STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
Web Site: portal.ct.gov/csc

VIA ELECTRONIC MAIL

August 31, 2022

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
hredding@saigrp.com

RE: **EM-CING-099-220728** – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 39 Ciro Road, North Branford, Connecticut.

Dear Ms. Redding:

The Connecticut Siting Council (Council) is in receipt of your correspondence of August 24, 2022 submitted in response to the Council's August 24, 2022 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/RDM/emr

From: Hollis Redding <HRedding@saigrp.com>
Sent: Wednesday, August 24, 2022 2:41 PM
To: Robidoux, Evan <Evan.Robidoux@ct.gov>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: RE: Council Incomplete Letter for EM-CING-099-220728 (39 Ciro Road, North Branford)

Hi Evan-

Here is the correct MPE report for North Branford. I will get the hard copy over to the CSC tomorrow. I'm so sorry for my mistake. Please let me know if you have any questions. Hollis

Hollis M. Redding
Site Acquisition Specialist
860-834-6964

July 26, 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 CT5639
39 Ciro Road, North Branford, CT 06471 (the "Property")
Latitude: 41.3310919 N Longitude: 72.7561989 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 147' level on the existing 170' monopole tower ("Tower") at 39 Ciro Road, North Branford, CT. The Tower is owned by SBA Properties, LLC and the property is owned by Joseph J. Casagrande, Jr. The AT&T intends to modify its facility by removing all (9) antennas and adding (3) AIR6449 B77D at the 145'2" level, (3) OPA65R-BU6DA antennas & (3) TPA65R-BU6DA-K antennas at the 147' level and (3) AIR6419 B77G antennas at the 148'8" level of the tower. The AIR6649 B77D & AIR6419 B77G antennas are stacked one on top of the other. The height of AT&Ts existing antennas is 147'and proposed antennas is 145'2", 147' & 148'8" on the Tower.

This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The Zoning Board of Appeals for the Town of North Branford granted a Variance for the Tower on June 18, 2001. AT&T received CT Siting Council approval under Petition 564 on June 25, 2002. There were no conditions that could be feasibility be violated by this modification, including total facility height and mounting restrictions. The AT&T modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent the Mr. Michael T. Paulhus, Town Manager, Town of North Branford, Mr. Eric Knapp, Planning & Zoning Administrator/Town Planner, Town of North Branford, Mr. Joseph J. Casagrande, Jr, the property owner and SBA Properties, LLC, the tower owner.

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:
Mr. Michael T. Paulhus, Town Manager, Town of North Branford, chief executive officer
Mr. Eric Knapp, Planning & Zoning Administrator/Town Planner, Town of North Branford
Mr. Joseph J. Casagrande, Jr, the property owner
SBA Properties, LLC, the tower owner

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

Calculated Radio Frequency Exposure

CT5639

39 Ciro Road, North Branford, CT

June 21, 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 AT&T antenna arrays on the existing monopole located at 39 Ciro Road in North Branford, CT. The coordinates of the existing monopole are 41-19-51.93 N, 72-45-22.31 W

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) per sector) to support its commercial LTE 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 05/25/22.

3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65:

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

Where:

ERP = Effective Radiated Power

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

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 to the existing monopole facility 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
T-Mobile	167	2100	2	2334	0.0648	1.0000	0.65%
T-Mobile	167	2100	2	725	0.0201	1.0000	0.20%
T-Mobile	167	1900	2	1167	0.0324	1.0000	0.32%
T-Mobile	167	1900	2	1167	0.0324	1.0000	0.32%
T-Mobile	167	700	1	865	0.0120	0.4667	0.26%
Sprint	137	1900	2	13	0.0005	1.0000	0.01%
Sprint	137	850	1	12	0.0003	0.5667	0.00%
Sprint	137	2500	2	13	0.0005	1.0000	0.01%
Nextel	157	851	12	100	0.0189	0.5673	0.33%
AT&T	147	739	2	2234	0.0081	0.4927	1.64%
AT&T	147	763	2	2183	0.0079	0.5087	1.55%
AT&T	147	885	1	2565	0.0046	0.5900	0.79%
AT&T	147	1900	3	4888	0.0265	1.0000	2.65%
AT&T	147	2100	2	7856	0.0284	1.0000	2.84%
AT&T	148.67	3500	1	24286	0.0429	1.0000	4.29%
AT&T	145.16	3500	1	24286	0.0451	1.0000	4.51%
						Total	**20.38%**

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 T-Mobile, Sprint, and Nextel 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 facility 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 for AT&T's equipment is **20.38% 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.

