March 31, 2022

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 CT5122
23 Kelleher Court, Wethersfield, CT 06109 (the "Property")
Latitude: 41.7153919 N Longitude: 72.6905989 W

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 140' level on the existing 180' monopole tower ("Tower") at 23 Kelleher Court, Wethersfield, CT. The property and Tower are owned by the Town of Wethersfield. AT&T intends to modify its facility by removing all (12) antennas and adding (3) AIR6419 N77G antennas at the 138'10"' level, (2) DMP65R-BU8DA (1) DMP65R-BU4DA, 2) QD8616-7 & (1) QD4616-7 at the 140' level, and (3) AIR6449 N77D antennas at the 142'7" level of the tower. The AIR6419 N77G & AIR6649 N77D antennas are stacked one on top of the other. AT&T also intends to swap (6) RRUs with (3) 4449 B5/B12 & (3) 4415 B25 The height of AT&Ts existing antennas & RRUs is 140' and the proposed antennas is 138'10", 140' and 142' 7" level on the Tower. The new RRUs will be at the 140' level of the tower.

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

A Variance was issued by the town of Wethersfield approving the Tower on April 15, 2002.
AT&T received CT Siting Council approval under TS-AT&T–159-020823 on September 25, 2002.
These approvals contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to Ms. Bonnie Therrien, Interim Town Manager, Town of Wethersfield, as chief elected official, property & tower owner and Ms. Denise Bradley, Assistant town planner, Town of Wethersfield.

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

Enclosures

Cc:
Ms. Bonnie Therrien, Interim Town Manager, chief elected official, property/ tower owner, Town of Wethersfield
Ms. Denise Bradley, Assistant Town Planner, Town of Wethersfield

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
603-644-2800
support@csquaredsystems.com

Calculated Radio Frequency Exposure

CT5122

23 Kelleher Court, Wethersfield, CT

March 29, 2022

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of the AT&T antenna arrays on an existing tower located at 23 Kelleher Court, Wethersfield CT. The coordinates of the proposed tower are 41° 42' 55.41" N, 72° 41' 26.16" W.

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) per sector) to support its commercial wireless network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % Maximum Permissible Exposure of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to AT&T's Radio Frequency Design Sheet dated 3/2/2021.

3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65, and Connecticut Siting Council recommendations:

$$\text{Power Density} = \left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

ERP = Effective Radiated Power

R = Radial Distance = $\sqrt{\left(H^2 + V^2\right)}$

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not consider actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Calculation Results

Table 1 below outlines the cumulative power density information for the AT&T modification on the existing tower at the site. The proposed antennas are directional in nature; therefore, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
Town of Weths	167	866.01	1	63.7	0.0009	0.5773	0.02%
Town of Weths	187.25	460.25	1	204	0.0022	0.3068	0.07%
Town of Weths	190	140	1	100	0.0011	0.2000	0.05%
Town of Weths	151.5	18000	1	100	0.0017	1.0000	0.02%
Town of Weths	155.5	18000	1	100	0.0016	1.0000	0.02%
Clearwire	165	2496	2	153	0.0044	1.0000	0.04%
Clearwire	167	11 GHz	1	211	0.0029	1.0000	0.03%
Verizon	130	751	4	2761	0.2583	0.5007	5.16%
Verizon	130	877	2	730	0.0341	0.5847	0.58%
Verizon	130	874	4	2761	0.2583	0.5827	4.43%
Verizon	130	1975	4	6322	0.5914	1.0000	5.91%
Verizon	130	2120	4	6322	0.5914	1.0000	5.91%
Verizon	130	3730	4	26125	2.4441	1.0000	24.44%
Sprint	123	1900	4	693	0.0728	1.0000	0.73%
Sprint	123	850	1	390	0.0102	0.5667	0.18%
Sprint	123	2500	2	693	0.0364	1.0000	0.36%
Nextel	74	851	12	100	0.0933	0.5673	1.65%
T-Mobile	151	2500	2	6413	0.2194	1.0000	2.19%
T-Mobile	151	2500	2	6413	0.2194	1.0000	2.19%
T-Mobile	151	600	2	592	0.0203	0.4000	0.51%
T-Mobile	151	600	1	1578	0.0270	0.4000	0.67%
T-Mobile	151	700	2	649	0.0222	0.4667	0.48%
T-Mobile	151	1900	2	2204	0.0754	1.0000	0.75%
T-Mobile	151	2100	2	1295	0.0443	1.0000	0.44%
T-Mobile	151	1900	4	1028	0.0703	1.0000	0.70%
T-Mobile	151	1900	2	2057	0.0704	1.0000	0.70%
T-Mobile	151	2100	2	2308	0.0790	1.0000	0.79%
AT&T	140	739	1	3156	0.0063	0.4927	1.28%
AT&T	140	763	1	3229	0.0065	0.5087	1.27%
AT&T	140	885	1	3883	0.0078	0.5900	1.32%
AT&T	140	1900	2	5118	0.0205	1.0000	2.05%
AT&T	140	2100	3	8226	0.0494	1.0000	4.94%
AT&T	140	2300	1	6297	0.0126	1.0000	1.26%
AT&T	142.58	3500	1	24286	0.0468	1.0000	4.68%
AT&T	138.833333	3500	1	24286	0.0495	1.0000	4.95%
						Total	**80.81%**

Table 1: Carrier Information[2]

[2] The existing record in the CSC Power Density Table for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for Town of Wethersfield, Verizon, Sprint, Nextel, Clearwire and T-Mobile was taken directly from the CSC database dated 01/21/2022. Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

5. Conclusion

The above analysis concludes that RF exposure at ground level from the proposed site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using conservative calculation methods, the highest expected percent of Maximum Permissible Exposure at ground level is **80.81% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in FCC OET Bulletin 65 Edition 97-01, ANSI/IEEE Std. C95.1 and ANSI/IEEE Std. C95.3.

March 29, 2022
Date

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[3]

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

(B) Limits for General Population/Uncontrolled Exposure[4]

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

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

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[3] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[4] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure

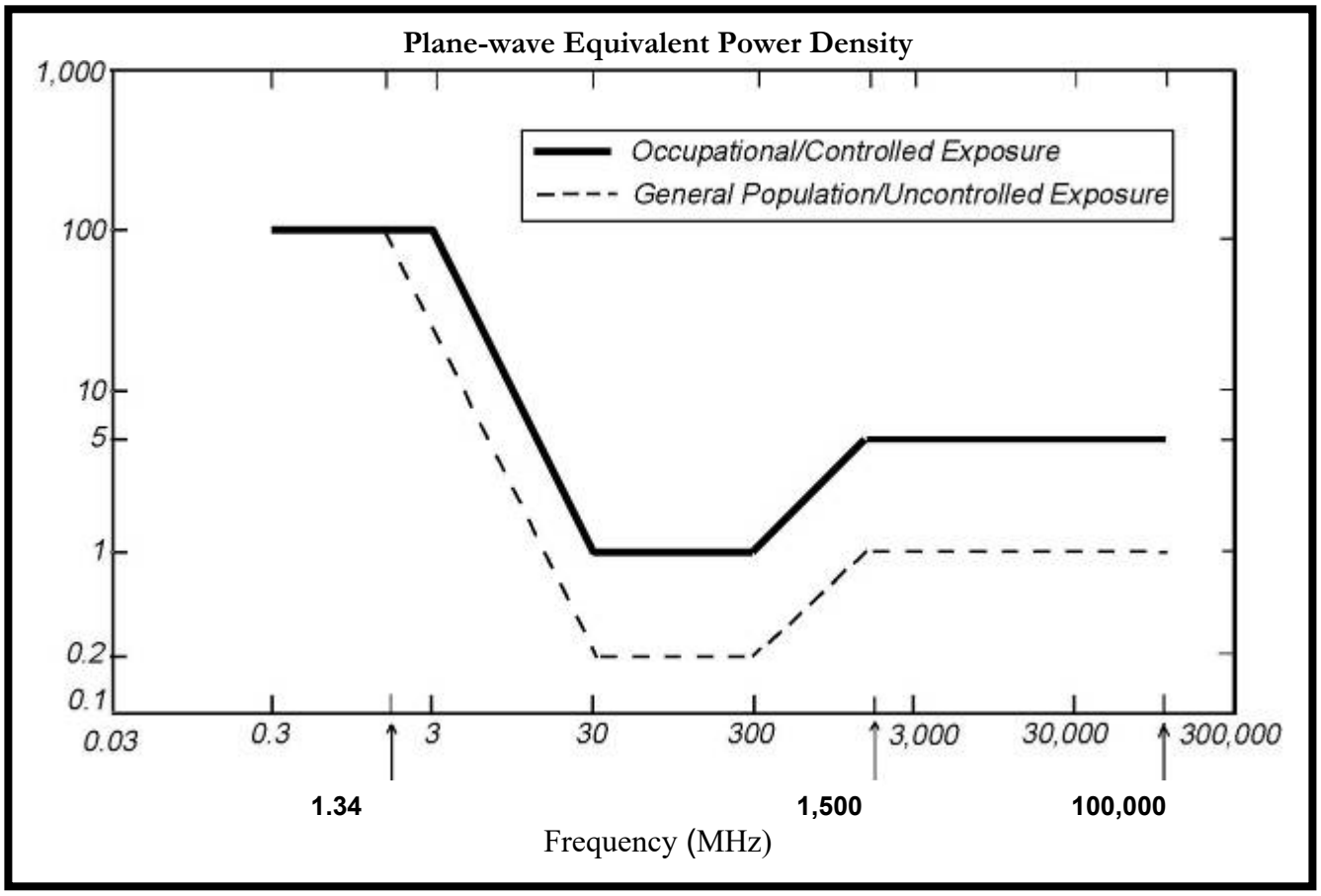
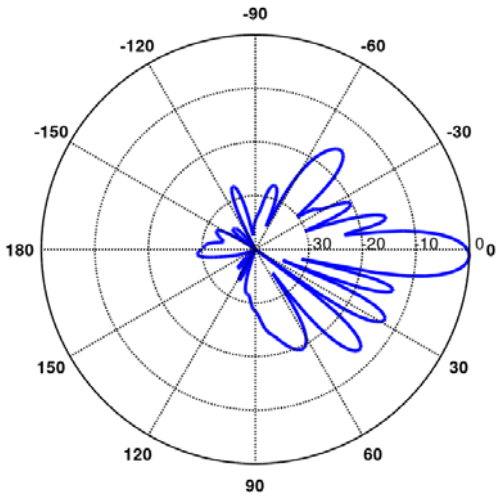
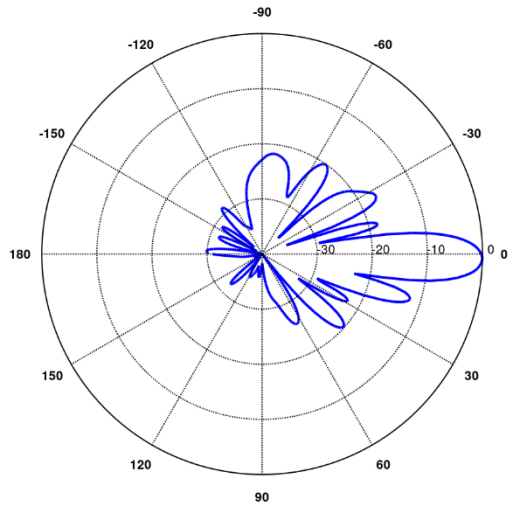
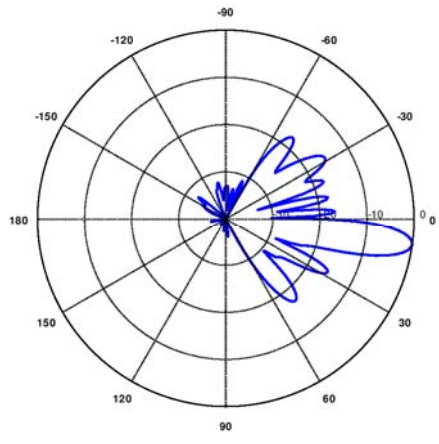


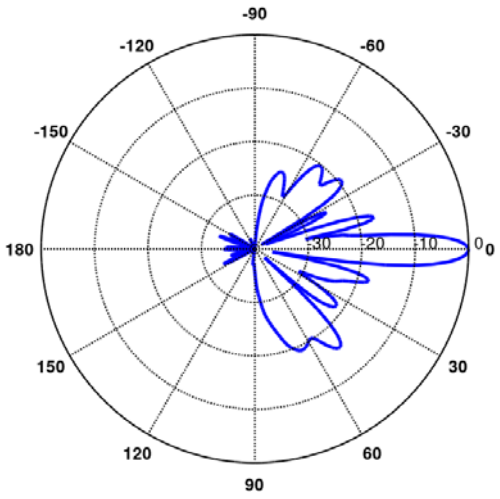
Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

700 MHz Manufacturer: Quintel Model #: QD8616-7 Frequency Band: 698-798 MHz Gain: 15.2 dBi Vertical Beamwidth: 9.1° Horizontal Beamwidth: 67° Polarization: Dual Linear 45° Size L x W x D: 96.0” x 22.0” x 9.6”	
700 MHz Manufacturer: CCI Model #: DMP65R-BU8DA Frequency Band: 698 - 806MHz Gain: 15.1 dBi Vertical Beamwidth: 9.5° Horizontal Beamwidth: 75° Polarization: Dual Linear 45° Size L x W x D: 96.0” x 20.7” x 7.7”	
885 MHz Manufacturer: CCI Model #: DMP65R-BU8DA Frequency Band: 824 - 896 MHz Gain: 16.0 dBi Vertical Beamwidth: 8.0° Horizontal Beamwidth: 64° Polarization: Dual Linear 45° Size L x W x D: 96.0” x 20.7” x 7.7”	

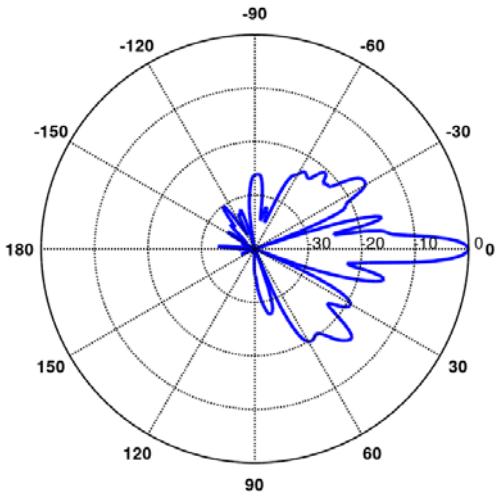
1900 MHz

Manufacturer:	Quintel
Model #:	QD8616-7
Frequency Band:	1920-1990 MHz
Gain:	17.2 dBi
Vertical Beamwidth:	6.2°
Horizontal Beamwidth:	62°
Polarization:	Dual Linear 45°
Size L x W x D:	96.0” x 22.0” x 9.6”



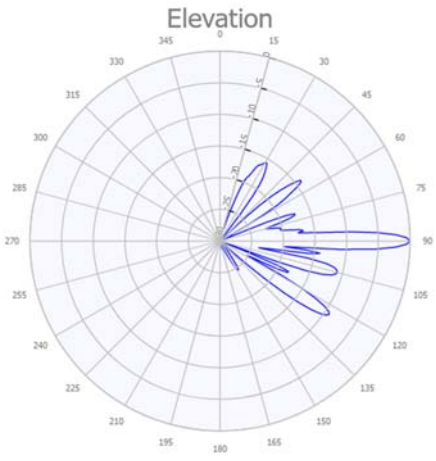
2100 MHz

Manufacturer:	Quintel
Model #:	QD8616-7
Frequency Band:	1920-2180 MHz
Gain:	17.5 dBi
Vertical Beamwidth:	5.5°
Horizontal Beamwidth:	62°
Polarization:	Dual Linear 45°
Size L x W x D:	96.0” x 22.0” x 9.6”



2300 MHz

Manufacturer:	CCI
Model #:	DMP65R-BU8DA
Frequency Band:	2300-2400 MHz
Gain:	18.1 dBi
Vertical Beamwidth:	4.1°
Horizontal Beamwidth:	54°
Polarization:	Dual Linear 45°
Size L x W x D:	96.0” x 20.7” x 7.7”



PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • NEW AT&T ANTENNAS: AIR6449 N77D+AIR6419 N77G STACKED (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: DMP65R-BU8DA (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2). • NEW AT&T ANTENNAS: DMP65R-BU4DA (TYP. OF 1 PER GAMMA SECTOR). • NEW AT&T ANTENNAS: QD8616-7 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2). • NEW AT&T ANTENNAS: QD4616-7 (TYP. OF 1 PER GAMMA SECTOR). • NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: 4415 B25 (1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T DC & FIBER SURGE ARRESTOR (DC9-48-60-24-8C-EV) (TOTAL OF 1) WITH (1) DC 6AWG6 TRUNK. • NEW AT&T (3) Y-CABLES. • PROPOSED RRU MOUNT COMMSCOPE PART# RR-FA2 (TYP. OF 1 PER SECTOR, TOTAL OF 3) ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD 6673 FHG. • ADD 6630 & IDLe. • ADD (4) VERTIV RECTIFIERS • NEW AT&T RRUS: E2 B29 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T BATTERY CABINET: VERTIV XTE 601B W/ (5) BATT/STRINGS. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNA: 7700 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNA: TPA-65R-LCUUUU-H8 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2). • EXISTING AT&T ANTENNA: HPA-65R-BUU-H8 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2). • EXISTING AT&T ANTENNA: SBNHH-1D65A (TYP. OF 2 PER GAMMA SECTOR). • EXISTING AT&T ANTENNA: 800-10966 (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2). • EXISTING AT&T ANTENNA: 800-10964 (TYP. OF 1 PER GAMMA SECTOR). • EXISTING AT&T RRUS: RRUS 11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T RRUS: RRUS 32 B2 (TYP. OF 1 PER SECTOR, TOTAL OF 3). ITEMS TO REMAIN: (9) RRU'S, (6) 1- 5/8" COAX CABLE, (6) DC POWER & (2) FIBER.
SITE ADDRESS:	23 KELLEHER COURT WETHERSFIELD, CT 06109
LATITUDE:	41.7153919 N, 41° 42' 55.41" N
LONGITUDE:	72.6905989 W, 72° 41' 26.16" W
TYPE OF SITE:	MONOPOLE / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	180'-0"±
RAD CENTER:	140'-0"± (LTE), 142'-"± (C-BAND), 138'-10"± (C-BAND)
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
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A-3	DETAILS	1
A-4	DETAILS	1
A-5	DETAILS	1
SN-1	STRUCTURAL NOTES	1
S-1	MOUNT MODIFICATION DESIGN	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1

SITE NUMBER: CT5122

SITE NAME: WETHERSFIELD NORTH

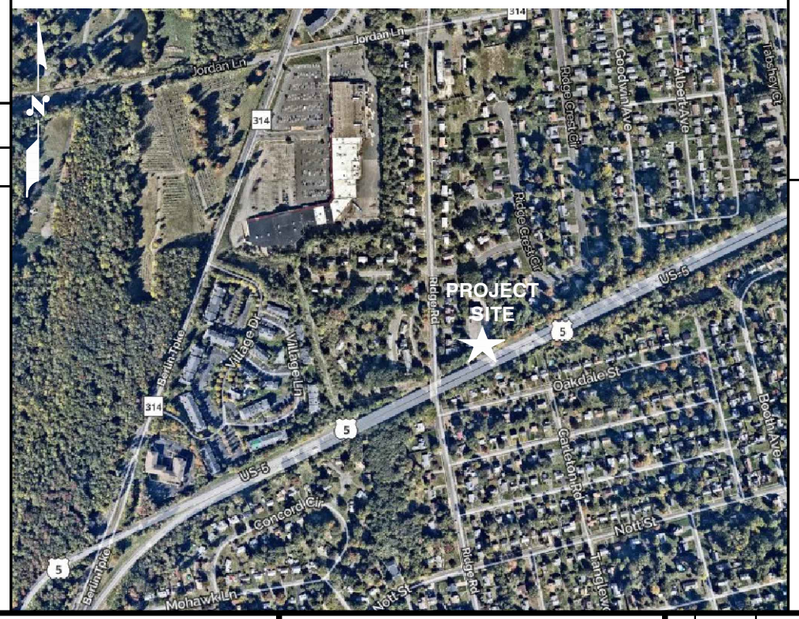
FA CODE: 10092829

PACE ID: MRCTB050936, MRCTB050782, MRCTB052120, MRCTB050760, MRCTB051311, MRCTB054341, MRCTB054262

PROJECT: C-BAND-BBU ADD-LTE 6C-BWE TOWER TOP RRHSWAP UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:
START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.3 MI. TURN LEFT ONTO WEST ST. 0.2 MI. MERGE ONTO I-91 6.9 MI. TAKE US-5 SOUTH/CT-15 SOUTH TOWARD WETHERSFIELD/NEWINGTON EXIT, EXIT 28. 0.9. MI. AT EXIT 85, TAKE RAMP RIGHT FOR CT-99 SOUTH TOWARD ROCKY HILL/WETHERSFIELD 0.4 MI. KEEP STRAIGHT ONTO CT-99 SOUTH/SILAS DEANE HWY. 185 FT. TURN RIGHT ONTO WESTON CT-314/JORDAN LN. 1.2 MI. TURN LEFT ONTO RIDGE RD 0.3 MI. TURN LEFT ONTO KELLEHER CT. END AT 23 KELLEHER COURT WETHERSFIELD, CT



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

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: CT5122
SITE NAME: WETHERSFIELD NORTH

23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/29/21	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	12/01/21	ISSUED FOR REVIEW	GA	HC	DPH
A	10/22/21	ISSUED FOR REVIEW	AM	HC	DPH

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

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

AT&T

TITLE SHEET
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	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		

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SITE NUMBER: CT5122
SITE NAME: WETHERSFIELD NORTH

23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: AM

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

AT&T

GENERAL NOTES
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	GN-1	1

NOTE:

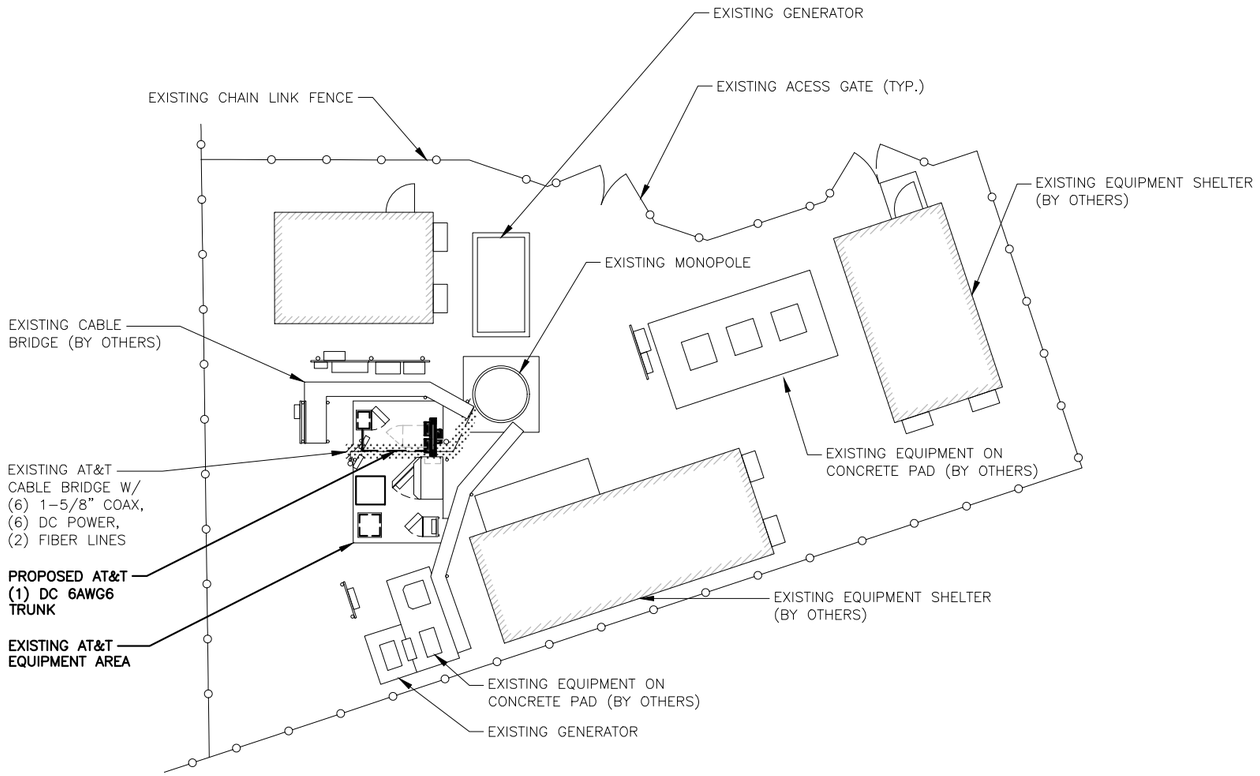
REFER TO **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC. DATED: NOVEMBER 15, 2021 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

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

NOTE:

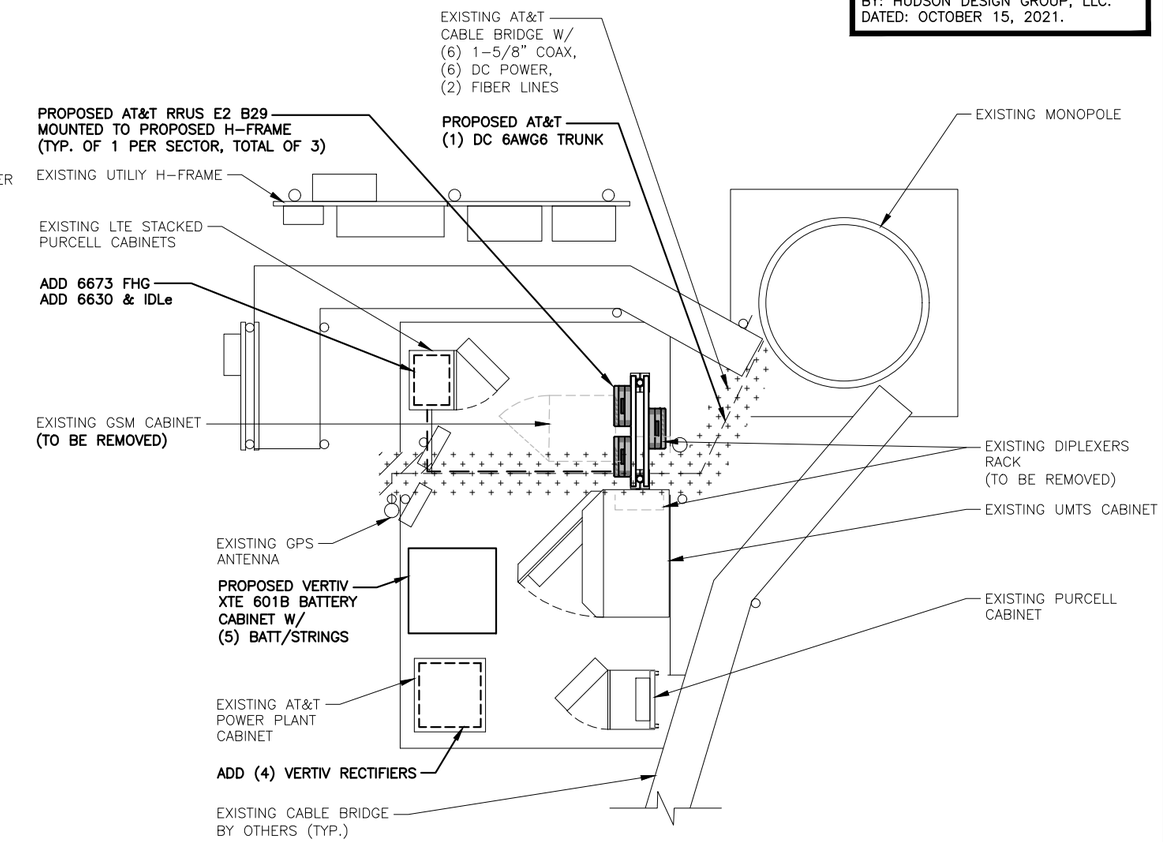
AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: OCTOBER 15, 2021.

