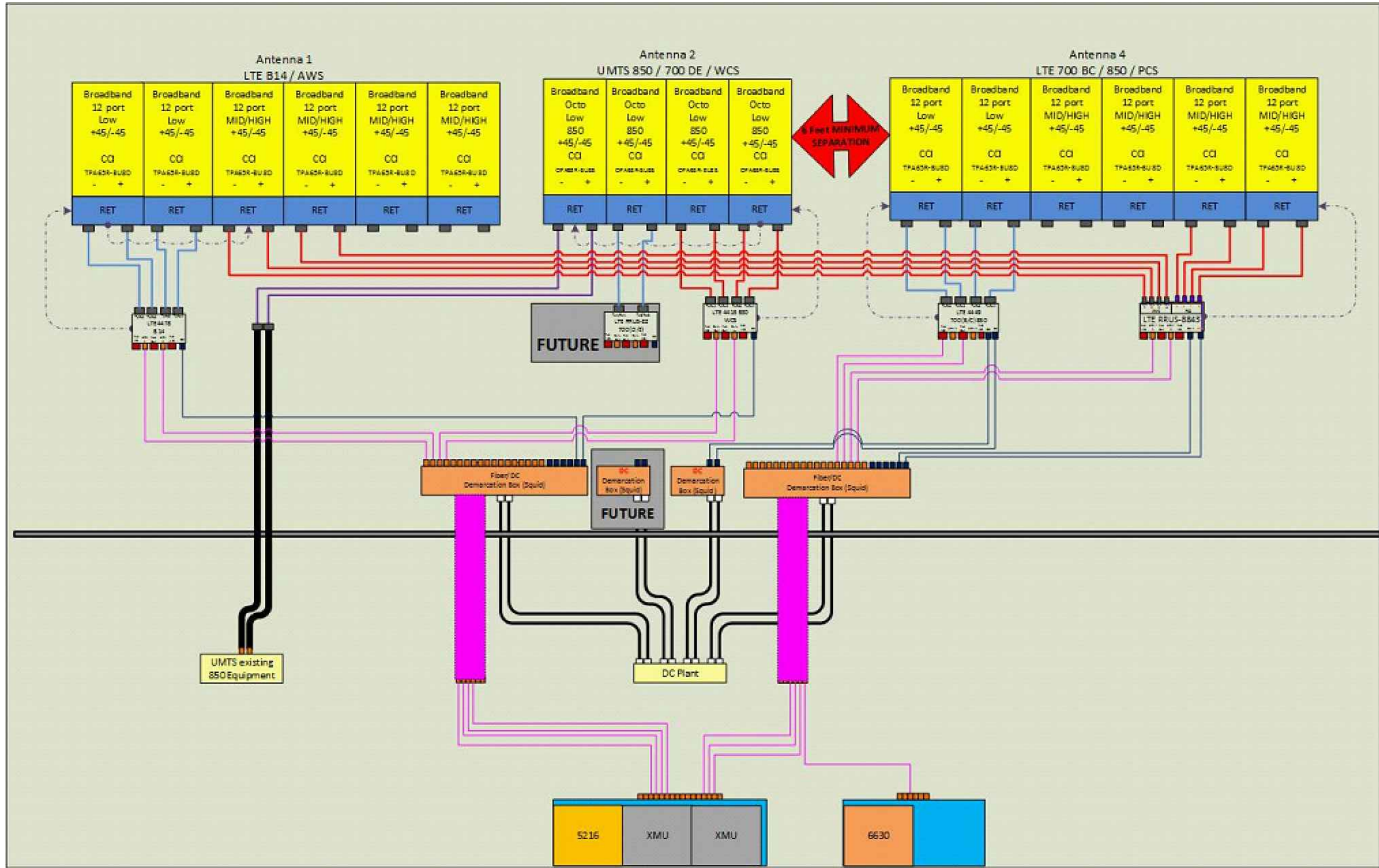
**SECTION "A" - SURGE ABSORBERS**

- 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

				AT&T		
				GROUNDING DETAILS		
				LTE 4C_5C 2020 UPGRADE		
NO.		DATE		REVISIONS		BY
1	07/23/20	ISSUED FOR CONSTRUCTION		GA	HC	DPH
A	06/23/20	ISSUED FOR REVIEW		AM	HC	DPH
SCALE: AS SHOWN		DESIGNED BY: HC		DRAWN BY: AM		
SITE NUMBER		DRAWING NUMBER		REV		
CT1030		G-1		1		



**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**  
 SCALE: N.T.S.

1  
 RF-1

1	07/23/20	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	06/23/20	ISSUED FOR REVIEW	AM	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: AM		

<b>AT&amp;T</b>		
RF PLUMBING DIAGRAM LTE 4C_5C 2020 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CT1030	RF-1	1

# STRUCTURAL ANALYSIS REPORT

For

**SITE NUMBER: CT1030**

**SITE NAME: SOUTHTON MILL ST. H2O TANK**

**FA CODE: 10035264**

435 MILL STREET  
SOUTHTON, CT 06489

Prepared for:



Dated: July 21, 2020

Prepared by:



45 Beechwood Drive  
North Andover, MA 01845  
(P) 978.557.5553 (F) 978.336.5586  
[www.hudsondesigngroupllc.com](http://www.hudsondesigngroupllc.com)





**HUDSON**  
Design Group LLC

### **SCOPE OF WORK:**

Hudson Design Group LLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the 120' self-supporting tower supporting the proposed AT&T's antennas located at elevation 98' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of AT&T's existing and proposed antennas listed below.

Record drawings of the existing tower prepared by Valmont Structures, dated December 12, 2019, were available and obtained for our use. The previous structural analysis report prepared by Tectonic Engineering, dated March 27, 2020, was provided to this office.

### **CONCLUSION SUMMARY:**

Based on our evaluation, we have determined that the existing tower and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loadings considered under the criteria listed in this report. The tower structure is rated at **86.0%** - (Legs at Tower Section T5 from EL.20' to EL.40' Controlling).



**APPURTENANCES CONFIGURATION:**

Tenant	Appurtenances	Elev.	Mount
	(2) BA4040-67-DIN	120'	Tower Leg
	(1) DB404-B	120'	Tower Leg
	(1) G5R	120'	Tower Leg
	(3) PTP	120'	Tower Leg
	(2) VHLP800-11	120'	Tower Leg
T-Mobile	(3) APXVAARR24_43-U-NA20 Antennas	110'	VFA12
T-Mobile	(3) AIR 32 B66AA/B2P Antennas	110'	VFA12
T-Mobile	(3) 4415 B66A	110'	VFA12
T-Mobile	(3) 4449 B71/B85	110'	VFA12
<b>AT&amp;T</b>	(6) TPA65R-BU8D Antennas	98'	VFA12 – WLL - 30120
<b>AT&amp;T</b>	(3) OPA65R-BU8D Antennas	98'	VFA12 – WLL - 30120
<b>AT&amp;T</b>	(3) 4449 B5/B12	98'	VFA12 – WLL - 30120
<b>AT&amp;T</b>	(3) 8843 B2/B66A	98'	VFA12 – WLL - 30120
<b>AT&amp;T</b>	(2) DC6-48-60-18-8C-EV	98'	Tower Leg
<b>AT&amp;T</b>	(1) DC6-48-60-0-8C-EV	98'	Tower Leg
<b>AT&amp;T</b>	<b>(3) 4478 B14</b>	98'	VFA12 – WLL - 30120
<b>AT&amp;T</b>	<b>(3) 4415 B30</b>	98'	VFA12 – WLL - 30120

*\*Proposed AT&T Appurtenances shown in Bold.*

**AT&T EXISTING/PROPOSED COAX CABLES:**

Tenant	Coax Cables	Elev.	Mount
<b>AT&amp;T</b>	(6) 1 5/8" Cables	98'	Tower Face
<b>AT&amp;T</b>	(6) DC Power Cables	98'	Tower Face
<b>AT&amp;T</b>	(2) Fiber Cables	98'	Tower Face

*\*Proposed AT&T Coax Cables shown in Bold.*



**ANALYSIS RESULTS SUMMARY:**

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
<b>Legs</b>	<b>86.0 %</b>	20 – 40	PASS	<b>Controlling</b>
<b>Diagonals</b>	73.6 %	80 – 100	PASS	
<b>Horizontal</b>	49.1 %	80 – 100	PASS	
<b>Top Girt</b>	10.0 %	80 – 100	PASS	
<b>Bottom Girt</b>	23.4 %	100 – 120	PASS	
<b>Mid Girt</b>	10.8 %	80 – 100	PASS	

**FOUNDATION COMPARISON SUMMARY:**

	Design Reactions	Proposed Reactions	Pass/Fail	Comments
<b>AXIAL</b>	<b>40.9 k</b>	28.9 k	PASS	
<b>SHEAR</b>	<b>37.1 k</b>	32.0 k	PASS	
<b>MOMENT</b>	<b>2799 ft-k</b>	2578 ft-k	PASS	
<b>COMP./LEG</b>	<b>270.7 k</b>	257.7 k	PASS	
<b>TENSION/LEG</b>	<b>244.4 k</b>	238.8 k	PASS	



**HUDSON**  
Design Group LLC

### **DESIGN CRITERIA:**

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures
2. Connecticut State Building Code
  - County: Hartford
  - City/Town: Southington
  - Wind Load: 105 mph
  - Structural Class: III
  - Exposure Category: B
  - Topographic Category: 1
  - Crest Height: 0 ft.
  - Ice Thickness: 1.0 inch
3. Approximate height above grade to proposed antennas: 98'

### **ASSUMPTIONS:**

1. The tower dimensions, member sizes and material strength are as indicated in the record drawings of the existing tower prepared by Valmont Structures, dated December 12, 2019.
2. The appurtenances configuration is as stated in this report. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
3. The tower and foundation are properly constructed and maintained. 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.
4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.
5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

### **SUPPORT RECOMMENDATIONS:**

HDG recommends that the proposed RRHs be mounted on the existing steel frame supported by the tower.





**HUDSON**  
Design Group LLC

## TNX INPUT/OUTPUT

### DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
BA4040-67-DIN	120	Radio 4449	110
BA4040-67-DIN	120	SitePro VFA12 (ATI - existing)	98
DB404-B	120	SitePro VFA12	98
10' Dipole	120	SitePro VFA12	98
PTP 49400	120	(2) TPA65R-BU8D w/mount pipe	98
PTP 49400	120	(2) TPA65R-BU8D w/mount pipe	98
PTP 49400	120	(2) TPA65R-BU8D w/mount pipe	98
Andrew VHLP800-11	120	OPA65R-BU8D w/mount pipe	98
Andrew VHLP800-11	120	4449 B5/B12	98
SitePro VFA12 (T-Mobile)	110	4449 B5/B12	98
SitePro VFA12	110	4449 B5/B12	98
SitePro VFA12	110	8843 B2/B66A	98
APXVAARR24_43-U-NA20 w/mount pipe	110	8843 B2/B66A	98
APXVAARR24_43-U-NA20 w/mount pipe	110	8843 B2/B66A	98
APXVAARR24_43-U-NA20 w/mount pipe	110	DC6-48-60-18-8C-EV	98
APXVAARR24_43-U-NA20 w/mount pipe	110	DC6-48-60-18-8C-EV	98
APXVAARR24_43-U-NA20 w/mount pipe	110	DC6-48-60-0-8C-EV	98
APXVAARR24_43-U-NA20 w/mount pipe	110	DC6-48-60-0-8C-EV	98
AIR 32 B66AA/B2P w/mount pipe	110	4478 B14 (ATI - proposed)	98
AIR 32 B66AA/B2P w/mount pipe	110	4478 B14	98
AIR 32 B66AA/B2P w/mount pipe	110	4478 B14	98
Radio 4415 B66A	110	4415 B30	98
Radio 4415 B66A	110	4415 B30	98
Radio 4415 B66A	110	4415 B30	98
Radio 4449	110	OPA65R-BU8D w/mount pipe	98
Radio 4449	110	OPA65R-BU8D w/mount pipe	98

### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-55	55 ksi	70 ksi	A572-50	50 ksi	65 ksi

### TOWER DESIGN NOTES

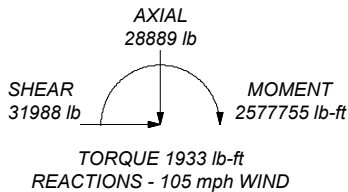
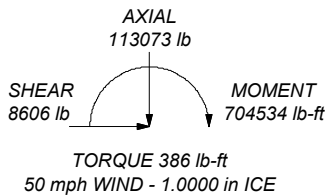
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class III.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 86%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 257668 lb  
SHEAR: 26266 lb

UPLIFT: -238753 lb  
SHEAR: 24126 lb



Section	T1	T2	T3	T4	T5	T6
Legs	SR 1 3/4	SR 2 1/4	Pirod 105217 mod	Pirod 105218 mod	Pirod 105219 mod	Pirod 105219 mod
Leg Grade	SR 3/4	SR 7/8	L2 1/2x2 1/2x1/4	L2 1/2x2 1/2x3/16	L2 1/2x2 1/2x5/16	2L3 1/2x3 1/2x1/4
Diagonals	SR 7/8	SR 1	L3x3x3/16	N.A.	N.A.	N.A.
Diagonal Grade	SR 7/8	SR 1	A572-50	A572-50	N.A.	N.A.
Top Girts	SR 7/8	SR 1	SR 1	N.A.	N.A.	N.A.
Mid Girts	SR 7/8	SR 1	SR 1	N.A.	N.A.	N.A.
Bottom Girts	SR 7/8	SR 1	SR 1	N.A.	N.A.	N.A.
Horizontals	SR 3/4	SR 3/4	SR 3/4	SR 3/4	SR 3/4	SR 3/4
Face Width (ft)	4	16 @ 2.42708	6	6 @ 10	10	1 @ 20
# Panels @ (ft)	10/0.6	1476.8	2360.9	2600.3	2961.9	4276.1
Weight (lb)	14596.6					

<b>Hudson Design Group LLC</b>		Job: <b>CT1030</b>	
45 Beechwood Drive		Project: <b>120 ft Self Supporting Tower</b>	
North Andover, MA 01845		Client: AT&T	Drawn by: kw
Phone: (P) 978.557.5553		Code: TIA-222-G	Date: 07/21/20
FAX: (F) 978.336.5586		Path:	Scale: NTS
		Dwg No. E-1	

<b>tnxTower</b>  <b>Hudson Design Group LLC</b> 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586	<b>Job</b>	CT1030	<b>Page</b>	1 of 11
	<b>Project</b>	120 ft Self Supporting Tower	<b>Date</b>	10:24:14 07/21/20
	<b>Client</b>	AT&T	<b>Designed by</b>	kw

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 120.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 4.00 ft at the top and 12.00 ft at the base.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 105 mph.