June 21, 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

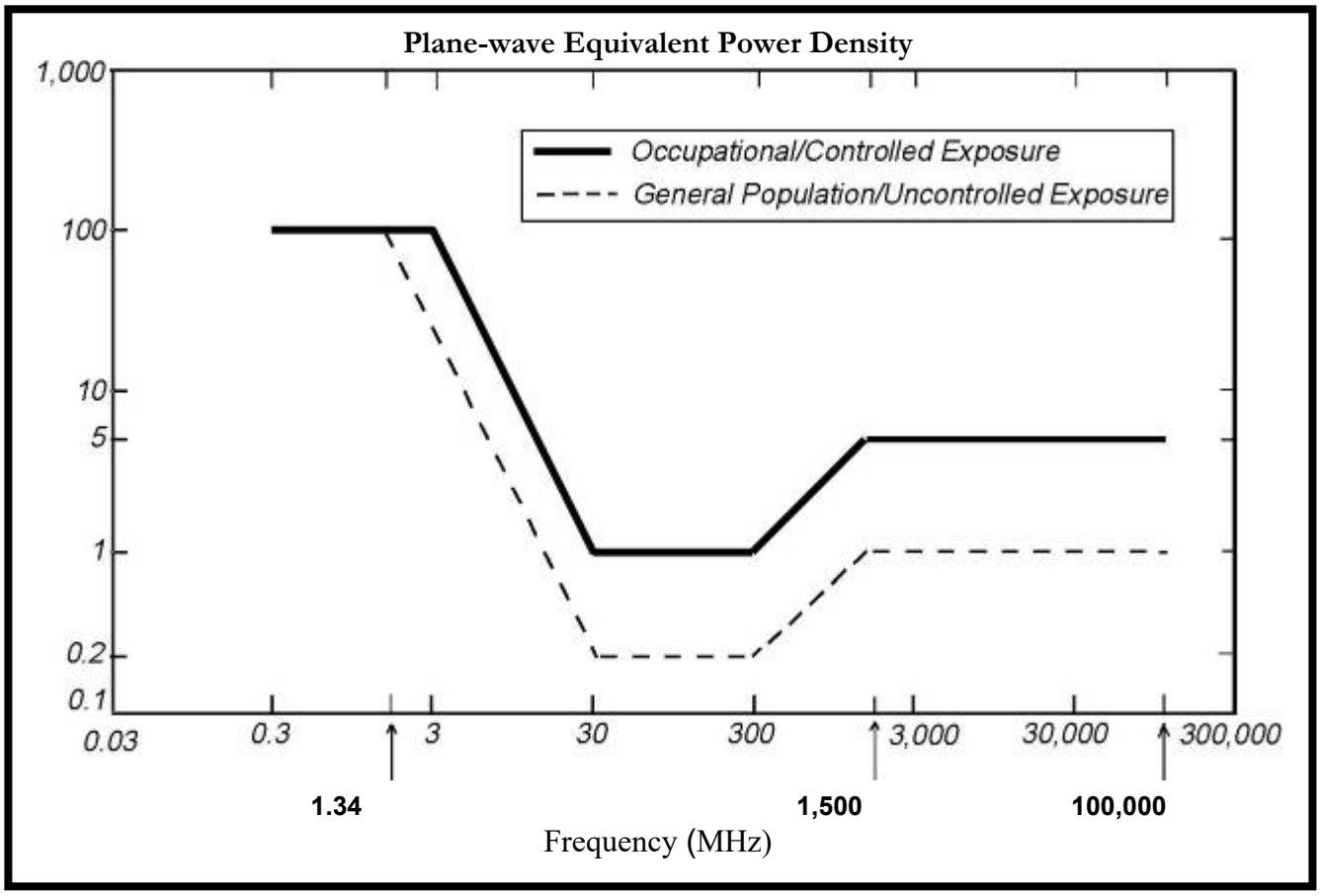
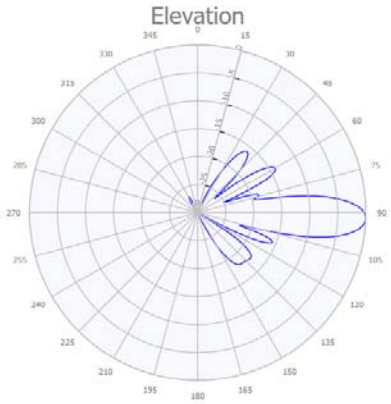