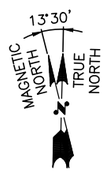


3
A-2

SITE PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"





EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

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STATE OF CONNECTICUT
DANIEL P. HAMM
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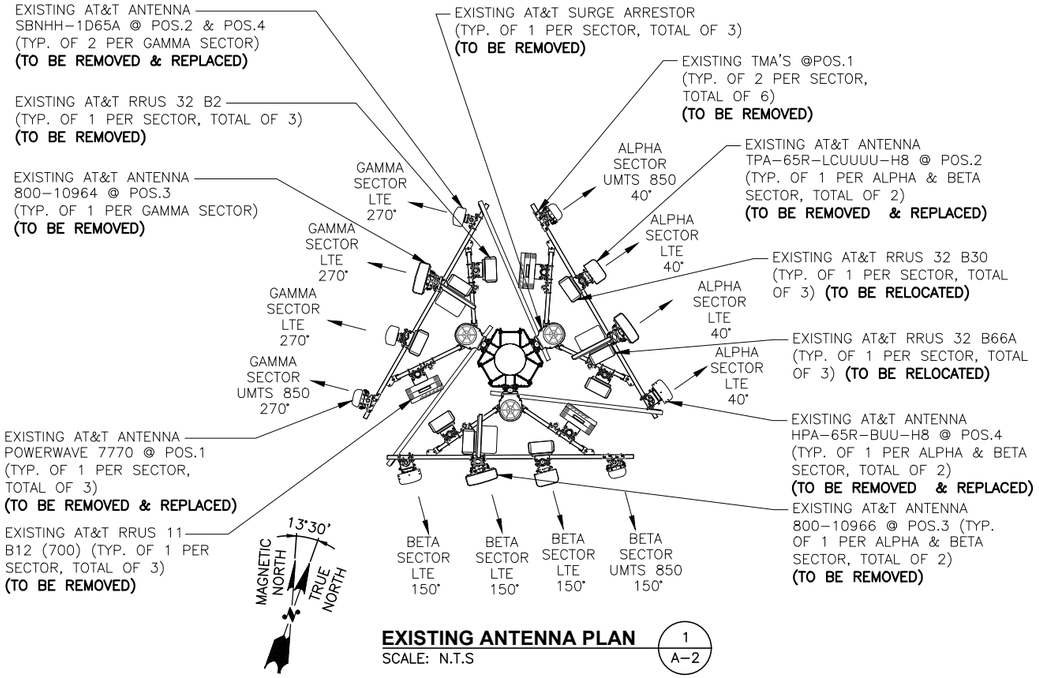
AT&T

COMPOUND & EQUIPMENT PLANS
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

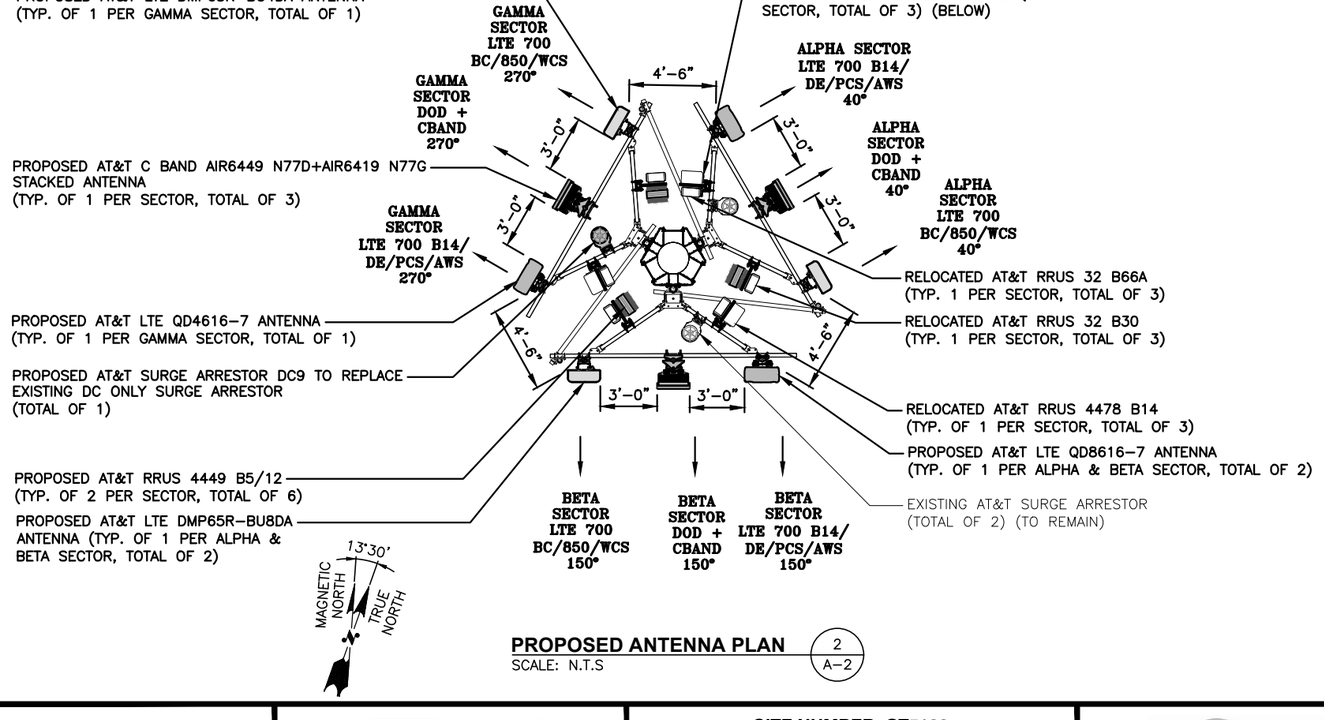
SITE NUMBER	DRAWING NUMBER	REV
CT5122	A-1	1



EXISTING ANTENNA PLAN

SCALE: N.T.S

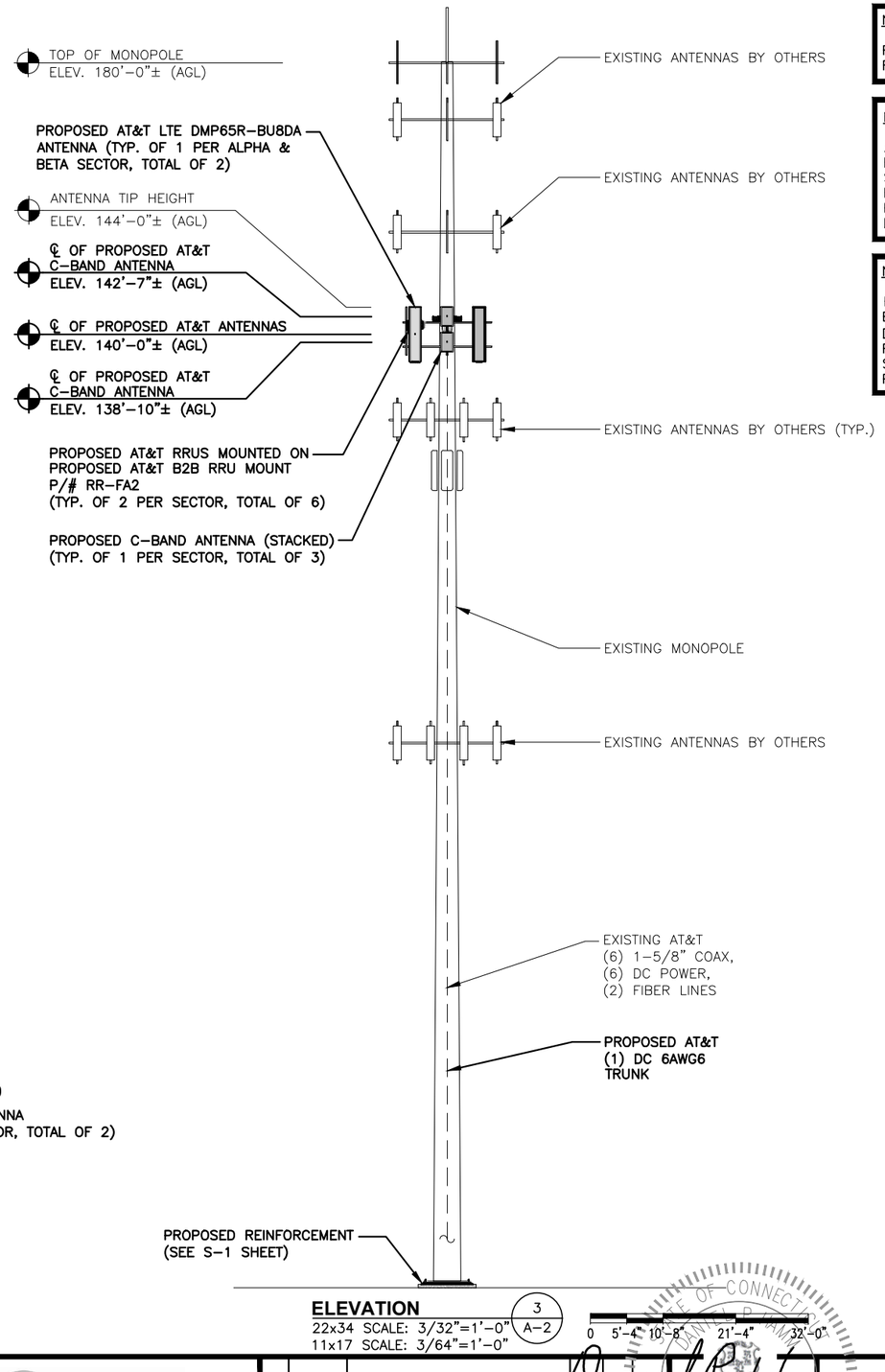
1 / A-2



PROPOSED ANTENNA PLAN

SCALE: N.T.S

2 / A-2



ELEVATION

22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

3 / A-2

0 5'-4" 10'-8" 21'-4" 32'-0"

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: OCTOBER 15, 2021.

NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC. DATED: NOVEMBER 15, 2021 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

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ANTENNA LAYOUT PLANS & ELEVATION
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–		(E) (1) RAYCAP DC6-48-60-18-8F
A2	PROPOSED	LTE 700 B14/DE/PCS/AWS	QD8616-7	96X22X9.6	140'-0"±	40°	–	(E)(1) 4478 B14 (700) (E)(1) RRUS-32 B66A (AWS) **(P)(1) 4415 B25 (PCS)** **(P)(G)(1) RRUS-E2 B29 (700)**	–	(E)(2)1-5/8 COAX (E)(2) DC LINES & (E)(1) FIBER LINE	
A3	PROPOSED	DOD + CBAND	AIR6449 N77D AIR6419 N77G (STACKED)	30.4X15.9X8.1	142'-0"± 138'-0"±	40°	–	–	–	–	
A4	PROPOSED	LTE 700 BC/850/WCS	DMP65R-BU8DA	96x20.7x7.7	140'-0"±	40°	–	(E)(1) RRUS-32 B30 (WCS) **(P)(1) 4449 B5/B12 (850/700)**	–	–	
B1	–	–	–	–	–	–	–	–	–		(E) (1) RAYCAP DC6-48-60-18-8F
B2	PROPOSED	LTE 700 B14/DE/PCS/AWS	QD8616-7	96X22X9.6	140'-0"±	150°	–	(E)(1) 4478 B14 (700) (E)(1) RRUS-32 B66A (AWS) **(P)(1) 4415 B25 (PCS)** **(P)(G)(1) RRUS-E2 B29 (700)**	–	(E)(2)1-5/8 COAX (E)(2) DC LINES	
B3	PROPOSED	DOD + CBAND	AIR6449 N77D AIR6419 N77G (STACKED)	30.4X15.9X8.1	142'-0"± 138'-0"±	150°	–		–	–	
B4	PROPOSED	LTE 700 BC/850/WCS	DMP65R-BU8DA	96x20.7x7.7	140'-0"±	150°	–	(E)(1) RRUS-32 B30 (WCS) **(P)(1) 4449 B5/B12 (850/700)**	–	–	
C1	–	–	–	–	–	–	–	–	–		**(P) (1) RAYCAP DC9-48-60-24-8C-EV**
C2	PROPOSED	LTE 700 B14/DE/PCS/AWS	QD4616-7	51.5X22X9.6	140'-0"±	270°	–	(E)(1) 4478 B14 (700) (E)(1) RRUS-32 B66A (AWS) **(P)(1) 4415 B25 (PCS)** **(P)(G)(1) RRUS-E2 B29 (700)**	–	(E)(2)1-5/8 COAX (E)(2) DC LINES, **(P)(1) DC LINE &** (E)(1) FIBER LINE	
C3	PROPOSED	DOD + CBAND	AIR6449 N77D AIR6419 N77G (STACKED)	30.4X15.9X8.1	142'-0"± 138'-0"±	270°	–		–	–	
C4	PROPOSED	LTE 700 BC/850/WCS	DMP65R-BU4DA	48x20.7x7.7	140'-0"±	270°	–	(E)(1) RRUS-32 B30 (WCS) **(P)(1) 4449 B5/B12 (850/700)**	–	–	

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 15, 2021.

NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: HUDSON DESIGN GROUP, LLC.
DATED: NOVEMBER 15, 2021 (Rev.1)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

FINAL ANTENNA SCHEDULE

SCALE: N.T.S

(1 / A-3)

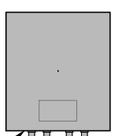
RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
(E)(3)	4478 B14 (700)	18.1"x13.4"x8.3"
(E)(3)	RRUS-32 B66A (AWS)	27.2"x12.1"x7.0"
(E)(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
(P)(3)	**4449 B5/B12 850/700)**	**17.9"x13.2"x10.4"**
(P)(3)	**4415 B25 (PCS)**	**16.5"x13.4"x5.9"**
(P)(G)(3)	**RRUS-E2 B29 (700)**	**20.4"x18.5"x7.5"**

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

SCALE: N.T.S

(2 / A-3)

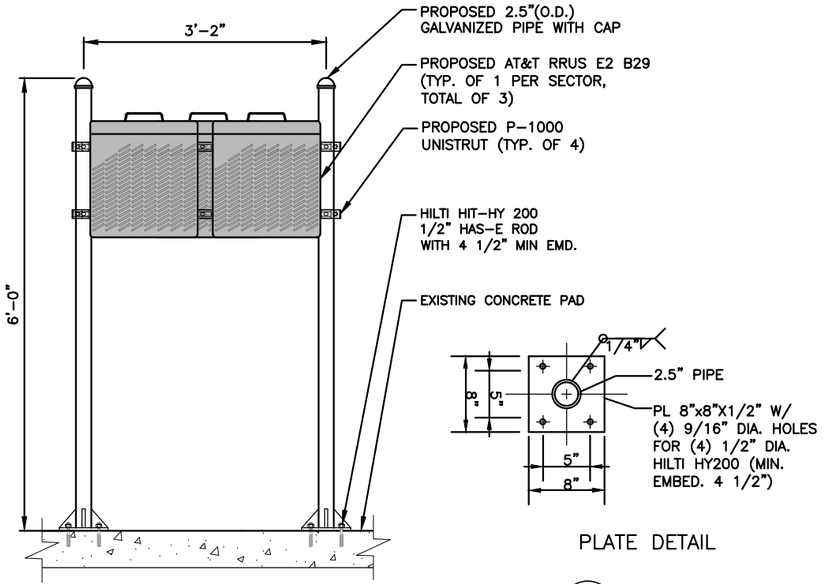


PLATE DETAIL

PROPOSED RRUS H-FRAME MOUNTING DETAIL

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

(3 / A-3)

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

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

AT&T

DETAILS
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
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NOTE:

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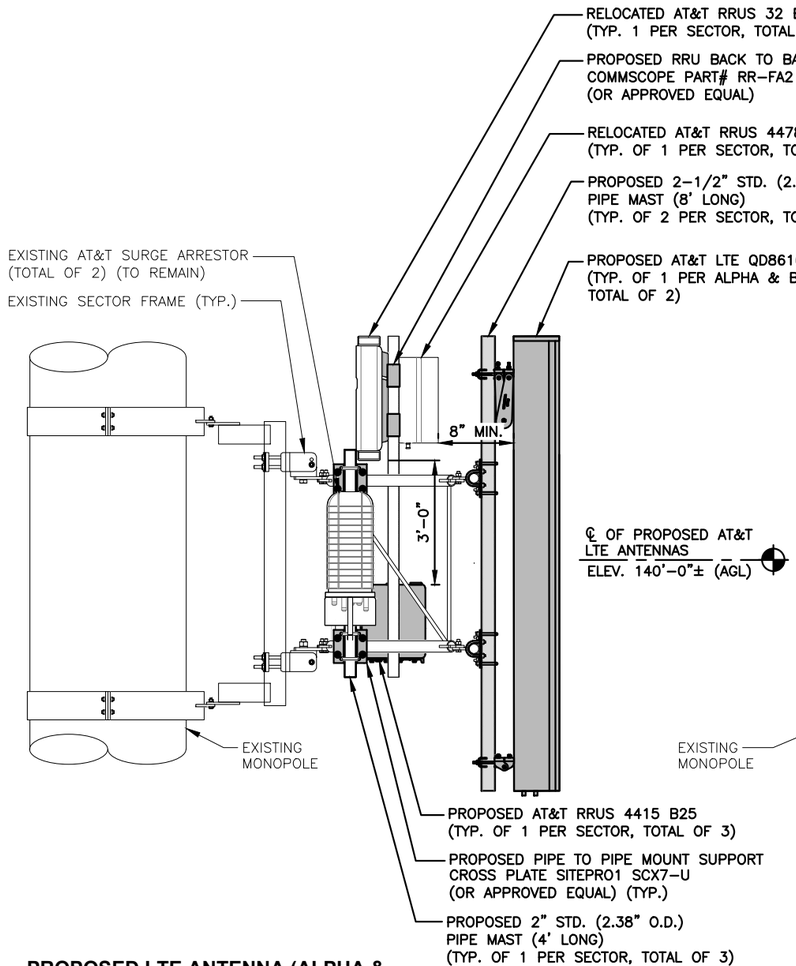
NOTE:

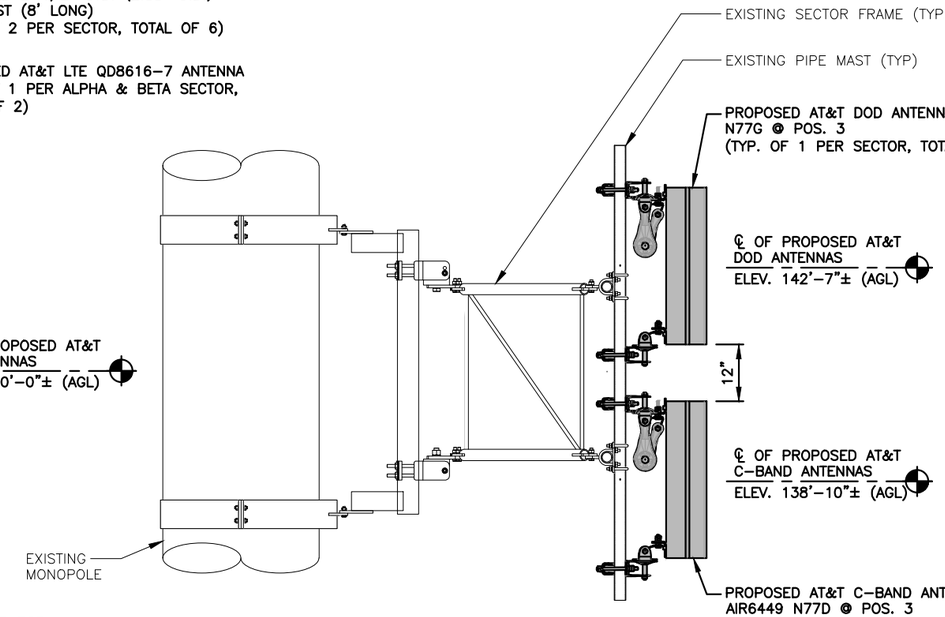
AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: OCTOBER 15, 2021.



PROPOSED LTE ANTENNA (ALPHA & BETA SECTOR) MOUNTING DETAIL (1 / A-4)

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

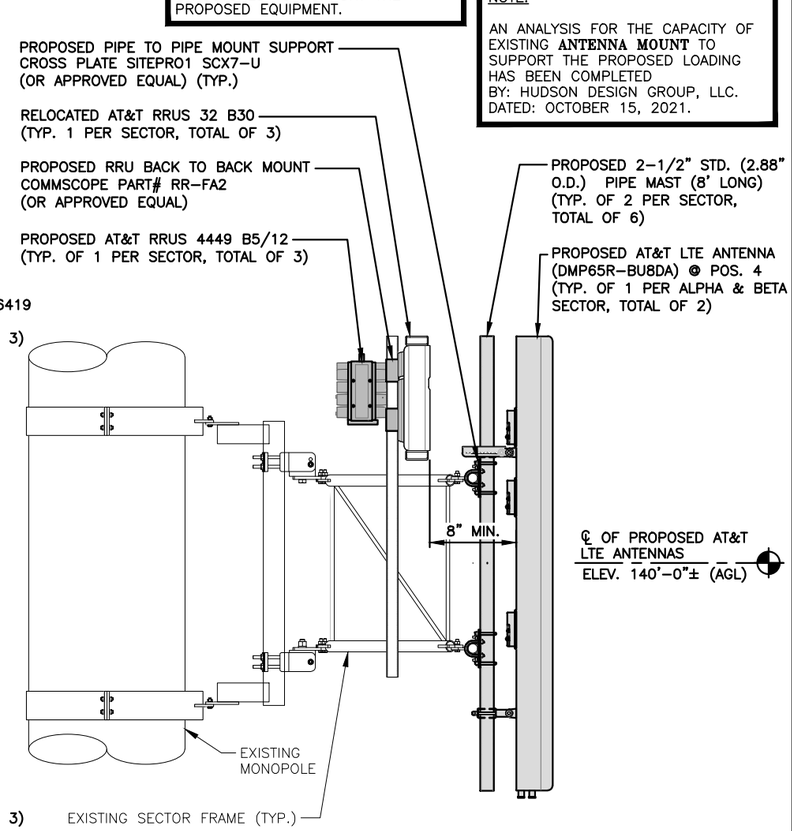
0 8" 1'-4" 2'-8" 4'-0"



PROPOSED C-BAND ANTENNA MOUNTING DETAIL (2 / A-4)

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE ANTENNA (ALPHA & BETA SECTOR) MOUNTING DETAIL (3 / A-4)

22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5122
SITE NAME: WETHERSFIELD NORTH

23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	10/22/21	ISSUED FOR REVIEW	AM	HC	DPH

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

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

Daniel P. Hamm

AT&T

DETAILS
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	A-4	1

NOTE:

REFER TO **STRUCTURAL ANALYSIS** BY: HUDSON DESIGN GROUP, LLC. DATED: NOVEMBER 15, 2021 (Rev.1) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

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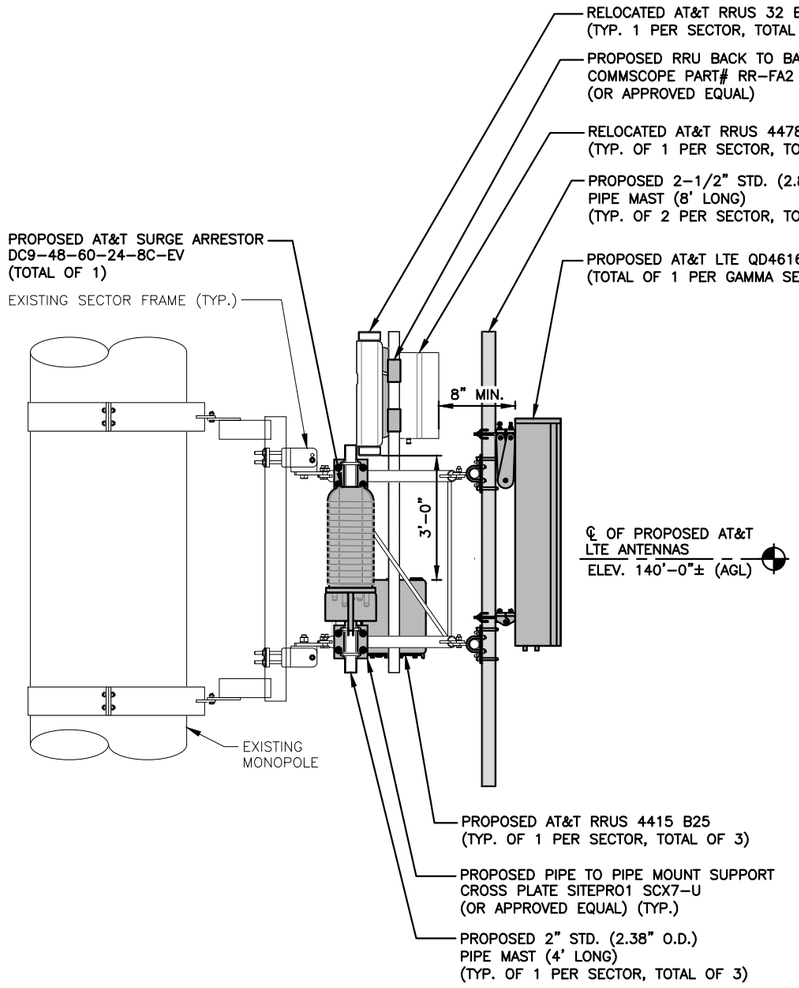
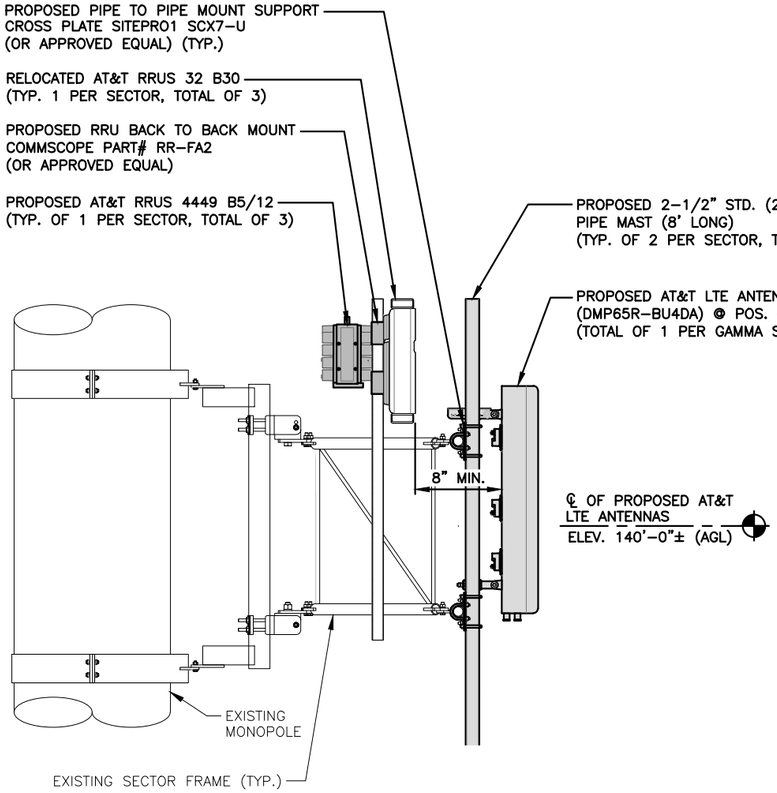


PROPOSED LTE ANTENNA (GAMMA SECTOR)
MOUNTING DETAIL
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

1 / A-5

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE ANTENNA (GAMMA SECTOR)
MOUNTING DETAIL
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

2 / A-5

0 8" 1'-4" 2'-8" 4'-0"

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

STATE OF CONNECTICUT
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LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	A-5	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

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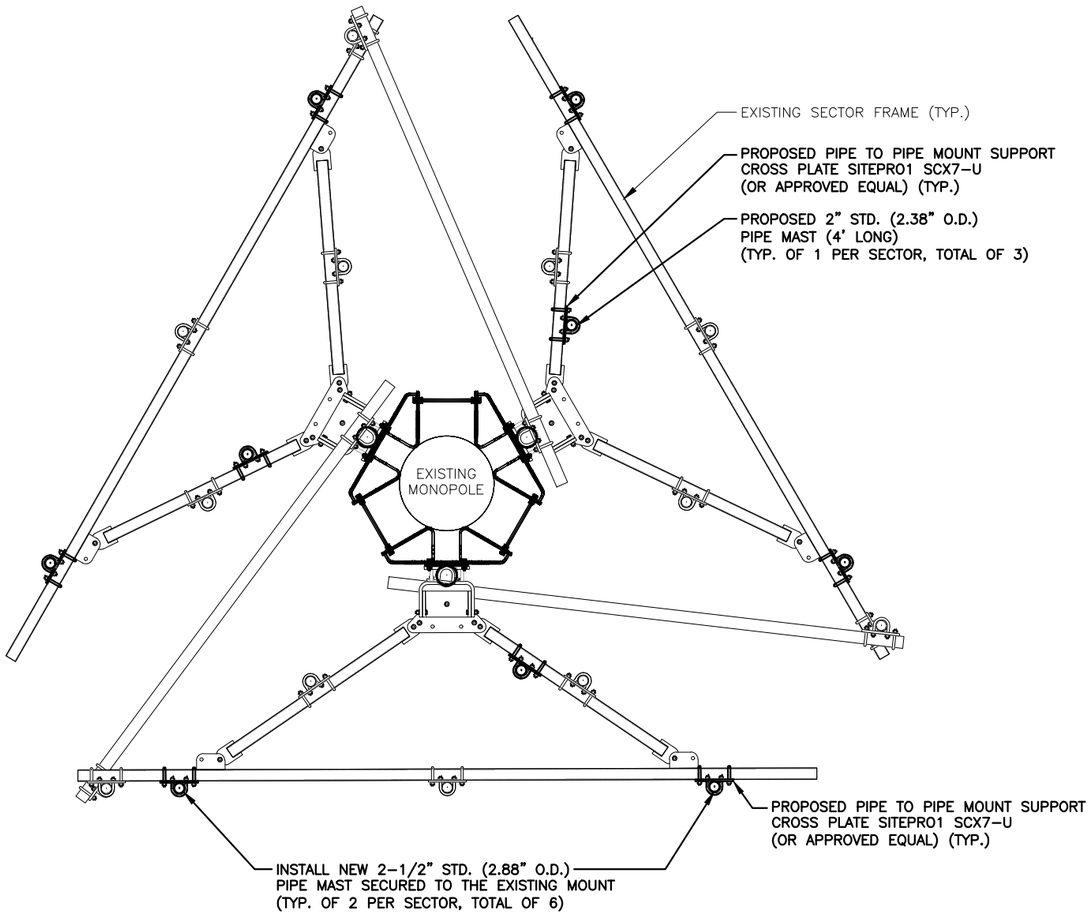
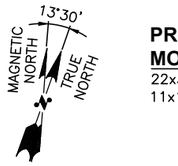
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	SN-1	1