Structure Class III.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Tower Section Geometry

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Assembly Database</i>	<i>Description</i>	<i>Section Width</i>	<i>Number of Sections</i>	<i>Section Length</i>
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	120.00-100.00			4.00	1	20.00
T2	100.00-80.00			4.00	1	20.00
T3	80.00-60.00			4.00	1	20.00
T4	60.00-40.00			6.00	1	20.00
T5	40.00-20.00			8.00	1	20.00
T6	20.00-0.00			10.00	1	20.00

## Tower Section Geometry (cont'd)

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Diagonal Spacing</i>	<i>Bracing Type</i>	<i>Has K Brace End Panels</i>	<i>Has Horizontals</i>	<i>Top Girt Offset</i>	<i>Bottom Girt Offset</i>
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	120.00-100.00	2.43	X Brace	No	Yes	3.5000	3.5000
T2	100.00-80.00	2.43	X Brace	No	Yes	3.5000	3.5000
T3	80.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T4	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T5	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T6	20.00-0.00	20.00	X Brace	No	No	0.0000	0.0000

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### Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 120.00-100.00	Solid Round	1 3/4	A572-55 (55 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 100.00-80.00	Solid Round	2 1/4	A572-55 (55 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T3 80.00-60.00	Truss Leg	Pirod 105217 mod	A572-55 (55 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A572-50 (50 ksi)
T4 60.00-40.00	Truss Leg	Pirod 105218 mod	A572-55 (55 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A572-50 (50 ksi)
T5 40.00-20.00	Truss Leg	Pirod 105218 mod	A572-55 (55 ksi)	Equal Angle	L2 1/2x2 1/2x5/16	A572-50 (50 ksi)
T6 20.00-0.00	Truss Leg	Pirod 105219 mod	A572-55 (55 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4	A572-50 (50 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 120.00-100.00	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	7/8	A572-50 (50 ksi)
T2 100.00-80.00	Solid Round	1	A572-50 (50 ksi)	Solid Round	1	A572-50 (50 ksi)
T3 80.00-60.00	Equal Angle	L3x3x3/16	A572-50 (50 ksi)	Solid Round		A572-50 (50 ksi)

### Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 120.00-100.00	1	Solid Round	7/8	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)
T2 100.00-80.00	1	Solid Round	1	A572-50 (50 ksi)	Solid Round	3/4	A572-50 (50 ksi)

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (AT&T)	A	No	Yes	Ar (CaAa)	98.00 - 6.00	6	6	0.0000	1.9800		1.04
DC Power Cable FB-L98B-002	A	No	Yes	Ar (CaAa)	98.00 - 6.00	6	6	0.0000	0.8200		0.58
	A	No	Yes	Ar (CaAa)	98.00 - 6.00	2	2	0.0000	0.4000		0.25

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
***** 7/8 *****	C	No	Yes	Ar (CaAa)	120.00 - 6.00	18	9	0.0000	1.1100		0.54
1 5/8 Fiber Cable	B	No	Yes	Ar (CaAa)	110.00 - 8.00	3	3	0.0000	1.9800		1.04

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft <sup>2</sup>	CAAA Side ft <sup>2</sup>	Weight lb	
SitePro VFA12 (AT&T - existing)	A	From Leg	2.00	0.0000	98.00	No Ice	15.40	14.00	558.00
			0.00			1/2" Ice	21.30	20.81	741.00
			0.00			1" Ice	27.20	27.62	924.00
SitePro VFA12	B	From Leg	2.00	0.0000	98.00	No Ice	15.40	14.00	558.00
			0.00			1/2" Ice	21.30	20.81	741.00
			0.00			1" Ice	27.20	27.62	924.00
SitePro VFA12	C	From Leg	2.00	0.0000	98.00	No Ice	15.40	14.00	558.00
			0.00			1/2" Ice	21.30	20.81	741.00
			0.00			1" Ice	27.20	27.62	924.00
(2) TPA65R-BU8D w/mount pipe	A	From Leg	3.50	0.0000	98.00	No Ice	18.16	10.71	139.21
			0.00			1/2" Ice	18.89	12.24	264.73
			0.00			1" Ice	19.61	13.58	401.95
(2) TPA65R-BU8D w/mount pipe	B	From Leg	3.50	0.0000	98.00	No Ice	18.16	10.71	139.21
			0.00			1/2" Ice	18.89	12.24	264.73
			0.00			1" Ice	19.61	13.58	401.95
(2) TPA65R-BU8D w/mount pipe	C	From Leg	3.50	0.0000	98.00	No Ice	18.16	10.71	139.21
			0.00			1/2" Ice	18.89	12.24	264.73
			0.00			1" Ice	19.61	13.58	401.95
OPA65R-BU8D w/mount pipe	A	From Leg	3.50	0.0000	98.00	No Ice	18.38	10.79	132.11
			0.00			1/2" Ice	19.11	12.31	259.03
			0.00			1" Ice	19.84	13.66	397.67
OPA65R-BU8D w/mount pipe	B	From Leg	3.50	0.0000	98.00	No Ice	18.38	10.79	132.11
			0.00			1/2" Ice	19.11	12.31	259.03
			0.00			1" Ice	19.84	13.66	397.67
OPA65R-BU8D w/mount pipe	C	From Leg	3.50	0.0000	98.00	No Ice	18.38	10.79	132.11
			0.00			1/2" Ice	19.11	12.31	259.03
			0.00			1" Ice	19.84	13.66	397.67
4449 B5/B12	A	From Leg	2.50	0.0000	98.00	No Ice	1.64	1.29	74.00
			0.00			1/2" Ice	1.80	1.44	91.12
			0.00			1" Ice	1.97	1.59	110.94
4449 B5/B12	B	From Leg	2.50	0.0000	98.00	No Ice	1.64	1.29	74.00
			0.00			1/2" Ice	1.80	1.44	91.12
			0.00			1" Ice	1.97	1.59	110.94
4449 B5/B12	C	From Leg	2.50	0.0000	98.00	No Ice	1.64	1.29	74.00
			0.00			1/2" Ice	1.80	1.44	91.12
			0.00			1" Ice	1.97	1.59	110.94
8843 B2/B66A	A	From Leg	2.50	0.0000	98.00	No Ice	1.64	1.35	74.00
			0.00			1/2" Ice	1.80	1.50	91.60
			0.00			1" Ice	1.97	1.65	111.91
8843 B2/B66A	B	From Leg	2.50	0.0000	98.00	No Ice	1.64	1.35	74.00
			0.00			1/2" Ice	1.80	1.50	91.60
			0.00			1" Ice	1.97	1.65	111.91

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb
8843 B2/B66A	C	From Leg	2.50	0.0000	98.00	No Ice	1.64	1.35	74.00
			0.00			1/2" Ice	1.80	1.50	91.60
			0.00			1" Ice	1.97	1.65	111.91
DC6-48-60-18-8C-EV	A	From Leg	1.00	0.0000	98.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11
DC6-48-60-18-8C-EV	B	From Leg	1.00	0.0000	98.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11
DC6-48-60-0-8C-EV	C	From Leg	1.00	0.0000	98.00	No Ice	0.81	0.81	33.00
			0.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11
*****									
4478 B14 (AT&T - proposed)	A	From Leg	2.00	0.0000	98.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4478 B14	B	From Leg	2.00	0.0000	98.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4478 B14	C	From Leg	2.00	0.0000	98.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.06
			0.00			1" Ice	2.39	1.56	97.48
4415 B30	A	From Leg	2.00	0.0000	98.00	No Ice	1.84	0.82	47.40
			0.00			1/2" Ice	2.01	0.94	61.47
			0.00			1" Ice	2.19	1.07	78.06
4415 B30	B	From Leg	2.00	0.0000	98.00	No Ice	1.84	0.82	47.40
			0.00			1/2" Ice	2.01	0.94	61.47
			0.00			1" Ice	2.19	1.07	78.06
*****									
BA4040-67-DIN	A	From Leg	2.00	0.0000	120.00	No Ice	12.78	4.92	18.00
			0.00			1/2" Ice	13.51	6.04	72.96
			0.00			1" Ice	14.25	7.18	136.61
BA4040-67-DIN	B	From Leg	2.00	0.0000	120.00	No Ice	12.78	4.92	18.00
			0.00			1/2" Ice	13.51	6.04	72.96
			0.00			1" Ice	14.25	7.18	136.61
DB404-B	C	From Leg	2.00	0.0000	120.00	No Ice	5.65	2.29	14.00
			0.00			1/2" Ice	6.03	2.65	42.65
			0.00			1" Ice	6.42	3.02	76.22
10' Dipole	A	From Leg	2.00	0.0000	120.00	No Ice	3.34	3.34	25.00
			0.00			1/2" Ice	4.97	4.97	53.13
			0.00			1" Ice	5.57	5.57	87.92
PTP 49400	A	From Leg	1.00	0.0000	120.00	No Ice	1.75	0.48	12.10
			0.00			1/2" Ice	1.92	0.58	23.53
			0.00			1" Ice	2.09	0.69	37.28
PTP 49400	B	From Leg	1.00	0.0000	120.00	No Ice	1.75	0.48	12.10
			0.00			1/2" Ice	1.92	0.58	23.53
			0.00			1" Ice	2.09	0.69	37.28
PTP 49400	C	From Leg	1.00	0.0000	120.00	No Ice	1.75	0.48	12.10
			0.00			1/2" Ice	1.92	0.58	23.53
			0.00			1" Ice	2.09	0.69	37.28
*****									
SitePro VFA12 (T-Mobile)	A	From Leg	2.00	0.0000	110.00	No Ice	15.40	14.00	558.00
			0.00			1/2" Ice	21.30	20.81	741.00
			0.00			1" Ice	27.20	27.62	924.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral Vert					
			ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	lb
SitePro VFA12	B	From Leg	2.00	0.0000	110.00	No Ice	15.40	14.00	558.00
			0.00			1/2" Ice	21.30	20.81	741.00
			0.00			1" Ice	27.20	27.62	924.00
SitePro VFA12	C	From Leg	2.00	0.0000	110.00	No Ice	15.40	14.00	558.00
			0.00			1/2" Ice	21.30	20.81	741.00
			0.00			1" Ice	27.20	27.62	924.00
APXVAARR24_43-U-NA20 w/mount pipe	A	From Leg	4.00	0.0000	110.00	No Ice	20.24	11.19	174.32
			0.00			1/2" Ice	20.89	12.62	311.78
			0.00			1" Ice	21.55	13.71	460.89
APXVAARR24_43-U-NA20 w/mount pipe	B	From Leg	4.00	0.0000	110.00	No Ice	20.24	11.19	174.32
			0.00			1/2" Ice	20.89	12.62	311.78
			0.00			1" Ice	21.55	13.71	460.89
APXVAARR24_43-U-NA20 w/mount pipe	C	From Leg	4.00	0.0000	110.00	No Ice	20.24	11.19	174.32
			0.00			1/2" Ice	20.89	12.62	311.78
			0.00			1" Ice	21.55	13.71	460.89
AIR 32 B66AA/B2P w/mount pipe	A	From Leg	4.00	0.0000	110.00	No Ice	7.12	6.41	153.90
			0.00			1/2" Ice	7.60	7.28	217.59
			0.00			1" Ice	8.07	8.03	288.39
AIR 32 B66AA/B2P w/mount pipe	B	From Leg	4.00	0.0000	110.00	No Ice	7.12	6.41	153.90
			0.00			1/2" Ice	7.60	7.28	217.59
			0.00			1" Ice	8.07	8.03	288.39
AIR 32 B66AA/B2P w/mount pipe	C	From Leg	4.00	0.0000	110.00	No Ice	7.12	6.41	153.90
			0.00			1/2" Ice	7.60	7.28	217.59
			0.00			1" Ice	8.07	8.03	288.39
Radio 4415 B66A	A	From Leg	3.00	0.0000	110.00	No Ice	1.86	0.87	50.00
			0.00			1/2" Ice	2.03	1.00	64.55
			0.00			1" Ice	2.20	1.13	81.65
Radio 4415 B66A	B	From Leg	3.00	0.0000	110.00	No Ice	1.86	0.87	50.00
			0.00			1/2" Ice	2.03	1.00	64.55
			0.00			1" Ice	2.20	1.13	81.65
Radio 4415 B66A	C	From Leg	3.00	0.0000	110.00	No Ice	1.86	0.87	50.00
			0.00			1/2" Ice	2.03	1.00	64.55
			0.00			1" Ice	2.20	1.13	81.65
Radio 4449	A	From Leg	3.00	0.0000	110.00	No Ice	1.65	1.16	74.00
			0.00			1/2" Ice	1.81	1.30	90.16
			0.00			1" Ice	1.98	1.45	108.95
Radio 4449	B	From Leg	3.00	0.0000	110.00	No Ice	1.65	1.16	74.00
			0.00			1/2" Ice	1.81	1.30	90.16
			0.00			1" Ice	1.98	1.45	108.95
Radio 4449	C	From Leg	3.00	0.0000	110.00	No Ice	1.65	1.16	74.00
			0.00			1/2" Ice	1.81	1.30	90.16
			0.00			1" Ice	1.98	1.45	108.95

## Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz	Lateral Vert						
			ft	ft	°	°	ft	ft	ft <sup>2</sup>	lb	
Andrew VHLP800-11	A	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000	120.00	2.50	No Ice	6.00	49.00	
				0.00				1/2" Ice	6.40	77.00	
				0.00				1" Ice	6.80	105.00	

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Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Lateral Vert ft	°							
Andrew VHLP800-11	B	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000	°	°	ft	ft	No Ice	6.00	49.00
				0.00						1/2" Ice	6.40	77.00
				0.00						1" Ice	6.80	105.00

## Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service



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	<b>Project</b>	120 ft Self Supporting Tower	<b>Date</b>	10:24:14 07/21/20
	<b>Client</b>	AT&T	<b>Designed by</b>	kw

Comb. No.	Description
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	18	244089.95	21454.22	-12413.83
	Max. H <sub>x</sub>	18	244089.95	21454.22	-12413.83
	Max. H <sub>z</sub>	9	-195723.27	-16205.57	11594.19
	Min. Vert	7	-224457.82	-19518.29	11295.81
	Min. H <sub>x</sub>	7	-224457.82	-19518.29	11295.81
Leg B	Min. H <sub>z</sub>	20	213019.91	17795.37	-12553.64
	Max. Vert	10	248543.65	-21952.36	-12726.67
	Max. H <sub>x</sub>	23	-229675.21	20072.33	11665.61
	Max. H <sub>z</sub>	23	-229675.21	20072.33	11665.61
	Min. Vert	23	-229675.21	20072.33	11665.61
Leg A	Min. H <sub>x</sub>	10	248543.65	-21952.36	-12726.67
	Min. H <sub>z</sub>	10	248543.65	-21952.36	-12726.67
	Max. Vert	2	257668.40	21.85	26265.71
	Max. H <sub>x</sub>	8	9066.71	3640.25	1021.30
	Max. H <sub>z</sub>	2	257668.40	21.85	26265.71
	Min. Vert	15	-238753.16	-43.26	-24125.52
	Min. H <sub>x</sub>	20	11054.68	-3653.84	1182.01
	Min. H <sub>z</sub>	15	-238753.16	-43.26	-24125.52

### Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear <sub>x</sub> lb	Shear <sub>z</sub> lb	Overturning Moment, M <sub>x</sub> lb-ft	Overturning Moment, M <sub>z</sub> lb-ft	Torque lb-ft
Dead Only	24074.28	0.00	-0.00	-197.44	-155.37	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	28889.13	-148.84	-31988.03	-2577693.69	17797.21	1322.96
0.9 Dead+1.6 Wind 0 deg - No Ice	21666.85	-148.84	-31988.05	-2573699.85	17808.92	1321.78
1.2 Dead+1.6 Wind 30 deg - No Ice	28889.13	15233.23	-26486.27	-2165408.95	-1243208.19	751.30
0.9 Dead+1.6 Wind 30 deg - No Ice	21666.85	15233.21	-26486.27	-2162013.79	-1241237.80	750.59
1.2 Dead+1.6 Wind 60 deg - No Ice	28889.13	25441.79	-14688.83	-1205852.39	-2088358.78	-489.77
0.9 Dead+1.6 Wind 60 deg - No Ice	21666.85	25441.76	-14688.81	-1203923.66	-2085075.57	-489.11
1.2 Dead+1.6 Wind 90 deg - No Ice	28889.13	30164.12	50.78	5850.84	-2442547.82	-1594.55
0.9 Dead+1.6 Wind 90 deg - No Ice	21666.85	30164.11	50.79	5908.78	-2438758.02	-1592.74
1.2 Dead+1.6 Wind 120 deg - No Ice	28889.13	26656.49	15562.00	1256743.09	-2141386.29	-1812.75
0.9 Dead+1.6 Wind 120 deg - No Ice	21666.85	26656.51	15562.01	1254879.96	-2138078.28	-1810.95

<p style="text-align: center;"><b>tnxTower</b></p> <p style="text-align: center;"><b>Hudson Design Group LLC</b> 45 Beechwood Drive North Andover, MA 01845 Phone: (P) 978.557.5553 FAX: (F) 978.336.5586</p>	<b>Job</b>	CT1030	<b>Page</b>	8 of 11	
	<b>Project</b>	120 ft Self Supporting Tower		<b>Date</b>	10:24:14 07/21/20
	<b>Client</b>	AT&T		<b>Designed by</b>	kw