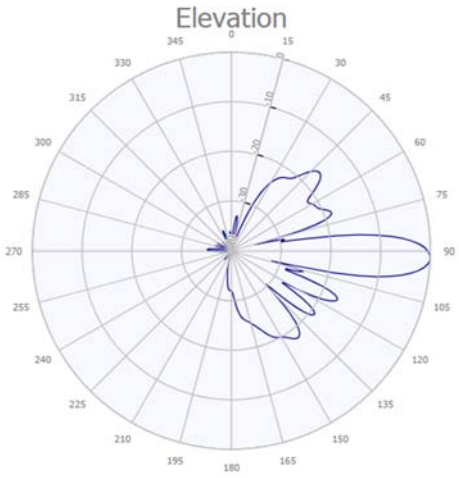
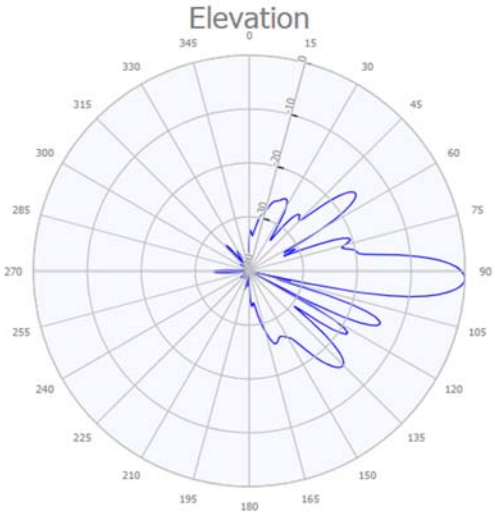
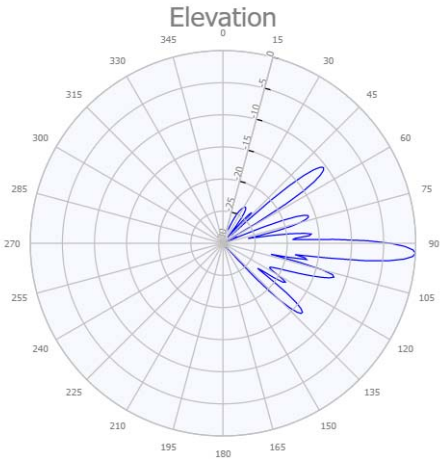
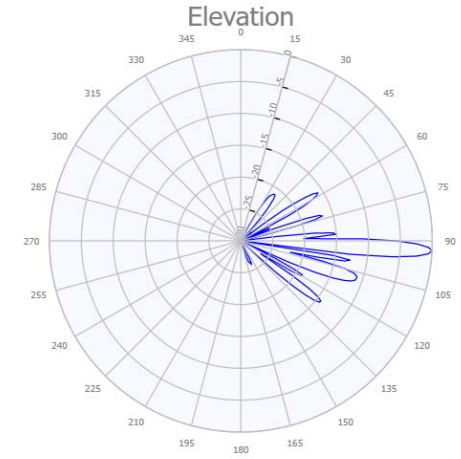