PROPOSED MOUNT MODIFICATIONS PLAN (1 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

NOTE:

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BY: HUDSON DESIGN GROUP, LLC.
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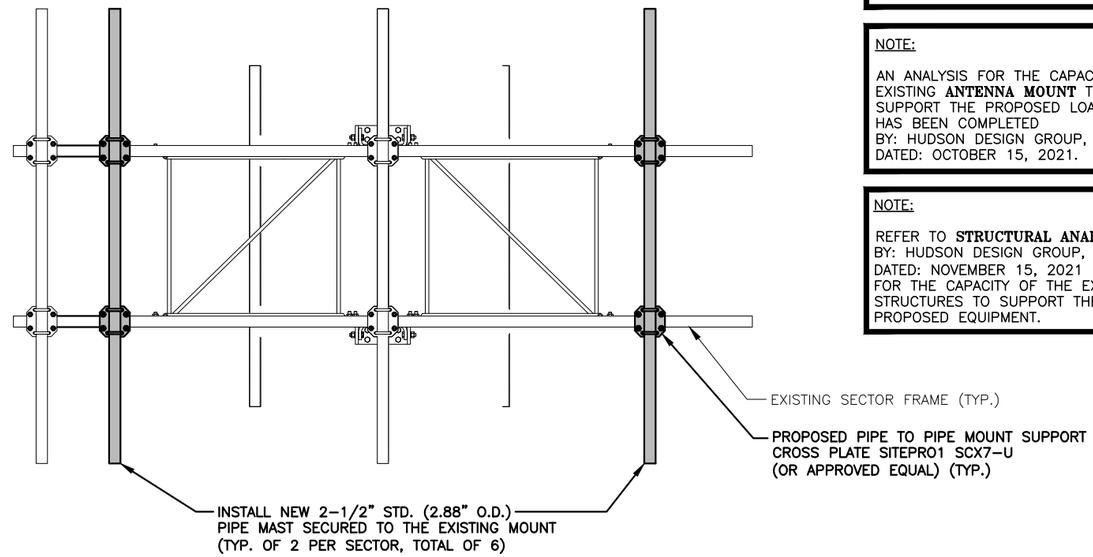
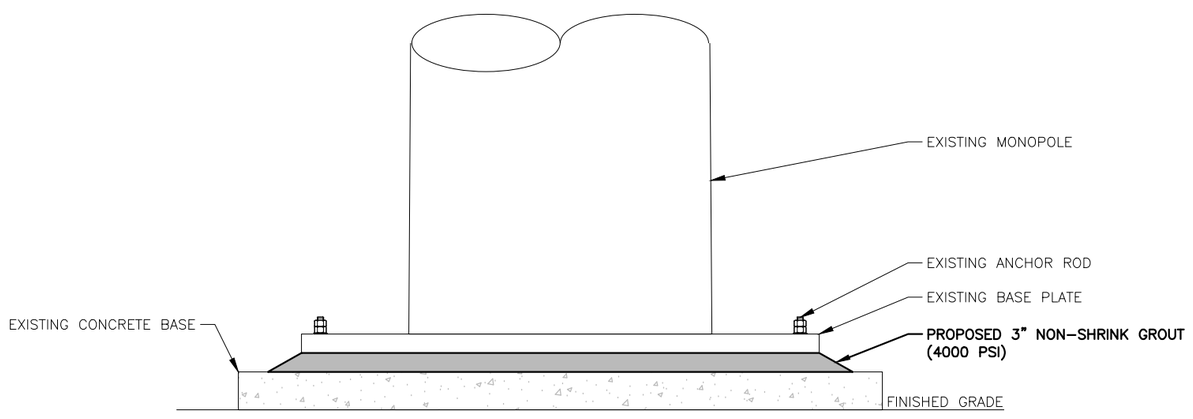


PROPOSED MOUNT MODIFICATIONS DETAIL (2 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED REINFORCEMENT DETAIL (3 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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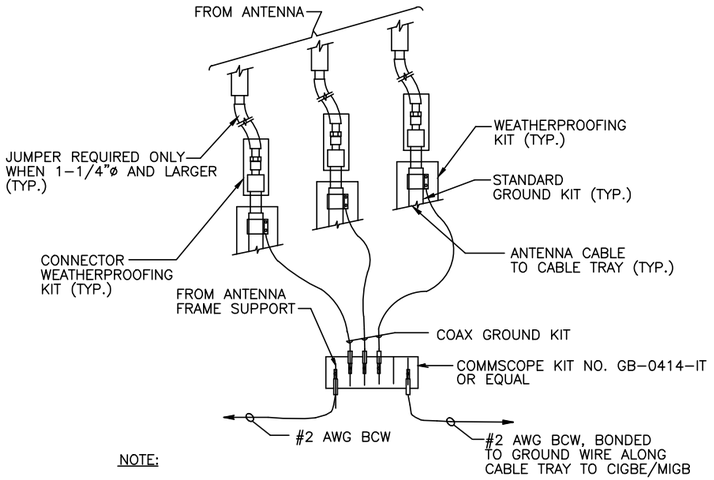
MOUNT MODIFICATION DESIGN
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	S-1	1



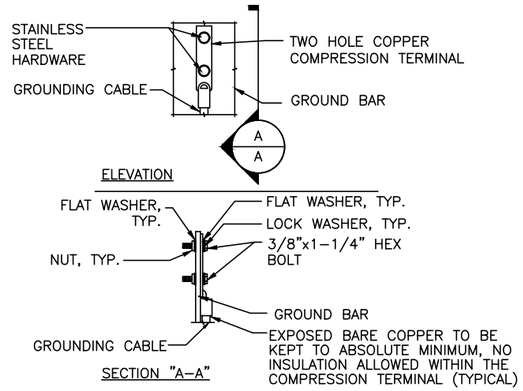
NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1 / G-1



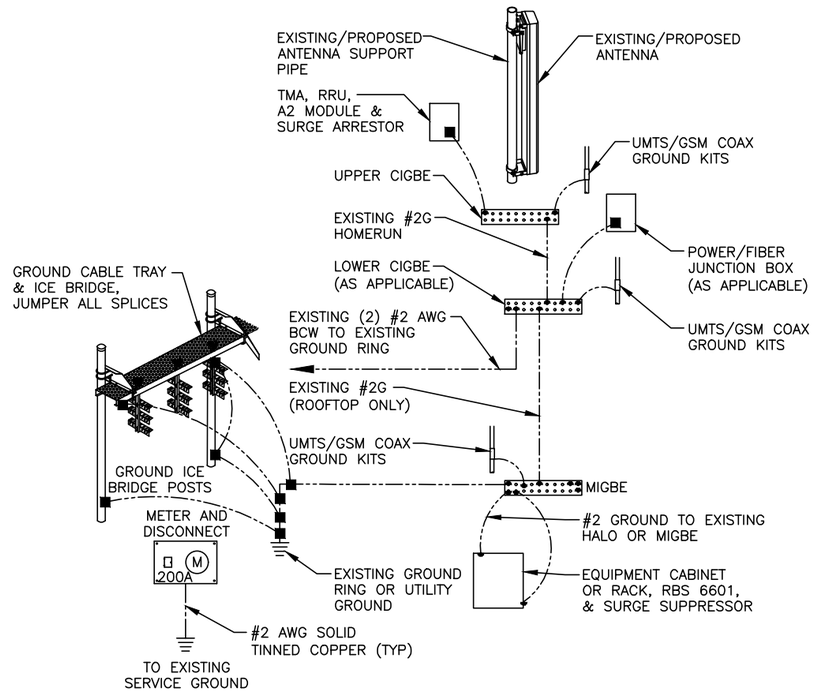
NOTES:

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

SCALE: N.T.S

3 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1

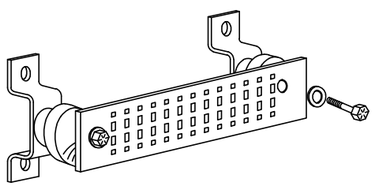
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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)

SCALE: N.T.S

4 / G-1

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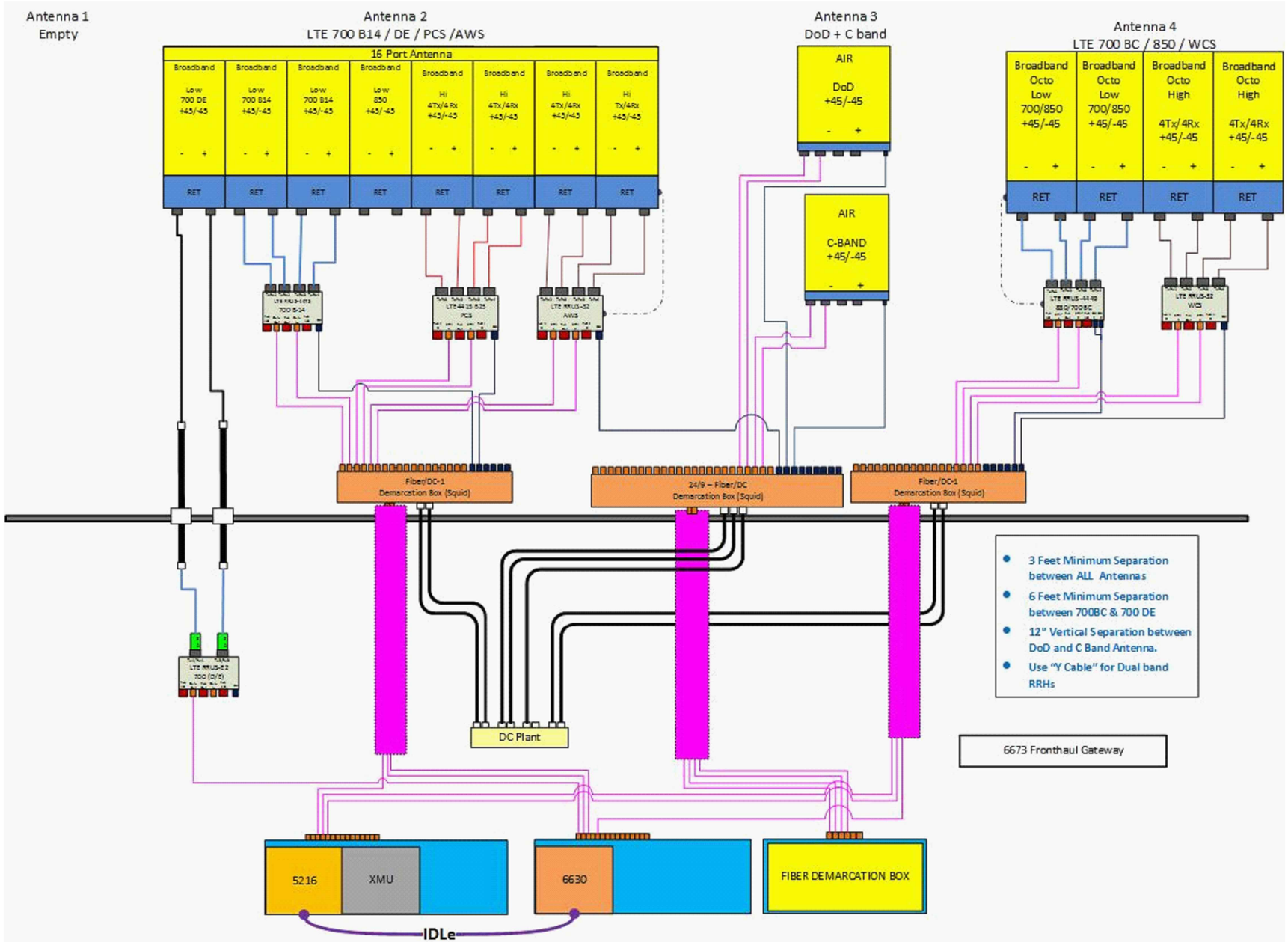

RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

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

NOTE:

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RF PLUMBING DIAGRAM
C–BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	RF–1	1

(REVISED)
STRUCTURAL ANALYSIS REPORT

For

SITE NUMBER: CT5122 (C-BAND)
SITE NAME: WETHERSFIELD NORTH

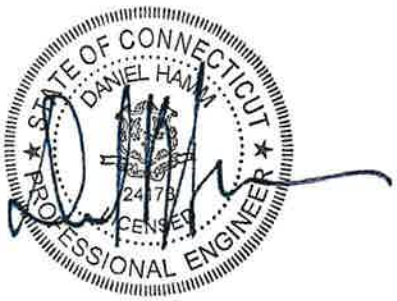
23 Kelleher Court
Wethersfield, CT 06109

Antennas Mounted on the Monopole

Prepared for:

SAI at&t

Dated: November 15, 2021 (Rev.1)
November 1, 2021



Prepared by:

HDG **HUDSON** Design Group LLC

45 Beechwood Drive
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SCOPE OF WORK:

Hudson Design Engineering, PLLC (HDG) has been authorized by AT&T to conduct a structural evaluation of the 179' monopole supporting the proposed AT&T's antennas located at elevation 140' 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.

The following documents were used for our reference:

- Tower Design Drawings prepared by FWT dated July 18, 2006.
- Foundation Design Drawings prepared by FWT dated July 19, 2006.
- Previous HDG Structural Analysis dated August 8, 2016.

CONCLUSION SUMMARY:

HDG performed structural analysis of the existing tower with the following proposed modifications:

1. **Grout existing base plate.**

Based on our evaluation, we have determined that the existing monopole **is in conformance** with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **88.2 %** - (Pole Section-L4 from EL.30' to EL.45.5' Controlling).

FOUNDATION SUMMARY:

Based on our evaluation, we have determined that the existing foundation **is in conformance** with the ANSI/TIA-222-H Standard for the loading considered under the criteria listed in this report. The foundation is rated at **71.1%** - (Pad Shear 1-way Controlling).

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APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	Omni 2"x6'	181'	T-Arm
	Omni 4"x6'	181'	T-Arm
	(2) Distribution Box	181'	T-Arm
	(2) Omni 3"x4'	181'	T-Arm
	Omni 3"x10'	181'	T-Arm
	4' Dipole	181'	T-Arm
	2' Ø Dish Antenna	178'	Pipe Mount
	(1) ET-X-TU-42-15-37-18-iR-ST Antenna	174'	T-Arm
	(2) APXVSPP18-C Antennas	174'	T-Arm
	(3) APXV9TM14 Antennas	174'	T-Arm
	(3) RRH 8X20-25 RRH's	174'	T-Arm
	(3) 1900 RRH's	174'	T-Arm
	(3) 800 RRH's	174'	T-Arm
	2' Ø Dish Antenna	159'	Pipe Mount
	(3) APXVAARR24_43-U-NA20 Antennas	151'	Sector Frame
	(3) AIR6449 B41 Antennas	151'	Sector Frame
	(3) AIR 32 B66A B2A Antennas	151'	Sector Frame
	(3) 4449 B71+B85 RRH's	151'	Sector Frame
	(3) 4415 B25 RRH's	151'	Sector Frame
	(3) SDX1926Q-43 | E14F05P86 Diplexers	151'	Sector Frame
	(3) Twin Style 1B - AWS TMA's	151'	Sector Frame
AT&T	(3) B14 4478 RRH's	140'	Sector Frame
AT&T	(3) RRUS-32 B66A RRH's	140'	Sector Frame
AT&T	(3) RRUS-32 B30 RRH's	140'	Sector Frame
AT&T	(2) Squid Surge Arrestor	140'	Sector Frame
AT&T	**(2) QD8616-7 Antennas**	140'	Sector Frame
AT&T	**(1) QD4616-7 Antennas**	140'	Sector Frame
AT&T	**(3) AIR6449 B77D Antennas**	140'	Sector Frame
AT&T	**(3) AIR6419 N77D Antennas**	140'	Sector Frame
AT&T	**(2) DMP65R-BU8DA Antennas**	140'	Sector Frame
AT&T	**(1) DMP65R-BU4DA Antennas**	140'	Sector Frame
AT&T	**(3) B5/B12 4449 RRH's**	140'	Sector Frame
AT&T	**(3) 4415 B25 RRH's**	140'	Sector Frame
AT&T	**(1) Squid Surge Arrestor**	140'	Sector Frame
	(3) BXA-70063/4CF Antennas	130'	Platform
	(6) SBNHH-1D65B Antennas	130'	Platform
	(3) L-SUB6 Antennas	130'	Platform
	(3) B2/B66A RRH-BR049 RRH's	130'	Platform
	(3) B5/B13 RRH-BR04C RRH's	130'	Platform
	(2) Junction Boxes	130'	Platform

Proposed AT&T Appurtenances shown in Bold.

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AT&T EXISTING COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
AT&T	(6) 1 5/8" Cables	140'	Inside Monopole
AT&T	(7) DC Power Cables	140'	Inside Monopole
AT&T	(3) Fiber Cable	140'	Inside Monopole

Proposed AT&T Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	22.3 %	141.25 – 179	PASS	
Pole Section-L2	51.5 %	92.58 – 141.25	PASS	
Pole Section-L3	77.4 %	45.5 – 92.58	PASS	
Pole Section-L4	**88.2 %**	30 – 45.5	PASS	**Controlling**
Pole Section-L5	85.5 %	0 - 30	PASS	
Base Plate	83.5 %	-	PASS	

FOUNDATION RESULTS SUMMARY:

	Stress Ratio	Pass/Fail	Comments
Bearing	40.3 %	PASS	
Overturning	69.2 %	PASS	
Shear	29.7 %	PASS	
Pad Shear – 1-way	**71.1 %**	PASS	**Controlling**

HUDSON Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-H Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   County: Hartford
   Ultimate Wind Speed: 125 mph (3 second gust)
   Structural Class: II
   Exposure Category: C
   Topographic Category: 1
   Nominal Ice Thickness: 1.5 inch

2. Approximate height above grade to proposed antennas: 140'

***Calculations and referenced documents are attached.**

ASSUMPTIONS:

1. 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.

2. The monopole 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.

3. 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.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas, RRHs, and surge arrestors be mounted on the existing sector frame supported by the monopole.

Reference HDG's Latest Construction Drawings for all component and connection requirements (attached).

Photo 1: Photo illustrating the Tower with Appurtenances shown.

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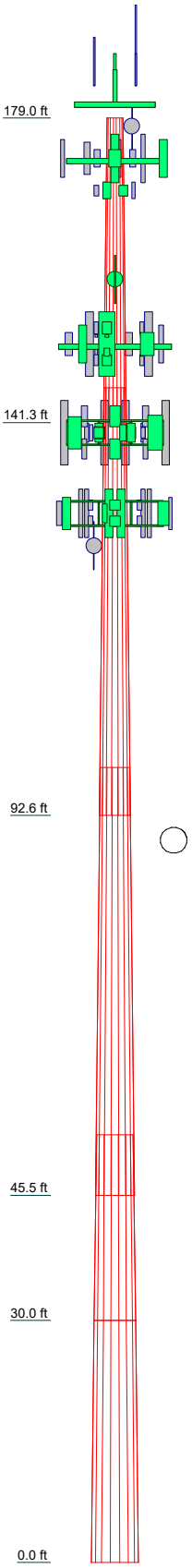
Design Group LLC

CALCULATIONS

Section	5	4	3	2	1		
Length (ft)	30.00	23.00	53.00	53.00	37.75		
Number of Sides	18	18	18	18	18		
Thickness (in)	0.4100	0.3750	0.3750	0.3750	0.2500		
Socket Length (ft)			7.50	5.92	4.33		
Top Dia (in)	61.1600	54.9755	43.4924	31.5849	23.1000		
Bot Dia (in)	69.2250	61.1600	57.7420	45.8340	33.2490		
Grade						A572-65	
Weight (lb)	8606.1	5374.3	10784.9	8228.8	2846.3		35840.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) 6' T-Arm Kit w/ Mounting Pipes	181	B14 4478 RRH	140
Omni 2"x6'	181	B14 4478 RRH	140
Omni 4"x6'	181	B14 4478 RRH	140
Distribution Box (20" x 12" x7")	181	RRUS-32 RRH	140
Omni 3"x4'	181	RRUS-32 RRH	140
Omni 3"x10'	181	RRUS-32 RRH	140
Distribution Box (20" x 12" x7")	181	RRUS-32 RRH	140
Omni 3"x4'	181	RRUS-32 RRH	140
4' Dipole	181	RRUS-32 RRH	140
2"x6' Pipe	178	Squid Surge Arrestor	140
2' Dish Antenna w/ Shroud	178	Squid Surge Arrestor	140
(3) 12' T-Arm Kit	174	QD8616-7 Antenna w/ Mounting Pipe (ATI - Proposed)	140
ET-X-TU-42-15-37-18-iR-ST Antenna w/ Mounting Pipe	174	QD8616-7 Antenna w/ Mounting Pipe	140
APXVSPP18-C Antenna w/ Mounting Pipe	174	QD4616-7 Antenna w/ Mounting Pipe	140
APXVSPP18-C Antenna w/ Mounting Pipe	174	AIR 6419 Antenna (ATI)	140
APXV9TM14 Antenna w/ Mounting Pipe	174	AIR 6419 Antenna (ATI)	140
APXV9TM14 Antenna w/ Mounting Pipe	174	AIR 6419 Antenna (ATI)	140
APXV9TM14 Antenna w/ Mounting Pipe	174	AIR 6449 Antenna (ATI)	140
RRH 8X20-25	174	AIR 6449 Antenna (ATI)	140
RRH 8X20-25	174	AIR 6449 Antenna (ATI)	140
RRH 8X20-25	174	DMP65R-BU8DA Antenna w/ Mounting Pipe	140
Ring Mount	170	DMP65R-BU8DA Antenna w/ Mounting Pipe	140
1900 RRH	170	DMP65R-BU4DA Antenna w/ Mounting Plpe	140
1900 RRH	170	4449 B5/B12 RRH	140
1900 RRH	170	4449 B5/B12 RRH	140
800 RRH	170	4449 B5/B12 RRH	140
800 RRH	170	4415 B25 RRH	140
800 RRH	170	4415 B25 RRH	140
2"x6' Pipe	159	4415 B25 RRH	140
2' Dish Antenna w/ Shroud	159	Squid Surge Arrestor	140
APXVAARR24_43-U-NA20 Antenna w/ Mounting Pipe	151	L-SUB6 Antenna w/ Mounting Pipe	130
APXVAARR24_43-U-NA20 Antenna w/ Mounting Pipe	151	B2/B66A RRH-BR049 RRH	130
APXVAARR24_43-U-NA20 Antenna w/ Mounting Pipe	151	B2/B66A RRH-BR049 RRH	130
AIR6449 B41 Antenna w/ Mounting Pipe	151	B2/B66A RRH-BR049 RRH	130
AIR6449 B41 Antenna w/ Mounting Pipe	151	B5/B13 RRH-BR04C RRH	130
AIR6449 B41 Antenna w/ Mounting Pipe	151	B5/B13 RRH-BR04C RRH	130
AIR 32 B66A B2A Antenna w/ Mounting Pipe	151	B5/B13 RRH-BR04C RRH	130
AIR 32 B66A B2A Antenna w/ Mounting Pipe	151	Junction Box	130
AIR 32 B66A B2A Antenna w/ Mounting Pipe	151	Junction Box w/ Mounting Pipe	130
4449 B71+B85 RRH	151	BXA-70063/4CF Antenna w/ Mounting Pipe	130
4449 B71+B85 RRH	151	BXA-70063/4CF Antenna w/ Mounting Pipe	130
4449 B71+B85 RRH	151	BXA-70063/4CF Antenna w/ Mounting Pipe	130
4415 B25 RRH	151	SBNHH-1D65B Antenna w/ Mounting Pipe	130
4415 B25 RRH	151	SBNHH-1D65B Antenna w/ Mounting Pipe	130
4415 B25 RRH	151	SBNHH-1D65B Antenna w/ Mounting Pipe	130
SDX1926Q-43 | E14F05P86 Diplexer	151	SBNHH-1D65B Antenna w/ Mounting Pipe	130
SDX1926Q-43 | E14F05P86 Diplexer	151	SBNHH-1D65B Antenna w/ Mounting Pipe	130
SDX1926Q-43 | E14F05P86 Diplexer	151	SBNHH-1D65B Antenna w/ Mounting Pipe	130
Twin Style 1B - AWS TMA	151	L-SUB6 Antenna w/ Mounting Pipe	130
Twin Style 1B - AWS TMA	151	L-SUB6 Antenna w/ Mounting Pipe	130
Twin Style 1B - AWS TMA	151	14' Platform w/ Handrail	130
(3) 12' T-Arm Kit w/ Handrail	151	2"x6' Pipe	126
(3) 12'-6" Sector Frames (ATI - Existing)	140	2' Dish Antenna w/ Shroud	126

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: ***179' Monopole***			
Project: ***CT5122***			
Client: AT&T	Drawn by: ideandrade		App'd:
Code: TIA-222-H	Date: 11/15/21		Scale: NTS
Path: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\TnxTower\Tnx Projects\AT&T\CT\CT5122\C-BAND\Rev.1\CT5122 (C-BAND).eri			Dwg No. E-1

Section	5	4	3	2	1		
Length (ft)	30.00	23.00	53.00	53.00	37.75		
Number of Sides	18	18	18	18	18		
Thickness (in)	0.4100	0.3750	0.3750	0.3750	0.2500		
Socket Length (ft)			7.50	5.92	4.33		
Top Dia (in)	61.1600	54.9755	43.4924	31.5849	23.1000		
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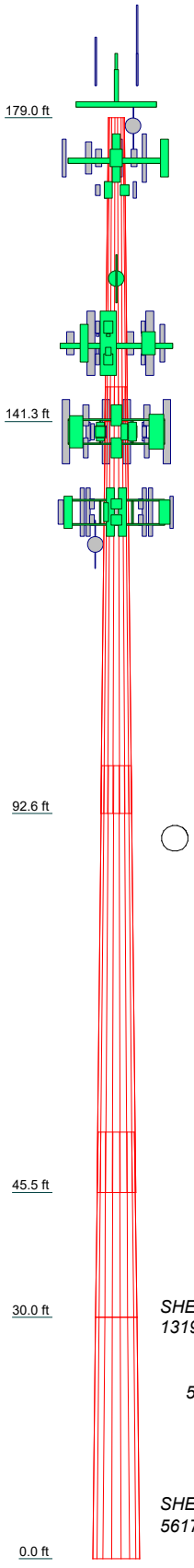
Grade						A572-65	
Weight (lb)	8606.1	5374.3	10784.9	8228.8	2846.3		35840.5



ALL REACTIONS ARE FACTORED

AXIAL 116933 lb

SHEAR 13192 lb *MOMENT 1595552 lb-ft*

TORQUE 620 lb-ft
50 mph WIND - 1.5000 in ICE

AXIAL 68786 lb

SHEAR 56178 lb *MOMENT 6483654 lb-ft*

TORQUE 2124 lb-ft
REACTIONS - 125 mph WIND

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 88.2%

Hudson Design Group LLC
45 Beechwood Drive
North Andover, MA
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: ***179' Monopole***		
Project: ***CT5122***		
Client: AT&T	Drawn by: ideandrade	App'd:
Code: TIA-222-H	Date: 11/15/21	Scale: NTS
Path: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\TnxTower\Tnx Projects\AT&T\CT\CT5122\C-BAND\Rev.1\CT5122 (C-BAND).eri		Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Tower base elevation above sea level: 0.00 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	179.00-141.25	37.75	4.33	18	23.1000	33.2490	0.2500	1.0000	A572-65 (65 ksi)
L2	141.25-92.58	53.00	5.92	18	31.5849	45.8340	0.3750	1.5000	A572-65 (65 ksi)
L3	92.58-45.50	53.00	7.50	18	43.4924	57.7420	0.3750	1.5000	A572-65 (65 ksi)
L4	45.50-30.00	23.00	0.00	18	54.9755	61.1600	0.3750	1.5000	A572-65 (65 ksi)
L5	30.00-0.00	30.00		18	61.1600	69.2250	0.4100	1.6400	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.4178	18.1315	1196.0325	8.1118	11.7348	101.9219	2393.6388	9.0675	3.6256	14.502
	33.7234	26.1847	3602.3567	11.7146	16.8905	213.2772	7209.4536	13.0948	5.4118	21.647
L2	33.1964	37.1476	4571.4330	11.0795	16.0451	284.9110	9148.8811	18.5773	4.8989	13.064
	46.4832	54.1076	14126.5228	16.1379	23.2837	606.7137	28271.6336	27.0589	7.4068	19.751
L3	45.7217	51.3205	12054.0604	15.3067	22.0941	545.5773	24123.9819	25.6651	6.9947	18.652

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	58.5749	68.2811	28389.7820	20.3653	29.3329	967.8466	56816.9200	34.1470	9.5026	25.34
L4	57.8136	64.9883	24477.4753	19.3832	27.9276	876.4625	48987.1587	32.5003	9.0157	24.042
	62.0456	72.3493	33772.6317	21.5787	31.0693	1087.0104	67589.7022	36.1815	10.1042	26.944
L5	62.0402	79.0564	36860.9969	21.5663	31.0693	1186.4130	73770.4964	39.5357	10.0426	24.494
	70.2297	89.5517	53576.8988	24.4293	35.1663	1523.5296	107224.295 5	44.7844	11.4620	27.956

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 179.00-141.25				1	1	1			
L2 141.25-92.58				1	1	1			
L3 92.58-45.50				1	1	1			
L4 45.50-30.00				1	1	1			
L5 30.00-0.00				1	1	1			