Load Combination	Vertical lb	Shear <sub>x</sub> lb	Shear <sub>z</sub> lb	Overturning Moment, M <sub>x</sub> lb-ft	Overturning Moment, M <sub>z</sub> lb-ft	Torque lb-ft
1.2 Dead+1.6 Wind 150 deg - No Ice	28889.13	15902.67	27580.10	2223657.85	-1281639.41	-1748.26
0.9 Dead+1.6 Wind 150 deg - No Ice	21666.85	15902.68	27580.08	2220313.46	-1279642.42	-1746.96
1.2 Dead+1.6 Wind 180 deg - No Ice	28889.13	93.03	31445.22	2560139.21	-11458.92	-1443.46
0.9 Dead+1.6 Wind 180 deg - No Ice	21666.85	93.03	31445.18	2556251.80	-11388.68	-1442.29
1.2 Dead+1.6 Wind 210 deg - No Ice	28889.13	-15202.45	26571.48	2175275.96	1239032.79	-772.86
0.9 Dead+1.6 Wind 210 deg - No Ice	21666.85	-15202.46	26571.46	2171971.49	1237182.75	-772.15
1.2 Dead+1.6 Wind 240 deg - No Ice	28889.14	-25973.30	14995.69	1218187.66	2110201.83	489.88
0.9 Dead+1.6 Wind 240 deg - No Ice	21666.85	-25973.32	14995.70	1216378.40	2107010.63	489.20
1.2 Dead+1.6 Wind 270 deg - No Ice	28889.13	-30222.53	-120.03	-14808.70	2449232.21	1616.10
0.9 Dead+1.6 Wind 270 deg - No Ice	21666.85	-30222.52	-120.01	-14709.36	2445523.74	1614.28
1.2 Dead+1.6 Wind 300 deg - No Ice	28889.13	-26214.28	-15242.24	-1242875.91	2129568.92	1933.15
0.9 Dead+1.6 Wind 300 deg - No Ice	21666.85	-26214.24	-15242.22	-1240896.34	2126338.04	1931.37
1.2 Dead+1.6 Wind 330 deg - No Ice	28889.13	-15933.73	-27562.16	-2221957.41	1285038.95	1748.23
0.9 Dead+1.6 Wind 330 deg - No Ice	21666.85	-15933.71	-27562.16	-2218506.19	1283112.18	1746.94
1.2 Dead+1.0 Ice+1.0 Temp	113073.01	0.00	-0.00	-2087.33	-1354.97	-0.28
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	113073.01	-23.91	-8605.58	-704532.05	1556.60	218.02
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	113073.00	4250.01	-7377.56	-607290.25	-349621.12	74.31
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	113073.00	7282.85	-4204.75	-347524.19	-599580.35	-150.41
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	113073.00	8382.51	8.16	-1169.52	-688235.96	-332.70
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	113073.01	7336.37	4263.26	346548.52	-599477.54	-367.12
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	113073.00	4273.43	7407.55	603774.01	-350826.50	-336.66
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	113073.00	14.94	8559.88	699028.80	-3263.40	-237.27
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	113073.00	-4245.08	7391.24	604661.30	346170.08	-77.73
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	113073.01	-7332.29	4233.30	344473.03	598995.63	149.28
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	113073.00	-8391.89	-19.27	-4573.47	686582.24	336.16
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	113073.00	-7301.27	-4232.65	-349343.46	596205.77	386.37
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	113073.00	-4278.41	-7404.68	-607744.86	348645.85	336.65
Dead+Wind 0 deg - Service	24074.28	-26.41	-5676.70	-457170.85	3032.91	234.94
Dead+Wind 30 deg - Service	24074.28	2703.32	-4700.33	-384068.50	-220524.72	121.43
Dead+Wind 60 deg - Service	24074.28	4514.94	-2606.70	-213937.90	-370362.02	-87.50
Dead+Wind 90 deg - Service	24074.28	5353.00	9.02	890.32	-433165.21	-271.85
Dead+Wind 120 deg - Service	24074.28	4730.54	2761.68	222658.34	-379779.09	-321.77
Dead+Wind 150 deg - Service	24074.28	2822.14	4894.43	394077.24	-227353.24	-322.66
Dead+Wind 180 deg - Service	24074.28	16.51	5580.32	453725.59	-2152.22	-256.27
Dead+Wind 210 deg - Service	24074.28	-2697.88	4715.44	385493.22	219553.92	-125.16

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	<b>Project</b>	120 ft Self Supporting Tower	<b>Date</b>	10:24:14 07/21/20
	<b>Client</b>	AT&T	<b>Designed by</b>	kw

Load Combination	Vertical lb	Shear <sub>x</sub> lb	Shear <sub>z</sub> lb	Overturning Moment, M <sub>x</sub> lb-ft	Overturning Moment, M <sub>z</sub> lb-ft	Torque lb-ft
Dead+Wind 240 deg - Service	24074.28	-4609.30	2661.18	215820.09	374000.69	86.66
Dead+Wind 270 deg - Service	24074.28	-5363.37	-21.29	-2771.29	434102.56	275.59
Dead+Wind 300 deg - Service	24074.28	-4652.03	-2704.91	-220500.55	377424.57	343.10
Dead+Wind 330 deg - Service	24074.28	-2827.63	-4891.26	-394095.86	227698.81	322.66

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
1	0.00	-24074.28	-0.00	-0.00	24074.28	0.00	0.000%
2	-148.84	-28889.14	-31988.18	148.84	28889.13	31988.03	0.000%
3	-148.84	-21666.85	-31988.18	148.84	21666.85	31988.05	0.000%
4	15233.20	-28889.14	-26486.34	-15233.23	28889.13	26486.27	0.000%
5	15233.20	-21666.85	-26486.34	-15233.21	21666.85	26486.27	0.000%
6	25441.69	-28889.14	-14688.77	-25441.79	28889.13	14688.83	0.000%
7	25441.69	-21666.85	-14688.77	-25441.76	21666.85	14688.81	0.000%
8	30164.16	-28889.14	50.84	-30164.12	28889.13	-50.78	0.000%
9	30164.16	-21666.85	50.84	-30164.11	21666.85	-50.79	0.000%
10	26656.60	-28889.14	15562.07	-26656.49	28889.13	-15562.00	0.000%
11	26656.60	-21666.85	15562.07	-26656.51	21666.85	-15562.01	0.000%
12	15902.76	-28889.14	27580.11	-15902.67	28889.13	-27580.10	0.000%
13	15902.76	-21666.85	27580.11	-15902.68	21666.85	-27580.08	0.000%
14	93.03	-28889.14	31445.08	-93.03	28889.13	-31445.22	0.000%
15	93.03	-21666.85	31445.08	-93.03	21666.85	-31445.18	0.000%
16	-15202.53	-28889.14	26571.49	15202.45	28889.13	-26571.48	0.000%
17	-15202.53	-21666.85	26571.49	15202.46	21666.85	-26571.46	0.000%
18	-25973.41	-28889.14	14995.75	25973.30	28889.14	-14995.69	0.000%
19	-25973.41	-21666.85	14995.75	25973.32	21666.85	-14995.70	0.000%
20	-30222.57	-28889.14	-119.97	30222.53	28889.13	120.03	0.000%
21	-30222.57	-21666.85	-119.97	30222.52	21666.85	120.01	0.000%
22	-26214.17	-28889.14	-15242.18	26214.28	28889.13	15242.24	0.000%
23	-26214.17	-21666.85	-15242.18	26214.24	21666.85	15242.22	0.000%
24	-15933.70	-28889.14	-27562.25	15933.73	28889.13	27562.16	0.000%
25	-15933.70	-21666.85	-27562.25	15933.71	21666.85	27562.16	0.000%
26	0.00	-113073.01	-0.00	-0.00	113073.01	0.00	0.000%
27	-23.91	-113073.01	-8605.58	23.91	113073.01	8605.58	0.000%
28	4250.00	-113073.01	-7377.56	-4250.01	113073.00	7377.56	0.000%
29	7282.84	-113073.01	-4204.75	-7282.85	113073.00	4204.75	0.000%
30	8382.51	-113073.01	8.17	-8382.51	113073.00	-8.16	0.000%
31	7336.37	-113073.01	4263.26	-7336.37	113073.01	-4263.26	0.000%
32	4273.43	-113073.01	7407.54	-4273.43	113073.00	-7407.55	0.000%
33	14.94	-113073.01	8559.87	-14.94	113073.00	-8559.88	0.000%
34	-4245.08	-113073.01	7391.23	4245.08	113073.00	-7391.24	0.000%
35	-7332.29	-113073.01	4233.30	7332.29	113073.01	-4233.30	0.000%
36	-8391.89	-113073.01	-19.27	8391.89	113073.00	19.27	0.000%
37	-7301.27	-113073.01	-4232.64	7301.27	113073.00	4232.65	0.000%
38	-4278.40	-113073.01	-7404.68	4278.41	113073.00	7404.68	0.000%
39	-26.41	-24074.28	-5676.70	26.41	24074.28	5676.70	0.000%
40	2703.32	-24074.28	-4700.33	-2703.32	24074.28	4700.33	0.000%
41	4514.94	-24074.28	-2606.70	-4514.94	24074.28	2606.70	0.000%
42	5353.00	-24074.28	9.02	-5353.00	24074.28	-9.02	0.000%
43	4730.54	-24074.28	2761.68	-4730.54	24074.28	-2761.68	0.000%
44	2822.14	-24074.28	4894.43	-2822.14	24074.28	-4894.43	0.000%
45	16.51	-24074.28	5580.32	-16.51	24074.28	-5580.32	0.000%
46	-2697.88	-24074.28	4715.44	2697.88	24074.28	-4715.44	0.000%
47	-4609.30	-24074.28	2661.18	4609.30	24074.28	-2661.18	0.000%

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	<b>Project</b>	120 ft Self Supporting Tower	<b>Date</b>	10:24:14 07/21/20
	<b>Client</b>	AT&T	<b>Designed by</b>	kw

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
48	-5363.37	-24074.28	-21.29	5363.37	24074.28	21.29	0.000%
49	-4652.03	-24074.28	-2704.91	4652.03	24074.28	2704.91	0.000%
50	-2827.63	-24074.28	-4891.26	2827.63	24074.28	4891.26	0.000%

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	120 - 100	3.254	39	0.2535	0.0290
T2	100 - 80	2.188	39	0.2389	0.0172
T3	80 - 60	1.248	39	0.1772	0.0091
T4	60 - 40	0.633	39	0.1094	0.0034
T5	40 - 20	0.254	39	0.0657	0.0011
T6	20 - 0	0.049	39	0.0256	0.0003

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.00	Andrew VHLP800-11	39	3.254	0.2535	0.0290	231544
110.00	SitePro VFA12	39	2.716	0.2506	0.0227	115772
98.00	SitePro VFA12	39	2.085	0.2348	0.0162	40539

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capacity	Pass/Fail
T1	120 - 100	Leg	1 3/4	3	-29967.90	83362.50	35.9	Pass
T2	100 - 80	Leg	2 1/4	81	-131048.00	158641.00	82.6	Pass
T3	80 - 60	Leg	Pirod 105217 mod	159	-164849.00	233885.00	70.5	Pass
T4	60 - 40	Leg	Pirod 105218 mod	177	-198527.00	328216.00	60.5	Pass
T5	40 - 20	Leg	Pirod 105218 mod	190	-219460.00	328216.00	86.0	Pass
T6	20 - 0	Leg	Pirod 105219 mod	207	-230968.00	385152.00	60.0	Pass
T1	120 - 100	Diagonal	3/4	16	-4072.63	5920.60	68.8	Pass
T2	100 - 80	Diagonal	7/8	94	-8206.00	11155.80	73.6	Pass
T3	80 - 60	Diagonal	L2 1/2x2 1/2x1/4	165	-7909.87	16704.70	47.4	Pass
T4	60 - 40	Diagonal	L2 1/2x2 1/2x3/16	186	-5943.79	11091.80	53.6	Pass
T5	40 - 20	Diagonal	L2 1/2x2 1/2x5/16	198	-7040.57	12823.60	54.9	Pass
T6	20 - 0	Diagonal	2L3 1/2x3 1/2x1/4	212	-16811.90	48326.20	34.8	Pass
T1	120 - 100	Horizontal	3/4	28	-320.14	3347.61	9.6	Pass
T2	100 - 80	Horizontal	3/4	97	-1680.46	3421.18	49.1	Pass
T1	120 - 100	Top Girt	7/8	4	-398.68	6201.87	6.4	Pass
T2	100 - 80	Top Girt	1	82	-1079.88	10812.60	10.0	Pass
T3	80 - 60	Top Girt	L3x3x3/16	160	-1961.33	22729.60	8.6	Pass
T1	120 - 100	Bottom Girt	7/8	7	-1453.79	6201.87	23.4	Pass
T2	100 - 80	Bottom Girt	1	85	-796.81	10812.60	7.4	Pass
T1	120 - 100	Mid Girt	7/8	11	-556.97	6201.87	9.0	Pass

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	<b>Project</b>	120 ft Self Supporting Tower	<b>Date</b>	10:24:14 07/21/20
	<b>Client</b>	AT&T	<b>Designed by</b>	kw

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capacity	Pass Fail
T2	100 - 80	Mid Girt	1	88	-1170.93	10812.60	10.8	Pass
							Summary	
						Leg (T5)	86.0	Pass
						Diagonal (T2)	73.6	Pass
						Horizontal (T2)	49.1	Pass
						Top Girt (T2)	10.0	Pass
						Bottom Girt (T1)	23.4	Pass
						Mid Girt (T2)	10.8	Pass
						<b>RATING =</b>	<b>86.0</b>	<b>Pass</b>

May 29, 2020



SAI Communications  
12 Industrial Way  
Salem NH, 03079

RE:      Site Number:                    CT1030 (LTE 4C/5C/5G/BWE)  
            FA Number:                     10035264  
            PACE Number:                    MRCTB026827  
            PT Number:                      2051A0EFPP  
            Site Name:                        SOUTHINGTON MILL ST H20 TANK  
            Site Address:                    435 Mill Street  
    Southington, CT 06489

To Whom It May Concern:

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

- (6) TPA65R-BU8D Antenna (96.0"x20.7"x7.7" – Wt. = 88 lbs. /each)
- (3) OPA65R-BU8B Antenna (95.9"x11.7"x8.4" – Wt. = 69 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.5" – Wt. = 71 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs. /each)
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 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 1.67 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.
- 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 existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 4C 5C 5G BWE) Mount Rating Alpha and Beta Sector	96	LC30	87%	PASS
Existing (LTE 4C 5C 5G BWE) Mount Rating Gamma Sector	96	LC30	87%	PASS

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





**HUDSON**  
Design Group LLC

## Wind & Ice Calculations

Date: 6/4/2020  
 Project Name: SOUTHLINGTON MILL ST H2O TANK  
 Project No.: CT1030  
 Designed By: KM Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

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

$K_z =$  **0.983**

$z =$  98 (ft)  
 $z_g =$  1200 (ft)  
 $\alpha =$  7.0

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

**Table 2-4**

Exposure	$Z_g$	$\alpha$	$K_{zmin}$	$K_c$
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	$K_t$	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  $K_{zt} = 1.0$ )*

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

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

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

$z =$  98

$z_s =$  318 (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)

$K_e =$  0.99 (from 2.6.8)

Category = **1**

**2.6.10 Design Ice Thickness**

Max Ice Thickness =

$t_i =$  1.50 in

Importance Factor =

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

$K_{iz} =$  1.11 (from Sec. 2.6.10)

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

$t_{iz} =$  1.67 in

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**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= 120  $G_h = 0.85$

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**

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

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

$q_z =$	<b>33.02</b>
$q_{z(ice)} =$	<b>5.28</b>
$q_{z(30)} =$	<b>1.90</b>

$K_z =$	0.983 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	0.99 (from 2.6.8)
$K_d =$	<b>0.85</b> (from Table 2-2)
$V_{max} =$	<b>125</b> mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

**Table 2-2**

Structure Type	Wind Direction Probability Factor, Kd
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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**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 = **1.67 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)
TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	4.64	1.30	590	114	34
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	8.20	1.44	371	79	21
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.36	1.20	65	15	4
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.72	1.20	51	13	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	54	13	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	45	11	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	67	16	4
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	41	11	2
4415 B30 RRH	16.5	13.4	5.9	1.54	1.23	1.20	61	15	4
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	27	8	2
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	37	9	2
PL 3-1/2x5/8	3.5	0.6	-	0.02	5.60	1.20	1		
PL 11-1/4x5/8	11.3	0.5	-	0.04	22.50	1.20	2		
5/8" Round Bar	0.6	12.0	-	0.05	0.05	1.20	2		
3/4" Round Bar	0.8	12.0	-	0.06	0.06	1.20	2		
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	8		
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	9		

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**WIND LOADS**

Angle = **30** (deg)      Ice Thickness = **1.67** 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)
TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	590	268	510
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	371	286	349
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	65	51	62
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	51	65	55
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	54	45	52
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	45	54	47
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	67	41	60
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	41	67	48
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	61	27	52
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	27	61	36

**WIND LOADS WITH ICE:**

TPA65R-BU8D Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	112	59	98
OPA65R-BU8B Antenna	99.2	15.0	11.7	10.37	8.09	6.60	8.45	1.38	1.45	76	62	72
4449 B5/B12 RRH	21.2	16.5	13.7	2.44	2.03	1.28	1.55	1.20	1.20	15	13	15
4449 B5/B12 RRH (Side)	21.2	13.7	16.5	2.03	2.44	1.55	1.28	1.20	1.20	13	15	14
B2/B66A 8843 RRH	18.2	16.5	14.2	2.10	1.80	1.10	1.28	1.20	1.20	13	11	13
B2/B66A 8843 RRH (Side)	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	11	13	12
B14 4478 RRH	21.4	16.7	11.6	2.49	1.73	1.28	1.84	1.20	1.20	16	11	15
B14 4478 RRH (Side)	21.4	11.6	16.7	1.73	2.49	1.84	1.28	1.20	1.20	11	16	12
4415 B30 RRH	19.8	16.7	9.2	2.31	1.27	1.19	2.15	1.20	1.20	15	8	13
4415 B30 RRH (Side)	19.8	9.2	16.7	1.27	2.31	2.15	1.19	1.20	1.20	8	15	10