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

700 MHz Manufacturer: CCI Model #: TPA65R-BU6DA-K Frequency Band: 698-806 MHz Gain: 14.5 dBi Vertical Beamwidth: 12.8° Horizontal Beamwidth: 73° Polarization: dual linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
700 MHz Manufacturer: CCI Model #: OPA65R-BU6D Frequency Band: 698-806 MHz Gain: 14.3 dBi Vertical Beamwidth: 12.9° Horizontal Beamwidth: 73° Polarization: dual linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
885 MHz Manufacturer: CCI Model #: OPA65R-BU6D Frequency Band: 824-896 MHz Gain: 15.2 dBi Vertical Beamwidth: 11.1° Horizontal Beamwidth: 64° Polarization: dual linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	

1900 MHz Manufacturer: CCI Model #: TPA65R-BU6DA-K Frequency Band: 1850-1990 MHz Gain: 18.1 dBi Vertical Beamwidth: 5.2° Horizontal Beamwidth: 66° Polarization: dual linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
2100 MHz Manufacturer: CCI Model #: TPA65R-BU6DA-K Frequency Band: 1920-2180 MHz Gain: 18.4 dBi Vertical Beamwidth: 4.8° Horizontal Beamwidth: 66° Polarization: dual linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 B77D (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: TPA65R-BU6DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: OPA65R-BU6DA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- ADD (6) Y-CABLES.
- PROPOSED MOUNT MODS (SEE S-1 SHEET).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD (1) 6648 +XCEDE CABLE.
- ADD (5) RECTIFIERS.
- NEW AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: 800-10965 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXERS: LGP21901 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T TMA'S: LGP21401 (TYP. OF 2 PER SECTOR, TOTAL OF 6).

ITEMS TO REMAIN:
- (6) RRU'S (2) SURGE ARRESTOR, (4) DC POWER & (2) FIBER.

SITE ADDRESS:	39 CIRO ROAD NORTH BRANFORD, CT 06471
LATITUDE:	41.3310919° N, 41° 19' 51.93" N
LONGITUDE:	72.7561989° W, 72° 45' 22.31" W
TYPE OF SITE:	MONOPOLE / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	170'-0"±
RAD CENTER:	147'-0"± (LTE), 148'-8"± (DOD) & 145'-2"± (C-BAND)
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
A-4	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: CTL05639

SITE NAME: NORTH BRANFORT EAST

FA CODE: 10071170

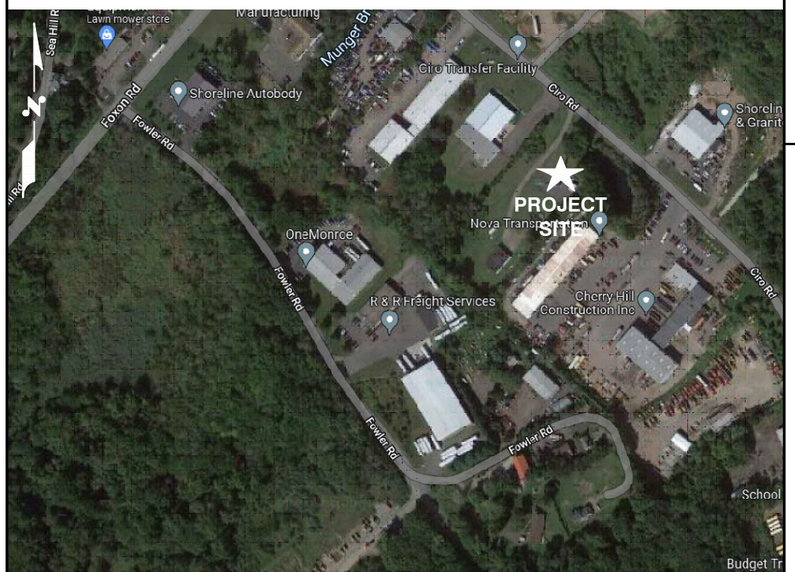
PACE ID: MRCTB055655, MRCTB054011, MRCTB053313, MRCTB055633, MRCTB054367, MRCTB056355

PROJECT: 5G NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

HEAD SOUTHEAST TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO STATE HWY. 411. TURN LEFT TO MERGE ONTO I-91 S. MERGE ONTO I-91 S. TAKE EXIT 14 FOR 1 CENTER ST. TOWARD CT-150/WALLINGFORD. TURN LEFT ONTO E CENTER ST. TURN RIGHT ONTO NORTHFORD ST. CONTINUE ONTO WOODS HILL RD. TURN RIGHT ONTO CT-17 S. CONTINUE ONTO CT-22 E. CONTINUE STRAIGHT TO STAY ON CT-22 E/CT-80 E. TURN RIGHT ONTO CIRO RD.