Monopole Base Plate Data

Base Plate Data	
Base plate is square	
Base plate is grouted	√
Anchor bolt grade	A615-75
Anchor bolt size	2.2500 in
Number of bolts	16
Embedment length	72.0000 in
f'_c	3 ksi
Grout space	3.0000 in
Base plate grade	A572-60
Base plate thickness	2.2500 in
Bolt circle diameter	76.0000 in
Outer diameter	82.0000 in
Inner diameter	48.0000 in
Base plate type	Stiffened Plate
Bolts per stiffener	1
Stiffener thickness	0.7500 in
Stiffener height	12.0000 in

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
1 1/4 **	B	No	Surface Ar (CaAa)	174.00 - 6.00	1	1	0.000 0.000	1.5500		0.66
1 5/8 (T-Mobile)	C	No	Surface Ar (CaAa)	151.00 - 6.00	6	6	-0.100 -0.100	1.9100		1.04
6X12 Hybrid Cables	C	No	Surface Ar (CaAa)	151.00 - 6.00	4	4	-0.125 -0.125	1.5400		1.70

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
**										
1 5/8 (Verizon)	C	No	Surface Ar (CaAa)	130.00 - 6.00	6	6	0.100 0.300	1.9100		1.04
**										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 1/4	B	No	No	Inside Pole	179.00 - 6.00	1	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
							2" Ice	0.00	0.66
7/8	B	No	No	Inside Pole	179.00 - 6.00	2	No Ice	0.00	0.54
							1/2" Ice	0.00	0.54
							1" Ice	0.00	0.54
							2" Ice	0.00	0.54
1 5/8	B	No	No	Inside Pole	179.00 - 6.00	4	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
							2" Ice	0.00	1.04
1/2	B	No	No	Inside Pole	179.00 - 6.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
							2" Ice	0.00	0.25
1 1/4	B	No	No	Inside Pole	174.00 - 6.00	3	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
							2" Ice	0.00	0.66
1/4	B	No	No	Inside Pole	159.00 - 6.00	1	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
							2" Ice	0.00	0.25
1/4	B	No	No	Inside Pole	126.00 - 6.00	1	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
							2" Ice	0.00	0.25
**									
1 1/4 (Sprint)	B	No	No	Inside Pole	174.00 - 6.00	3	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
							2" Ice	0.00	0.66
1 1/4	B	No	No	Inside Pole	130.00 - 6.00	2	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
							2" Ice	0.00	0.66
**									
1 5/8 (AT&T)	B	No	No	Inside Pole	140.00 - 6.00	6	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
							2" Ice	0.00	1.04
DC Cable	B	No	No	Inside Pole	140.00 - 6.00	7	No Ice	0.00	0.88
							1/2" Ice	0.00	0.88
							1" Ice	0.00	0.88
							2" Ice	0.00	0.88

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
Fiber	B	No	No	Inside Pole	140.00 - 6.00	3	No Ice	0.00	0.48
							1/2" Ice	0.00	0.48
							1" Ice	0.00	0.48
							2" Ice	0.00	0.48
**									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	179.00-141.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	5.076	0.000	397.34
		C	0.000	0.000	17.180	0.000	127.14
L2	141.25-92.58	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	7.544	0.000	1262.13
		C	0.000	0.000	128.640	0.000	868.16
L3	92.58-45.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	7.297	0.000	1255.67
		C	0.000	0.000	136.909	0.000	907.70
L4	45.50-30.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	2.402	0.000	413.40
		C	0.000	0.000	45.074	0.000	298.84
L5	30.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	3.720	0.000	640.10
		C	0.000	0.000	69.792	0.000	462.72

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	179.00-141.25	A	1.756	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	16.575	0.000	629.53
		C		0.000	0.000	30.033	0.000	481.98
L2	141.25-92.58	A	1.701	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	24.632	0.000	1607.18
		C		0.000	0.000	219.944	0.000	3478.55
L3	92.58-45.50	A	1.614	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	23.311	0.000	1573.66
		C		0.000	0.000	231.187	0.000	3579.56
L4	45.50-30.00	A	1.520	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	7.405	0.000	510.07
		C		0.000	0.000	75.101	0.000	1128.38
L5	30.00-0.00	A	1.383	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	10.360	0.000	759.09
		C		0.000	0.000	112.141	0.000	1548.33

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	179.00-141.25	1.5040	2.7713	1.8475	2.0317
L2	141.25-92.58	0.6225	9.7379	0.9710	7.5544
L3	92.58-45.50	0.2728	11.4669	0.7524	9.1322
L4	45.50-30.00	0.2911	12.1915	0.7863	9.8527
L5	30.00-0.00	0.2630	10.9885	0.6564	9.0716

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	10	1 1/4	141.25 - 174.00	1.0000	1.0000
L1	12	1 5/8	141.25 - 151.00	1.0000	1.0000
L1	13	6X12 Hybrid Cables	141.25 - 151.00	1.0000	1.0000
L2	10	1 1/4	92.58 - 141.25	1.0000	1.0000
L2	12	1 5/8	92.58 - 141.25	1.0000	1.0000
L2	13	6X12 Hybrid Cables	92.58 - 141.25	1.0000	1.0000
L2	15	1 5/8	92.58 - 130.00	1.0000	1.0000
L3	10	1 1/4	45.50 - 92.58	1.0000	1.0000
L3	12	1 5/8	45.50 - 92.58	1.0000	1.0000
L3	13	6X12 Hybrid Cables	45.50 - 92.58	1.0000	1.0000
L3	15	1 5/8	45.50 - 92.58	1.0000	1.0000
L4	10	1 1/4	30.00 - 45.50	1.0000	1.0000
L4	12	1 5/8	30.00 - 45.50	1.0000	1.0000
L4	13	6X12 Hybrid Cables	30.00 - 45.50	1.0000	1.0000
L4	15	1 5/8	30.00 - 45.50	1.0000	1.0000
L5	10	1 1/4	6.00 - 30.00	1.0000	1.0000
L5	12	1 5/8	6.00 - 30.00	1.0000	1.0000
L5	13	6X12 Hybrid Cables	6.00 - 30.00	1.0000	1.0000
L5	15	1 5/8	6.00 - 30.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	Placement	C_AA_A Front	C_AA_A Side	Weight
			ft / ft / ft	°	ft	ft^2	ft^2	lb

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(3) 6' T-Arm Kit w/ Mounting Pipes	C	None		0.0000	181.00	No Ice	6.20	6.20	825.00
						1/2" Ice	7.30	7.30	900.00
						1" Ice	8.50	8.50	990.00
						2" Ice	10.60	10.60	1125.00
Omni 2"x6'	A	From Face	2.00 0.00 5.00	0.0000	181.00	No Ice	1.20	1.20	20.00
						1/2" Ice	1.80	1.80	29.39
						1" Ice	2.17	2.17	42.81
						2" Ice	2.93	2.93	82.31
Omni 4"x6'	A	From Face	2.00 0.00 5.00	0.0000	181.00	No Ice	1.78	1.78	30.00
						1/2" Ice	2.21	2.21	44.20
						1" Ice	2.58	2.58	62.56
						2" Ice	3.36	3.36	112.32
Distribution Box (20" x 12" x7")	A	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice	2.00	1.18	10.00
						1/2" Ice	2.18	1.33	26.33
						1" Ice	2.37	1.48	45.39
						2" Ice	2.77	1.83	92.44
Omni 3"x4'	B	From Face	2.00 0.00 4.00	0.0000	181.00	No Ice	1.00	1.00	10.00
						1/2" Ice	1.25	1.25	18.96
						1" Ice	1.50	1.50	30.82
						2" Ice	2.05	2.05	63.86
Omni 3"x10'	B	From Face	2.00 0.00 7.00	0.0000	181.00	No Ice	3.00	3.00	50.00
						1/2" Ice	4.03	4.03	71.79
						1" Ice	5.03	5.03	100.14
						2" Ice	6.26	6.26	177.16
Distribution Box (20" x 12" x7")	B	From Face	2.00 0.00 0.00	0.0000	181.00	No Ice	2.00	1.18	10.00
						1/2" Ice	2.18	1.33	26.33
						1" Ice	2.37	1.48	45.39
						2" Ice	2.77	1.83	92.44
Omni 3"x4'	C	From Face	2.00 0.00 4.00	0.0000	181.00	No Ice	1.00	1.00	10.00
						1/2" Ice	1.25	1.25	18.96
						1" Ice	1.50	1.50	30.82
						2" Ice	2.05	2.05	63.86
4' Dipole	C	From Face	2.00 0.00 2.00	0.0000	181.00	No Ice	1.12	1.12	15.00
						1/2" Ice	1.69	1.69	29.36
						1" Ice	1.95	1.95	46.82
						2" Ice	2.51	2.51	91.66
2"x6' Pipe	B	From Face	1.50 0.00 0.00	0.0000	178.00	No Ice	1.44	1.44	22.00
						1/2" Ice	1.93	1.93	32.92
						1" Ice	2.30	2.30	47.91
						2" Ice	3.07	3.07	90.68
2"x6' Pipe	C	From Face	1.50 0.00 0.00	0.0000	159.00	No Ice	1.44	1.44	22.00
						1/2" Ice	1.93	1.93	32.92
						1" Ice	2.30	2.30	47.91
						2" Ice	3.07	3.07	90.68
2"x6' Pipe	A	From Face	1.50 0.00 0.00	0.0000	126.00	No Ice	1.44	1.44	22.00
						1/2" Ice	1.93	1.93	32.92
						1" Ice	2.30	2.30	47.91
						2" Ice	3.07	3.07	90.68
***									
(3) 12' T-Arm Kit	C	None		0.0000	174.00	No Ice	7.44	7.06	850.00
						1/2" Ice	9.09	8.89	972.00
						1" Ice	10.77	10.58	1128.00
						2" Ice	14.04	14.38	1338.00
ET-X-TU-42-15-37-18-iR-ST Antenna w/ Mounting Pipe	A	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice	7.76	4.71	71.90
						1/2" Ice	8.28	5.51	133.56
						1" Ice	8.77	6.19	201.83
						2" Ice	9.79	7.59	361.50

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
APXVSPP18-C Antenna w/ Mounting Pipe	B	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.02 8.48 8.94 9.89	7.23 8.19 9.02 10.74	83.90 151.78 227.47 405.58
APXVSPP18-C Antenna w/ Mounting Pipe	C	From Face	3.00 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.02 8.48 8.94 9.89	7.23 8.19 9.02 10.74	83.90 151.78 227.47 405.58
APXV9TM14 Antenna w/ Mounting Pipe	A	From Face	3.00 -6.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.65 7.14 7.60 8.55	5.03 5.89 6.63 8.13	88.90 144.31 206.47 354.30
APXV9TM14 Antenna w/ Mounting Pipe	B	From Face	3.00 -6.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.65 7.14 7.60 8.55	5.03 5.89 6.63 8.13	88.90 144.31 206.47 354.30
APXV9TM14 Antenna w/ Mounting Pipe	C	From Face	3.00 -6.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	6.65 7.14 7.60 8.55	5.03 5.89 6.63 8.13	88.90 144.31 206.47 354.30
RRH 8X20-25	A	From Face	1.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.29	70.00 97.14 127.80 200.48
RRH 8X20-25	B	From Face	1.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.29	70.00 97.14 127.80 200.48
RRH 8X20-25	C	From Face	1.50 0.00 0.00	0.0000	174.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.05 4.30 4.56 5.10	1.53 1.71 1.90 2.29	70.00 97.14 127.80 200.48
Ring Mount	C	From Face	0.00 0.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.40 2.40 3.40 5.40	1.40 2.40 3.40 5.40	90.00 130.00 170.00 250.00
1900 RRH	A	From Face	1.00 1.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.52 2.73 3.17	2.38 2.58 2.79 3.24	60.00 83.90 111.08 176.02
1900 RRH	B	From Face	1.00 1.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.52 2.73 3.17	2.38 2.58 2.79 3.24	60.00 83.90 111.08 176.02
1900 RRH	C	From Face	1.00 1.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.31 2.52 2.73 3.17	2.38 2.58 2.79 3.24	60.00 83.90 111.08 176.02
800 RRH	A	From Face	1.00 -1.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.71 1.88 2.05 2.41	1.84 2.01 2.19 2.56	64.00 85.14 109.25 167.16
800 RRH	B	From Face	1.00 -1.00 0.00	0.0000	170.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.71 1.88 2.05 2.41	1.84 2.01 2.19 2.56	64.00 85.14 109.25 167.16
800 RRH	C	From Face	1.00	0.0000	170.00	No Ice	1.71	1.84	64.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			-1.00			1/2" Ice	1.88	2.01	85.14
			0.00			1" Ice	2.05	2.19	109.25
						2" Ice	2.41	2.56	167.16
***									
(3) 12' T-Arm Kit w/ Handrail	C	None		0.0000	151.00	No Ice	12.85	11.70	1260.00
						1/2" Ice	16.35	15.25	1470.00
						1" Ice	19.70	18.70	1755.00
						2" Ice	26.85	25.90	2100.00
APXVAARR24_43-U-NA20 Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	151.00	No Ice	20.24	10.79	157.20
			1.00			1/2" Ice	20.89	12.21	290.89
			0.00			1" Ice	21.55	13.49	435.20
						2" Ice	22.88	15.72	759.63
APXVAARR24_43-U-NA20 Antenna w/ Mounting Pipe	B	From Face	3.00	0.0000	151.00	No Ice	20.24	10.79	157.20
			1.00			1/2" Ice	20.89	12.21	290.89
			0.00			1" Ice	21.55	13.49	435.20
						2" Ice	22.88	15.72	759.63
APXVAARR24_43-U-NA20 Antenna w/ Mounting Pipe	C	From Face	3.00	0.0000	151.00	No Ice	20.24	10.79	157.20
			1.00			1/2" Ice	20.89	12.21	290.89
			0.00			1" Ice	21.55	13.49	435.20
						2" Ice	22.88	15.72	759.63
AIR6449 B41 Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	151.00	No Ice	6.42	3.89	124.90
			-4.00			1/2" Ice	7.00	4.62	179.59
			0.00			1" Ice	7.50	5.22	240.17
						2" Ice	8.56	6.47	382.30
AIR6449 B41 Antenna w/ Mounting Pipe	B	From Face	3.00	0.0000	151.00	No Ice	6.42	3.89	124.90
			-4.00			1/2" Ice	7.00	4.62	179.59
			0.00			1" Ice	7.50	5.22	240.17
						2" Ice	8.56	6.47	382.30
AIR6449 B41 Antenna w/ Mounting Pipe	C	From Face	3.00	0.0000	151.00	No Ice	6.42	3.89	124.90
			-4.00			1/2" Ice	7.00	4.62	179.59
			0.00			1" Ice	7.50	5.22	240.17
						2" Ice	8.56	6.47	382.30
AIR 32 B66A B2A Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	151.00	No Ice	6.81	6.14	154.90
			4.00			1/2" Ice	7.30	6.99	216.61
			0.00			1" Ice	7.76	7.73	285.26
						2" Ice	8.71	9.24	446.66
AIR 32 B66A B2A Antenna w/ Mounting Pipe	B	From Face	3.00	0.0000	151.00	No Ice	6.81	6.14	154.90
			4.00			1/2" Ice	7.30	6.99	216.61
			0.00			1" Ice	7.76	7.73	285.26
						2" Ice	8.71	9.24	446.66
AIR 32 B66A B2A Antenna w/ Mounting Pipe	C	From Face	3.00	0.0000	151.00	No Ice	6.81	6.14	154.90
			4.00			1/2" Ice	7.30	6.99	216.61
			0.00			1" Ice	7.76	7.73	285.26
						2" Ice	8.71	9.24	446.66
4449 B71+B85 RRH	A	From Face	2.00	0.0000	151.00	No Ice	1.97	1.40	74.00
			1.00			1/2" Ice	2.15	1.56	92.48
			2.00			1" Ice	2.33	1.72	113.77
						2" Ice	2.72	2.07	165.60
4449 B71+B85 RRH	B	From Face	2.00	0.0000	151.00	No Ice	1.97	1.40	74.00
			1.00			1/2" Ice	2.15	1.56	92.48
			2.00			1" Ice	2.33	1.72	113.77
						2" Ice	2.72	2.07	165.60
4449 B71+B85 RRH	C	From Face	2.00	0.0000	151.00	No Ice	1.97	1.40	74.00
			1.00			1/2" Ice	2.15	1.56	92.48
			2.00			1" Ice	2.33	1.72	113.77
						2" Ice	2.72	2.07	165.60
4415 B25 RRH	A	From Face	2.00	0.0000	151.00	No Ice	1.84	0.82	46.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			1.00			1/2" Ice	2.01	0.94	60.07
			-2.00			1" Ice	2.19	1.07	76.66
						2" Ice	2.57	1.37	118.17
4415 B25 RRH	B	From Face	2.00	0.0000	151.00	No Ice	1.84	0.82	46.00
			1.00			1/2" Ice	2.01	0.94	60.07
			-2.00			1" Ice	2.19	1.07	76.66
						2" Ice	2.57	1.37	118.17
4415 B25 RRH	C	From Face	2.00	0.0000	151.00	No Ice	1.84	0.82	46.00
			1.00			1/2" Ice	2.01	0.94	60.07
			-2.00			1" Ice	2.19	1.07	76.66
						2" Ice	2.57	1.37	118.17
SDX1926Q-43 | E14F05P86 Diplexer	A	From Face	2.00	0.0000	151.00	No Ice	0.24	0.10	7.00
			1.00			1/2" Ice	0.31	0.14	9.47
			1.00			1" Ice	0.38	0.20	13.04
						2" Ice	0.55	0.32	24.26
SDX1926Q-43 | E14F05P86 Diplexer	B	From Face	2.00	0.0000	151.00	No Ice	0.24	0.10	7.00
			1.00			1/2" Ice	0.31	0.14	9.47
			1.00			1" Ice	0.38	0.20	13.04
						2" Ice	0.55	0.32	24.26
SDX1926Q-43 | E14F05P86 Diplexer	C	From Face	2.00	0.0000	151.00	No Ice	0.24	0.10	7.00
			1.00			1/2" Ice	0.31	0.14	9.47
			1.00			1" Ice	0.38	0.20	13.04
						2" Ice	0.55	0.32	24.26
Twin Style 1B - AWS TMA	A	From Face	2.00	0.0000	151.00	No Ice	0.75	0.46	16.00
			1.00			1/2" Ice	0.86	0.55	22.77
			-1.00			1" Ice	0.97	0.65	31.29
						2" Ice	1.23	0.87	54.38
Twin Style 1B - AWS TMA	B	From Face	2.00	0.0000	151.00	No Ice	0.75	0.46	16.00
			1.00			1/2" Ice	0.86	0.55	22.77
			-1.00			1" Ice	0.97	0.65	31.29
						2" Ice	1.23	0.87	54.38
Twin Style 1B - AWS TMA	C	From Face	2.00	0.0000	151.00	No Ice	0.75	0.46	16.00
			1.00			1/2" Ice	0.86	0.55	22.77
			-1.00			1" Ice	0.97	0.65	31.29
						2" Ice	1.23	0.87	54.38
***									
14' Platform w/ Handrail	C	None		0.0000	130.00	No Ice	29.00	29.00	2200.00
						1/2" Ice	36.20	36.70	2945.00
						1" Ice	46.40	47.00	3925.00
						2" Ice	57.80	59.50	5180.00
BXA-70063/4CF Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	130.00	No Ice	5.19	3.87	31.90
			6.00			1/2" Ice	5.68	4.67	76.58
			0.00			1" Ice	6.14	5.34	127.26
						2" Ice	7.07	6.74	249.86
BXA-70063/4CF Antenna w/ Mounting Pipe	B	From Face	3.00	0.0000	130.00	No Ice	5.19	3.87	31.90
			6.00			1/2" Ice	5.68	4.67	76.58
			0.00			1" Ice	6.14	5.34	127.26
						2" Ice	7.07	6.74	249.86
BXA-70063/4CF Antenna w/ Mounting Pipe	C	From Face	3.00	0.0000	130.00	No Ice	5.19	3.87	31.90
			6.00			1/2" Ice	5.68	4.67	76.58
			0.00			1" Ice	6.14	5.34	127.26
						2" Ice	7.07	6.74	249.86
SBNHH-1D65B Antenna w/ Mounting Pipe	A	From Face	3.00	0.0000	130.00	No Ice	8.20	6.85	62.90
			-0.75			1/2" Ice	8.66	7.81	129.42
			0.00			1" Ice	9.13	8.64	203.78
						2" Ice	10.09	10.36	379.24
SBNHH-1D65B Antenna w/	B	From Face	3.00	0.0000	130.00	No Ice	8.20	6.85	62.90

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mounting Pipe			-0.75			1/2" Ice	8.66	7.81	129.42
			0.00			1" Ice	9.13	8.64	203.78
						2" Ice	10.09	10.36	379.24
SBNHH-1D65B Antenna w/ Mounting Pipe	C	From Face	3.00 -0.75 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.20 8.66 9.13 10.09	6.85 7.81 8.64 10.36	62.90 129.42 203.78 379.24
SBNHH-1D65B Antenna w/ Mounting Pipe	A	From Face	3.00 0.75 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.20 8.66 9.13 10.09	6.85 7.81 8.64 10.36	62.90 129.42 203.78 379.24
SBNHH-1D65B Antenna w/ Mounting Pipe	B	From Face	3.00 0.75 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.20 8.66 9.13 10.09	6.85 7.81 8.64 10.36	62.90 129.42 203.78 379.24
SBNHH-1D65B Antenna w/ Mounting Pipe	C	From Face	3.00 0.75 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	8.20 8.66 9.13 10.09	6.85 7.81 8.64 10.36	62.90 129.42 203.78 379.24
L-SUB6 Antenna w/ Mounting Pipe	A	From Face	3.00 -6.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.43 5.97 6.46 7.46	3.27 3.99 4.59 5.84	109.00 154.17 204.90 326.25
L-SUB6 Antenna w/ Mounting Pipe	B	From Face	3.00 -6.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.43 5.97 6.46 7.46	3.27 3.99 4.59 5.84	109.00 154.17 204.90 326.25
L-SUB6 Antenna w/ Mounting Pipe	C	From Face	3.00 -6.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.43 5.97 6.46 7.46	3.27 3.99 4.59 5.84	109.00 154.17 204.90 326.25
B2/B66A RRH-BR049 RRH	A	From Face	2.00 0.00 1.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	98.00 116.34 137.47 188.87
B2/B66A RRH-BR049 RRH	B	From Face	2.00 0.00 1.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	98.00 116.34 137.47 188.87
B2/B66A RRH-BR049 RRH	C	From Face	2.00 0.00 1.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.25 1.39 1.54 1.86	98.00 116.34 137.47 188.87
B5/B13 RRH-BR04C RRH	A	From Face	2.00 0.00 -1.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	82.00 98.43 117.53 164.50
B5/B13 RRH-BR04C RRH	B	From Face	2.00 0.00 -1.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	82.00 98.43 117.53 164.50
B5/B13 RRH-BR04C RRH	C	From Face	2.00 0.00 -1.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.88 2.05 2.22 2.60	1.01 1.14 1.28 1.59	82.00 98.43 117.53 164.50
Junction Box	A	From Leg	0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	3.78 4.03	2.51 2.72	32.00 63.40

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	4.29	2.94	98.56
						2" Ice	4.83	3.41	180.91
Junction Box w/ Mounting Pipe	C	From Leg	0.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.63 5.18 5.66 6.66	3.93 4.65 5.24 6.47	53.90 101.19 153.91 278.92
***									
(3) 12'-6" Sector Frames (AT&T - Existing)	C	None		0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	19.00 28.50 37.00 56.50	13.50 21.00 27.50 43.50	3000.00 3500.00 4150.00 4850.00
B14 4478 RRH	A	From Face	1.50 -2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.56 1.90	60.00 77.66 98.08 148.04
B14 4478 RRH	B	From Face	1.50 -2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.56 1.90	60.00 77.66 98.08 148.04
B14 4478 RRH	C	From Face	1.50 -2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.02 2.20 2.39 2.78	1.25 1.40 1.56 1.90	60.00 77.66 98.08 148.04
RRUS-32 RRH	A	From Face	1.50 -2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.19 3.68	1.67 1.86 2.05 2.46	60.00 81.11 105.42 164.41
RRUS-32 RRH	B	From Face	1.50 -2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.19 3.68	1.67 1.86 2.05 2.46	60.00 81.11 105.42 164.41
RRUS-32 RRH	C	From Face	1.50 -2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.19 3.68	1.67 1.86 2.05 2.46	60.00 81.11 105.42 164.41
RRUS-32 RRH	A	From Face	1.50 2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.19 3.68	1.67 1.86 2.05 2.46	60.00 81.11 105.42 164.41
RRUS-32 RRH	B	From Face	1.50 2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.19 3.68	1.67 1.86 2.05 2.46	60.00 81.11 105.42 164.41
RRUS-32 RRH	C	From Face	1.50 2.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.19 3.68	1.67 1.86 2.05 2.46	60.00 81.11 105.42 164.41
Squid Surge Arrestor	A	From Face	1.50 -1.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.81 1.30 1.48 1.86	0.81 1.30 1.48 1.86	33.00 48.38 66.11 109.29
Squid Surge Arrestor	B	From Face	1.50 -1.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.81 1.30 1.48 1.86	0.81 1.30 1.48 1.86	33.00 48.38 66.11 109.29
***									
QD8616-7 Antenna w/	A	From Face	3.00	0.0000	140.00	No Ice	18.81	11.50	179.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Mounting Pipe			-5.00			1/2" Ice	19.45	12.93	309.62
(AT&T - Proposed)			0.00			1" Ice	20.10	14.22	450.59
						2" Ice	21.41	16.46	768.16
QD8616-7 Antenna w/	B	From Face	3.00	0.0000	140.00	No Ice	18.81	11.50	179.20
Mounting Pipe			-5.00			1/2" Ice	19.45	12.93	309.62
			0.00			1" Ice	20.10	14.22	450.59
						2" Ice	21.41	16.46	768.16
QD4616-7 Antenna w/	C	From Face	3.00	0.0000	140.00	No Ice	9.85	5.98	130.90
Mounting Pipe			-5.00			1/2" Ice	10.40	6.81	209.10
			0.00			1" Ice	10.93	7.52	294.55
						2" Ice	12.01	8.99	490.51
AIR 6419 Antenna (AT&T)	A	From Face	3.00	0.0000	140.00	No Ice	4.16	2.01	66.00
			0.00			1/2" Ice	4.42	2.22	95.11
			2.00			1" Ice	4.70	2.43	127.95
						2" Ice	5.27	2.89	205.55
AIR 6419 Antenna (AT&T)	B	From Face	3.00	0.0000	140.00	No Ice	4.16	2.01	66.00
			0.00			1/2" Ice	4.42	2.22	95.11
			2.00			1" Ice	4.70	2.43	127.95
						2" Ice	5.27	2.89	205.55
AIR 6419 Antenna (AT&T)	C	From Face	3.00	0.0000	140.00	No Ice	4.16	2.01	66.00
			0.00			1/2" Ice	4.42	2.22	95.11
			2.00			1" Ice	4.70	2.43	127.95
						2" Ice	5.27	2.89	205.55
AIR 6449 Antenna (AT&T)	A	From Face	3.00	0.0000	140.00	No Ice	4.05	2.74	82.00
			0.00			1/2" Ice	4.32	2.97	115.62
			-2.00			1" Ice	4.59	3.20	153.14
						2" Ice	5.15	3.68	240.65
AIR 6449 Antenna (AT&T)	B	From Face	3.00	0.0000	140.00	No Ice	4.05	2.74	82.00
			0.00			1/2" Ice	4.32	2.97	115.62
			-2.00			1" Ice	4.59	3.20	153.14
						2" Ice	5.15	3.68	240.65
AIR 6449 Antenna (AT&T)	C	From Face	3.00	0.0000	140.00	No Ice	4.05	2.74	82.00
			0.00			1/2" Ice	4.32	2.97	115.62
			-2.00			1" Ice	4.59	3.20	153.14
						2" Ice	5.15	3.68	240.65
DMP65R-BU8DA Antenna	A	From Face	3.00	0.0000	140.00	No Ice	17.87	10.02	125.20
w/ Mounting Pipe			5.00			1/2" Ice	18.50	11.44	243.88
			0.00			1" Ice	19.14	12.72	372.91
						2" Ice	20.44	14.94	665.96
DMP65R-BU8DA Antenna	B	From Face	3.00	0.0000	140.00	No Ice	17.87	10.02	125.20
w/ Mounting Pipe			5.00			1/2" Ice	18.50	11.44	243.88
			0.00			1" Ice	19.14	12.72	372.91
						2" Ice	20.44	14.94	665.96
DMP65R-BU4DA Antenna	C	From Face	3.00	0.0000	140.00	No Ice	8.76	4.93	89.90
w/ Mounting PIpe			5.00			1/2" Ice	9.31	5.73	157.64
			0.00			1" Ice	9.82	6.41	232.20
						2" Ice	10.89	7.82	405.07
4449 B5/B12 RRH	A	From Face	1.50	0.0000	140.00	No Ice	1.97	1.40	7.20
			2.00			1/2" Ice	2.15	1.56	25.68
			0.00			1" Ice	2.33	1.72	46.97
						2" Ice	2.72	2.07	98.80
4449 B5/B12 RRH	B	From Face	1.50	0.0000	140.00	No Ice	1.97	1.40	7.20
			2.00			1/2" Ice	2.15	1.56	25.68
			0.00			1" Ice	2.33	1.72	46.97
						2" Ice	2.72	2.07	98.80
4449 B5/B12 RRH	C	From Face	1.50	0.0000	140.00	No Ice	1.97	1.40	7.20
			2.00			1/2" Ice	2.15	1.56	25.68