**WIND LOADS AT 30 MPH:**

TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	34	15	29
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	21	16	20
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	4	3	4
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	2

Date: 6/4/2020  
 Project Name: SOUTHLINGTON MILL ST H2O TANK  
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 Designed By: KM Checked By: MSC



**WIND LOADS**

Angle = **60** (deg)      Ice Thickness = **1.67** 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)	Force (lbs)	Force (lbs)
TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	590	268	349
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	371	286	307
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	65	51	55
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	51	65	62
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	54	45	47
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	45	54	52
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	67	41	48
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	41	67	60
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	61	27	36
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	27	61	52

**WIND LOADS WITH ICE:**

TPA65R-BU8D Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	112	59	72
OPA65R-BU8B Antenna	99.2	15.0	11.7	10.37	8.09	6.60	8.45	1.38	1.45	76	62	65
4449 B5/B12 RRH	21.2	16.5	13.7	2.44	2.03	1.28	1.55	1.20	1.20	15	13	14
4449 B5/B12 RRH (Side)	21.2	13.7	16.5	2.03	2.44	1.55	1.28	1.20	1.20	13	15	15
B2/B66A 8843 RRH	18.2	16.5	14.2	2.10	1.80	1.10	1.28	1.20	1.20	13	11	12
B2/B66A 8843 RRH (Side)	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	11	13	13
B14 4478 RRH	21.4	16.7	11.6	2.49	1.73	1.28	1.84	1.20	1.20	16	11	12
B14 4478 RRH (Side)	21.4	11.6	16.7	1.73	2.49	1.84	1.28	1.20	1.20	11	16	15
4415 B30 RRH	19.8	16.7	9.2	2.31	1.27	1.19	2.15	1.20	1.20	15	8	10
4415 B30 RRH (Side)	19.8	9.2	16.7	1.27	2.31	2.15	1.19	1.20	1.20	8	15	13

**WIND LOADS AT 30 MPH:**

TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	34	15	20
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	21	16	18
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	4	3	3
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	3

Date: 6/4/2020  
 Project Name: SOUTHLINGTON MILL ST H2O TANK  
 Project No.: CT1030  
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 90 (deg)      Ice Thickness = 1.67 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)	Force (lbs)	Force (lbs)
TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	590	268	268
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	371	286	286
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	65	51	51
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	51	65	65
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	54	45	45
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	45	54	54
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	67	41	48
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	41	67	67
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	61	27	36
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	27	61	61

WIND LOADS WITH ICE:

TPA65R-BU8D Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	112	59	59
OPA65R-BU8B Antenna	99.2	15.0	11.7	10.37	8.09	6.60	8.45	1.38	1.45	76	62	62
4449 B5/B12 RRH	21.2	16.5	13.7	2.44	2.03	1.28	1.55	1.20	1.20	15	13	13
4449 B5/B12 RRH (Side)	21.2	13.7	16.5	2.03	2.44	1.55	1.28	1.20	1.20	13	15	15
B2/B66A 8843 RRH	18.2	16.5	14.2	2.10	1.80	1.10	1.28	1.20	1.20	13	11	11
B2/B66A 8843 RRH (Side)	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	11	13	13
B14 4478 RRH	21.4	16.7	11.6	2.49	1.73	1.28	1.84	1.20	1.20	16	11	12
B14 4478 RRH (Side)	21.4	11.6	16.7	1.73	2.49	1.84	1.28	1.20	1.20	11	16	16
4415 B30 RRH	19.8	16.7	9.2	2.31	1.27	1.19	2.15	1.20	1.20	15	8	10
4415 B30 RRH (Side)	19.8	9.2	16.7	1.27	2.31	2.15	1.19	1.20	1.20	8	15	15

WIND LOADS AT 30 MPH:

TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	34	15	15
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	21	16	16
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	4	3	3
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	4
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4

Date: 6/4/2020  
 Project Name: SOUTHLINGTON MILL ST H2O TANK  
 Project No.: CT1030  
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 120 (deg)      Ice Thickness = 1.67 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)	Force (lbs)	Force (lbs)
TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	590	268	349
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	371	286	307
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	65	51	55
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	51	65	62
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	54	45	47
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	45	54	52
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	67	41	48
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	41	67	60
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	61	27	36
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	27	61	52

WIND LOADS WITH ICE:

TPA65R-BU8D Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	112	59	72
OPA65R-BU8B Antenna	99.2	15.0	11.7	10.37	8.09	6.60	8.45	1.38	1.45	76	62	65
4449 B5/B12 RRH	21.2	16.5	13.7	2.44	2.03	1.28	1.55	1.20	1.20	15	13	14
4449 B5/B12 RRH (Side)	21.2	13.7	16.5	2.03	2.44	1.55	1.28	1.20	1.20	13	15	15
B2/B66A 8843 RRH	18.2	16.5	14.2	2.10	1.80	1.10	1.28	1.20	1.20	13	11	12
B2/B66A 8843 RRH (Side)	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	11	13	13
B14 4478 RRH	21.4	16.7	11.6	2.49	1.73	1.28	1.84	1.20	1.20	16	11	12
B14 4478 RRH (Side)	21.4	11.6	16.7	1.73	2.49	1.84	1.28	1.20	1.20	11	16	15
4415 B30 RRH	19.8	16.7	9.2	2.31	1.27	1.19	2.15	1.20	1.20	15	8	10
4415 B30 RRH (Side)	19.8	9.2	16.7	1.27	2.31	2.15	1.19	1.20	1.20	8	15	13

WIND LOADS AT 30 MPH:

TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	34	15	20
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	21	16	18
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	4	3	3
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	3



Date: 6/4/2020  
 Project Name: SOUTHLINGTON MILL ST H2O TANK  
 Project No.: CT1030  
 Designed By: KM Checked By: MSC



WIND LOADS

Angle = 150 (deg)      Ice Thickness = 1.67 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)	Force (lbs)	Force (lbs)
TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	590	268	510
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	371	286	349
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	65	51	62
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	51	65	55
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	54	45	52
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	45	54	47
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	67	41	48
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	41	67	48
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	61	27	36
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	27	61	36

WIND LOADS WITH ICE:

TPA65R-BU8D Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	112	59	98
OPA65R-BU8B Antenna	99.2	15.0	11.7	10.37	8.09	6.60	8.45	1.38	1.45	76	62	72
4449 B5/B12 RRH	21.2	16.5	13.7	2.44	2.03	1.28	1.55	1.20	1.20	15	13	15
4449 B5/B12 RRH (Side)	21.2	13.7	16.5	2.03	2.44	1.55	1.28	1.20	1.20	13	15	14
B2/B66A 8843 RRH	18.2	16.5	14.2	2.10	1.80	1.10	1.28	1.20	1.20	13	11	13
B2/B66A 8843 RRH (Side)	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	11	13	12
B14 4478 RRH	21.4	16.7	11.6	2.49	1.73	1.28	1.84	1.20	1.20	16	11	12
B14 4478 RRH (Side)	21.4	11.6	16.7	1.73	2.49	1.84	1.28	1.20	1.20	11	16	12
4415 B30 RRH	19.8	16.7	9.2	2.31	1.27	1.19	2.15	1.20	1.20	15	8	10
4415 B30 RRH (Side)	19.8	9.2	16.7	1.27	2.31	2.15	1.19	1.20	1.20	8	15	10

WIND LOADS AT 30 MPH:

TPA65R-BU8D Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	34	15	29
OPA65R-BU8B Antenna	95.9	11.7	8.4	7.79	5.59	8.20	11.42	1.44	1.55	21	16	20
4449 B5/B12 RRH	17.9	13.2	10.4	1.64	1.29	1.36	1.72	1.20	1.20	4	3	4
4449 B5/B12 RRH (Side)	17.9	10.4	13.2	1.29	1.64	1.72	1.36	1.20	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	4	2	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4415 B30 RRH	16.5	13.4	5.9	1.54	0.68	1.23	2.80	1.20	1.21	4	2	2
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	2

Date: 6/3/2020

Project Name: SOUTHLINGTON MILL ST H2O TANK

Project No.: CT1030

Designed By: KM Checked By: MSC



**HUDSON**  
Design Group LLC

### ICE WEIGHT CALCULATIONS

Thickness of ice: 1.67 in.  
Density of ice: 56 pcf

#### TPA65R-BU8D 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: 388 lbs

Weight of object: 88.0 lbs

Combined weight of ice and object: 476 lbs

#### OPA65R-BU8B Antenna

Weight of ice based on total radial SF area:

Height (in): 95.9  
Width (in): 11.7  
Depth (in): 8.4

Total weight of ice on object: 262 lbs

Weight of object: 69.0 lbs

Combined weight of ice and object: 331 lbs

#### 4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in): 17.9  
Width (in): 13.2  
Depth (in): 9.5

Total weight of ice on object: 55 lbs

Weight of object: 71.0 lbs

Combined weight of ice and object: 126 lbs

#### 8843 B2/B66A 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: 48 lbs

Weight of object: 72.0 lbs

Combined weight of ice and object: 120 lbs

#### 4478 B14 RRH

Weight of ice based on total radial SF area:

Height (in): 18.1  
Width (in): 13.4  
Depth (in): 8.3

Total weight of ice on object: 54 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 114 lbs

#### 4415 B30 RRH

Weight of ice based on total radial SF area:

Height (in): 16.5  
Width (in): 13.4  
Depth (in): 5.9

Total weight of ice on object: 46 lbs

Weight of object: 46.0 lbs

Combined weight of ice and object: 92 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: 46 lbs

Weight of object: 33 lbs

Combined weight of ice and object: 79 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: 26 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: 11 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

#### 2-1/2" pipe

Per foot weight of ice:

diameter (in): 2.88

Per foot weight of ice on object: 9 plf

#### 2" pipe

Per foot weight of ice:

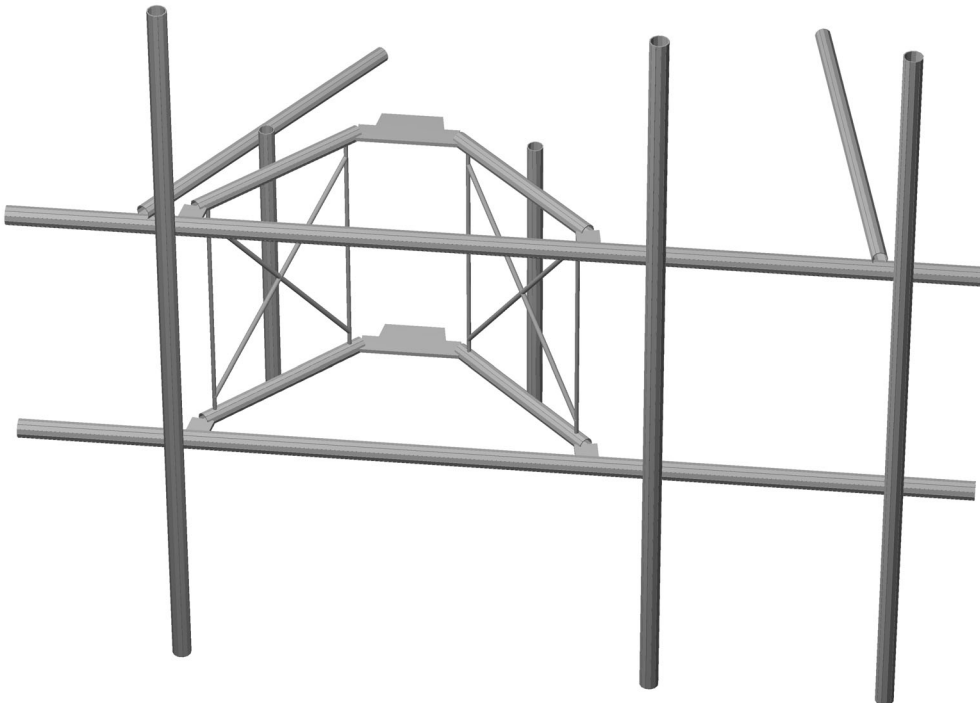
diameter (in): 2.38

Per foot weight of ice on object: 8 plf

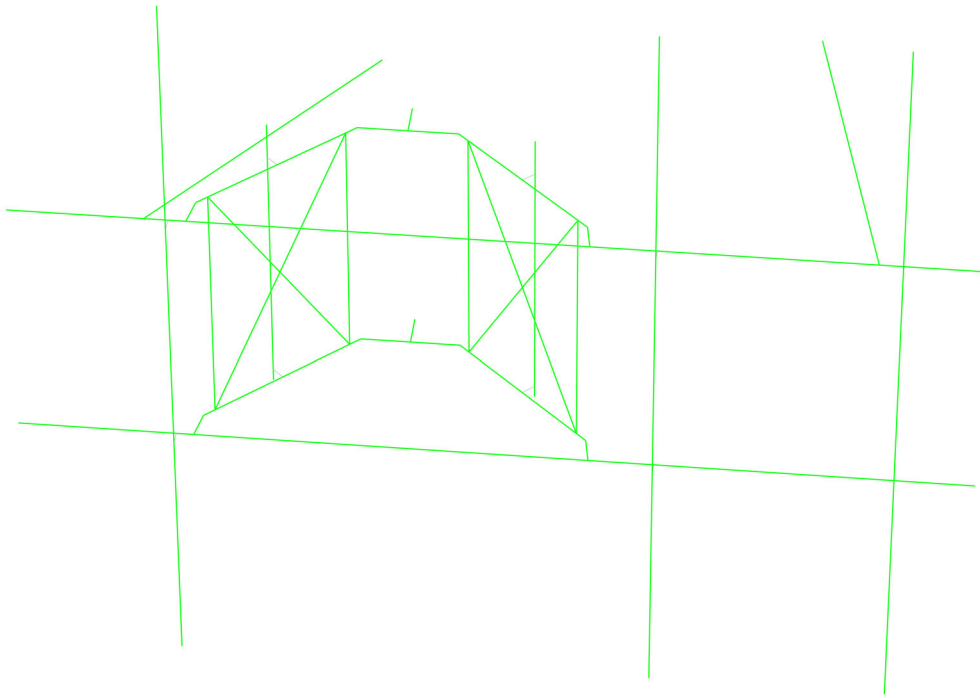


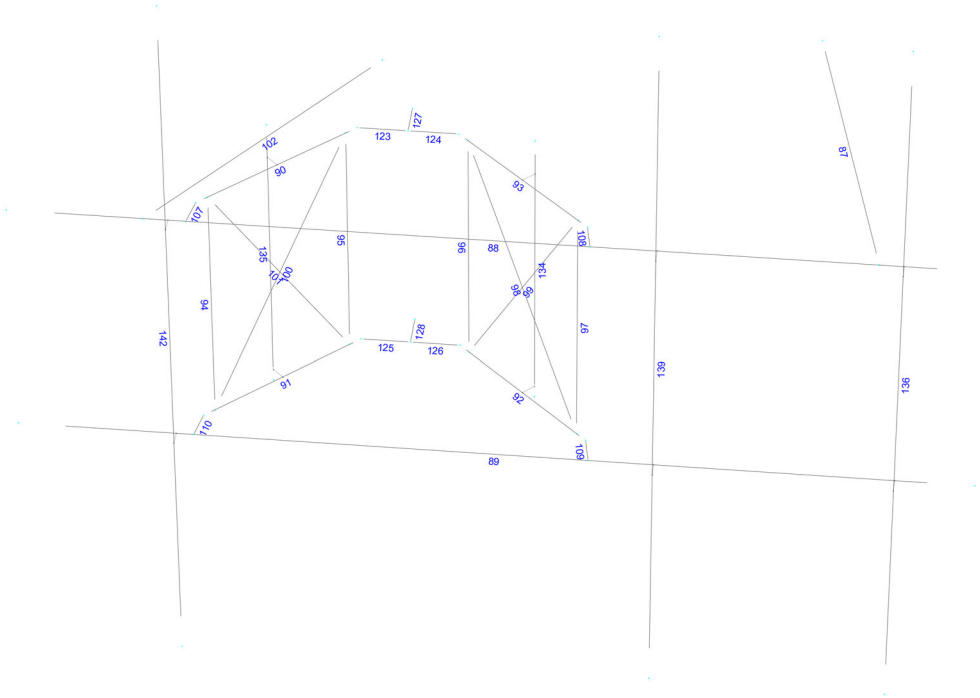
**HUDSON**  
Design Group LLC

**Mount Calculations  
(Existing Alpha & Beta  
Sector Conditions)**









Current Date: 6/4/2020 10:07 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1030\LTE 4C 5C 5G BWE\CT1030 (Alpha and Beta Sector).retx