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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05639
SITE NAME: NORTH BRANFORT EAST

39 CIRO ROAD
NORTH BRANFORD, CT 06471
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/13/22	ISSUED FOR CONSTRUCTION	JJ	HC	DPM
A	06/15/22	ISSUED FOR REVIEW	JJ	HC	DPM

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

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

AT&T

TITLE SHEET
5G NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	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	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	RFS	RADIO ANTENNA		

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12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05639
SITE NAME: NORTH BRANFORT EAST

39 CIRO ROAD
NORTH BRANFORD, CT 06471
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/13/22	ISSUED FOR CONSTRUCTION	JJ	HC	DM
A	06/15/22	ISSUED FOR REVIEW	JJ	HC	DM

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

STATE OF CONNECTICUT
DANIEL O. MAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
CTL05639_NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

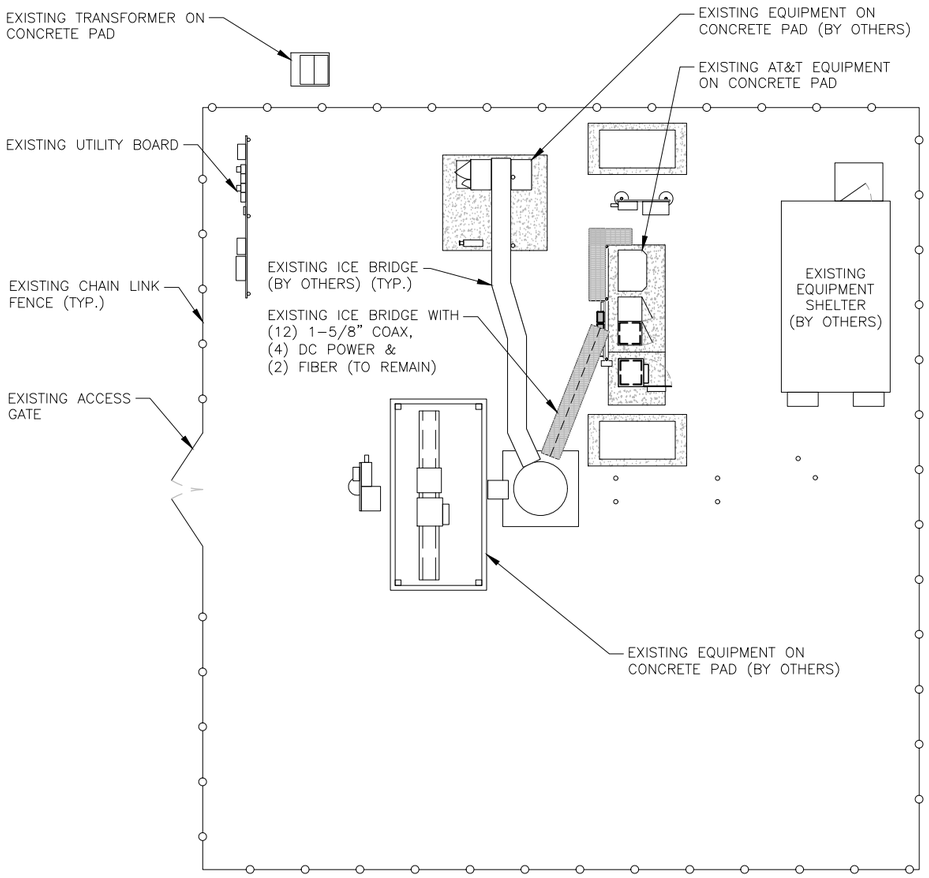
SITE NUMBER	DRAWING NUMBER	REV
CTL05639	GN-1	1