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	2.33	1.72	46.97
						2" Ice	2.72	2.07	98.80
4415 B25 RRH	A	From Face	1.50	0.0000	140.00	No Ice	1.84	0.82	46.00
			2.00			1/2" Ice	2.01	0.94	60.07
			0.00			1" Ice	2.19	1.07	76.66
						2" Ice	2.57	1.37	118.17
4415 B25 RRH	B	From Face	1.50	0.0000	140.00	No Ice	1.84	0.82	46.00
			2.00			1/2" Ice	2.01	0.94	60.07
			0.00			1" Ice	2.19	1.07	76.66
						2" Ice	2.57	1.37	118.17
4415 B25 RRH	C	From Face	1.50	0.0000	140.00	No Ice	1.84	0.82	46.00
			2.00			1/2" Ice	2.01	0.94	60.07
			0.00			1" Ice	2.19	1.07	76.66
						2" Ice	2.57	1.37	118.17
Squid Surge Arrestor	C	From Face	1.50	0.0000	140.00	No Ice	0.81	0.81	33.00
			-1.00			1/2" Ice	1.30	1.30	48.38
			0.00			1" Ice	1.48	1.48	66.11
						2" Ice	1.86	1.86	109.29
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
2' Dish Antenna w/ Shroud	B	Paraboloid w/Shroud (HP)	From Face	1.50 0.00 0.00	0.0000		178.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	25.00 42.50 60.01 95.02
2' Dish Antenna w/ Shroud	C	Paraboloid w/Shroud (HP)	From Face	1.50 0.00 0.00	0.0000		159.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	25.00 42.50 60.01 95.02
2' Dish Antenna w/ Shroud	A	Paraboloid w/Shroud (HP)	From Face	1.50 0.00 0.00	0.0000		126.00	2.00	No Ice 1/2" Ice 1" Ice 2" Ice	3.14 3.41 3.68 4.21	25.00 42.50 60.01 95.02

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	179 - 141.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21874.07	-914.05	-739.02
			Max. Mx	20	-9675.97	242834.28	-1683.62
			Max. My	14	-9825.39	2412.01	-237056.25
			Max. Vy	20	-13981.88	242834.28	-1683.62
			Max. Vx	2	-13815.26	-1265.84	236790.31
			Max. Torque	12			1146.04

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L2	141.25 - 92.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63232.24	-629.64	-4112.55
			Max. Mx	20	-30222.41	1661639.97	-4122.25
			Max. My	14	-30923.75	3571.74	-1507239.30
			Max. Vy	20	-39580.97	1661639.97	-4122.25
			Max. Vx	2	-33011.70	-985.24	1506161.59
			Max. Torque	11			2226.59
L3	92.58 - 45.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-86086.37	-1326.58	-12059.22
			Max. Mx	20	-45753.77	3683623.57	-6832.41
			Max. My	14	-46259.28	2515.57	-3159017.55
			Max. Vy	20	-48670.31	3683623.57	-6832.41
			Max. Vx	2	-39504.23	126.79	3154540.14
			Max. Torque	11			2129.93
L4	45.5 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-100667.54	-1680.21	-16271.64
			Max. Mx	20	-56133.44	4851469.07	-8336.21
			Max. My	14	-56451.18	1964.55	-4106928.83
			Max. Vy	20	-52697.17	4851469.07	-8336.21
			Max. Vx	2	-42753.39	688.34	4100433.95
			Max. Torque	11			2125.80
L5	30 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-116933.30	-2008.46	-20607.22
			Max. Mx	20	-68760.13	6483645.84	-10088.46
			Max. My	14	-68768.06	1241.90	-5439896.58
			Max. Vy	20	-56209.42	6483645.84	-10088.46
			Max. Vx	2	-46147.64	1423.55	5431110.52
			Max. Torque	11			2124.86

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	179 - 141.25	Pole	TP33.249x23.1x0.25	1	-9675.97	1477770.00	22.3	Pass
L2	141.25 - 92.58	Pole	TP45.834x31.5849x0.375	2	-30222.40	3054470.00	51.5	Pass
L3	92.58 - 45.5	Pole	TP57.742x43.4924x0.375	3	-45753.80	3854040.00	77.4	Pass
L4	45.5 - 30	Pole	TP61.16x54.9755x0.375	4	-56133.40	4232440.00	88.2	Pass
L5	30 - 0	Pole	TP69.225x61.16x0.41	5	-68760.10	5238780.00	85.5	Pass
							Summary	
						Pole (L4)	88.2	Pass
						Base Plate	83.5	Pass
						RATING =	**88.2**	**Pass**

Monopole Pier and Pad Foundation

Project # : CT5122
Site Name: WETHERSFIELD NORTH
App. Number:
TIA-222 Revision: H

Design Reactions		
Shear, **S**:	56.178	kips
Moment, **M**:	6483.654	ft-kips
Tower Height, **H**:	179	ft
Tower Weight, **Wt**:	68.786	kips
Base Diameter, **BD**:	5.80	ft

Foundation Dimensions		
Depth, **D**:	6.5	ft
Pad Width, **W**:	30	ft
Neglected Depth, **N**:	3.33	ft
Thickness, **T**:	2.50	ft
Pier Diameter, **Pd**:	8.50	ft
Ext. Above Grade, **E**:	0.50	ft
BP Dist. Above Pier:	3	in.
Clear Cover, **Cc**:	3.0	in

Soil Properties		
Soil Unit Weight, **γ**:	0.100	kcf
Ult. Bearing Capacity, Bc:	8.0	ksf
Angle of Friction, **Φ**:	30	deg
Cohesion, **Co**:	0.000	ksf
Passive Pressure, **Pp**:	0.000	ksf
Base Friction, **μ**:	0.30	

Material Properties		
Rebar Yield Strength, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Concrete Unit Weight, **δc**:	0.150	kcf
Seismic Zone, **z**:	1	

Rebar Properties		
Pier Rebar Size, **Sp**:	9	
Pier Rebar Quanity, **mp**:	41	41
Pad Rebar Size, **Spad**:	9	
Pad Rebar Quanity, **mpad**:	33	19
Pier Tie Size, **St**:	4	3
Tie Quanity, **mt**:	14	5

Design Checks	Capacity/ Availability	Demand/ Limits	Check
Req'd Pier Diam.(ft)	8.5	7.8	**OK**
Overturning (ft-kips)	9372.36	6483.65	**69.2%**
Shear Capacity (kips)	189.04	56.18	**29.7%**
Bearing (ksf)	6.00	2.42	**40.3%**
Pad Shear - 1-way (kips)	781.90	555.64	**71.1%**
Pad Shear - 2-way (kips)	1752.73	128.37	**7.3%**
Pad Moment Capacity (k-ft)	3765.60	2430.97	**64.6%**
Pier Moment Capacity (k-ft)	9815.92	6736.46	**68.6%**

HUDSON
Design Group LLC

REFERENCE DOCUMENTS

FWT
P.O. BOX 8597 FORT WORTH, TX 76124-0597
PHONE: (800) 433-1816 FAX: (817) 255-8656

JOB DATA			
Page 1 of 1		Job No.	J060713001
By	TWL	Design No.	M05-0322, R2
Chk'd By	TW	Date	7/18/2006
		Rev. No. 2 Rev. Date	7/18/2006
Pole	180 FT MONOPOLE		
Site	CT-122 ROCKY HILL SOUTH, WETHERSFIELD, CT/(CTHA014A)		
Owner	SPRINT NEXTEL/(T-MOBILE)		
Ref. No.			
Standard	ALSO MEETS 105-MPH 3-SECNOD GUST WIND SPEED PER 2005 CT SUPPLEMENT/AND ACCORDING TO TIA/EIA-222-F 1996		

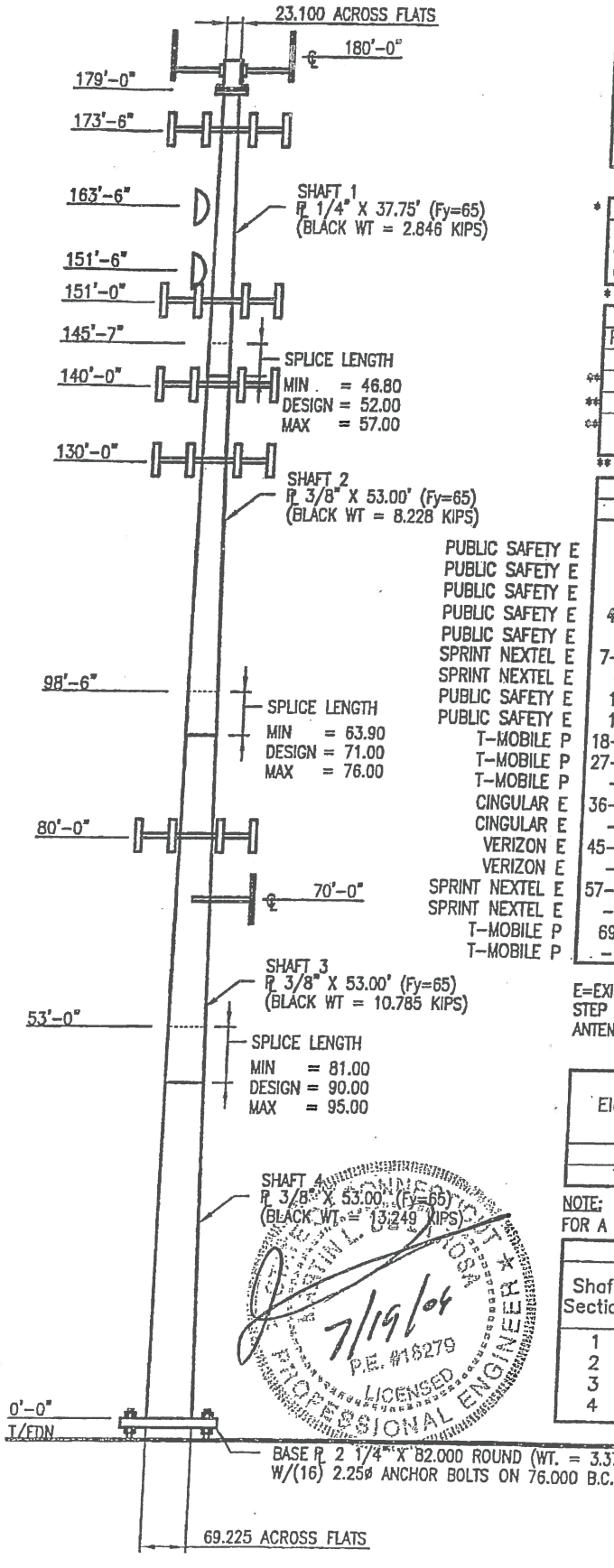
FOR STRESS ANALYSIS ONLY

LOAD CASES		
CASE 1	85 MPH WITH NO ICE	DESIGN WIND
CASE 2	73 MPH WITH 1/2" RADIAL ICE	REDUCED WIND WITH ICE
CASE 3	50 MPH WITH NO ICE	OPERATIONAL WIND

* THE WIND SPEEDS LISTED ARE FASTEST-MILE WIND SPEEDS.

POLE SPECIFICATIONS	
Pole Shape Type:	18-SIDED POLYGON
Taper:	0.268855 IN/FT
** Shaft Steel:	ASTM A572 GRADE 65
** Base PL Steel:	ASTM A633 GR. E (60 KSI)
** Anchor Bolts:	2 1/4ø x 7'-0 LONG #18J ASTM A615 GRADE 75

** SHALL MEET CHARPY V-NOTCH TEST: 15 FT.LBS @ -20°F



ANTENNA LIST			
	No.	Elev.	Description
	-	TOP	3/4" LIGHTNING ROD
PUBLIC SAFETY E	1	180.00	(1) DB538 (L=15')
PUBLIC SAFETY E	2	180.00	(1) DB638NA-A OMNI ANTENNA (L=16.1')
PUBLIC SAFETY E	3	180.00	(1) DD1900 TTA (1'X1'X3")
PUBLIC SAFETY E	4-6	180.00	(3) DB806D-A OMNI ANTENNA (11')
PUBLIC SAFETY E	-	180.00	(3) T-ARM MOUNT (4 FT FACE)
SPRINT NEXTEL E	7-15	173.50	(9) ASSUMED 6' X 1' X 2" PANEL ANTENNA
SPRINT NEXTEL E	-	173.50	12-FT L.P.S. MOUNT W/SERVICE GRATING
PUBLIC SAFETY E	16	163.50	(1) 2' DIAM. STD. DISH (18 GHz)
PUBLIC SAFETY E	17	151.50	(1) 2' DIAM. STD. DISH (18 GHz)
T-MOBILE P	18-26	151.00	(9) APX16PV-16PVL-E PANEL (L=4.4')
T-MOBILE P	27-35	151.00	(9) TMA/DIPLEXER
T-MOBILE P	-	151.00	(1) 12-FT LPS MOUNT (P)
CINGULAR E	36-44	140.00	(9) SPA-1900/65/15/6/DS (L=1.8') /1319.41.0095
CINGULAR E	-	140.00	12-FT L.P.S. MOUNT W/SERVICE GRATING
VERIZON E	45-56	130.00	(12) DB844H90E-XY (OR DB844H90T6E-XY) ANTENNA (L=4')
VERIZON E	-	130.00	12-FT L.P.S. MOUNT W/SERVICE GRATING
SPRINT NEXTEL E	57-68	80.00	(12) 844G65VTZASX ANTENNA (L=4')
SPRINT NEXTEL E	-	80.00	12-FT L.P.S. MOUNT W/SERVICE GRATING
T-MOBILE P	69	70.00	(1) NAIS VIC-100 GPS ANTENNA
T-MOBILE P	-	70.00	3-FT SIDE ARM

E=EXISTING; F=FUTURE; P=PROPOSED
STEP BOLTS FULL HEIGHT FROM 9'-6 ABOVE BASE PLATE.
ANTENNA FEED LINES RUN INSIDE OF POLE.

Elevation	MAX WIND MPH WIND		MIN WIND MPH WIND	
	Lateral Deflection (Inches)	Rotation (sway) (degrees)	Lateral Deflection (Inches)	Rotation (sway) (degrees)
TOP	84.3	3.967	29.2	1.373
163.5	71.0	3.885	24.6	1.344

NOTE: MONOPOLE WAS DESIGNED TO MEET MAXIMUM TWIST AND SWAY REQUIREMENTS OF 1.47° FOR A 2.0'ø DISH (18.0 GHz) AT ELEV. 163.5' WITH A 50 MPH WIND.

SHAFT SECTION DATA					
Shaft Section	Section Length (feet)	Plate Thickness (in.)	Lap Splice (in.)	Diameter Across Flats (inches) @ Top	Diameter Across Flats (inches) @ Bottom
1	37.75	0.2500	52.00	23.100	33.249
2	53.00	0.3750	71.00	31.584	45.833
3	53.00	0.3750	90.00	43.493	57.742
4	53.00	0.3750		54.976	69.225

UNFACTORED BASE REACTIONS

MOMENT = 4081 ft-kips
SHEAR = 35.1 kips
AXIAL = 68.5 kips

7/19/06
P.E. #18279
LICENSED PROFESSIONAL ENGINEER

NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF AT LEAST 3000 PSI AT 28 DAYS.

2. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (GRADE 60) EXCEPT PIER TIES MAY BE ASTM A615 (GRADE 40).

3. SEE PREVIOUS PAGE FOR ANCHOR BOLT SIZE AND LENGTH.

4. TOTAL CONCRETE = 93.0 CUBIC YARDS.

5. FOUNDATION DESIGN IS BASED UPON GEOTECHNICAL EXPLORATION REPORT.
PREPARED BY : TECTONIC
REPORT NO.: 2650.122B
DATED: 07-17-2002

6. SOILS REPORT INDICATES THAT GROUND WATER WAS NOT ENCOUNTERED BELOW THE GRADE. CONTRACTOR SHALL CONSULT THE SOILS REPORT & GEOTECHNICAL ENGINEER.

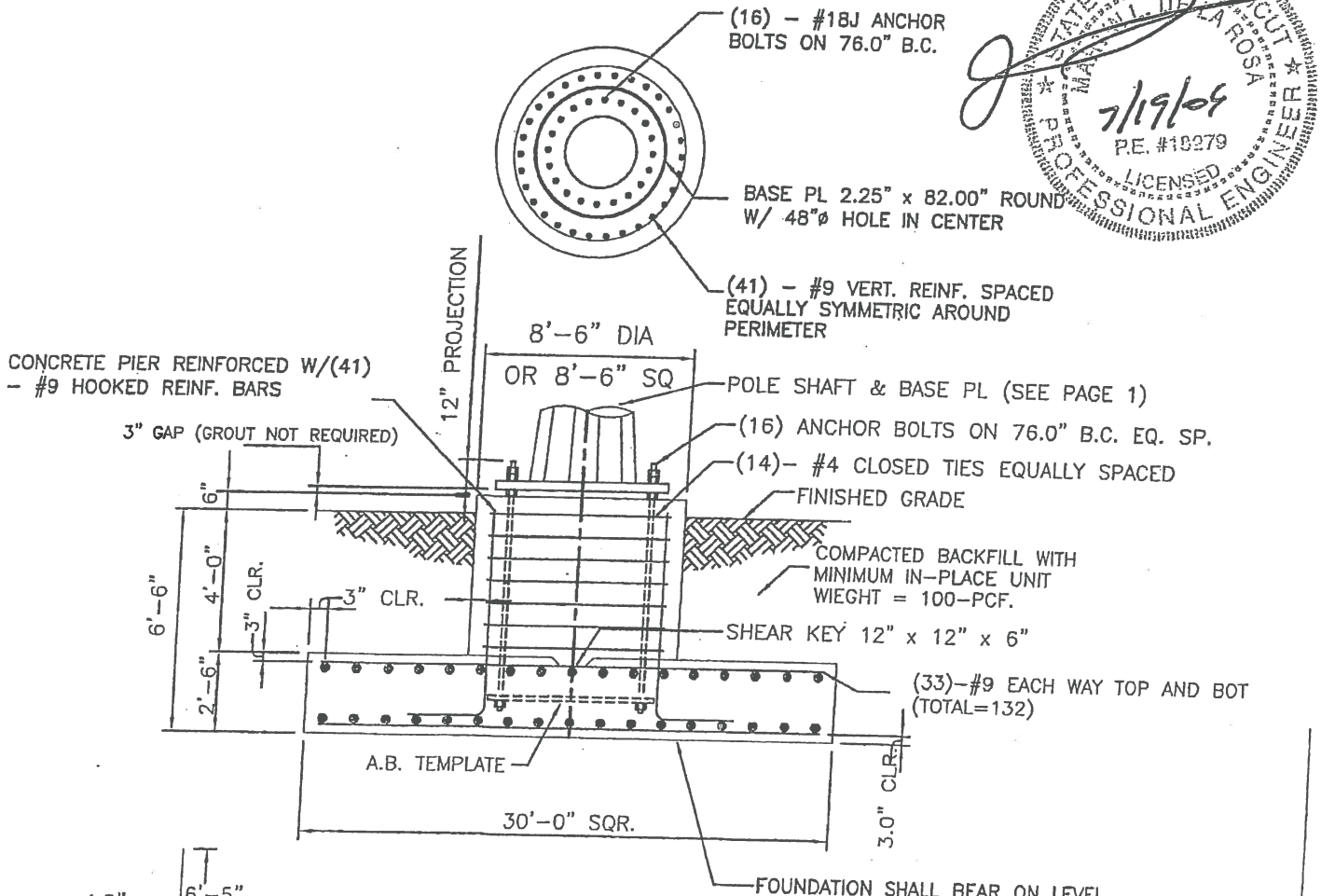
FWT
P.O. BOX 8597 FORT WORTH, TX 76124-0597
PHONE: (800) 433-1816 FAX: (817) 429-6010

JOB DATA		
Page 2 of 2	Job No.	J060713001
By TWL	Design No.	M05-0322, R2
Chk'd By TW	Date	08/12/2002
	Rev. No. 2 Rev. Date	07/19/2006
Pole	180 FT MONOPOLE	
Site	CT-122 ROCKY HILL SOUTH, WETHERSFIELD, CT/(CTHA014A)	
Owner	SPRINT NEXTEL/ (T-MOBILE)	
Ref. No.		
Design	ACCORDING TO TIA/EIA-222-F 1996	

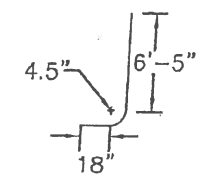
SERVICE LOADS

MOMENT = 4081 FT-KIPS
SHEAR = 35.1 KIPS
AXIAL = 68.5 KIPS

STATE OF CONNECTICUT ★ MARK J. DELA ROSA ★ 7/19/06 P.E. #18279 LICENSED PROFESSIONAL ENGINEER



FOUNDATION
(NOT TO SCALE)



#9 HOOKED BAR

October 15, 2021

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT5122 (C-BAND)
	FA Number:	10092829
	PACE Number:	MRCTB051311
	PT Number:	2051A0Z6Z5
	Site Name:	WETHERSFIELD NORTH
	Site Address:	23 Kelleher Court Wethersfield, CT 06109

To Whom It May Concern:

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

- (3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B66A RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (2) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.)
- **(2) QD8616-7 Antennas (96.0"x22.0"x9.6" – Wt. = 150 lbs. /each)**
- **(1) QD4616-7 Antennas (51.5"x22.0"x9.6" – Wt. = 109 lbs. /each)**
- **(3) AIR6449 B77D Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 N77D Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(2) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(1) DMP65R-BU4DA Antennas (48.0"x20.7"x7.7" – Wt. = 68 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) 4415 B25 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.)**

**Proposed equipment shown in bold.*

Fabrication drawings prepared by Sabre Industries Towers and Poles, P/N C10857001A, dated December 15, 2015, were available for the existing mounts.

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 1.73 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.181 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.064.
- The mount has been analyzed with load combinations consisting of 500 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 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with ring mounts. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new 2-1/2" std. (2.88" O.D.) pipe mast secured to the existing mount (typ. of 2 per sector, total of 6).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (C-BAND) Mount Rating	26	LC19	110%	**FAIL**
Modified (C-BAND) Mount Rating	29	LC2	77%	**PASS**

Reference Documents:

- Fabrication drawings prepared by Sabre Industries Towers and Poles, P/N C10857001A, dated December 15, 2015.

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 existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

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

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

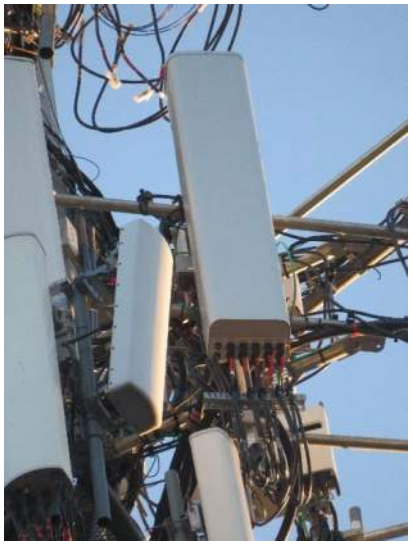
Daniel P. Hamm, PE
Principal

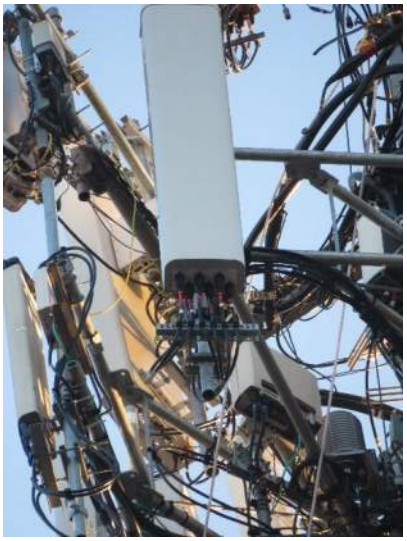
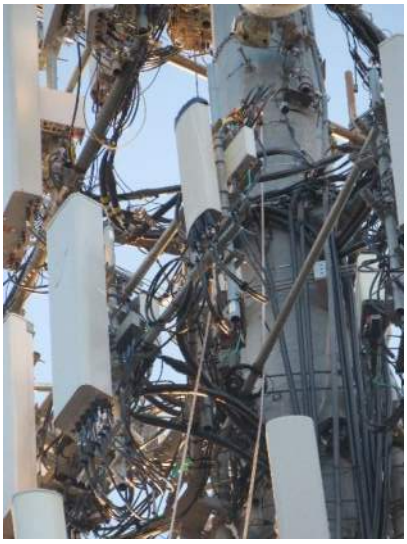
FIELD PHOTOS:










HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	140	(ft)
z_g=	900	(ft)
α=	9.5	

K_z= 1.359

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

Table 2-4

Exposure	Z_g	α	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

$K_{zt} = [1+(K_c K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt}=1.0)

Category= **1**

K_h=	1	
K_c=	1	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	140	
z_s=	122	(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=	1.00	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.50 in
Importance Factor = I= 1.0 (from Table 2-3)
K_{iz} = 1.16 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.73 in

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

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=	179	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

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

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.359	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**51.40**	K_e=	1.00	(from 2.6.8)
$q_{z\ (ice)}$=	**8.22**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.96**	V_{max}=	125	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, 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

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

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_s) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	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 = **1.73** 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)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	4.36	1.28	**967**	**186**	**56**
QD4616-7 Antenna	51.5	22.0	9.6	7.87	2.34	1.20	**485**	**96**	**28**
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	1.92	1.20	**208**	**45**	**12**
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.93	1.20	**214**	**46**	**12**
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**919**	**178**	**53**
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.32	1.20	**426**	**85**	**25**
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	**104**	**25**	**6**
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	**64**	**17**	**4**
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	2.25	1.20	**141**	**33**	**8**
RRUS-32 B66A RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	**86**	**23**	**5**
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	2.25	1.20	**141**	**33**	**8**
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	**86**	**23**	**5**
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.36	1.20	**101**	**24**	**6**
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	**72**	**19**	**4**
4415 B25 RRH	16.5	13.5	6.3	1.55	1.22	1.20	**95**	**23**	**5**
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	**58**	**14**	**3**
2-1/2" Pipe	2.9	12.0	-	0.24	0.24	1.20	**15**		
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	**12**		
3/4" Round Bar	0.8	12.0	-	0.06	0.06	1.20	**4**		

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 30 (deg) | Ice Thickness = 1.73 in. | Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	967	493	849
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	485	234	423
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	208	141	192
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	214	103	186
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	919	417	793
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	426	180	364
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	104	64	94
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	52	104	65
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	127
RRUS-32 B66A RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	76	141	92
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	127
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	76	141	92
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	94
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	51	101	64
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	95	45	83

WIND LOADS WITH ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	99.5	25.5	13.1	17.59	9.03	3.91	7.61	1.26	1.42	183	105	163
QD4616-7 Antenna	55.0	25.5	13.1	9.72	4.99	2.16	4.21	1.20	1.28	96	52	85
AIR6449 B77D Antenna	34.1	19.4	14.1	4.58	3.33	1.76	2.42	1.20	1.20	45	33	42
AIR6419 N77D Antenna	34.5	19.6	10.8	4.68	2.58	1.76	3.20	1.20	1.23	46	26	41
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.69	7.71	4.12	8.91	1.27	1.46	175	93	154
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.64	3.99	2.13	4.61	1.20	1.29	85	42	75
B14 4478 RRH	21.6	16.9	11.8	2.53	1.76	1.28	1.83	1.20	1.20	25	17	23
B14 4478 RRH (Side)	21.6	8.4	16.9	1.26	2.53	2.56	1.28	1.20	1.20	12	25	16
RRUS-32 B66A RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	30
RRUS-32 B66A RRH (Side)	30.7	7.8	15.6	1.66	3.32	3.94	1.97	1.26	1.20	17	33	21
RRUS-32 B30 RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	30
RRUS-32 B30 RRH (Side)	30.7	7.8	15.6	1.66	3.32	3.94	1.97	1.26	1.20	17	33	21
B5/B12 4449 RRH	21.4	16.7	12.9	2.47	1.91	1.28	1.66	1.20	1.20	24	19	23
B5/B12 4449 RRH (Side)	21.4	8.3	16.7	1.24	2.47	2.56	1.28	1.20	1.20	12	24	15
4415 B25 RRH	20.0	17.0	9.8	2.35	1.35	1.18	2.04	1.20	1.20	23	13	21

WIND LOADS AT 30 MPH:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	56	28	49
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	28	13	24
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	11
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	11
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	46
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	25	10	21
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	5
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	3	6	4
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 B66A RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	4	8	5
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	4	8	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	3	6	4
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	5	3	5

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.73 in.

Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	967	493	612
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	485	234	297
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	208	141	158
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	214	103	131
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	919	417	543
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	426	180	242
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	104	64	74
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	78	104	97
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	100
RRUS-32 B66A RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	108	141	133
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	100
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	108	141	133
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	79
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	76	101	95
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	95	45	57

WIND LOADS WITH ICE:

QD8616-7 Antenna	99.5	25.5	13.1	17.59	9.03	3.91	7.61	1.26	1.42	183	105	125
QD4616-7 Antenna	55.0	25.5	13.1	9.72	4.99	2.16	4.21	1.20	1.28	96	52	63
AIR6449 B77D Antenna	34.1	19.4	14.1	4.58	3.33	1.76	2.42	1.20	1.20	45	33	36
AIR6419 N77D Antenna	34.5	19.6	10.8	4.68	2.58	1.76	3.20	1.20	1.23	46	26	31
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.69	7.71	4.12	8.91	1.27	1.46	175	93	113
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.64	3.99	2.13	4.61	1.20	1.29	85	42	53
B14 4478 RRH	21.6	16.9	11.8	2.53	1.76	1.28	1.83	1.20	1.20	25	17	19
B14 4478 RRH (Side)	21.6	12.6	16.9	1.89	2.53	1.70	1.28	1.20	1.20	19	25	23
RRUS-32 B66A RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	25
RRUS-32 B66A RRH (Side)	30.7	11.7	15.6	2.49	3.32	2.63	1.97	1.21	1.20	25	33	31
RRUS-32 B30 RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	25
RRUS-32 B30 RRH (Side)	30.7	11.7	15.6	2.49	3.32	2.63	1.97	1.21	1.20	25	33	31
B5/B12 4449 RRH	21.4	16.7	12.9	2.47	1.91	1.28	1.66	1.20	1.20	24	19	20
B5/B12 4449 RRH (Side)	21.4	12.5	16.7	1.85	2.47	1.71	1.28	1.20	1.20	18	24	23
4415 B25 RRH	20.0	17.0	9.8	2.35	1.35	1.18	2.04	1.20	1.20	23	13	16

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	56	28	35
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	28	13	17
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	9
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	8
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	31
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	25	10	14
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	4	6	6
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 B66A RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	6	8	8
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	6	8	8
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	4	6	5
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	5	3	3

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.73	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	967	493	493
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	485	234	234
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	208	141	141
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	214	103	103
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	919	417	417
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	426	180	180
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	104	64	64
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	64	104	104
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	86
RRUS-32 B66A RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	86	141	141
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	86
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	86	141	141
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	72
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	72	101	101
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	95	45	45

WIND LOADS WITH ICE:

QD8616-7 Antenna	99.5	25.5	13.1	17.59	9.03	3.91	7.61	1.26	1.42	183	105	105
QD4616-7 Antenna	55.0	25.5	13.1	9.72	4.99	2.16	4.21	1.20	1.28	96	52	52
AIR6449 B77D Antenna	34.1	19.4	14.1	4.58	3.33	1.76	2.42	1.20	1.20	45	33	33
AIR6419 N77D Antenna	34.5	19.6	10.8	4.68	2.58	1.76	3.20	1.20	1.23	46	26	26
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.69	7.71	4.12	8.91	1.27	1.46	175	93	93
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.64	3.99	2.13	4.61	1.20	1.29	85	42	42
B14 4478 RRH	21.6	16.9	11.8	2.53	1.76	1.28	1.83	1.20	1.20	25	17	17
B14 4478 RRH (Side)	21.6	11.8	16.9	1.76	2.53	1.83	1.28	1.20	1.20	17	25	25
RRUS-32 B66A RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	22
RRUS-32 B66A RRH (Side)	30.7	10.5	15.6	2.23	3.32	2.93	1.97	1.22	1.20	22	33	33
RRUS-32 B30 RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	22
RRUS-32 B30 RRH (Side)	30.7	10.5	15.6	2.23	3.32	2.93	1.97	1.22	1.20	22	33	33
B5/B12 4449 RRH	21.4	16.7	12.9	2.47	1.91	1.28	1.66	1.20	1.20	24	19	19
B5/B12 4449 RRH (Side)	21.4	12.9	16.7	1.91	2.47	1.66	1.28	1.20	1.20	19	24	24
4415 B25 RRH	20.0	17.0	9.8	2.35	1.35	1.18	2.04	1.20	1.20	23	13	13

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	56	28	28
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	28	13	13
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	8
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	6
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	24
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	25	10	10
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	4	6	6
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 B66A RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	8
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	5	8	8
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	4
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	6	6
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	5	3	3

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.73 in. | Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	967	493	612
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	485	234	297
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	208	141	158
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	214	103	131
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	919	417	543
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	426	180	242
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	104	64	74
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	78	104	97
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	100
RRUS-32 B66A RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	108	141	133
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	100
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	108	141	133
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	79
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	76	101	95
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	95	45	57

WIND LOADS WITH ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	99.5	25.5	13.1	17.59	9.03	3.91	7.61	1.26	1.42	183	105	125
QD4616-7 Antenna	55.0	25.5	13.1	9.72	4.99	2.16	4.21	1.20	1.28	96	52	63
AIR6449 B77D Antenna	34.1	19.4	14.1	4.58	3.33	1.76	2.42	1.20	1.20	45	33	36
AIR6419 N77D Antenna	34.5	19.6	10.8	4.68	2.58	1.76	3.20	1.20	1.23	46	26	31
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.69	7.71	4.12	8.91	1.27	1.46	175	93	113
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.64	3.99	2.13	4.61	1.20	1.29	85	42	53
B14 4478 RRH	21.6	16.9	11.8	2.53	1.76	1.28	1.83	1.20	1.20	25	17	19
B14 4478 RRH (Side)	21.6	12.6	16.9	1.89	2.53	1.70	1.28	1.20	1.20	19	25	23
RRUS-32 B66A RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	25
RRUS-32 B66A RRH (Side)	30.7	11.7	15.6	2.49	3.32	2.63	1.97	1.21	1.20	25	33	31
RRUS-32 B30 RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	25
RRUS-32 B30 RRH (Side)	30.7	11.7	15.6	2.49	3.32	2.63	1.97	1.21	1.20	25	33	31
B5/B12 4449 RRH	21.4	16.7	12.9	2.47	1.91	1.28	1.66	1.20	1.20	24	19	20
B5/B12 4449 RRH (Side)	21.4	12.5	16.7	1.85	2.47	1.71	1.28	1.20	1.20	18	24	23
4415 B25 RRH	20.0	17.0	9.8	2.35	1.35	1.18	2.04	1.20	1.20	23	13	16

WIND LOADS AT 30 MPH:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	56	28	35
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	28	13	17
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	9
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	8
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	31
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	25	10	14
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	4
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	4	6	6
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 B66A RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	6	8	8
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 B30 RRH (Side)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	6	8	8
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	4	6	5
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	5	3	3

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg)

Ice Thickness = 1.73 in.

Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	967	493	849
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	485	234	423
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	208	141	192
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	214	103	186
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	919	417	793
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	426	180	364
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	104	64	94
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	52	104	65
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	127
RRUS-32 B66A RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	76	141	92
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	141	86	127
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	76	141	92
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	101	72	94
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	51	101	64
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	95	45	83

WIND LOADS WITH ICE:

QD8616-7 Antenna	99.5	25.5	13.1	17.59	9.03	3.91	7.61	1.26	1.42	183	105	163
QD4616-7 Antenna	55.0	25.5	13.1	9.72	4.99	2.16	4.21	1.20	1.28	96	52	85
AIR6449 B77D Antenna	34.1	19.4	14.1	4.58	3.33	1.76	2.42	1.20	1.20	45	33	42
AIR6419 N77D Antenna	34.5	19.6	10.8	4.68	2.58	1.76	3.20	1.20	1.23	46	26	41
DMP65R-BU8DA Antenna	99.5	24.2	11.2	16.69	7.71	4.12	8.91	1.27	1.46	175	93	154
DMP65R-BU4DA Antenna	51.5	24.2	11.2	8.64	3.99	2.13	4.61	1.20	1.29	85	42	75
B14 4478 RRH	21.6	16.9	11.8	2.53	1.76	1.28	1.83	1.20	1.20	25	17	23
B14 4478 RRH (Side)	21.6	8.4	16.9	1.26	2.53	2.56	1.28	1.20	1.20	12	25	16
RRUS-32 B66A RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	30
RRUS-32 B66A RRH (Side)	30.7	7.8	15.6	1.66	3.32	3.94	1.97	1.26	1.20	17	33	21
RRUS-32 B30 RRH	30.7	15.6	10.5	3.32	2.23	1.97	2.93	1.20	1.22	33	22	30
RRUS-32 B30 RRH (Side)	30.7	7.8	15.6	1.66	3.32	3.94	1.97	1.26	1.20	17	33	21
B5/B12 4449 RRH	21.4	16.7	12.9	2.47	1.91	1.28	1.66	1.20	1.20	24	19	23
B5/B12 4449 RRH (Side)	21.4	8.3	16.7	1.24	2.47	2.56	1.28	1.20	1.20	12	24	15
4415 B25 RRH	20.0	17.0	9.8	2.35	1.35	1.18	2.04	1.20	1.20	23	13	21

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	56	28	49
QD4616-7 Antenna	51.5	22.0	9.6	7.87	3.43	2.34	5.36	1.20	1.33	28	13	24
AIR6449 B77D Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	12	8	11
AIR6419 N77D Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	12	6	11
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	53	24	46
DMP65R-BU4DA Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	25	10	21
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	6	4	5
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	3	6	4
RRUS-32 B66A RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 B66A RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	4	8	5
RRUS-32 B30 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 B30 RRH (Side)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	4	8	5
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	6	4	5
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	3	6	4
4415 B25 RRH	16.5	13.5	6.3	1.55	0.72	1.22	2.62	1.20	1.21	5	3	5

Date: 10/15/2021
Project Name: WETHERSFIELD NORTH
Project No.: CT5122
Designed By: KM **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.73 in.
Density of ice: 56 pcf

QD8616-7 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	22.0	
Depth (in):	9.6	
Total weight of ice on object:	435	lbs
Weight of object:	150.0	lbs
Combined weight of ice and object:	585	lbs

QD4616-7 Antenna

Weight of ice based on total radial SF area:

Height (in):	51.5	
Width (in):	22.0	
Depth (in):	9.6	
Total weight of ice on object:	233	lbs
Weight of object:	109.0	lbs
Combined weight of ice and object:	342	lbs

AIR6449 B77D Antenna

Weight of ice based on total radial SF area:

Height (in):	30.6	
Width (in):	15.9	
Depth (in):	10.6	
Total weight of ice on object:	112	lbs
Weight of object:	82.0	lbs
Combined weight of ice and object:	194	lbs

AIR6419 N77D Antenna

Weight of ice based on total radial SF area:

Height (in):	31.0	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:	106	lbs
Weight of object:	66.0	lbs
Combined weight of ice and object:	172	lbs

DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:	403	lbs
Weight of object:	96.0	lbs
Combined weight of ice and object:	499	lbs

DMP65R-BU4DA Antenna

Weight of ice based on total radial SF area:

Height (in):	48.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:	201	lbs
Weight of object:	68.0	lbs
Combined weight of ice and object:	269	lbs

B14 4478 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:	56	lbs
Weight of object:	60.0	lbs
Combined weight of ice and object:	116	lbs

RRUS-32 B66A RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:	75	lbs
Weight of object:	60.0	lbs
Combined weight of ice and object:	135	lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:	75	lbs
Weight of object:	60.0	lbs
Combined weight of ice and object:	135	lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:	57	lbs
Weight of object:	73.0	lbs
Combined weight of ice and object:	130	lbs

4415 B25 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:	48	lbs
Weight of object:	46.0	lbs
Combined weight of ice and object:	94	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:	48	lbs
Weight of object:	33	lbs
Combined weight of ice and object:	81	lbs

2-1/2" pipe

Per foot weight of ice:

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

2" pipe

Per foot weight of ice:

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

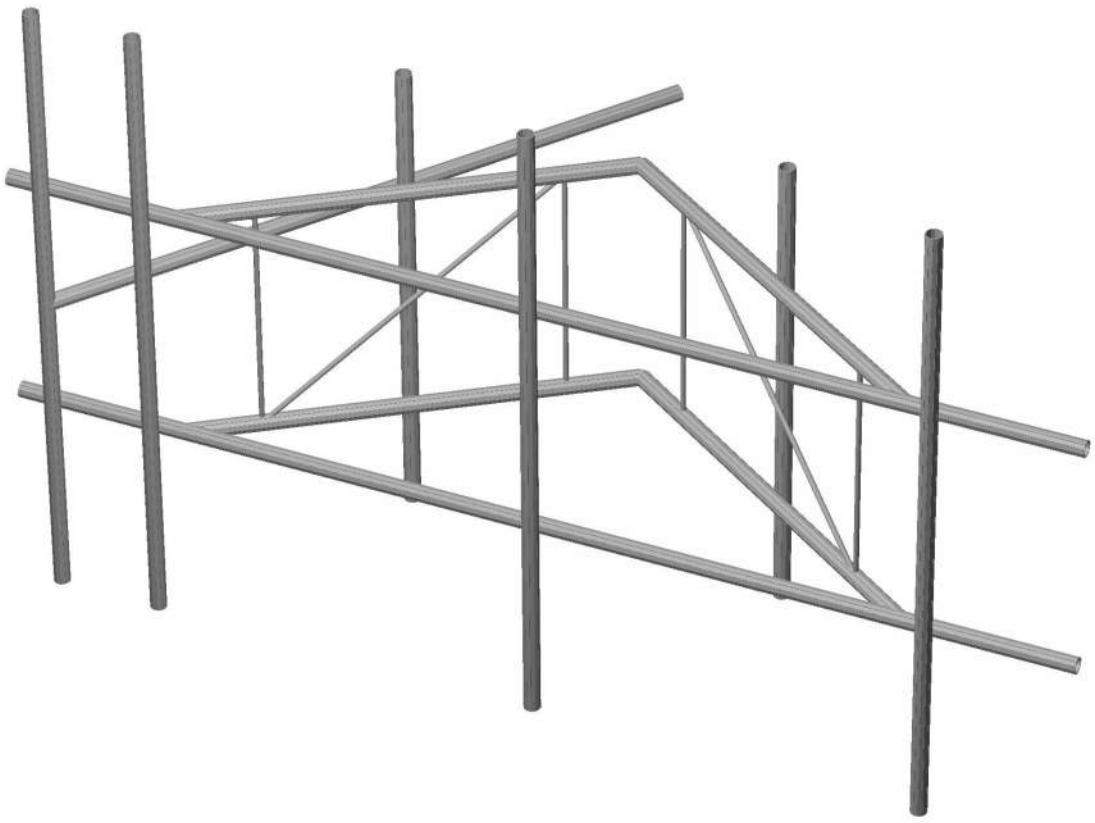
3/4" Round Bar

Per foot weight of ice:

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

HUDSON
Design Group LLC

Mount Calculations
(Existing Conditions)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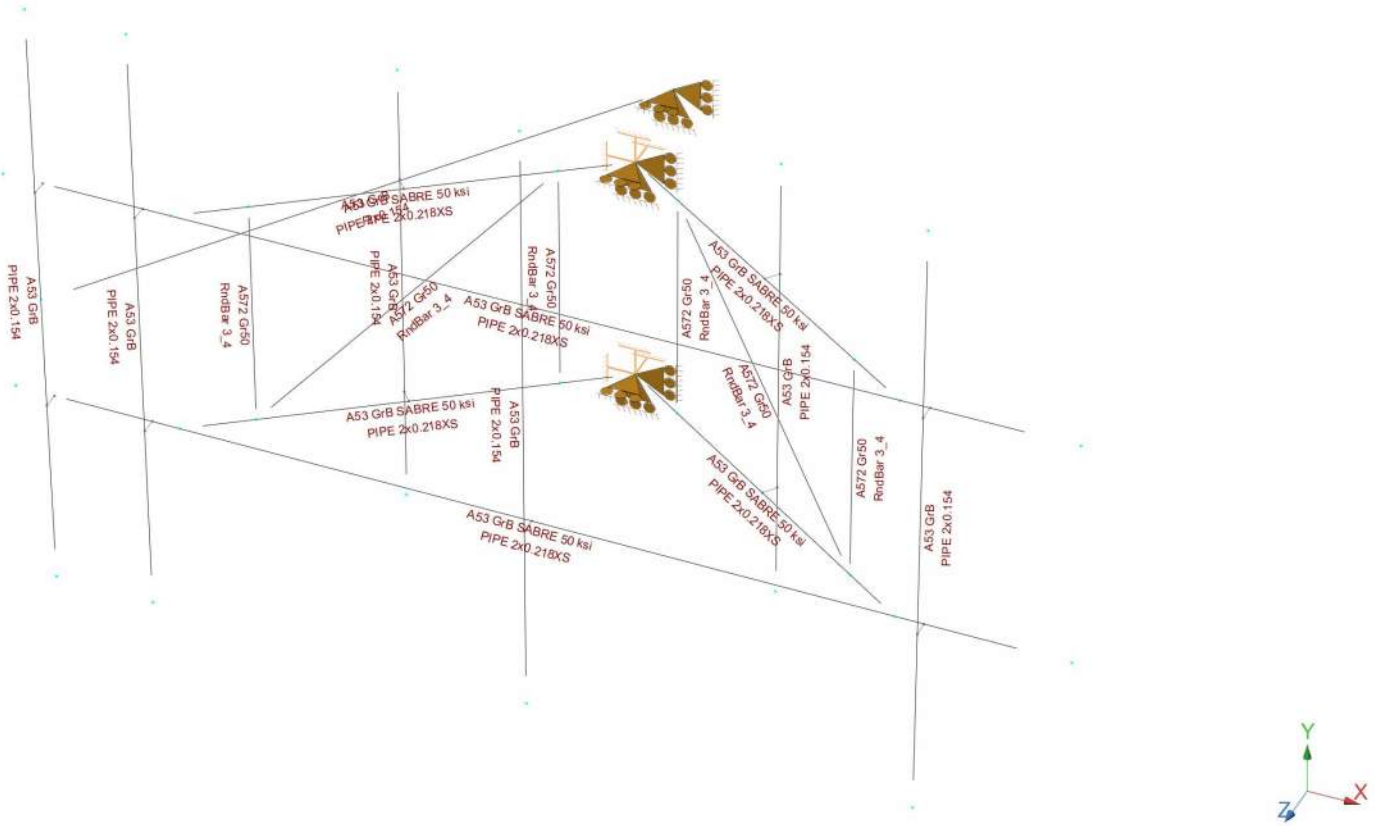
X
Z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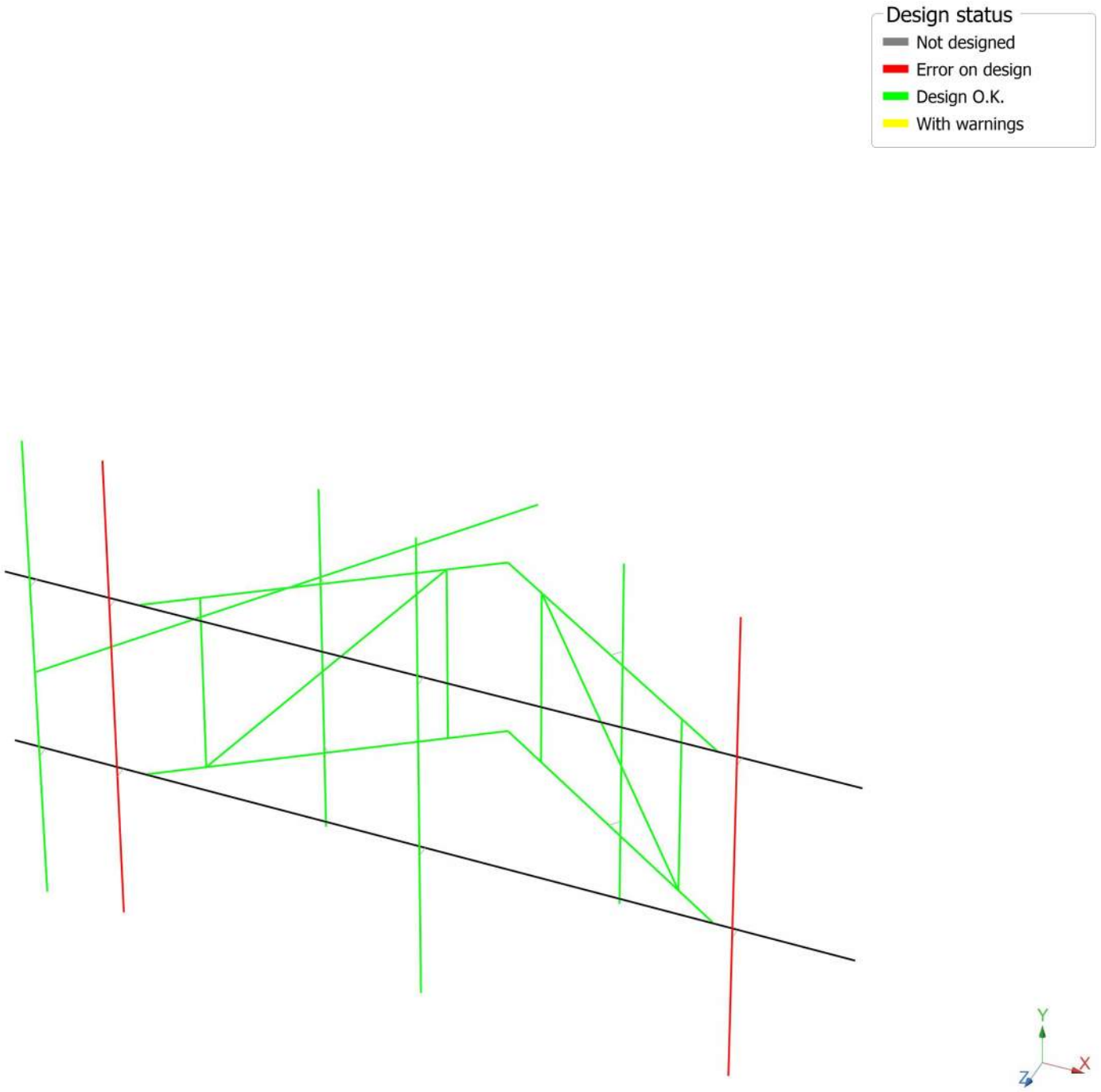
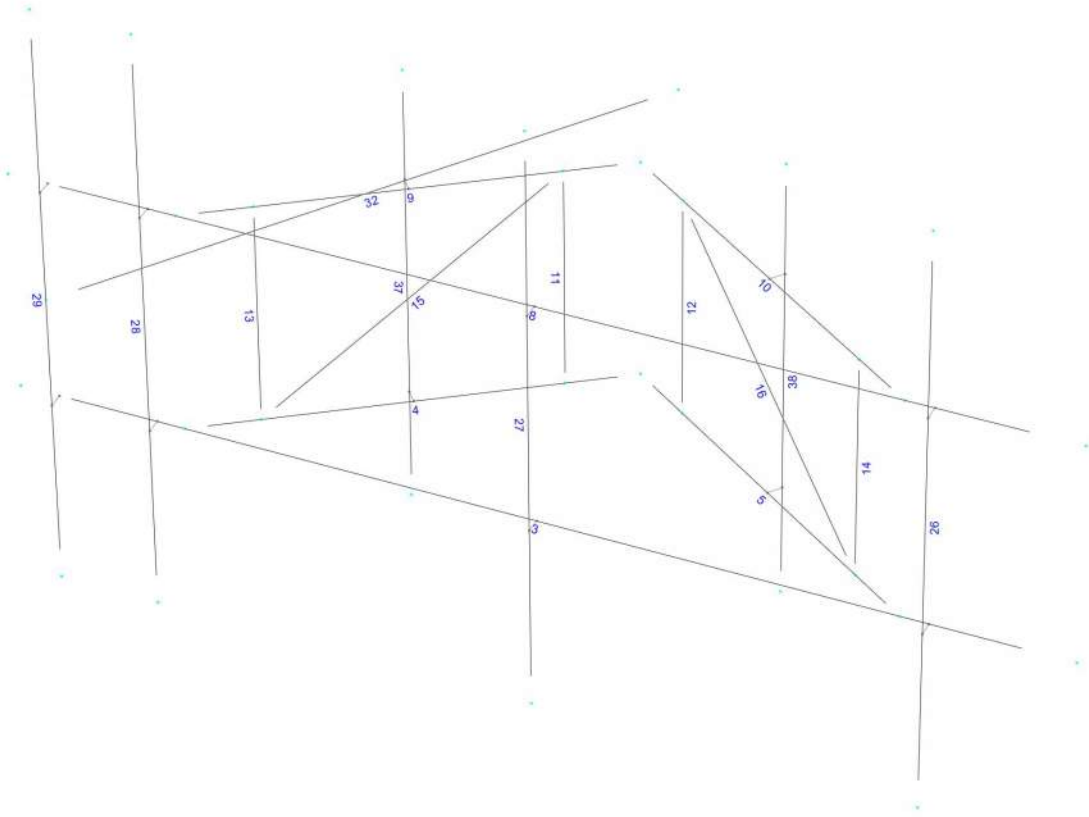
A53 GrB PIPE 2x0.154
A572 Gr50 RndBar 3_4


Design status
Not designed
Error on design
Design O.K.
With warnings
Y
X
Z


22
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Load data

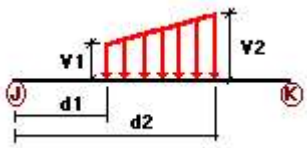
GLOSSARY

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	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL
LLa4	500 lb Live Load Antenna 4	No	LL

Distributed force on members

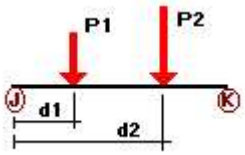


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	3	z	-0.012	-0.012	0.00	No	100.00	Yes
	4	z	-0.012	-0.012	0.00	No	100.00	Yes
	5	z	-0.012	-0.012	0.00	No	100.00	Yes
	8	z	-0.012	-0.012	0.00	No	100.00	Yes
	9	z	-0.012	-0.012	0.00	No	100.00	Yes
	10	z	-0.012	-0.012	0.00	No	100.00	Yes
	11	z	-0.004	-0.004	0.00	No	100.00	Yes
	12	z	-0.004	-0.004	0.00	No	100.00	Yes
	13	z	-0.004	-0.004	0.00	No	100.00	Yes
	14	z	-0.004	-0.004	0.00	No	100.00	Yes
	15	z	-0.004	-0.004	0.00	No	100.00	Yes
	16	z	-0.004	-0.004	0.00	No	100.00	Yes
	29	z	-0.012	-0.012	0.00	No	100.00	Yes
	32	z	-0.012	-0.012	0.00	No	100.00	Yes
	37	z	-0.012	-0.012	0.00	No	100.00	Yes
	38	z	-0.012	-0.012	0.00	No	100.00	Yes
W30	3	z	-0.012	-0.012	0.00	No	100.00	Yes
	4	z	-0.012	-0.012	0.00	No	100.00	Yes
	5	z	-0.012	-0.012	0.00	No	100.00	Yes
	8	z	-0.012	-0.012	0.00	No	100.00	Yes
	9	z	-0.012	-0.012	0.00	No	100.00	Yes
	10	z	-0.012	-0.012	0.00	No	100.00	Yes
	11	z	-0.004	-0.004	0.00	No	100.00	Yes
	12	z	-0.004	-0.004	0.00	No	100.00	Yes
	13	z	-0.004	-0.004	0.00	No	100.00	Yes
	14	z	-0.004	-0.004	0.00	No	100.00	Yes
	15	z	-0.004	-0.004	0.00	No	100.00	Yes
	16	z	-0.004	-0.004	0.00	No	100.00	Yes
	26	z	-0.012	-0.012	0.00	No	100.00	Yes
	27	z	-0.012	-0.012	0.00	No	100.00	Yes
	28	z	-0.012	-0.012	0.00	No	100.00	Yes
	29	z	-0.012	-0.012	0.00	No	100.00	Yes
	32	z	-0.012	-0.012	0.00	No	100.00	Yes
	37	z	-0.012	-0.012	0.00	No	100.00	Yes
	38	z	-0.012	-0.012	0.00	No	100.00	Yes
W60	3	x	-0.012	-0.012	0.00	No	100.00	Yes
	4	x	-0.012	-0.012	0.00	No	100.00	Yes
	5	x	-0.012	-0.012	0.00	No	100.00	Yes
	8	x	-0.012	-0.012	0.00	No	100.00	Yes
	9	x	-0.012	-0.012	0.00	No	100.00	Yes
	10	x	-0.012	-0.012	0.00	No	100.00	Yes
	11	x	-0.004	-0.004	0.00	No	100.00	Yes
	12	x	-0.004	-0.004	0.00	No	100.00	Yes
	13	x	-0.004	-0.004	0.00	No	100.00	Yes
	14	x	-0.004	-0.004	0.00	No	100.00	Yes
	15	x	-0.004	-0.004	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	26	x	-0.012	-0.012	0.00	No	100.00	Yes
	27	x	-0.012	-0.012	0.00	No	100.00	Yes
	28	x	-0.012	-0.012	0.00	No	100.00	Yes
	29	x	-0.012	-0.012	0.00	No	100.00	Yes
	32	x	-0.012	-0.012	0.00	No	100.00	Yes
	37	x	-0.012	-0.012	0.00	No	100.00	Yes
	38	x	-0.012	-0.012	0.00	No	100.00	Yes
W90	4	x	-0.012	-0.012	0.00	No	100.00	Yes
	5	x	-0.012	-0.012	0.00	No	100.00	Yes
	9	x	-0.012	-0.012	0.00	No	100.00	Yes
	10	x	-0.012	-0.012	0.00	No	100.00	Yes
	11	x	-0.004	-0.004	0.00	No	100.00	Yes
	12	x	-0.004	-0.004	0.00	No	100.00	Yes