## Load data

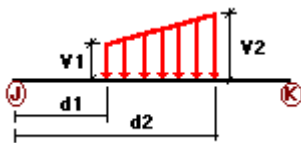
### GLOSSARY

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





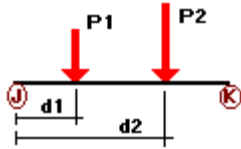
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	87	z	-0.008	-0.008	0.00	No	100.00	Yes
	88	z	-0.009	-0.009	0.00	No	100.00	Yes
	89	z	-0.009	-0.009	0.00	No	100.00	Yes
	90	z	-0.008	-0.008	0.00	No	100.00	Yes
	91	z	-0.008	-0.008	0.00	No	100.00	Yes
	92	z	-0.008	-0.008	0.00	No	100.00	Yes
	93	z	-0.008	-0.008	0.00	No	100.00	Yes
	94	z	-0.002	-0.002	0.00	No	100.00	Yes
	95	z	-0.002	-0.002	0.00	No	100.00	Yes
	96	z	-0.002	-0.002	0.00	No	100.00	Yes
	97	z	-0.002	-0.002	0.00	No	100.00	Yes
	98	z	-0.002	-0.002	0.00	No	100.00	Yes
	99	z	-0.002	-0.002	0.00	No	100.00	Yes
	100	z	-0.002	-0.002	0.00	No	100.00	Yes
	101	z	-0.002	-0.002	0.00	No	100.00	Yes
	102	z	-0.008	-0.008	0.00	No	100.00	Yes
	107	z	-0.001	-0.001	0.00	No	100.00	Yes
	108	z	-0.001	-0.001	0.00	No	100.00	Yes
109	z	-0.001	-0.001	0.00	No	100.00	Yes	
110	z	-0.001	-0.001	0.00	No	100.00	Yes	
123	z	-0.001	-0.001	0.00	No	100.00	Yes	
124	z	-0.001	-0.001	0.00	No	100.00	Yes	
125	z	-0.001	-0.001	0.00	No	100.00	Yes	
126	z	-0.001	-0.001	0.00	No	100.00	Yes	
127	z	-0.002	-0.002	0.00	No	100.00	Yes	
128	z	-0.002	-0.002	0.00	No	100.00	Yes	
W30	87	z	-0.008	-0.008	0.00	No	100.00	Yes
	88	z	-0.009	-0.009	0.00	No	100.00	Yes
	89	z	-0.009	-0.009	0.00	No	100.00	Yes
	90	z	-0.008	-0.008	0.00	No	100.00	Yes
	91	z	-0.008	-0.008	0.00	No	100.00	Yes
	92	z	-0.008	-0.008	0.00	No	100.00	Yes
	93	z	-0.008	-0.008	0.00	No	100.00	Yes
	94	z	-0.002	-0.002	0.00	No	100.00	Yes
	95	z	-0.002	-0.002	0.00	No	100.00	Yes
	96	z	-0.002	-0.002	0.00	No	100.00	Yes
	97	z	-0.002	-0.002	0.00	No	100.00	Yes
	98	z	-0.002	-0.002	0.00	No	100.00	Yes
	99	z	-0.002	-0.002	0.00	No	100.00	Yes
	100	z	-0.002	-0.002	0.00	No	100.00	Yes
	101	z	-0.002	-0.002	0.00	No	100.00	Yes
	102	z	-0.008	-0.008	0.00	No	100.00	Yes
	107	z	-0.001	-0.001	0.00	No	100.00	Yes
	108	z	-0.001	-0.001	0.00	No	100.00	Yes
109	z	-0.001	-0.001	0.00	No	100.00	Yes	
110	z	-0.001	-0.001	0.00	No	100.00	Yes	
123	z	-0.001	-0.001	0.00	No	100.00	Yes	
124	z	-0.001	-0.001	0.00	No	100.00	Yes	
125	z	-0.001	-0.001	0.00	No	100.00	Yes	
126	z	-0.001	-0.001	0.00	No	100.00	Yes	
127	z	-0.002	-0.002	0.00	No	100.00	Yes	
128	z	-0.002	-0.002	0.00	No	100.00	Yes	
W60	87	x	-0.008	-0.008	0.00	No	100.00	Yes
	88	x	-0.009	-0.009	0.00	No	100.00	Yes
	89	x	-0.009	-0.009	0.00	No	100.00	Yes
	90	x	-0.008	-0.008	0.00	No	100.00	Yes
	91	x	-0.008	-0.008	0.00	No	100.00	Yes
	92	x	-0.008	-0.008	0.00	No	100.00	Yes
	93	x	-0.008	-0.008	0.00	No	100.00	Yes
94	x	-0.002	-0.002	0.00	No	100.00	Yes	



	107	x	-0.001	-0.001	0.00	No	100.00	Yes
	108	x	-0.001	-0.001	0.00	No	100.00	Yes
	109	x	-0.001	-0.001	0.00	No	100.00	Yes
	110	x	-0.001	-0.001	0.00	No	100.00	Yes
	123	x	-0.001	-0.001	0.00	No	100.00	Yes
	124	x	-0.001	-0.001	0.00	No	100.00	Yes
	125	x	-0.001	-0.001	0.00	No	100.00	Yes
	126	x	-0.001	-0.001	0.00	No	100.00	Yes
	127	x	-0.002	-0.002	0.00	No	100.00	Yes
	128	x	-0.002	-0.002	0.00	No	100.00	Yes
W150	87	z	0.008	0.008	0.00	No	100.00	Yes
	88	z	0.009	0.009	0.00	No	100.00	Yes
	89	z	0.009	0.009	0.00	No	100.00	Yes
	90	z	0.008	0.008	0.00	No	100.00	Yes
	91	z	0.008	0.008	0.00	No	100.00	Yes
	92	z	0.008	0.008	0.00	No	100.00	Yes
	93	z	0.008	0.008	0.00	No	100.00	Yes
	94	z	0.002	0.002	0.00	No	100.00	Yes
	95	z	0.002	0.002	0.00	No	100.00	Yes
	96	z	0.002	0.002	0.00	No	100.00	Yes
	97	z	0.002	0.002	0.00	No	100.00	Yes
	98	z	0.002	0.002	0.00	No	100.00	Yes
	99	z	0.002	0.002	0.00	No	100.00	Yes
	100	z	0.002	0.002	0.00	No	100.00	Yes
	101	z	0.002	0.002	0.00	No	100.00	Yes
	102	z	0.008	0.008	0.00	No	100.00	Yes
	107	z	0.001	0.001	0.00	No	100.00	Yes
	108	z	0.001	0.001	0.00	No	100.00	Yes
	109	z	0.001	0.001	0.00	No	100.00	Yes
	110	z	0.001	0.001	0.00	No	100.00	Yes
	123	z	0.001	0.001	0.00	No	100.00	Yes
	124	z	0.001	0.001	0.00	No	100.00	Yes
	125	z	0.001	0.001	0.00	No	100.00	Yes
	126	z	0.001	0.001	0.00	No	100.00	Yes
	127	z	0.002	0.002	0.00	No	100.00	Yes
	128	z	0.002	0.002	0.00	No	100.00	Yes
Di	87	y	-0.008	-0.008	0.00	No	100.00	Yes
	88	y	-0.009	-0.009	0.00	No	100.00	Yes
	89	y	-0.009	-0.009	0.00	No	100.00	Yes
	90	y	-0.008	-0.008	0.00	No	100.00	Yes
	91	y	-0.008	-0.008	0.00	No	100.00	Yes
	92	y	-0.008	-0.008	0.00	No	100.00	Yes
	93	y	-0.008	-0.008	0.00	No	100.00	Yes
	94	y	-0.005	-0.005	0.00	No	100.00	Yes
	95	y	-0.005	-0.005	0.00	No	100.00	Yes
	96	y	-0.005	-0.005	0.00	No	100.00	Yes
	97	y	-0.005	-0.005	0.00	No	100.00	Yes
	98	y	-0.005	-0.005	0.00	No	100.00	Yes
	99	y	-0.005	-0.005	0.00	No	100.00	Yes
	100	y	-0.005	-0.005	0.00	No	100.00	Yes
	101	y	-0.005	-0.005	0.00	No	100.00	Yes
	102	y	-0.008	-0.008	0.00	No	100.00	Yes
	107	y	-0.011	-0.011	0.00	No	100.00	Yes
	108	y	-0.011	-0.011	0.00	No	100.00	Yes
	109	y	-0.011	-0.011	0.00	No	100.00	Yes
	110	y	-0.011	-0.011	0.00	No	100.00	Yes
	123	y	-0.011	-0.011	0.00	No	100.00	Yes
	124	y	-0.011	-0.011	0.00	No	100.00	Yes
	125	y	-0.005	-0.005	0.00	No	100.00	Yes
	126	y	-0.005	-0.005	0.00	No	100.00	Yes

127	y	-0.026	-0.026	0.00	No	100.00	Yes
128	y	-0.026	-0.026	0.00	No	100.00	Yes
134	y	-0.008	-0.008	0.00	No	100.00	Yes
135	y	-0.008	-0.008	0.00	No	100.00	Yes
136	y	-0.009	-0.009	0.00	No	100.00	Yes
139	y	-0.009	-0.009	0.00	No	100.00	Yes
142	y	-0.009	-0.009	0.00	No	100.00	Yes

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
D	134	y	-0.06	2.50	No	
		y	-0.046	2.50	No	
	135	y	-0.071	2.50	No	
		y	-0.072	2.50	No	
	136	y	-0.044	1.50	No	
		y	-0.044	8.50	No	
	139	y	-0.035	1.50	No	
		y	-0.035	8.50	No	
	142	y	-0.044	1.50	No	
		y	-0.044	8.50	No	
	Wo	134	z	-0.041	2.50	No
			z	-0.027	2.50	No
		135	z	-0.051	2.50	No
			z	-0.045	2.50	No
136		z	-0.295	1.50	No	
		z	-0.295	8.50	No	
139		z	-0.186	1.50	No	
		z	-0.186	8.50	No	
142	z	-0.295	1.50	No		
	z	-0.296	8.50	No		
W30	134	3	-0.048	2.50	No	
		3	-0.036	2.50	No	
	135	3	-0.055	2.50	No	
		3	-0.047	2.50	No	
	136	3	-0.255	1.50	No	
		3	-0.255	8.50	No	
	139	3	-0.175	1.50	No	
		3	-0.1775	8.50	No	
142	3	-0.255	1.50	No		
	3	-0.255	8.50	No		
W60	134	3	-0.06	2.50	No	
		3	-0.052	2.50	No	
	135	3	-0.062	2.50	No	
		3	-0.052	2.50	No	
	136	3	-0.175	1.50	No	
		3	-0.175	8.50	No	
139	3	-0.154	1.50	No		
	3	-0.154	8.50	No		

	142	3	-0.175	1.50	No
		3	-0.175	8.50	No
W90	134	x	-0.067	2.50	No
		x	-0.061	2.50	No
	135	x	-0.065	2.50	No
		x	-0.054	2.50	No
	136	x	-0.134	1.50	No
		x	-0.134	8.50	No
	139	x	-0.143	1.50	No
		x	-0.143	8.50	No
	142	x	-0.134	1.50	No
		x	-0.134	8.50	No
W120	134	2	-0.06	2.50	No
		2	-0.052	2.50	No
	135	2	-0.062	2.50	No
		2	-0.052	2.50	No
	136	2	-0.175	1.50	No
		2	-0.175	8.50	No
	139	2	-0.154	1.50	No
		2	-0.154	8.50	No
	142	2	-0.175	1.50	No
		2	-0.175	8.50	No
W150	134	2	-0.048	2.50	No
		2	-0.036	2.50	No
	135	2	-0.055	2.50	No
		2	-0.047	2.50	No
	136	2	-0.255	1.50	No
		2	-0.255	8.50	No
	139	2	-0.175	1.50	No
		2	-0.1775	8.50	No
	142	2	-0.255	1.50	No
		2	-0.255	8.50	No
Di	134	y	-0.054	2.50	No
		y	-0.046	2.50	No
	135	y	-0.055	2.50	No
		y	-0.048	2.50	No
	136	y	-0.194	1.50	No
		y	-0.194	8.50	No
	139	y	-0.131	1.50	No
		y	-0.131	8.50	No
	142	y	-0.194	1.50	No
		y	-0.194	8.50	No
W10	134	z	-0.011	2.50	No
		z	-0.008	2.50	No
	135	z	-0.013	2.50	No
		z	-0.011	2.50	No
	136	z	-0.057	1.50	No
		z	-0.057	8.50	No
	139	z	-0.04	1.50	No
		z	-0.04	8.50	No
	142	z	-0.057	1.50	No
		z	-0.057	8.50	No
W130	134	3	-0.012	2.50	No
		3	-0.01	2.50	No
	135	3	-0.014	2.50	No
		3	-0.012	2.50	No
	136	3	-0.049	1.50	No
		3	-0.049	8.50	No
	139	3	-0.036	1.50	No
		3	-0.036	8.50	No

	142	3	-0.049	1.50	No
		3	-0.049	8.50	No
WI60	134	3	-0.015	2.50	No
		3	-0.013	2.50	No
	135	3	-0.015	2.50	No
		3	-0.013	2.50	No
	136	3	-0.036	1.50	No
		3	-0.036	8.50	No
	139	3	-0.033	1.50	No
		3	-0.033	8.50	No
	142	3	-0.036	1.50	No
		3	-0.036	8.50	No
WI90	134	x	-0.016	2.50	No
		x	-0.015	2.50	No
	135	x	-0.015	2.50	No
		x	-0.013	2.50	No
	136	x	-0.03	1.50	No
		x	-0.03	8.50	No
	139	x	-0.031	1.50	No
		x	-0.031	8.50	No
	142	x	-0.03	1.50	No
		x	-0.03	8.50	No
WI120	134	2	-0.015	2.50	No
		2	-0.013	2.50	No
	135	2	-0.015	2.50	No
		2	-0.013	2.50	No
	136	2	-0.036	1.50	No
		2	-0.036	8.50	No
	139	2	-0.033	1.50	No
		2	-0.033	8.50	No
	142	2	-0.036	1.50	No
		2	-0.036	8.50	No
WI150	134	2	-0.012	2.50	No
		2	-0.01	2.50	No
	135	2	-0.014	2.50	No
		2	-0.012	2.50	No
	136	2	-0.049	1.50	No
		2	-0.049	8.50	No
	139	2	-0.036	1.50	No
		2	-0.036	8.50	No
	142	2	-0.049	1.50	No
		2	-0.049	8.50	No
WL0	134	z	-0.002	2.50	No
		z	-0.002	2.50	No
	135	z	-0.003	2.50	No
		z	-0.003	2.50	No
	136	z	-0.017	1.50	No
		z	-0.017	8.50	No
	139	z	-0.011	1.50	No
		z	-0.011	8.50	No
	142	z	-0.017	1.50	No
		z	-0.017	8.50	No
WL30	134	3	-0.003	2.50	No
		3	-0.002	2.50	No
	135	3	-0.003	2.50	No
		3	-0.003	2.50	No
	136	3	-0.015	1.50	No
		3	-0.015	8.50	No
	139	3	-0.01	1.50	No
		3	-0.01	8.50	No

	142	3	-0.015	1.50	No
		3	-0.015	8.50	No
WL60	134	3	-0.003	2.50	No
		3	-0.003	2.50	No
	135	3	-0.004	2.50	No
		3	-0.003	2.50	No
	136	3	-0.01	1.50	No
		3	-0.01	8.50	No
	139	3	-0.009	1.50	No
		3	-0.009	8.50	No
	142	3	-0.01	1.50	No
		3	-0.01	8.50	No
WL90	134	x	-0.004	2.50	No
		x	-0.004	2.50	No
	135	x	-0.004	2.50	No
		x	-0.003	2.50	No
	136	x	-0.008	1.50	No
		x	-0.008	8.50	No
	139	x	-0.008	1.50	No
		x	-0.008	8.50	No
	142	x	-0.008	1.50	No
		x	-0.008	8.50	No
WL120	134	2	-0.003	2.50	No
		2	-0.003	2.50	No
	135	2	-0.004	2.50	No
		2	-0.003	2.50	No
	136	2	-0.01	1.50	No
		2	-0.01	8.50	No
	139	2	-0.009	1.50	No
		2	-0.009	8.50	No
	142	2	-0.01	1.50	No
		2	-0.01	8.50	No
WL150	134	2	-0.003	2.50	No
		2	-0.002	2.50	No
	135	2	-0.003	2.50	No
		2	-0.003	2.50	No
	136	2	-0.015	1.50	No
		2	-0.015	8.50	No
	139	2	-0.01	1.50	No
		2	-0.01	8.50	No
	142	2	-0.015	1.50	No
		2	-0.015	8.50	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	136	y	-0.25	5.00	No
LLa2	139	y	-0.25	5.00	No
LLa4	142	y	-0.25	5.00	No