	13	x	-0.004	-0.004	0.00	No	100.00	Yes
	14	x	-0.004	-0.004	0.00	No	100.00	Yes
	15	x	-0.004	-0.004	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	26	x	-0.012	-0.012	0.00	No	100.00	Yes
	27	x	-0.012	-0.012	0.00	No	100.00	Yes
	28	x	-0.012	-0.012	0.00	No	100.00	Yes
	29	x	-0.012	-0.012	0.00	No	100.00	Yes
	32	x	-0.012	-0.012	0.00	No	100.00	Yes
	37	x	-0.012	-0.012	0.00	No	100.00	Yes
	38	x	-0.012	-0.012	0.00	No	100.00	Yes
W120	3	x	-0.012	-0.012	0.00	No	100.00	Yes
	4	x	-0.012	-0.012	0.00	No	100.00	Yes
	5	x	-0.012	-0.012	0.00	No	100.00	Yes
	8	x	-0.012	-0.012	0.00	No	100.00	Yes
	9	x	-0.012	-0.012	0.00	No	100.00	Yes
	10	x	-0.012	-0.012	0.00	No	100.00	Yes
	11	x	-0.004	-0.004	0.00	No	100.00	Yes
	12	x	-0.004	-0.004	0.00	No	100.00	Yes
	13	x	-0.004	-0.004	0.00	No	100.00	Yes
	14	x	-0.004	-0.004	0.00	No	100.00	Yes
	15	x	-0.004	-0.004	0.00	No	100.00	Yes
	16	x	-0.004	-0.004	0.00	No	100.00	Yes
	26	x	-0.012	-0.012	0.00	No	100.00	Yes
	27	x	-0.012	-0.012	0.00	No	100.00	Yes
	28	x	-0.012	-0.012	0.00	No	100.00	Yes
	29	x	-0.012	-0.012	0.00	No	100.00	Yes
	32	x	-0.012	-0.012	0.00	No	100.00	Yes
	37	x	-0.012	-0.012	0.00	No	100.00	Yes
	38	x	-0.012	-0.012	0.00	No	100.00	Yes
W150	3	z	0.012	0.012	0.00	No	100.00	Yes
	4	z	0.012	0.012	0.00	No	100.00	Yes
	5	z	0.012	0.012	0.00	No	100.00	Yes
	8	z	0.012	0.012	0.00	No	100.00	Yes
	9	z	0.012	0.012	0.00	No	100.00	Yes
	10	z	0.012	0.012	0.00	No	100.00	Yes
	11	z	0.004	0.004	0.00	No	100.00	Yes
	12	z	0.004	0.004	0.00	No	100.00	Yes
	13	z	0.004	0.004	0.00	No	100.00	Yes
	14	z	0.004	0.004	0.00	No	100.00	Yes
	15	z	0.004	0.004	0.00	No	100.00	Yes
	16	z	0.004	0.004	0.00	No	100.00	Yes
	26	z	0.012	0.012	0.00	No	100.00	Yes
	27	z	0.012	0.012	0.00	No	100.00	Yes
	28	z	0.012	0.012	0.00	No	100.00	Yes
	29	z	0.012	0.012	0.00	No	100.00	Yes
	32	z	0.012	0.012	0.00	No	100.00	Yes
	37	z	0.012	0.012	0.00	No	100.00	Yes
	38	z	0.012	0.012	0.00	No	100.00	Yes
Di	3	y	-0.009	-0.009	0.00	No	100.00	Yes
	4	y	-0.009	-0.009	0.00	No	100.00	Yes
	5	y	-0.009	-0.009	0.00	No	100.00	Yes
	8	y	-0.009	-0.009	0.00	No	100.00	Yes
	9	y	-0.009	-0.009	0.00	No	100.00	Yes
	10	y	-0.009	-0.009	0.00	No	100.00	Yes
	11	y	-0.005	-0.005	0.00	No	100.00	Yes
	12	y	-0.005	-0.005	0.00	No	100.00	Yes
	13	y	-0.005	-0.005	0.00	No	100.00	Yes
	14	y	-0.005	-0.005	0.00	No	100.00	Yes
	15	y	-0.005	-0.005	0.00	No	100.00	Yes

	16	y	-0.005	-0.005	0.00	No	100.00	Yes
	26	y	-0.009	-0.009	0.00	No	100.00	Yes
	27	y	-0.009	-0.009	0.00	No	100.00	Yes
	28	y	-0.009	-0.009	0.00	No	100.00	Yes
	29	y	-0.009	-0.009	0.00	No	100.00	Yes
	32	y	-0.009	-0.009	0.00	No	100.00	Yes
	37	y	-0.009	-0.009	0.00	No	100.00	Yes
	38	y	-0.009	-0.009	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	12	y	-0.033	1.50	No
	26	y	-0.075	0.50	No
		y	-0.075	7.50	No
	27	y	-0.041	1.50	No
		y	-0.041	3.50	No
		y	-0.033	4.50	No
		y	-0.033	6.50	No
	28	y	-0.048	0.50	No
		y	-0.048	7.50	No
	37	y	-0.073	2.50	No
		y	-0.06	2.50	No
		y	-0.046	4.25	No
	38	y	-0.06	3.00	No
		y	-0.06	3.00	No
Wo	12	z	-0.058	1.50	No
	26	z	-0.484	0.50	No
		z	-0.484	7.50	No
	27	z	-0.104	1.50	No
		z	-0.104	3.50	No
		z	-0.107	4.50	No
		z	-0.107	6.50	No
	28	z	-0.46	0.50	No
		z	-0.46	7.50	No
	37	z	-0.086	2.50	No
		z	-0.072	2.50	No
		z	-0.095	4.25	No
	38	z	-0.064	3.00	No
		z	-0.086	3.00	No
W30	12	3	-0.058	1.50	No
	26	3	-0.425	0.50	No
		3	-0.425	7.50	No
	27	3	-0.096	1.50	No
		3	-0.096	3.50	No
		3	-0.093	4.50	No
		3	-0.093	6.50	No
	28	3	-0.397	0.50	No
		3	-0.397	7.50	No

	37	3	-0.092	2.50	No
		3	-0.083	4.25	No
	38	3	-0.092	3.00	No
W60	12	3	-0.058	1.50	No
	26	3	-0.306	0.50	No
		3	-0.306	7.50	No
	27	3	-0.079	1.50	No
		3	-0.079	3.50	No
		3	-0.066	4.50	No
		3	-0.066	6.50	No
	28	3	-0.272	0.50	No
		3	-0.272	7.50	No
	37	3	-0.133	2.50	No
		3	-0.057	4.25	No
	38	3	-0.133	3.00	No
W90	12	x	-0.058	1.50	No
	26	x	-0.247	0.50	No
		x	-0.247	7.50	No
	27	x	-0.071	1.50	No
		x	-0.071	3.50	No
		x	-0.052	4.50	No
		x	-0.052	6.50	No
	28	x	-0.209	0.50	No
		x	-0.209	7.50	No
	37	x	-0.141	2.50	No
		x	-0.045	4.25	No
	38	x	-0.141	3.00	No
W120	12	2	-0.058	1.50	No
	26	2	-0.306	0.50	No
		2	-0.306	7.50	No
	27	2	-0.079	1.50	No
		2	-0.079	3.50	No
		2	-0.066	4.50	No
		2	-0.066	6.50	No
	28	2	-0.272	0.50	No
		2	-0.272	7.50	No
	37	2	-0.133	2.50	No
		2	-0.057	4.25	No
	38	2	-0.133	3.00	No
W150	12	2	-0.058	1.50	No
	26	2	-0.425	0.50	No
		2	-0.425	7.50	No
	27	2	-0.096	1.50	No
		2	-0.096	3.50	No
		2	-0.093	4.50	No
		2	-0.093	6.50	No
	28	2	-0.397	0.50	No
		2	-0.397	7.50	No
	37	2	-0.092	2.50	No
		2	-0.083	4.25	No
	38	2	-0.092	3.00	No
Di	12	y	-0.048	1.50	No
	26	y	-0.218	0.50	No
		y	-0.218	7.50	No
	27	y	-0.056	1.50	No
		y	-0.056	3.50	No
		y	-0.053	4.50	No
		y	-0.053	6.50	No
	28	y	-0.202	0.50	No
		y	-0.202	7.50	No

	37	y	-0.057	2.50	No
		y	-0.06	2.50	No
		y	-0.048	4.25	No
	38	y	-0.056	3.00	No
		y	-0.075	3.00	No
WI0	12	z	-0.014	1.50	No
	26	z	-0.093	0.50	No
		z	-0.093	7.50	No
	27	z	-0.023	1.50	No
		z	-0.023	3.50	No
		z	-0.023	4.50	No
		z	-0.023	6.50	No
	28	z	-0.089	0.50	No
		z	-0.089	7.50	No
	37	z	-0.023	2.50	No
		z	-0.019	2.50	No
		z	-0.023	4.25	No
	38	z	-0.017	3.00	No
		z	-0.023	3.00	No
WI30	12	3	-0.014	1.50	No
	26	3	-0.082	0.50	No
		3	-0.082	7.50	No
	27	3	-0.021	1.50	No
		3	-0.021	3.50	No
		3	-0.021	4.50	No
		3	-0.021	6.50	No
	28	3	-0.077	0.50	No
		3	-0.077	7.50	No
	37	3	-0.021	2.50	No
		3	-0.021	4.25	No
	38	3	-0.021	3.00	No
WI60	12	3	-0.014	1.50	No
	26	3	-0.063	0.50	No
		3	-0.063	7.50	No
	27	3	-0.018	1.50	No
		3	-0.018	3.50	No
		3	-0.016	4.50	No
		3	-0.016	6.50	No
	28	3	-0.057	0.50	No
		3	-0.057	7.50	No
	37	3	-0.031	2.50	No
		3	-0.016	4.25	No
	38	3	-0.031	3.00	No
WI90	12	x	-0.014	1.50	No
	26	x	-0.044	0.50	No
		x	-0.044	7.50	No
	27	x	-0.017	1.50	No
		x	-0.017	3.50	No
		x	-0.013	4.50	No
		x	-0.013	6.50	No
	28	x	-0.047	0.50	No
		x	-0.047	7.50	No
	37	x	-0.033	2.50	No
		x	-0.013	4.25	No
	38	x	-0.033	3.00	No
WI120	12	2	-0.014	1.50	No
	26	2	-0.063	0.50	No
		2	-0.063	7.50	No
	27	2	-0.018	1.50	No
		2	-0.018	3.50	No

		2	-0.016	4.50	No
		2	-0.016	6.50	No
	28	2	-0.057	0.50	No
		2	-0.057	7.50	No
	37	2	-0.031	2.50	No
		2	-0.016	4.25	No
	38	2	-0.031	3.00	No
WI150	12	2	-0.014	1.50	No
	26	2	-0.082	0.50	No
		2	-0.082	7.50	No
	27	2	-0.021	1.50	No
		2	-0.021	3.50	No
		2	-0.021	4.50	No
		2	-0.021	6.50	No
	28	2	-0.077	0.50	No
		2	-0.077	7.50	No
	37	2	-0.021	2.50	No
		2	-0.021	4.25	No
	38	2	-0.021	3.00	No
WL0	12	z	-0.003	1.50	No
	26	z	-0.028	0.50	No
		z	-0.028	7.50	No
	27	z	-0.006	1.50	No
		z	-0.006	3.50	No
		z	-0.006	4.50	No
		z	-0.006	6.50	No
	28	z	-0.027	0.50	No
		z	-0.027	7.50	No
	37	z	-0.005	2.50	No
		z	-0.004	2.50	No
		z	-0.005	4.25	No
	38	z	-0.004	3.00	No
		z	-0.005	3.00	No
WL30	12	3	-0.003	1.50	No
	26	3	-0.025	0.50	No
		3	-0.025	7.50	No
	27	3	-0.006	1.50	No
		3	-0.006	3.50	No
		3	-0.006	4.50	No
		3	-0.006	6.50	No
	28	3	-0.023	0.50	No
		3	-0.023	7.50	No
	37	3	-0.005	2.50	No
		3	-0.005	4.25	No
	38	3	-0.005	3.00	No
WL60	12	3	-0.003	1.50	No
	26	3	-0.018	0.50	No
		3	-0.018	7.50	No
	27	3	-0.005	1.50	No
		3	-0.005	3.50	No
		3	-0.004	4.50	No
		3	-0.004	6.50	No
	28	3	-0.016	0.50	No
		3	-0.016	7.50	No
	37	3	-0.008	2.50	No
		3	-0.003	4.25	No
	38	3	-0.008	3.00	No
WL90	12	x	-0.003	1.50	No
	26	x	-0.011	0.50	No
		x	-0.011	7.50	No

	27	x	-0.004	1.50	No
		x	-0.004	3.50	No
		x	-0.003	4.50	No
		x	-0.003	6.50	No
	28	x	-0.012	0.50	No
		x	-0.012	7.50	No
	37	x	-0.008	2.50	No
		x	-0.003	4.25	No
	38	x	-0.008	3.00	No
WL120	12	2	-0.003	1.50	No
	26	2	-0.018	0.50	No
		2	-0.018	7.50	No
	27	2	-0.005	1.50	No
		2	-0.005	3.50	No
		2	-0.004	4.50	No
		2	-0.004	6.50	No
	28	2	-0.016	0.50	No
		2	-0.016	7.50	No
	37	2	-0.008	2.50	No
		2	-0.003	4.25	No
	38	2	-0.008	3.00	No
WL150	12	2	-0.003	1.50	No
	26	2	-0.025	0.50	No
		2	-0.025	7.50	No
	27	2	-0.006	1.50	No
		2	-0.006	3.50	No
		2	-0.006	4.50	No
		2	-0.006	6.50	No
	28	2	-0.023	0.50	No
		2	-0.023	7.50	No
	37	2	-0.005	2.50	No
		2	-0.005	4.25	No
	38	2	-0.005	3.00	No
LL1	8	y	-0.25	6.50	No
LL2	8	y	-0.25	13.00	No
LL3	8	y	-0.25	0.00	No
LLa1	26	y	-0.50	50.00	Yes
LLa2	27	y	-0.50	50.00	Yes
LLa3	28	y	-0.50	50.00	Yes
LLa4	29	y	-0.50	50.00	Yes

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	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	500 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

Current Date: 10/15/2021 11:13 AM
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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

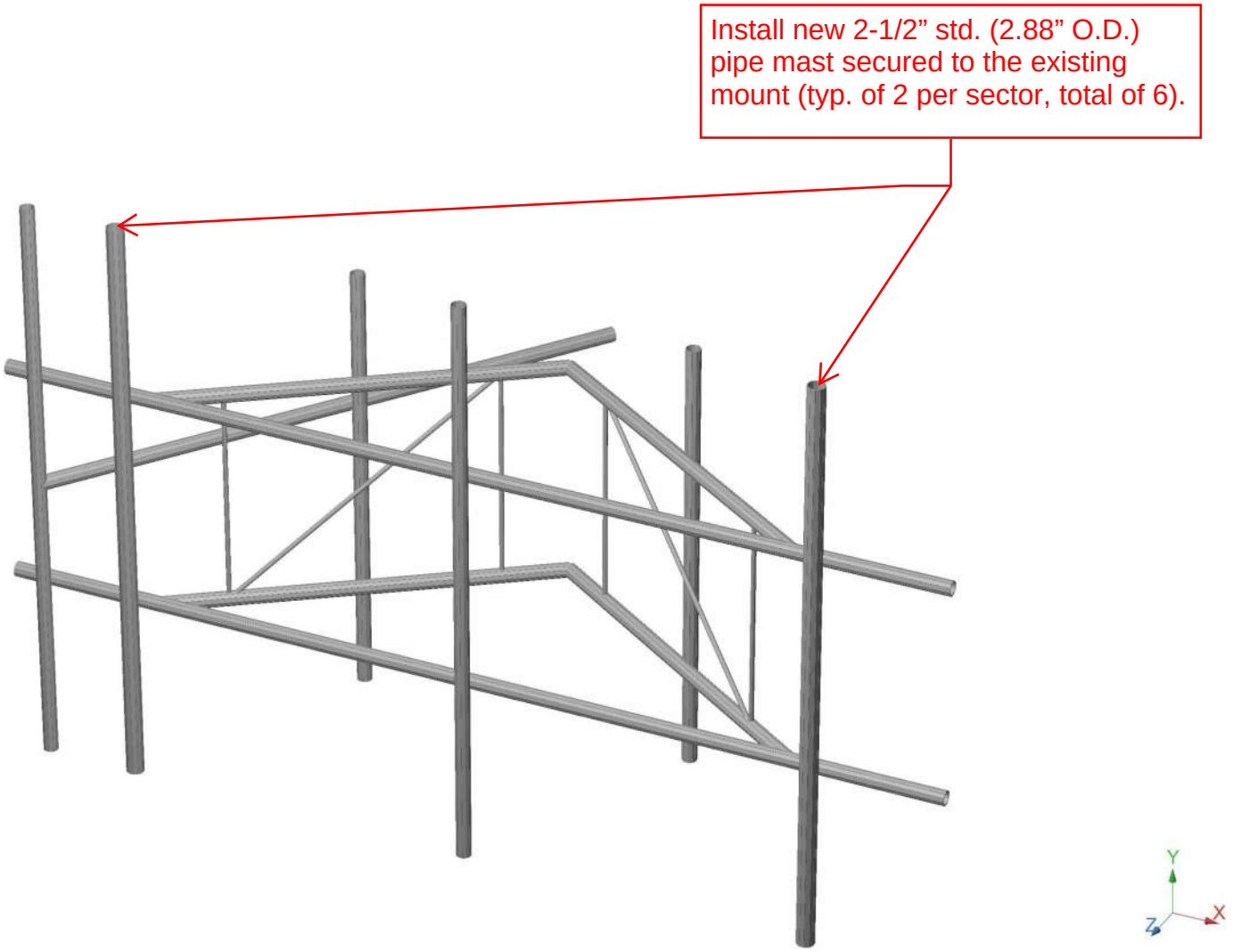
LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
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

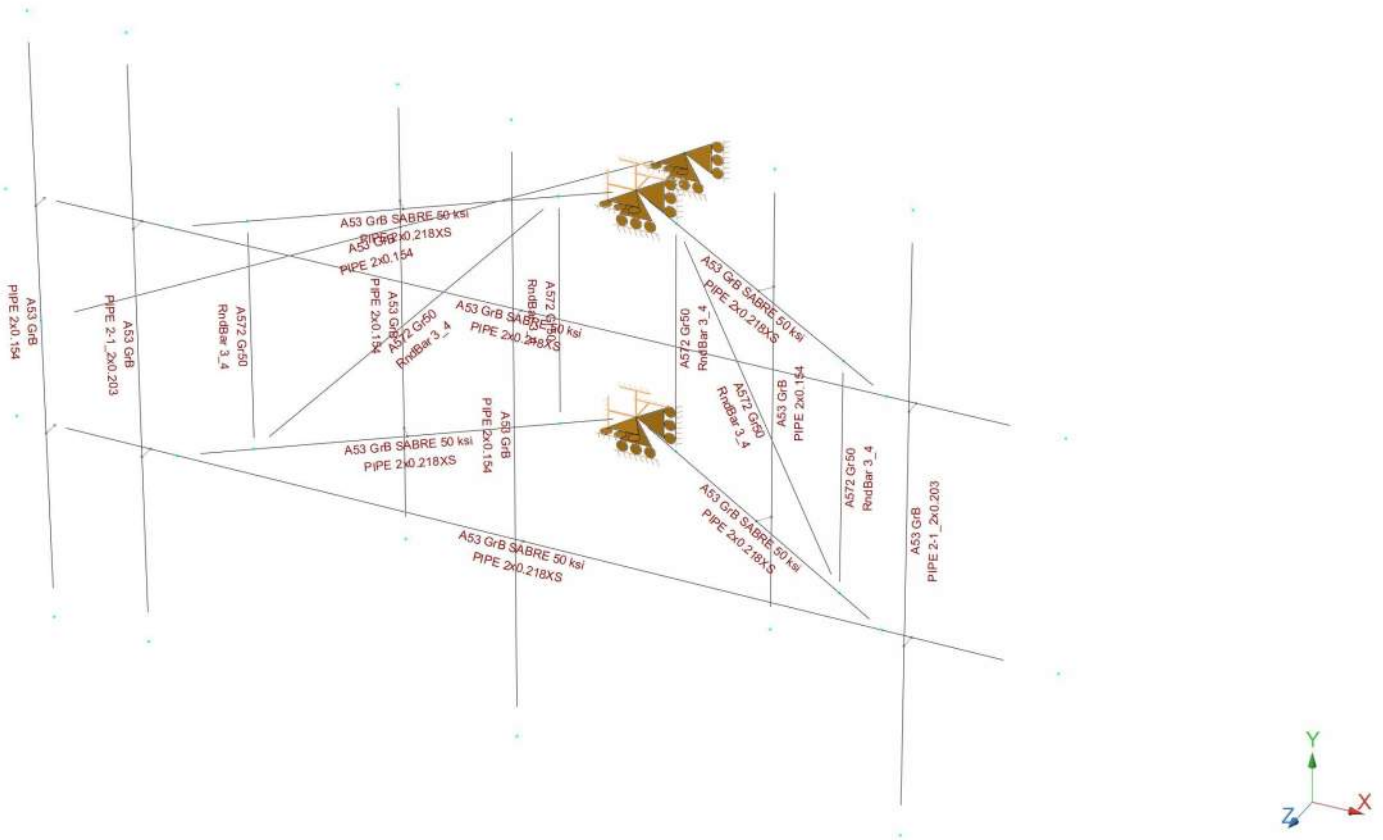
LC54=1.2D+WL30+1.5LLa2
LC55=1.2D+WL60+1.5LLa2
LC56=1.2D+WL90+1.5LLa2
LC57=1.2D+WL120+1.5LLa2
LC58=1.2D+WL150+1.5LLa2
LC59=1.2D-WL0+1.5LLa2
LC60=1.2D-WL30+1.5LLa2
LC61=1.2D-WL60+1.5LLa2
LC62=1.2D-WL90+1.5LLa2
LC63=1.2D-WL120+1.5LLa2
LC64=1.2D-WL150+1.5LLa2
LC65=1.2D+WL0+1.5LLa3
LC66=1.2D+WL30+1.5LLa3
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

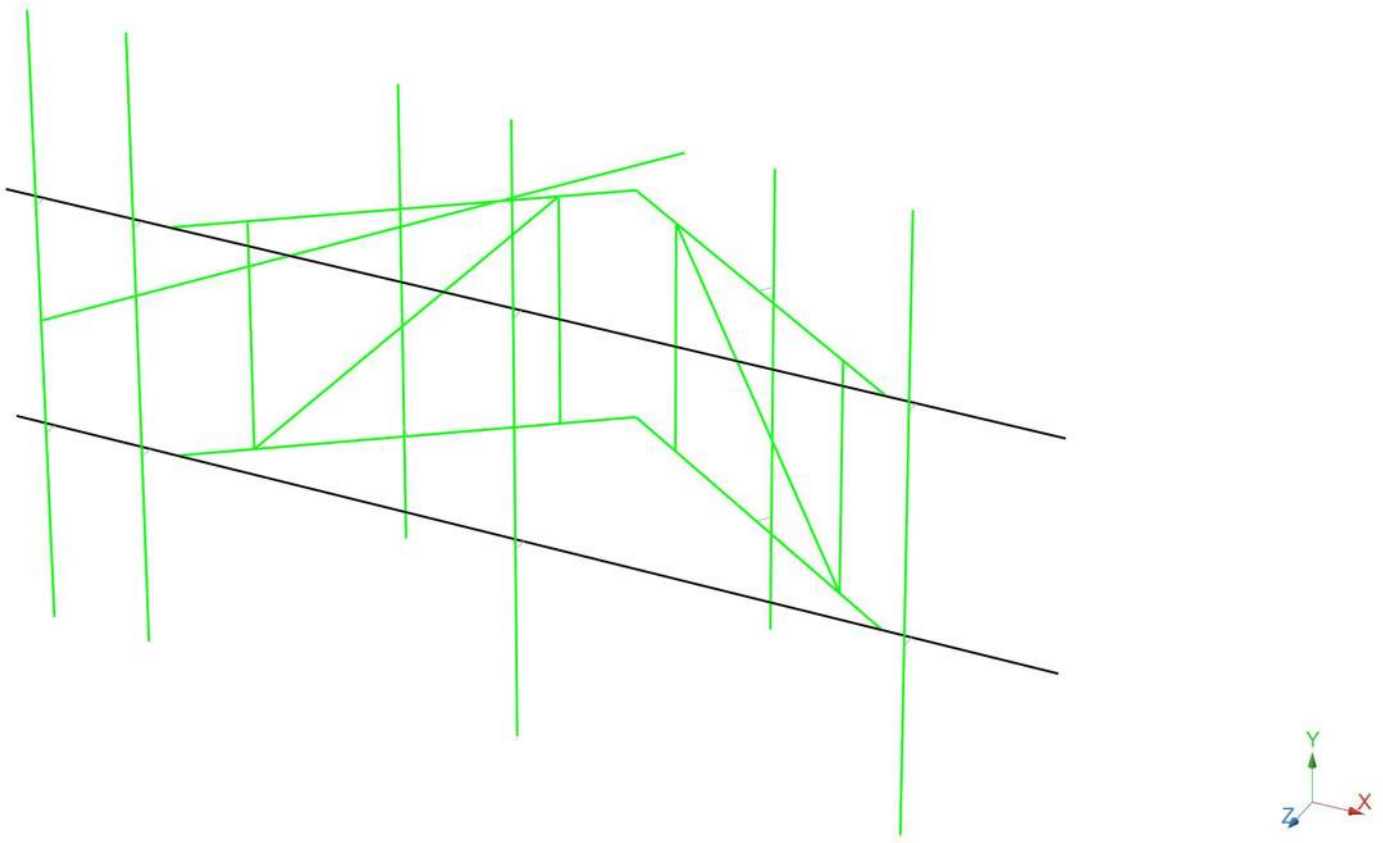
Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2x0.154	**26**	LC19 at 68.75%	**1.10**	**N.G.**	Eq. H1-1b
		27	LC7 at 31.25%	0.21	OK	Eq. H1-1b
		28	LC7 at 68.75%	1.04	N.G.	Eq. H1-1b
		29	LC2 at 50.00%	0.83	OK	Eq. H1-1b
		32	LC4 at 43.75%	0.17	OK	Eq. H1-1b
		37	LC7 at 25.00%	0.10	OK	Eq. H1-1b
		38	LC7 at 25.00%	0.12	OK	Eq. H1-1b
	PIPE 2x0.218XS	**3**	LC12 at 16.07%	**0.47**	**With warnings**	Eq. H1-1b
		4	LC8 at 100.00%	0.45	OK	Eq. H1-1b
		5	LC36 at 100.00%	0.31	OK	Eq. H1-1b
		8	LC6 at 16.07%	0.42	With warnings	Eq. H1-1b
		9	LC2 at 100.00%	0.45	OK	Eq. H1-1b
		10	LC30 at 100.00%	0.34	OK	Eq. H1-1b
	RndBar 3_4	**11**	LC84 at 0.00%	0.40	OK	Eq. H1-1a
		12	LC28 at 100.00%	0.46	OK	Eq. H1-1a
		13	LC1 at 100.00%	**0.56**	**OK**	Eq. H1-1a
		14	LC2 at 0.00%	0.53	OK	Eq. H1-1a
		15	LC82 at 0.00%	0.19	OK	Eq. Sec. D2
		16	LC49 at 0.00%	0.18	OK	Eq. Sec. D2

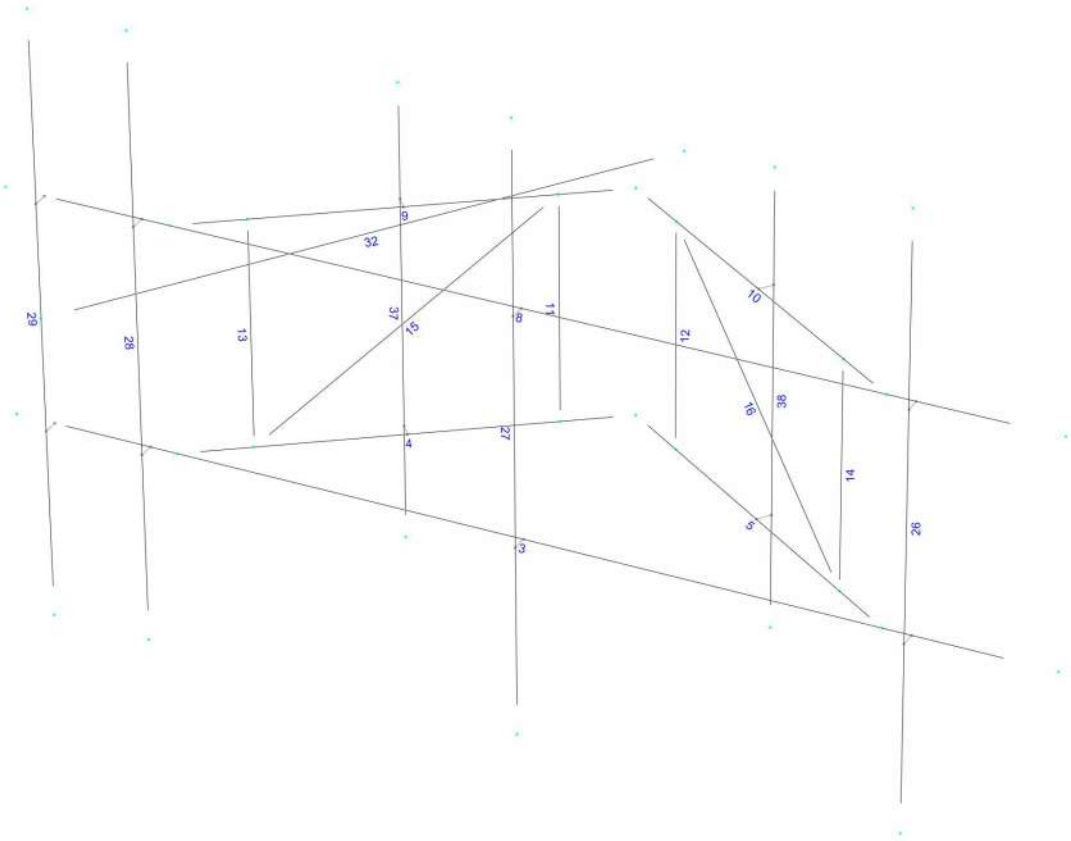
HUDSON
Design Group LLC

Mount Calculations
(Proposed Conditions)