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### Self weight multipliers for load conditions

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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

### Earthquake (Dynamic analysis only)

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: 6/4/2020 10:07 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1030\LTE 4C 5C 5G BWE\CT1030 (Alpha and Beta Sector).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+W10  
LC26=1.2D+Di+W130  
LC27=1.2D+Di+W160  
LC28=1.2D+Di+W190  
LC29=1.2D+Di+W120  
LC30=1.2D+Di+W150  
LC31=1.2D+Di-W10  
LC32=1.2D+Di-W130  
LC33=1.2D+Di-W160  
LC34=1.2D+Di-W190  
LC35=1.2D+Di-W120  
LC36=1.2D+Di-W150  
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>88</b>	LC6 at 67.19%	0.35	OK	Eq. H1-1b
		<b>89</b>	LC26 at 60.42%	<b>0.46</b>	<b>OK</b>	Eq. H1-1b
		<b>136</b>	LC7 at 33.33%	0.40	OK	Eq. H1-1b
		<b>139</b>	LC36 at 33.33%	0.28	OK	Eq. H1-1b
		<b>142</b>	LC6 at 33.33%	0.33	OK	Eq. H1-1b
	<b>PIPE 2x0.154</b>	<b>87</b>	LC24 at 100.00%	0.11	OK	Eq. H1-1b
		<b>90</b>	LC12 at 93.75%	0.25	OK	Eq. H1-1b
		<b>91</b>	LC10 at 50.00%	0.18	OK	Eq. H1-1b
		<b>92</b>	LC26 at 93.75%	0.40	OK	Eq. H1-1b
		<b>93</b>	LC32 at 93.75%	<b>0.48</b>	<b>OK</b>	Eq. H1-1b
		<b>102</b>	LC12 at 100.00%	0.30	OK	Eq. H1-1b
		<b>134</b>	LC34 at 12.50%	0.19	OK	Eq. H1-1b
		<b>135</b>	LC40 at 12.50%	0.10	OK	Eq. H1-1b
	<b>PL 11-1/4x5/8</b>	<b>127</b>	LC30 at 100.00%	<b>0.39</b>	<b>OK</b>	Eq. H1-1b
		<b>128</b>	LC31 at 100.00%	0.29	OK	Eq. H1-1b
	<b>PL 3-1/2x5/8</b>	<b>107</b>	LC12 at 100.00%	0.56	OK	Eq. H1-1b
		<b>108</b>	LC25 at 100.00%	0.50	OK	Eq. H1-1b
		<b>109</b>	LC30 at 100.00%	0.60	OK	Eq. H1-1b
		<b>110</b>	LC7 at 100.00%	0.28	OK	Eq. H1-1b
		<b>123</b>	LC12 at 100.00%	0.56	OK	Eq. H1-1b
		<b>124</b>	LC30 at 0.00%	<b>0.83</b>	<b>OK</b>	Eq. H1-1b
		<b>125</b>	LC36 at 100.00%	0.36	OK	Eq. H1-1b
		<b>126</b>	LC26 at 0.00%	0.82	OK	Eq. H1-1b

<b>RndBar 3_4</b>	<b>98</b>	LC31 at 0.00%	<b>0.40</b>	<b>OK</b>	Eq. H1-1a
	<b>99</b>	LC30 at 0.00%	0.32	OK	Eq. H1-1b
	<b>100</b>	LC30 at 0.00%	0.14	OK	Eq. H1-1b
	<b>101</b>	LC40 at 100.00%	0.15	OK	Eq. H1-1b
<hr/>					
<b>RndBar 5_8</b>	<b>94</b>	LC12 at 87.50%	0.62	OK	Eq. H1-1a
	<b>95</b>	LC40 at 87.50%	0.37	OK	Eq. H1-1a
	<b>96</b>	LC30 at 87.50%	<b>0.87</b>	<b>OK</b>	Eq. H1-1a
	<b>97</b>	LC25 at 87.50%	0.84	OK	Eq. H1-1a
<hr/>					



Current Date: 6/4/2020 10:07 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1030\LTE 4C 5C 5G BWE\CT1030 (Alpha and Beta Sector).retx

## 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
156	6.00	0.00	2.63	0
157	5.00	0.00	-2.00	0
158	-4.70	0.00	2.63	0
159	7.30	0.00	2.63	0
160	-4.70	-3.3333	2.63	0
161	7.30	-3.3333	2.63	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	-3.00	0.00	2.63	0
175	-0.50	0.00	-1.00	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
208	0.00	0.00	0.4783	0
209	0.00	-3.3333	0.4783	0
218	1.6658	0.50	1.2165	0
224	-1.6658	0.50	1.2165	0
226	6.30	-6.6667	2.83	0
227	6.30	3.3333	2.83	0
232	3.30	-6.6667	2.83	0
233	3.30	3.3333	2.83	0
238	-2.70	-6.6667	2.83	0
239	-2.70	3.3333	2.83	0
220	1.6658	-3.50	1.2165	0
225	-1.6658	-3.50	1.2165	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
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
134	218	220	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	224	225	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
136	227	226	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
139	233	232	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
142	239	238	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

### Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
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
134	315.00	0	0.00	0.00	0.00
135	315.00	0	0.00	0.00	0.00
136	315.00	0	0.00	0.00	0.00
139	315.00	0	0.00	0.00	0.00
142	315.00	0	0.00	0.00	0.00

### Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
87	0.00	2.00	0.00	0.00	2.00	0.00
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
102	0.00	2.00	0.00	0.00	2.00	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

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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

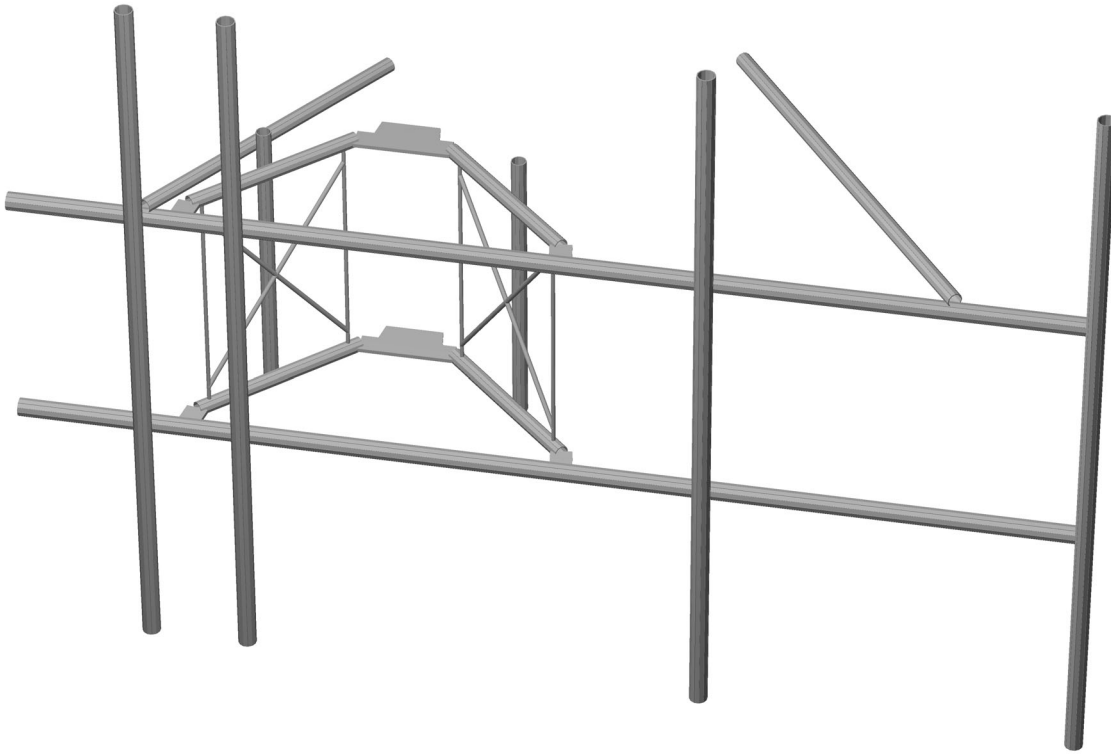
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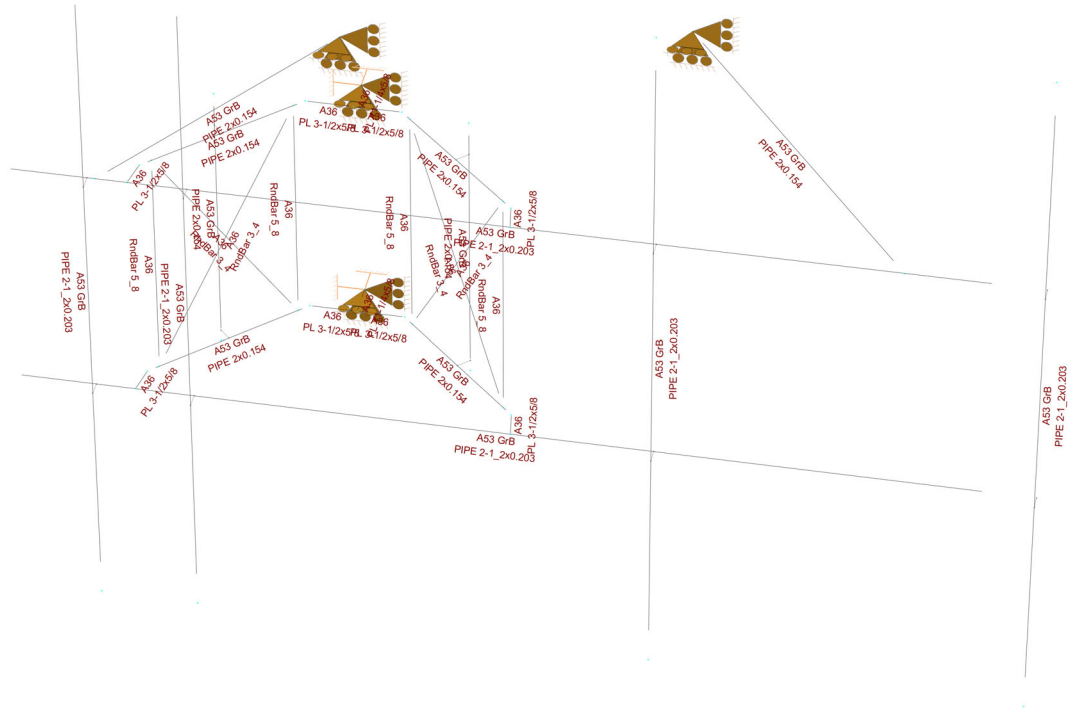


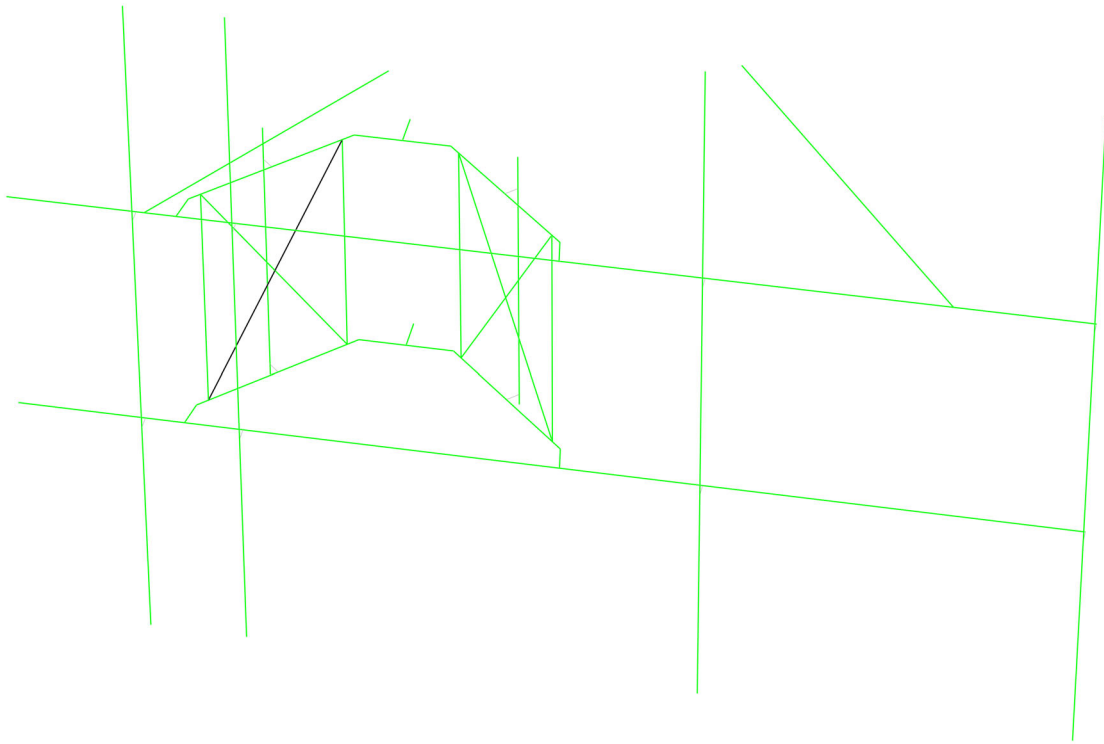


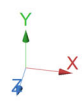
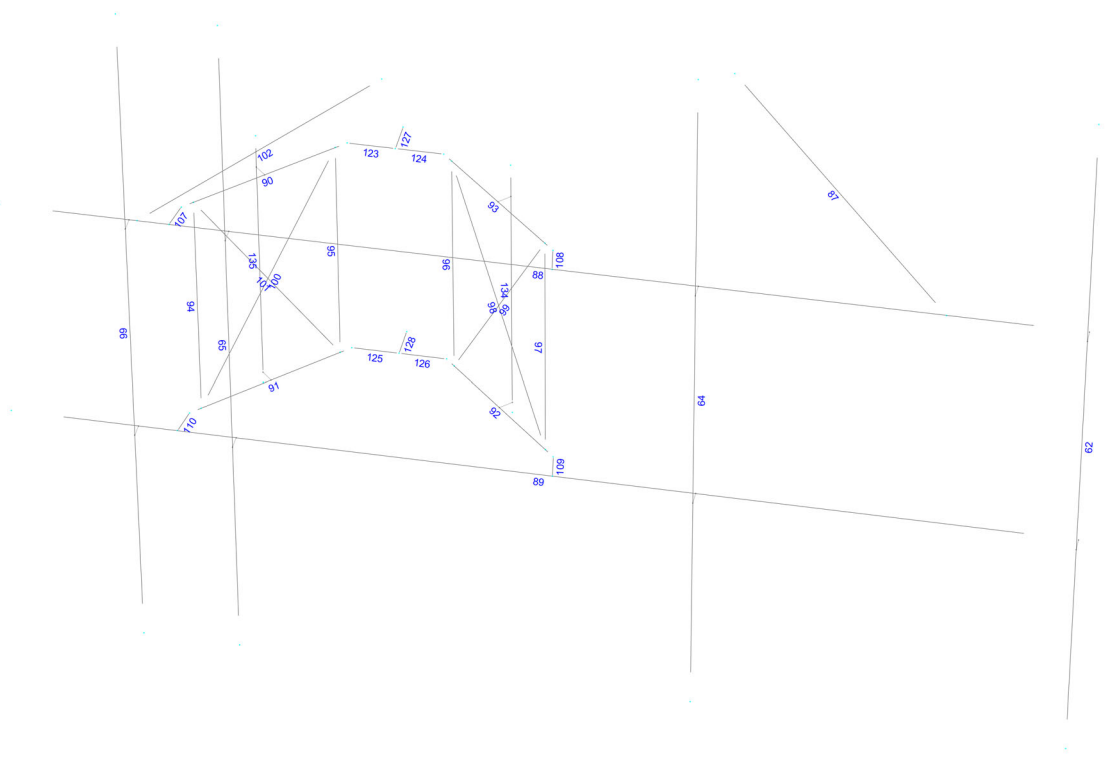
**HUDSON**  
Design Group LLC

**Mount Calculations  
(Existing Gamma  
Sector Conditions)**









## Load data

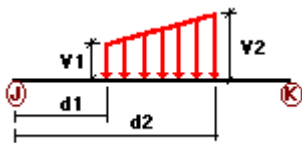
### GLOSSARY

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	64	z	-0.009	-0.009	0.00	No	100.00	Yes
	65	z	-0.009	-0.009	0.00	No	100.00	Yes
	87	z	-0.008	-0.008	0.00	No	100.00	Yes
	88	z	-0.009	-0.009	0.00	No	100.00	Yes
	89	z	-0.009	-0.009	0.00	No	100.00	Yes
	90	z	-0.008	-0.008	0.00	No	100.00	Yes
	91	z	-0.008	-0.008	0.00	No	100.00	Yes
	92	z	-0.008	-0.008	0.00	No	100.00	Yes
	93	z	-0.008	-0.008	0.00	No	100.00	Yes
	94	z	-0.002	-0.002	0.00	No	100.00	Yes
	95	z	-0.002	-0.002	0.00	No	100.00	Yes
	96	z	-0.002	-0.002	0.00	No	100.00	Yes
	97	z	-0.002	-0.002	0.00	No	100.00	Yes
	98	z	-0.002	-0.002	0.00	No	100.00	Yes
	99	z	-0.002	-0.002	0.00	No	100.00	Yes
	100	z	-0.002	-0.002	0.00	No	100.00	Yes
	101	z	-0.002	-0.002	0.00	No	100.00	Yes
	102	z	-0.008	-0.008	0.00	No	100.00	Yes
	107	z	-0.001	-0.001	0.00	No	100.00	Yes
	108	z	-0.001	-0.001	0.00	No	100.00	Yes
109	z	-0.001	-0.001	0.00	No	100.00	Yes	
110	z	-0.001	-0.001	0.00	No	100.00	Yes	
123	z	-0.001	-0.001	0.00	No	100.00	Yes	
124	z	-0.001	-0.001	0.00	No	100.00	Yes	
125	z	-0.001	-0.001	0.00	No	100.00	Yes	
126	z	-0.001	-0.001	0.00	No	100.00	Yes	
127	z	-0.002	-0.002	0.00	No	100.00	Yes	
128	z	-0.002	-0.002	0.00	No	100.00	Yes	
W30	62	z	-0.009	-0.009	0.00	No	100.00	Yes
	64	z	-0.009	-0.009	0.00	No	100.00	Yes
	65	z	-0.009	-0.009	0.00	No	100.00	Yes
	66	z	-0.009	-0.009	0.00	No	100.00	Yes
	87	z	-0.008	-0.008	0.00	No	100.00	Yes
	88	z	-0.009	-0.009	0.00	No	100.00	Yes
	89	z	-0.009	-0.009	0.00	No	100.00	Yes
	90	z	-0.008	-0.008	0.00	No	100.00	Yes
	91	z	-0.008	-0.008	0.00	No	100.00	Yes
	92	z	-0.008	-0.008	0.00	No	100.00	Yes
	93	z	-0.008	-0.008	0.00	No	100.00	Yes
	94	z	-0.002	-0.002	0.00	No	100.00	Yes
	95	z	-0.002	-0.002	0.00	No	100.00	Yes
	96	z	-0.002	-0.002	0.00	No	100.00	Yes
	97	z	-0.002	-0.002	0.00	No	100.00	Yes
	98	z	-0.002	-0.002	0.00	No	100.00	Yes
	99	z	-0.002	-0.002	0.00	No	100.00	Yes
	100	z	-0.002	-0.002	0.00	No	100.00	Yes
	101	z	-0.002	-0.002	0.00	No	100.00	Yes
	102	z	-0.008	-0.008	0.00	No	100.00	Yes
107	z	-0.001	-0.001	0.00	No	100.00	Yes	
108	z	-0.001	-0.001	0.00	No	100.00	Yes	
109	z	-0.001	-0.001	0.00	No	100.00	Yes	
110	z	-0.001	-0.001	0.00	No	100.00	Yes	
123	z	-0.001	-0.001	0.00	No	100.00	Yes	
124	z	-0.001	-0.001	0.00	No	100.00	Yes	
125	z	-0.001	-0.001	0.00	No	100.00	Yes	
126	z	-0.001	-0.001	0.00	No	100.00	Yes	
127	z	-0.002	-0.002	0.00	No	100.00	Yes	
128	z	-0.002	-0.002	0.00	No	100.00	Yes	
W60	62	x	-0.009	-0.009	0.00	No	100.00	Yes
	64	x	-0.009	-0.009	0.00	No	100.00	Yes

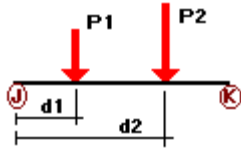




	65	x	-0.009	-0.009	0.00	No	100.00	Yes
	66	x	-0.009	-0.009	0.00	No	100.00	Yes
	87	x	-0.008	-0.008	0.00	No	100.00	Yes
	88	x	-0.009	-0.009	0.00	No	100.00	Yes
	89	x	-0.009	-0.009	0.00	No	100.00	Yes
	90	x	-0.008	-0.008	0.00	No	100.00	Yes
	91	x	-0.008	-0.008	0.00	No	100.00	Yes
	92	x	-0.008	-0.008	0.00	No	100.00	Yes
	93	x	-0.008	-0.008	0.00	No	100.00	Yes
	94	x	-0.002	-0.002	0.00	No	100.00	Yes
	95	x	-0.002	-0.002	0.00	No	100.00	Yes
	96	x	-0.002	-0.002	0.00	No	100.00	Yes
	97	x	-0.002	-0.002	0.00	No	100.00	Yes
	98	x	-0.002	-0.002	0.00	No	100.00	Yes
	99	x	-0.002	-0.002	0.00	No	100.00	Yes
	100	x	-0.002	-0.002	0.00	No	100.00	Yes
	101	x	-0.002	-0.002	0.00	No	100.00	Yes
	102	x	-0.008	-0.008	0.00	No	100.00	Yes
	107	x	-0.001	-0.001	0.00	No	100.00	Yes
	108	x	-0.001	-0.001	0.00	No	100.00	Yes
	109	x	-0.001	-0.001	0.00	No	100.00	Yes
	110	x	-0.001	-0.001	0.00	No	100.00	Yes
	123	x	-0.001	-0.001	0.00	No	100.00	Yes
	124	x	-0.001	-0.001	0.00	No	100.00	Yes
	125	x	-0.001	-0.001	0.00	No	100.00	Yes
	126	x	-0.001	-0.001	0.00	No	100.00	Yes
	127	x	-0.002	-0.002	0.00	No	100.00	Yes
	128	x	-0.002	-0.002	0.00	No	100.00	Yes
W150	62	z	0.009	0.009	0.00	No	100.00	Yes
	64	z	0.009	0.009	0.00	No	100.00	Yes
	65	z	0.009	0.009	0.00	No	100.00	Yes
	66	z	0.009	0.009	0.00	No	100.00	Yes
	87	z	0.008	0.008	0.00	No	100.00	Yes
	88	z	0.009	0.009	0.00	No	100.00	Yes
	89	z	0.009	0.009	0.00	No	100.00	Yes
	90	z	0.008	0.008	0.00	No	100.00	Yes
	91	z	0.008	0.008	0.00	No	100.00	Yes
	92	z	0.008	0.008	0.00	No	100.00	Yes
	93	z	0.008	0.008	0.00	No	100.00	Yes
	94	z	0.002	0.002	0.00	No	100.00	Yes
	95	z	0.002	0.002	0.00	No	100.00	Yes
	96	z	0.002	0.002	0.00	No	100.00	Yes
	97	z	0.002	0.002	0.00	No	100.00	Yes
	98	z	0.002	0.002	0.00	No	100.00	Yes
	99	z	0.002	0.002	0.00	No	100.00	Yes
	100	z	0.002	0.002	0.00	No	100.00	Yes
	101	z	0.002	0.002	0.00	No	100.00	Yes
	102	z	0.008	0.008	0.00	No	100.00	Yes
	107	z	0.001	0.001	0.00	No	100.00	Yes
	108	z	0.001	0.001	0.00	No	100.00	Yes
	109	z	0.001	0.001	0.00	No	100.00	Yes
	110	z	0.001	0.001	0.00	No	100.00	Yes
	123	z	0.001	0.001	0.00	No	100.00	Yes
	124	z	0.001	0.001	0.00	No	100.00	Yes
	125	z	0.001	0.001	0.00	No	100.00	Yes
	126	z	0.001	0.001	0.00	No	100.00	Yes
	127	z	0.002	0.002	0.00	No	100.00	Yes
	128	z	0.002	0.002	0.00	No	100.00	Yes
Di	62	y	-0.009	-0.009	0.00	No	100.00	Yes
	64	y	-0.009	-0.009	0.00	No	100.00	Yes

65	y	-0.009	-0.009	0.00	No	100.00	Yes
66	y	-0.009	-0.009	0.00	No	100.00	Yes
87	y	-0.008	-0.008	0.00	No	100.00	Yes
88	y	-0.009	-0.009	0.00	No	100.00	Yes
89	y	-0.009	-0.009	0.00	No	100.00	Yes
90	y	-0.008	-0.008	0.00	No	100.00	Yes
91	y	-0.008	-0.008	0.00	No	100.00	Yes
92	y	-0.008	-0.008	0.00	No	100.00	Yes
93	y	-0.008	-0.008	0.00	No	100.00	Yes
94	y	-0.005	-0.005	0.00	No	100.00	Yes
95	y	-0.005	-0.005	0.00	No	100.00	Yes
96	y	-0.005	-0.005	0.00	No	100.00	Yes
97	y	-0.005	-0.005	0.00	No	100.00	Yes
98	y	-0.005	-0.005	0.00	No	100.00	Yes
99	y	-0.005	-0.005	0.00	No	100.00	Yes
100	y	-0.005	-0.005	0.00	No	100.00	Yes
101	y	-0.005	-0.005	0.00	No	100.00	Yes
102	y	-0.008	-0.008	0.00	No	100.00	Yes
107	y	-0.005	-0.005	0.00	No	100.00	Yes
108	y	-0.005	-0.005	0.00	No	100.00	Yes
109	y	-0.005	-0.005	0.00	No	100.00	Yes
110	y	-0.005	-0.005	0.00	No	100.00	Yes
123	y	-0.005	-0.005	0.00	No	100.00	Yes
124	y	-0.005	-0.005	0.00	No	100.00	Yes
125	y	-0.005	-0.005	0.00	No	100.00	Yes
126	y	-0.005	-0.005	0.00	No	100.00	Yes
127	y	-0.011	-0.011	0.00	No	100.00	Yes
128	y	-0.011	-0.011	0.00	No	100.00	Yes
134	y	-0.008	-0.008	0.00	No	100.00	Yes
135	y	-0.008	-0.008	0.00	No	100.00	Yes

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	62	y	-0.044	1.50	No
		y	-0.044	8.50	No
	66	y	-0.044	1.50	No
		y	-0.044	8.50	No
	134	y	-0.06	50.00	Yes
		y	-0.046	50.00	Yes
	135	y	-0.071	50.00	Yes
		y	-0.072	50.00	Yes
Wo	62	z	-0.296	1.50	No
		z	-0.296	8.50	No
	66	z	-0.296	1.50	No
		z	-0.296	8.50	No
	134	z	-0.041	50.00	Yes
		z	-0.027	50.00	Yes
	135	z	-0.043	50.00	Yes

		z	-0.045	50.00	Yes
W30	62	3	-0.255	1.50	No
		3	-0.255	8.50	No
	66	3	-0.255	1.50	No
		3	-0.255	8.50	No
	134	3	-0.048	50.00	Yes
		3	-0.036	50.00	Yes
	135	3	-0.055	50.00	Yes
		3	-0.047	50.00	Yes
W60	62	3	-0.175	1.50	No
		3	-0.175	8.50	No
	66	3	-0.175	1.50	No
		3	-0.175	8.50	No
	134	3	-0.06	50.00	Yes
		3	-0.052	50.00	Yes
	135	3	-0.06	50.00	Yes
		3	-0.052	50.00	Yes
W90	62	x	-0.135	1.50	No
		x	-0.135	8.50	No
	66	x	-0.135	1.50	No
		x	-0.135	8.50	No
	134	x	-0.067	50.00	Yes
		x	-0.061	50.00	Yes
	135	x	-0.065	50.00	Yes
		x	-0.054	50.00	Yes
W120	62	2	-0.175	1.50	No
		2	-0.175	8.50	No
	66	2	-0.175	1.50	No
		2	-0.175	8.50	No
	134	2	-0.06	50.00	Yes
		2	-0.052	50.00	Yes
	135	2	-0.06	50.00	Yes
		2	-0.052	50.00	Yes
W150	62	2	-0.255	1.50	No
		2	-0.255	8.50	No
	66	2	-0.255	1.50	No
		2	-0.255	8.50	No
	134	2	-0.048	50.00	Yes
		2	-0.036	50.00	Yes
	135	2	-0.055	50.00	Yes
		2	-0.047	50.00	Yes
Di	62	y	-0.194	1.50	No
		y	-0.194	8.50	No
	66	y	-0.194	1.50	No
		y	-0.194	8.50	No
	134	y	-0.054	50.00	Yes
		y	-0.046	50.00	Yes
	135	y	-0.055	50.00	Yes
		y	-0.048	50.00	Yes
WI0	62	z	-0.057	1.50	No
		z	-0.057	8.50	No
	66	z	-0.057	1.50	No
		z	-0.057	8.50	No
	134	z	-0.011	50.00	Yes
		z	-0.008	50.00	Yes
	135	z	-0.011	50.00	Yes
		z	-0.011	50.00	Yes
WI30	62	3	-0.05	1.50	No
		3	-0.05	8.50	No
	66	3	-0.05	1.50	No

		3	-0.05	8.50	No
	134	3	-0.012	50.00	Yes
		3	-0.01	50.00	Yes
	135	3	-0.014	50.00	Yes
		3	-0.012	50.00	Yes
WI60	62	3	-0.037	1.50	No
		3	-0.037	8.50	No
	66	3	-0.037	1.50	No
		3	-0.037	8.50	No
	134	3	-0.015	50.00	Yes
		3	-0.013	50.00	Yes
	135	3	-0.015	50.00	Yes
		3	-0.013	50.00	Yes
WI90	62	x	-0.03	1.50	No
		x	-0.03	8.50	No
	66	x	-0.03	1.50	No
		x	-0.03	8.50	No
	134	x	-0.016	50.00	Yes
		x	-0.015	50.00	Yes
	135	x	-0.015	50.00	Yes
		x	-0.013	50.00	Yes
WI120	62	2	-0.037	1.50	No
		2	-0.037	8.50	No
	66	2	-0.037	1.50	No
		2	-0.037	8.50	No
	134	2	-0.015	50.00	Yes
		2	-0.013	50.00	Yes
	135	2	-0.015	50.00	Yes
		2	-0.013	50.00	Yes
WI150	62	2	-0.05	1.50	No
		2	-0.05	8.50	No
	66	2	-0.05	1.50	No
		2	-0.05	8.50	No
	134	2	-0.012	50.00	Yes
		2	-0.01	50.00	Yes
	135	2	-0.014	50.00	Yes
		2	-0.012	50.00	Yes
WLO	62	z	-0.017	1.50	No
		z	-0.017	8.50	No
	66	z	-0.017	1.50	No
		z	-0.017	8.50	No
	134	z	-0.002	50.00	Yes
		z	-0.002	50.00	Yes
	135	z	-0.002	50.00	Yes
		z	-0.003	50.00	Yes
WL30	62	3	-0.015	1.50	No
		3	-0.015	8.50	No
	66	3	-0.015	1.50	No
		3	-0.015	8.50	No
	134	3	-0.003	50.00	Yes
		3	-0.002	50.00	Yes
	135	3	-0.003	50.00	Yes
		3	-0.003	50.00	Yes
WL60	62	3	-0.011	1.50	No
		3	-0.011	8.50	No
	66	3	-0.011	1.50	No
		3	-0.011	8.50	No
	134	3	-0.003	50.00	Yes
		3	-0.003	50.00	Yes
	135	3	-0.004	50.00	Yes