Install new 2-1/2” std. (2.88” O.D.) pipe mast secured to the existing mount (typ. of 2 per sector, total of 6).
Y
X
Z


A53 GrB SABRE 50 ksi
PIPE 2x0.218XS
A53 GrB
PIPE 2x0.154
A572 Gr50
RndBar 3_4
PIPE 2-1_2x0.203
Y
X
Z


Design status
Not designed
Error on design
Design O.K.
With warnings
Y
X
Z


9
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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+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
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
	PIPE 2-1_2x0.203	**26**	LC7 at 68.75%	**0.57**	**OK**	Eq. H1-1b
		28	LC7 at 68.75%	0.54	OK	Eq. H1-1b
	PIPE 2x0.154	**27**	LC7 at 31.25%	0.18	OK	Eq. H1-1b
		29	LC2 at 50.00%	**0.77**	**OK**	Eq. H1-1b
		32	LC4 at 43.75%	0.18	OK	Eq. H1-1b
		37	LC7 at 25.00%	0.08	OK	Eq. H1-1b
		38	LC10 at 50.00%	0.09	OK	Eq. H1-1b
	PIPE 2x0.218XS	**3**	LC11 at 16.07%	0.46	With warnings	Eq. H1-1b
		4	LC10 at 100.00%	0.45	OK	Eq. H1-1b
		5	LC36 at 100.00%	0.31	OK	Eq. H1-1b
		8	LC6 at 16.96%	0.43	With warnings	Eq. H1-1a
		9	LC4 at 100.00%	**0.46**	**OK**	Eq. H1-1b
		10	LC30 at 100.00%	0.34	OK	Eq. H1-1b
	RndBar 3_4	**11**	LC80 at 0.00%	0.40	OK	Eq. H1-1a
		12	LC28 at 100.00%	0.46	OK	Eq. H1-1a
		13	LC25 at 100.00%	**0.48**	**OK**	Eq. H1-1a
		14	LC26 at 0.00%	0.47	OK	Eq. H1-1a
		15	LC82 at 0.00%	0.19	OK	Eq. Sec. D2
		16	LC49 at 0.00%	0.18	OK	Eq. Sec. D2

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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
2	6.50	0.00	0.00	0
3	-6.50	0.00	0.00	0
8	-4.40	0.00	0.00	0
9	4.40	0.00	0.00	0
10	0.00	0.00	-3.00	0
11	-3.6667	0.00	-0.50	0
12	3.6667	0.00	-0.50	0
13	0.7333	0.00	-2.50	0
14	-0.7333	0.00	-2.50	0
16	6.50	3.00	0.00	0
17	-6.50	3.00	0.00	0
22	-4.40	3.00	0.00	0
23	4.40	3.00	0.00	0
24	0.00	3.00	-3.00	0
25	-3.6667	3.00	-0.50	0
26	3.6667	3.00	-0.50	0
27	0.7333	3.00	-2.50	0
28	-0.7333	3.00	-2.50	0
33	-6.00	5.50	0.20	0
34	4.75	5.50	0.20	0
35	-6.00	-2.50	0.20	0

36	4.75	-2.50	0.20	0
42	0.00	5.50	0.20	0
43	0.00	-2.50	0.20	0
48	-4.75	5.50	0.20	0
49	-4.75	-2.50	0.20	0
52	-6.00	1.50	0.20	0
53	-1.00	1.50	-6.50	0
64	-2.32	-1.50	-1.65	0
65	2.32	-1.50	-1.65	0
66	-2.32	4.50	-1.65	0
67	2.32	4.50	-1.65	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
10	1	1	1	1	1	1
24	1	1	1	1	1	1
53	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
3	3	2		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
4	8	10		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
5	9	10		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
8	17	16		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
9	22	24		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
10	23	24		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
11	14	28		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
12	27	13		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
13	25	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
14	12	26		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
15	28	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
16	27	12		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
26	34	36		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
27	42	43		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	48	49		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
29	33	35		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
32	52	53		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
37	66	64		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
38	67	65		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
12	315.00	0	0.00	0.00	0.00
26	315.00	0	0.00	0.00	0.00
27	315.00	0	0.00	0.00	0.00
28	315.00	0	0.00	0.00	0.00
29	315.00	0	0.00	0.00	0.00
37	315.00	0	0.00	0.00	0.00
38	315.00	0	0.00	0.00	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	0	0	0	0	0	0	0	0	0	0	Tension only

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5122
SITE NAME: WETHERSFIELD NORTH

23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	12/29/21	ISSUED FOR CONSTRUCTION	GA	HC	DPH
0	12/01/21	ISSUED FOR REVIEW	GA	HC	DPH
A	10/22/21	ISSUED FOR REVIEW	AM	HC	DPH

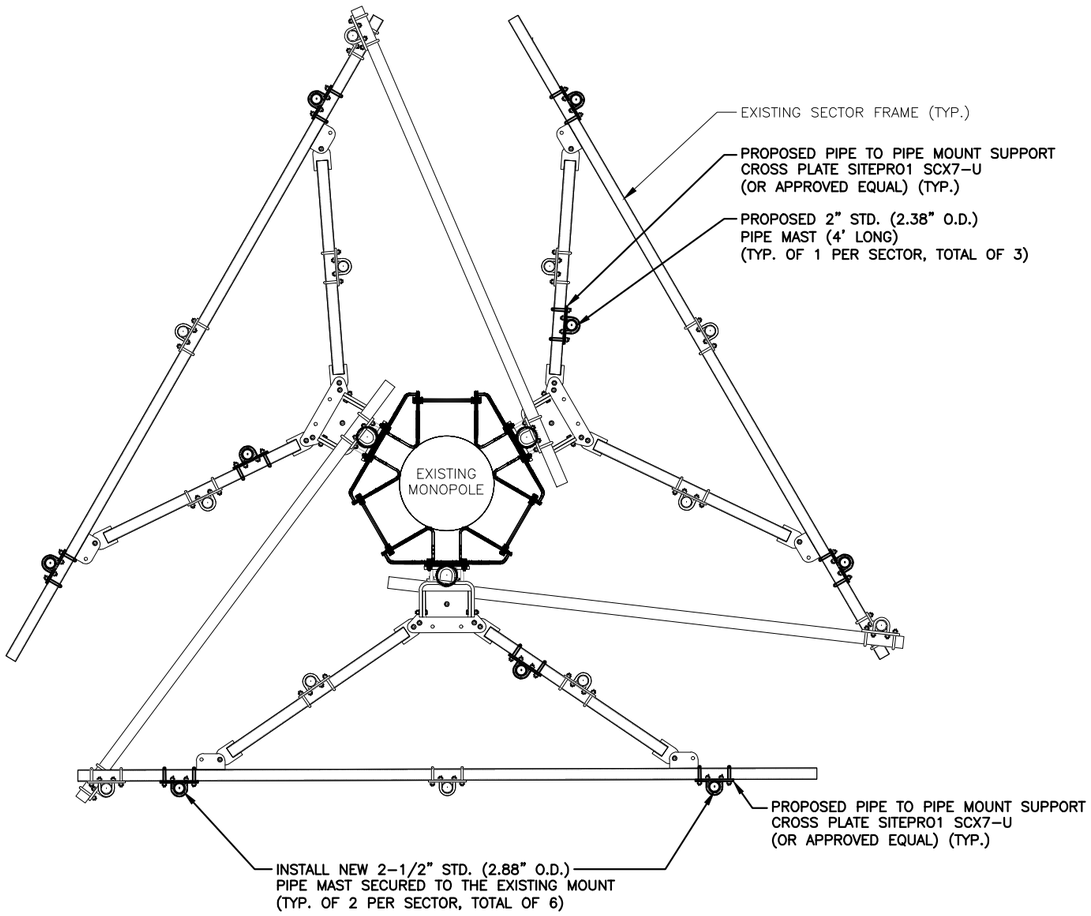
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: AM

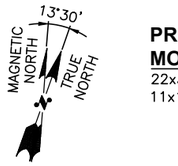
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	SN-1	1





PROPOSED MOUNT MODIFICATIONS PLAN (1 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

NOTE:

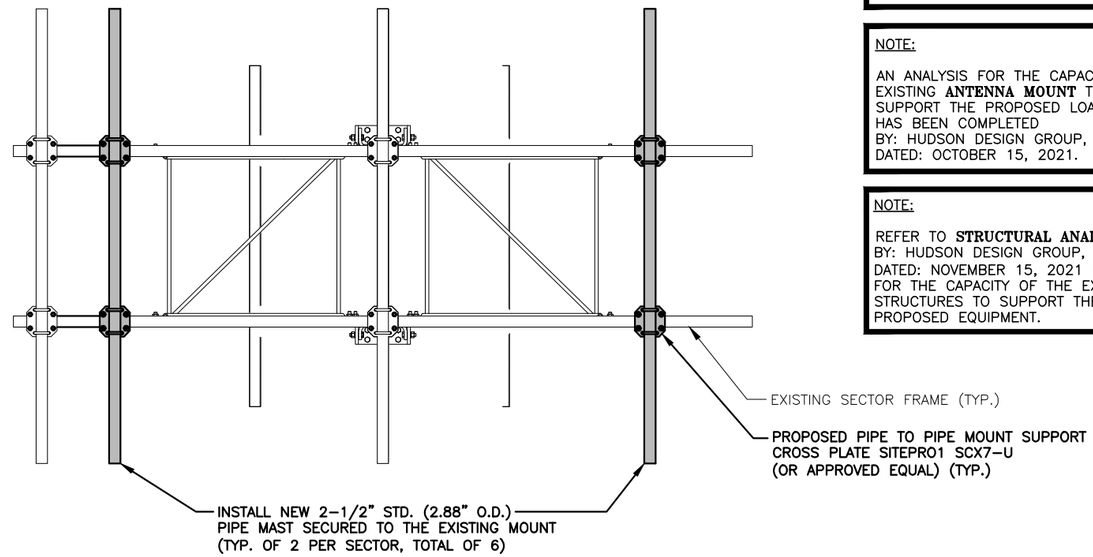
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: OCTOBER 15, 2021.

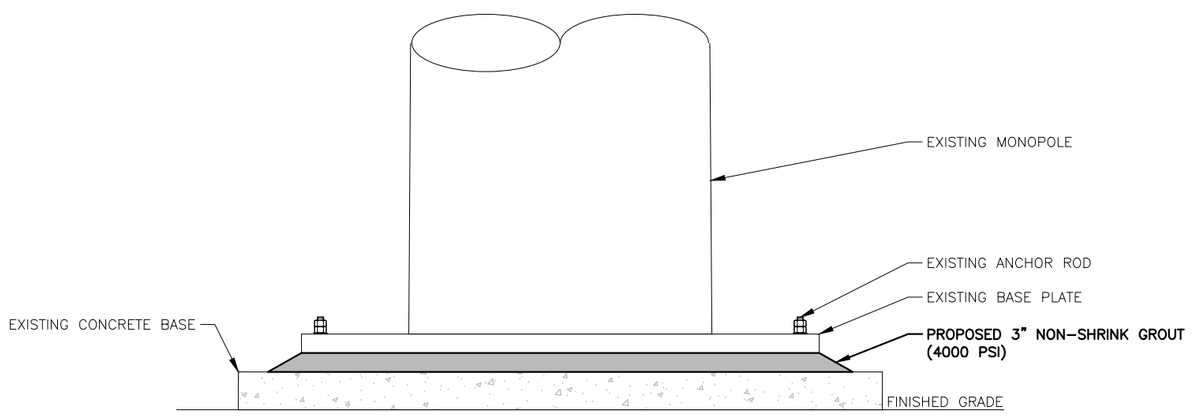
NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: HUDSON DESIGN GROUP, LLC.
DATED: NOVEMBER 15, 2021 (Rev.1)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



PROPOSED MOUNT MODIFICATIONS DETAIL (2 / S-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED REINFORCEMENT DETAIL (3 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

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

12 INDUSTRIAL WAY
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SITE NAME: WETHERSFIELD NORTH

23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: AM

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

AT&T

MOUNT MODIFICATION DESIGN
C-BAND_BBU ADD_LTE 6C_BWE_
TOWER TOP RRH SWAP UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5122	S-1	1

Unique ID: 073060 **Wethersfield** **Card No:** 1of 1

Location:	23 KELLEHER CT	Map/Lot:	073 060	Zone:	A1	Date Printed:	01-20-21
911 Address:		Exempt	X	Nbhd:	C10	Last Update:	01-20-21

Owner Of Record	Volume/Page	Date	Sales Type	Valid	Sale Price
WETHERSFIELD TOWN OF FIREHOUSE #3 FI	0169 /0075	06-25-56		NO	0
23 KELLEHER CT WETHERSFIELD , CT 06109					

Additional Owners:

Prior Owner History					
	/				
	/				
	/				
	/				
	/				

Permit Number	Date	Cost	New Hous	Status	% Comp	Est Completion	Building Permit
B-20-0960	12-29-20	32,500	Yes	Imported Rec	0	01-01-01	Replace 3 existing antennas with 3 new antennas. Replace 2 fiber lines,
B-19-0752	01-31-20	25,000	No	Closed	100	10-01-20	Install 3 antennas, 6 remote radio units, 1 DC surge suppression dome,
B-19-0716	10-22-19	17,500	No	Closed	100	10-01-20	Replace 6 existing antenna & 3 RRU . Remove 3 TMA . Install 25 kw Delta
E-19-0002	01-04-19	1,000	No	Closed	100	06-04-19	UPDATE KITCHEN ELECTRICAL. NEW POWER FOR FRIDGE & MICROWAVE
P-19-0003	01-03-19	1,000	No	Closed	100	06-04-19	INSTALL DISHWASHER, TIE IN WATER LINES
B-18-252	07-31-18	25,000	No	Closed	100	08-27-18	INSTALL 3 ADDITIONAL ANTENNAE, 6 NEW REMOTE RADIO UNITS, NEW SURGE SUPP

Census/Tract	4923
Dev Map	**Dev Lot** 7-18
Date	05/30/2018
Inspector	EQ
Action	Measure

State Item Codes

Code	Quantity	Value	Code	Quantity	Value
21- Comm Land	2.30	133,840			
22-Comm Bldg	1.00	904,310			
25-Comm Outbldg	5.00	498,540			

Appraised Value

Total Land Value	191,200
Total Building Value	1,291,873
Total Outbuilding Value	712,196
Total Market Value	**2,195,269**

Acres

Land Type	Acres	490	Rate	Adj	Influence	Total Value
Primary Site	1.00	0.00	118,800	1.00	50	178,200
Comm Excess	1.30	0.00	10,000	1.00	0	13,000
Total	2.30					191,200

Influence Factors

Land Type	Influence	Reason	Comment
Primary Site	50	Intensive Use	

Assessment History (Prior Years as of Oct 1)

	Current	2019	2018	2017	2016
Land	133,840	133,840	133,840	82,200	82,200
Building	904,310	904,310	904,310	450,000	450,000
Outbuilding	498,540	498,540	498,540	960,100	960,100
Total	**1,536,690**	**1,536,690**	**1,536,690**	**1,492,300**	**1,492,300**

490 Appraised Totals

Type	Acres	Value	Type	Acres	Value
			Totals		

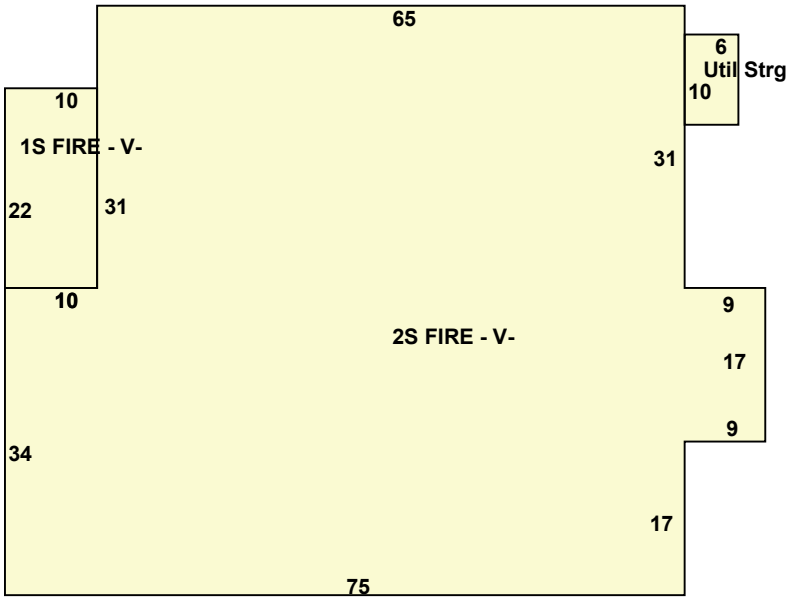
Comments

CELL POLE 4500 MONTH, 8 CAP RATE
2000 GAL DIESEL TANK
CELL TOWER VALUE= 5 SITES@ 3000/MONTH 5X3000X12=180,000 5 X 3000 X 12 = 135,000/.11 = 1,227,250
FIREHOUSE 3
CELL TOWER + EQUIP ON SITE
TOWN OWNS CELL TOWER RESEARCHED 4/2016

Unique ID: 073060 **Wethersfield**

Location:	23 KELLEHER CT	Unit	

Use	Class	Quality	Stry	WH	Area	BG	Units
Fire - Vol	Masonry	A-	2	12	9,436	NO	
Fire - Vol	Masonry	B-	1	12	220	NO	



Commercial Building Description

Building Use	Fire Station -
Class	Masonry
Overall Condition	Good
Construction Quality	B-
Stories	2.00
Year Built	1969
Remodel	
Percent Complete	100
GLA	**9,656**

Basement

Basement Area	
Basement Unfinished Area	

HVAC

Heating Type	Hot Water	
Fuel Type	Natural Gas	
Cooling Type	Central	100 %

Interior

Floors	Vinyl Tile
Walls	Drywall
Wall Height	12

Exterior

Exterior Walls	Brick
Roof Cover	Asphalt

Special Features

Total Building Value

Building 1 **Value** **1,291,873**

Valuation Method C

Description	Area/Qty	Value
Base Value	9,656	1,532,872
Central Air	1,532,872	22,993
Value Before Depr.	0	1,555,865
Depr/Adjust Amount	0	264,497
Final Value (After Depr)	0	1,291,368

Grade Factor	0	**Physical Depreciation %**	17
Functional Depreciation %	0	**Economical Depreciation %**	0

Attached Component Computations

Type	Yr Blt	Condition	Area/Qty	Value
Utility Storage	1969	Good	60	505

Detached Component Computations

Type	Year	Condition	Area/Qty	Value
PreCastConCel	2008	Average	200	8,075
PreCastConCel	2008	Average	240	9,690
PreCastConCel	2008	Average	360	14,535
Paving	1999	Good	3,600	4,896
Cell Tower	2000	Average	1	675,000

Type	Year	Condition	Area/Qty	Value

23 Kelleher CT Tax Map

Property Information

Property ID	073060
Location	23 KELLEHER CT
Owner	WETHERSFIELD TOWN OF

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

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

Geometry updated 11/14/17
Data updated daily

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Town of Wethersfield
505 SILAS DEANE HIGHWAY
WETHERSFIELD, CONNECTICUT 06109

17 April 2002

Mr. Michael J. Turner
Town Engineer
Town of Wethersfield
505 Silas Deane Highway
Wethersfield, Connecticut 06109

Dear Mr. Turner:

Re: Application No. 5694-2002

At a meeting of the Zoning Board of Appeals held on Monday, April 15, 2002, it was unanimously voted that the application seeking variance to erect two equipment shelters and tower in the side yard at 23 Kelleher Court, east side, A-1 Residence Zone, **BE APPROVED AS SUBMITTED.**

A building permit must be obtained from, and all construction is done under the supervision of the Building Inspection Division, Town of Wethersfield.

The effective date of this permission is **April 19, 2002.** *This variance must be recorded with the Town Clerk, Town of Wethersfield immediately after the 15 days from the effective date of this permission. Please come to the Building Department first to pick up the form to be recorded in the Town Clerk's Office.*

Very truly yours,

TOWN OF WETHERSFIELD
ZONING BOARD OF APPEALS
MORRIS R. BOREA, CHAIRMAN

Nancy Azeredo

Nancy Azeredo, Duly Authorized for
Bruce T. Bockstael, Clerk

na
Enc.

Cc: Lee C. Erdmann, Town Manager

WETHERSFIELD ZONING BOARD OF APPEALS
PUBLIC HEARING **April 15, 2002**

The Wethersfield Zoning Board of Appeals held a public hearing on April 15, 2002 at 7:30 PM in the Town Hall, 505 Silas Deane Highway, Wethersfield, Connecticut.

PRESENT: Morris R. Borea, Chairman
Bruce T. Bockstael, Clerk
Frank A. Falvo, Jr.
Thomas J. Vaughan, Jr.
Cynthia Clancy, Alternate

ABSENT: J. Edward Brymer, Jr., Vice Chairman

Also Present: Brian O'Connor, Assistant Building & Zoning Official

Chairman Borea opened the meeting. Before the meeting started, the public was welcomed to speak regarding anything except specific cases in the past or on the night's agenda. There was no one present who wished to speak.

Mr. O'Connor requested that the agenda be taken out of order as the last applicant, (Application No. 5694-2002), has to be at the Town Council Meeting being held in the Council Chambers at the same time as this meeting. Commissioner Bockstael stated that at the end of the meeting the public would again be asked if they would like to speak regarding Application No. 5694-2002 in case there were any late arrivals.

Commissioner Bockstael read the legal notice into the record.

APPLICATION NO. 5694-2002. Town of Wethersfield seeking variance to erect two equipment shelters and tower in the side yard at 23 Kelleher Court, east side, A-1 Residence Zone. (Section 167-75)

Mike Turner, Town Engineer appeared before the Board of behalf of the Town of Wethersfield, seeking variance for the location of the two equipment shelters and antenna tower that they would like to locate at Fire House #3 at 23 Kelleher Court. He stated that this is one of three tower sites that the Town is pursuing as part of the new town wide radio system that they are constructing. Mr. Turner stated that this tower site would be the main tower site where most of the radio equipment would be located.

Mr. Turner stated that the regulations require that any tower be located in the rear yard. He stated that the upper portion of the site by the parking lot is around elevation 130 to 131, the site drops off in the rear to about elevation 102. Therefore the rear portion of the property would require an antenna tower to be built around 29 to 30 feet taller. He stated that this tower site needs to have a clear line of site to the Newington tower, around 30 to 40 feet above of the tree line. Therefore what they are proposing is that the construction of the tower be in the south west corner of the property, with the equipment shelter adjacent to the tower, generally around 10 feet from the tower.

Chairman Borea questioned how high the tower is going to be. Mr. Turner stated 190 feet. Chairman Borea verified that if it were to be put in the rear yard the tower would have to be around 220 feet. Mr. Turner stated that this was correct, adding that anything over 199 feet needs flashing lights, strobe lights, etc.

There were no further questions or comments from the Board.

There was no one in the audience who wished to speak in favor of this application.

The following audience member wished to speak in opposition to this application:

1. Mr. Robert Young, 20 Coppermill Road, Wethersfield, CT – Stated that he feels this location is a bad site and feels that it will bring down the property value of homes in this area, which will in turn bring down his property value. He stated that he also feels that not all the facts were presented to the public.

APPLICATION NO. 5689-2002. Jeannine Steucek seeking variance to erect a 24'X26' detached garage over the building line at 931 Prospect Street, north side, A-1 Residence Zone. (Section 167-114)

Jeannine Steucek, 931 Prospect Street, Wethersfield, CT, appeared before the Board seeking variance to erect a detached garage over the building line. She stated that she has never had a garage but would like a garage for the protection of her car.

April 15, 2002

APPLICATION NO. 5693-2002. Sebastian A. Panioto seeking variance to construct a single car garage and attached entry having less than the required side yard at 95 Mohawk Lane, north side, A Residence Zone. (Section 167-172)

Upon motion made by Commissioner Falvo, Jr., seconded by Chairman Borea and a poll of the Board it was unanimously voted that the above application **BE APPROVED** as submitted.

APPLICATION NO. 5694-2002. Town of Wethersfield seeking variance to erect two equipment shelters and tower in the side yard at 23 Kelleher Court, east side, A-1 Residence Zone. (Section 167-75)

Upon motion made Chairman Borea, seconded by Commissioner Falvo, Jr., and a poll of the Board it was unanimously voted that the above application **BE APPROVED** as submitted.

APPROVAL OF MINUTES

Tabled until next meeting.

ADJOURNMENT

The meeting was adjourned at 8:30PM.

September 26, 2002

Christopher B. Fisher, Esq.
Cuddy & Feder & Worby LLP
90 Maple Avenue
White Plains, NY 10601-5196

RE: **TS-AT&T–159-020823 -** AT&T Wireless PCS, LLC d/b/a AT&T Wireless request for an order to approve tower sharing at an existing telecommunications facility located at 23 Kelleher Court, Wethersfield, Connecticut.

Dear Attorney Fisher:

At a public meeting held September 25, 2002, the Connecticut Siting Council (Council) ruled that the shared use of this tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies which will be used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letters dated August 22, 2002, and August 26, 2002.

Thank you for your attention and cooperation.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/laf

c: Honorable Kitch Breen Czernicki, Mayor, Town of Wethersfield
Stuart B. Popper, Town Planner, Town of Wethersfield

February 24, 2022

SENT VIA EMAIL

Town of Wethersfield
Attn: Hon. Bonnie Therrien
Interim Town Manager
505 Silas Deane Highway
Wethersfield, CT 06109

RE: AT&T Wireless Equipment at: 23 Kelleher Court, Wethersfield, CT
Site #: CT5122 Site Name: Wethersfield North FA Code: 10092829

Dear Ms. Therrien:

SAI Communications is a contractor for New Cingular Wireless PCS, LLC ("AT&T"). In order to maintain AT&T's commitment to the highest standards of service and technology, AT&T will need to make modifications to their equipment at the above referenced wireless communications facility.

Pursuant to the Lease Agreement between New Cingular Wireless PCS, LLC and the Town of Wethersfield, dated July 30, 2002, your consent is required for these modifications. AT&T will be modifying their existing antenna configuration which may include, but is not limited to, adding and/or replacing antennas and ancillary equipment within AT&T's leased premises. The improvements are described in the attached construction drawings by Hudson Design Group LLC, Revision 1, dated, 12/29/21

Please indicate your acknowledgement and consent to AT&T's modifications to its telecommunication facility by signing & dating below. Please email one copy of this letter to me at the email address listed below. Please let me know if you have any questions. Thank you in advance for your prompt attention to this matter.

Sincerely,

Hollis M. Redding

Hollis M. Redding

Site Acquisition
860-834-6964
hredding@saigrp.com
Enclosure

Landlord/Authorized Agent's Consent

Name: Bonnie Therrien

Signature: Bonnie Th

Title: Interim Town Manager

Date: 3-1-22

Telephone: 860-721-2801

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PRIORITY MAIL 2-DAY™

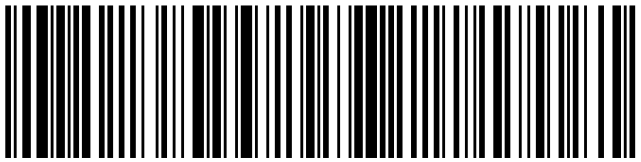
HOLLIS M REDDING
SAI GROUP
12 INDUSTRIAL WAY
SALEM NH 03079-2837

Expected Delivery Date: 04/04/22
Ref#: CT5122
0006

C027

SHIP TO: MS. THERRIN, INTERIM TOWN MANAGER MS.
TOWN OF WETHERSFIELD TOWN HALL
505 SILAS DEANE HWY
WETHERSFIELD CT 06109-2216

USPS TRACKING #



9405 5036 9930 0208 4311 55

Electronic Rate Approved #038555749

Cut on dotted line.

From: auto-reply@usps.com
Sent: Thursday, March 31, 2022 4:02 PM
To: Hollis Redding
Subject: USPS® Expected Delivery by Friday, April 1, 2022 arriving by 9:00pm 9405503699300208431155

UNITED STATES POSTAL SERVICE®

Hello **HOLLIS M REDDING**,

Your item was accepted at 3:04 pm on March 31, 2022 in MERIDEN, CT 06450.

Tracking Number: **9405503699300208431155**

Expected Delivery By

Fri
1
Apr

By 9:00pm

Tracking & Delivery Options

My Account

Visit **USPS Tracking**® to check the most up-to-date status of your package. Sign up for **Informed Delivery**® to digitally preview the address side of your incoming letter-sized mail and manage your packages scheduled to arrive soon! To update how frequently you receive emails from USPS, log in to your **USPS.com** account.