		3	-0.003	50.00	Yes
WL90	62	x	-0.008	1.50	No
		x	-0.008	8.50	No
	66	x	-0.008	1.50	No
		x	-0.008	8.50	No
	134	x	-0.004	50.00	Yes
		x	-0.004	50.00	Yes
	135	x	-0.004	50.00	Yes
		x	-0.003	50.00	Yes
WL120	62	2	-0.011	1.50	No
		2	-0.011	8.50	No
	66	2	-0.011	1.50	No
		2	-0.011	8.50	No
	134	2	-0.003	50.00	Yes
		2	-0.003	50.00	Yes
	135	2	-0.004	50.00	Yes
		2	-0.003	50.00	Yes
WL150	62	2	-0.015	1.50	No
		2	-0.015	8.50	No
	66	2	-0.015	1.50	No
		2	-0.015	8.50	No
	134	2	-0.003	50.00	Yes
		2	-0.002	50.00	Yes
	135	2	-0.003	50.00	Yes
		2	-0.003	50.00	Yes
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
LLa3	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: 6/4/2020 10:22 AM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1030\LTE 4C 5C 5G BWE\CT1030 (Gamma Sector).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+W10  
LC26=1.2D+Di+W130  
LC27=1.2D+Di+W160  
LC28=1.2D+Di+W190  
LC29=1.2D+Di+W120  
LC30=1.2D+Di+W150  
LC31=1.2D+Di-W10  
LC32=1.2D+Di-W130  
LC33=1.2D+Di-W160  
LC34=1.2D+Di-W190  
LC35=1.2D+Di-W120  
LC36=1.2D+Di-W150  
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>	LC36 at 33.33%	0.48	OK	Eq. H1-1b
		<b>64</b>	LC36 at 33.33%	0.45	OK	Eq. H1-1b
		<b>65</b>	LC30 at 33.33%	0.21	OK	Eq. H1-1b
		<b>66</b>	LC7 at 66.67%	0.32	OK	Eq. H1-1b
		<b>88</b>	LC10 at 15.63%	0.52	OK	Eq. H1-1a
		<b>89</b>	LC26 at 52.08%	<b>0.69</b>	<b>OK</b>	Eq. H1-1b
	<b>PIPE 2x0.154</b>	<b>87</b>	LC13 at 100.00%	0.18	OK	Eq. H1-1b
		<b>90</b>	LC10 at 93.75%	0.26	OK	Eq. H1-1b
		<b>91</b>	LC10 at 50.00%	0.16	OK	Eq. H1-1b
		<b>92</b>	LC26 at 93.75%	0.41	OK	Eq. H1-1b
		<b>93</b>	LC36 at 93.75%	<b>0.47</b>	<b>OK</b>	Eq. H1-1b
		<b>102</b>	LC10 at 100.00%	0.40	OK	Eq. H1-1b
		<b>134</b>	LC34 at 12.50%	0.19	OK	Eq. H1-1b
		<b>135</b>	LC10 at 50.00%	0.10	OK	Eq. H1-1b
	<b>PL 11-1/4x5/8</b>	<b>127</b>	LC26 at 100.00%	<b>0.35</b>	<b>OK</b>	Eq. H1-1b
		<b>128</b>	LC31 at 100.00%	0.27	OK	Eq. H1-1b
	<b>PL 3-1/2x5/8</b>	<b>107</b>	LC12 at 100.00%	0.51	OK	Eq. H1-1b
		<b>108</b>	LC26 at 100.00%	0.50	OK	Eq. H1-1b
		<b>109</b>	LC26 at 100.00%	0.57	OK	Eq. H1-1b
		<b>110</b>	LC7 at 100.00%	0.23	OK	Eq. H1-1b
		<b>123</b>	LC10 at 100.00%	0.62	OK	Eq. H1-1b
		<b>124</b>	LC26 at 0.00%	0.82	OK	Eq. H1-1b
		<b>125</b>	LC40 at 100.00%	0.32	OK	Eq. H1-1b
		<b>126</b>	LC26 at 0.00%	<b>0.82</b>	<b>OK</b>	Eq. H1-1b



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**RndBar 3\_4**

<b>98</b>	LC30 at 0.00%	<b>0.39</b>	<b>OK</b>	Eq. H1-1a
<b>99</b>	LC26 at 0.00%	0.32	OK	Eq. H1-1b
<b>100</b>	LC40 at 0.00%	0.13	With warnings	Eq. H1-1b
<b>101</b>	LC40 at 100.00%	0.13	OK	Eq. H1-1b

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**RndBar 5\_8**

<b>94</b>	LC12 at 50.00%	0.52	OK	Eq. H1-1a
<b>95</b>	LC40 at 87.50%	0.35	OK	Eq. H1-1a
<b>96</b>	LC30 at 87.50%	<b>0.87</b>	<b>OK</b>	Eq. H1-1a
<b>97</b>	LC26 at 87.50%	0.83	OK	Eq. H1-1a

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## 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	9.30	-6.6667	2.83	0
153	9.30	3.3333	2.83	0
154	-3.00	-6.6667	2.83	0
155	-3.00	3.3333	2.83	0
156	7.50	0.00	2.63	0
157	4.00	0.00	-2.00	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	-0.50	0.00	-1.00	0
176	-1.70	-6.6667	2.83	0
177	-1.70	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	4.35	-6.6667	2.83	0
189	4.35	3.3333	2.83	0
208	0.00	0.00	0.4783	0
209	0.00	-3.3333	0.4783	0
218	1.6658	0.50	1.2165	0
224	-1.6658	0.50	1.2165	0
225	-1.6658	-3.50	1.2165	0
226	-4.70	0.00	2.63	0
227	-4.70	-3.3333	2.63	0
220	1.6658	-3.50	1.2165	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
64	189	188		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	177	176		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	226	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	227	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
134	218	220	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	224	225	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

### Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
62	315.00	0	0.00	0.00	0.00
64	315.00	0	0.00	0.00	0.00
65	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
134	315.00	0	0.00	0.00	0.00
135	315.00	0	0.00	0.00	0.00

### Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
87	0.00	2.00	0.00	0.00	2.00	0.00
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
102	0.00	2.00	0.00	0.00	2.00	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

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## Hinges

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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

---

# 435 MILL ST

**Location** 435 MILL ST

**Mblu** 109 / 120 /

**Acct#** 14081

**Owner** SOUTHINGTON TOWN OF

**Assessment** \$229,140

**Appraisal** \$327,340

**PID** 10843

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$217,730	\$109,610	\$327,340

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$152,410	\$76,730	\$229,140

## Owner of Record

**Owner** SOUTHINGTON TOWN OF

**Sale Price** \$0

**Co-Owner**

**Certificate**

**Address** 75 MAIN ST

**Book & Page** 0087/0075

SOUTHINGTON, CT 06489-2504

**Sale Date** 09/30/1938

**Instrument** 25

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
SOUTHINGTON TOWN OF	\$0		0087/0075	25	09/30/1938

## Building Information

### Building 1 : Section 1

**Year Built:**

**Living Area:** 0

**Building Percent Good:**

Building Attributes	
Field	Description
Style	Vacant w/OB

Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Fireplaces	
Whirlpool Tubs	
Usrflid 104	
Fin Bsmt Area	
Fin Bsmt Quality	
Usrflid 107	
Bsmt Garages	
.	
Usrflid 108	
Bsmt Type	
Attic Type	
Cath Ceiling	
Usrflid 300	
Usrflid 301	

### Building Photo



109 120 05/21/2015

(<http://images.vgsi.com/photos2/SouthingtonCTPhotos//A00\04\35\89.JPG>)

### Building Layout

([http://images.vgsi.com/photos2/SouthingtonCTPhotos//Sketches/10843\\_1](http://images.vgsi.com/photos2/SouthingtonCTPhotos//Sketches/10843_1))

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

### Extra Features

Extra Features	Legend
----------------	--------

No Data for Extra Features

## Land

### Land Use

**Use Code** 903V  
**Description** Municipality Lnd  
**Zone** R-20/25  
**Alt Land Appr** No  
**Category**

### Land Line Valuation

**Size (Acres)** 2.80  
**Depth**

## Outbuildings

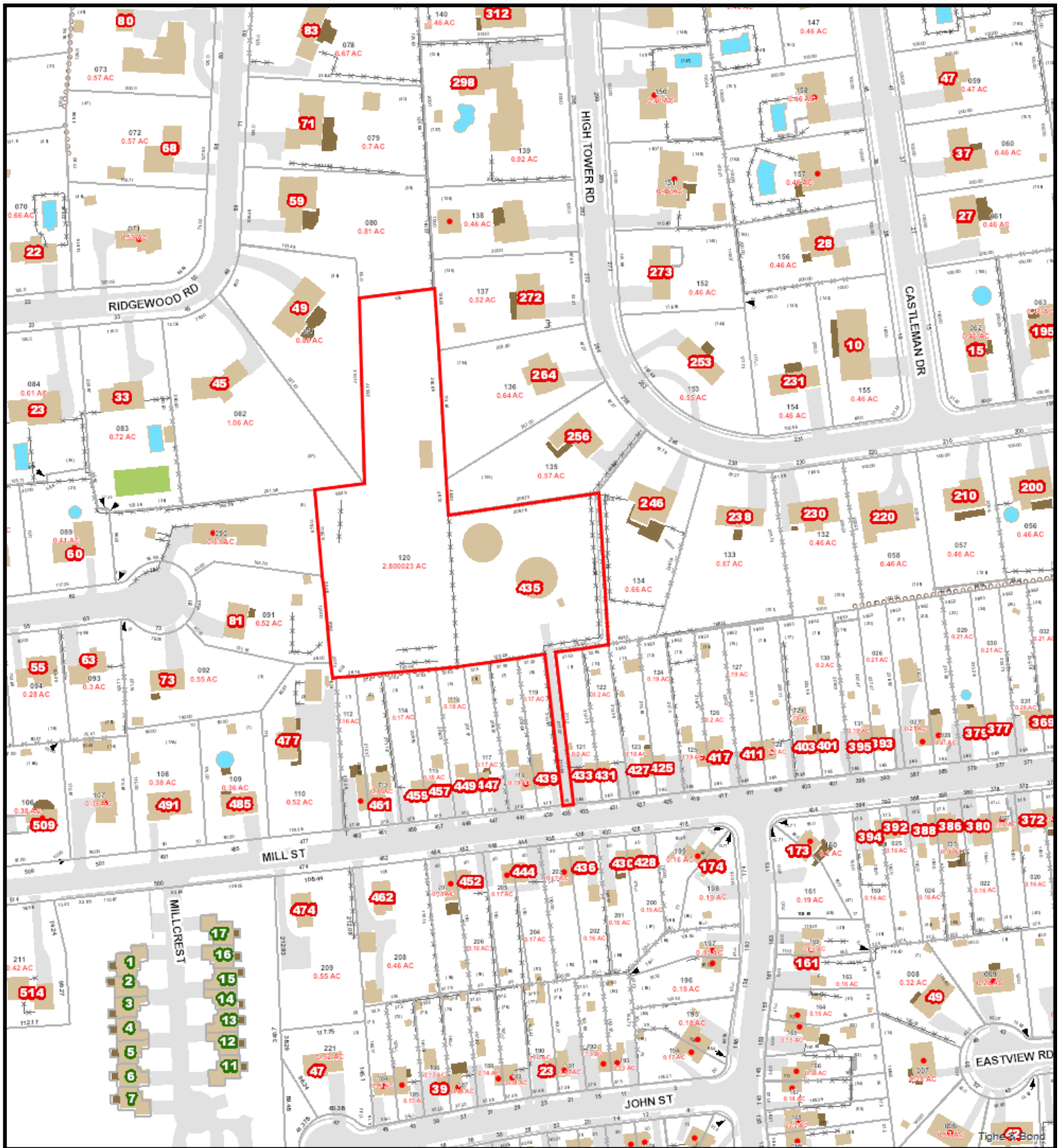
Outbuildings					<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Bldg #
FN1	Fence - Chain			4848.00 L.F.	1
PCS	PreCast Shed/Bldg			80.00 S.F.	1
PCS	PreCast Shed/Bldg			80.00 S.F.	1
TNK5	Elevated Tank			650000.00 Gals	1
CTR	Cell Recievers			4.00 Units	1

## Valuation History

Appraisal				
Valuation Year	Improvements	Land	Total	
2018	\$217,730	\$87,980	\$305,710	
2017	\$217,730	\$87,980	\$305,710	
2016	\$217,730	\$87,980	\$305,710	
2015	\$217,730	\$87,980	\$305,710	
2014	\$210,120	\$85,500	\$295,620	

Assessment				
Valuation Year	Improvements	Land	Total	
2018	\$152,410	\$61,590	\$214,000	
2017	\$152,410	\$61,590	\$214,000	
2016	\$152,410	\$61,590	\$214,000	
2015	\$152,410	\$61,590	\$214,000	
2014	\$147,080	\$59,850	\$206,930	





## 435 Mill Street

6/19/2020 8:51:09 AM

Scale: 1"=188'

Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.



# PLANNING AND ZONING DEPARTMENT

JOHN WEICHSEL MUNICIPAL CENTER – 196 NORTH MAIN STREET  
SOUTHINGTON, CONNECTICUT 06489

Phone: (860)276-6248 / Fax: (860)628-3511

August 27, 2018

Southington Water Department  
605 West Queen Street  
PO Box 111  
Southington, CT 06489

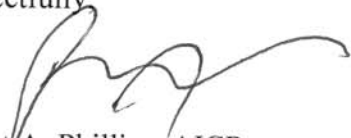
RE: Site plan application – 435 and 471 (rear) Mill Street (SPR #1760)

Dear Sir:

Please be advised that on August 21, 2018, the Southington Planning and Zoning Commission voted to approve your site plan application to construct a new 65 ft tall water storage tank and a 120' tall communications tower. The Commission also granted a waiver of the communications tower fall radius.

Please submit six sets of revised plans addressing Engineering comments prior to bidding. Building and zoning permits and a preconstruction meeting will also be required. Please note that this approval is good for a period of five (5) years, which will expire on August 21, 2023. You can request a five year extension prior to the expiration date if the work has not been completed.

Respectfully



Robert A. Phillips, AICP  
Director of Planning and Community Development

cc: Engineering Dept.  
Building Dept.  
Assessor's Dept.

# PLANNING AND ZONING DEPARTMENT

JOHN WEICHSEL MUNICIPAL CENTER – 196 NORTH MAIN STREET  
SOUTHINGTON, CONNECTICUT 06489

Phone: (860)276-6248 / Fax: (860)628-3511

August 28, 2018

Southington Water Department  
605 West Queen Street  
PO Box 111  
Southington, CT 06489

RE: Special Permit Approval – 435 and 471 (rear) Mill Street (SPU #605)

Dear Sir:

On August 21, 2018, the Planning and Zoning Commission voted to approve your Special Permit Application to construct a new 65-ft water storage tank and a 120-ft tall communications tower on properties located at 435 and 471 (rear) Mill Street.

**The special permit use becomes effective upon the filing** of the approved special permit use plan with the Town Planner's office and the filing **of this original approval letter in the office of the Town Clerk,** pursuant to Section 8-3d of the General Statutes of Connecticut. Such plan shall be certified by the Planning and Zoning Commission prior to filing. An approved special permit use not put into effect within one year becomes null and void. A single one year extension may be granted before the approval's first anniversary date (Section 8-03.3).

Respectfully,



Robert A. Phillips, AICP  
Director of Planning and Community Development

cc: Town Engineer  
Building Dept.  
Town Assessor



August 11, 2020

AT&T Site ID: CT1030

Site Address: 435 Mill Street, Southington, CT

RE: Application for Zoning and Permitting in the Town of Southington, County of Hartford CT.

To Whom It May Concern:

This letter authorizes SAI Inc. to file for all necessary administrative approvals, zoning approvals and building permits (local, state and federal) for the purposes of upgrading, installing, operating and maintaining a telecommunications facility at the site/property referenced above on behalf of AT&T.

All fees or charges associated with any applications or permits, and any conditions placed on the Applicant shall be the responsibility of AT&T, its subsidiaries and/or agents.

Signature: William M Casarella

Print Name: William M. Casarella

Title: Superintendent, Southington Water Company

Date: \_\_\_\_\_



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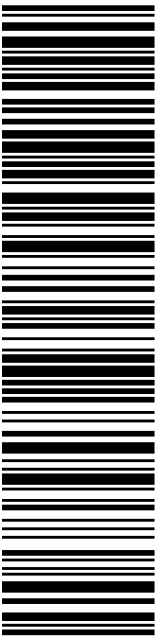
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**C006**

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CONNECTICUT SITING COUNCIL  
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Expected Delivery Date: 08/14/20

**0005**

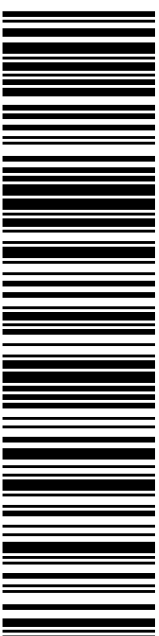
Carrier -- Leave if No Response

**C019**

SHIP

TO: MARK SCIOTA TOWN MANAGER  
TOWN OF SOUTHINGTON  
75 MAIN ST  
SOUTHINGTON CT 06489-2504

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Expected Delivery Date: 08/14/20

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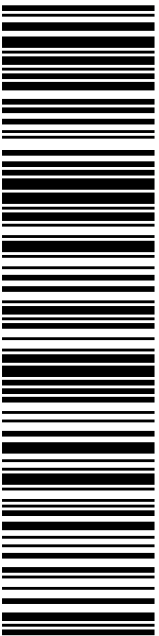
**0005**

Carrier -- Leave if No Response

**C019**

SHIP  
TO: ROBERT A PHILLIPS MS MPA AICP  
TOWN OF SOUTHINGTON DIRECTOR OF PLANNING  
75 MAIN ST  
SOUTHINGTON CT 06489-2504

**USPS TRACKING #**



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