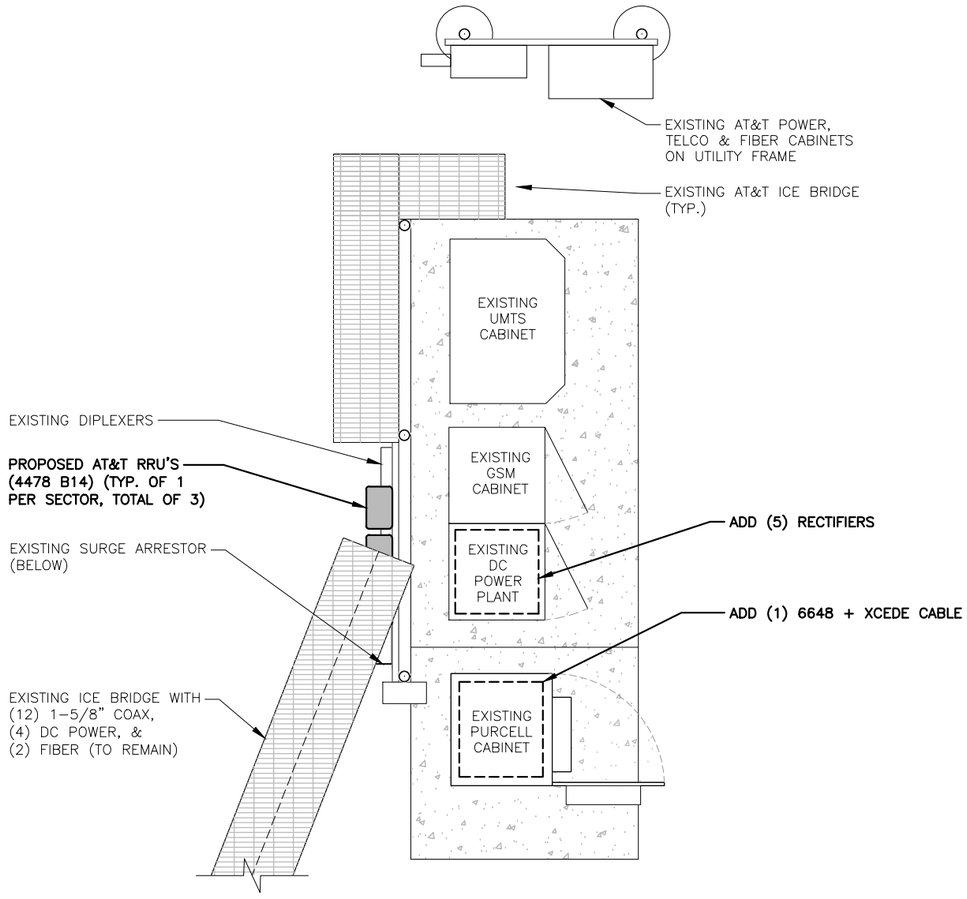
NOTE:

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

NOTE:

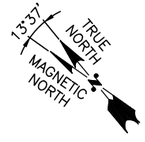
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.





COMPOUND 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: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

0 1'-0" 2'-0" 4'-0" 6'-0"

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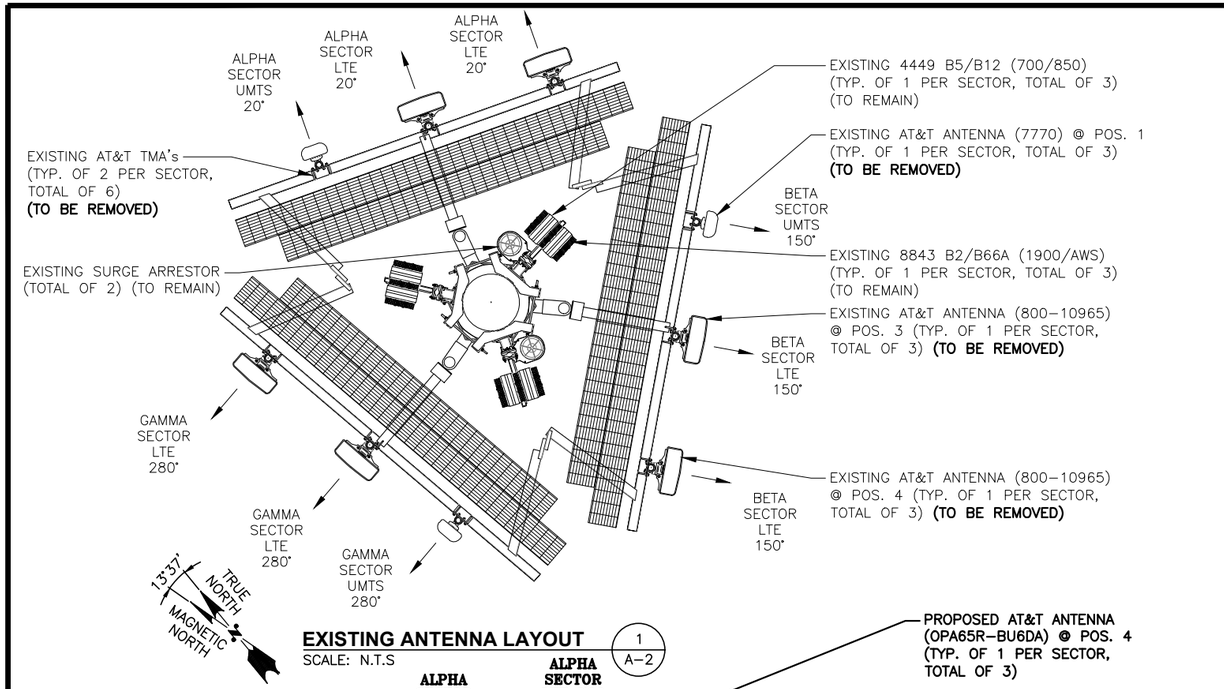
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ

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

AT&T

ROOFTOP & EQUIPMENT PLANS
5G NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

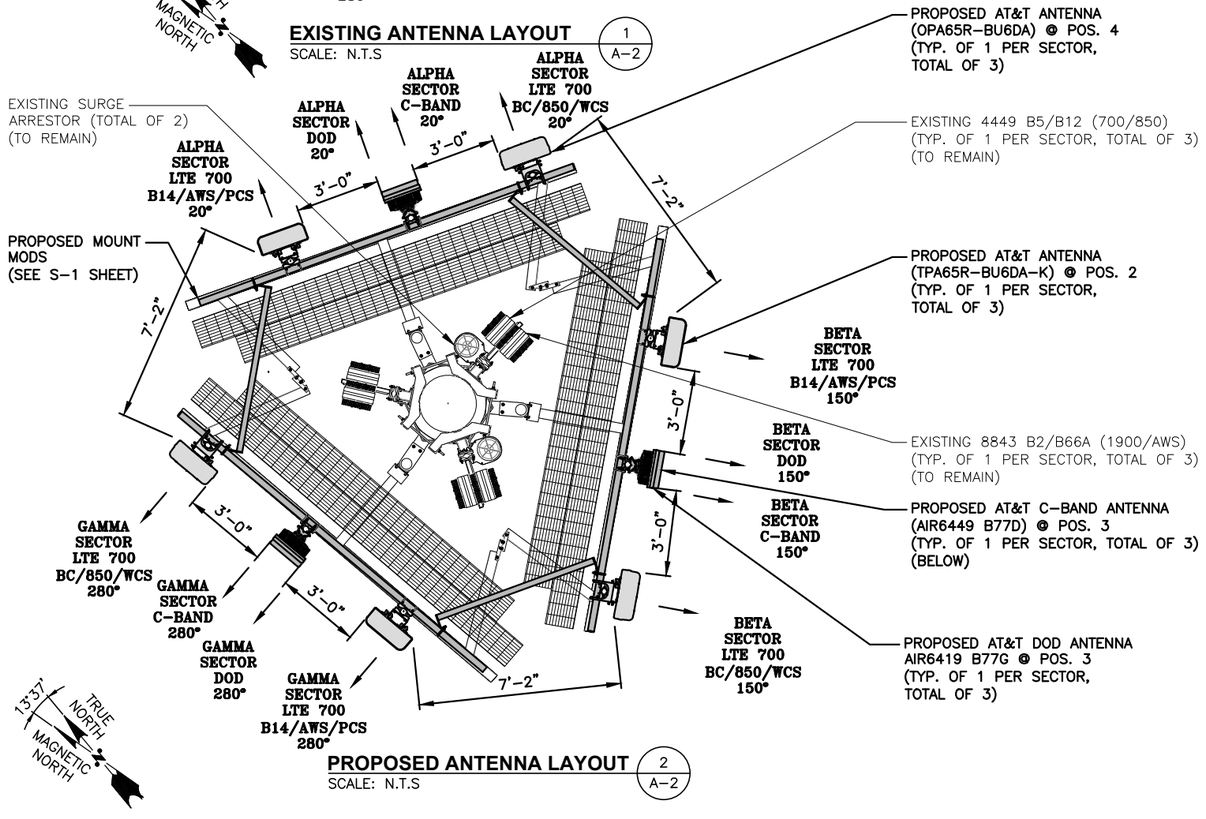
SITE NUMBER	DRAWING NUMBER	REV
CTL05639	A-1	1



EXISTING ANTENNA LAYOUT

SCALE: N.T.S

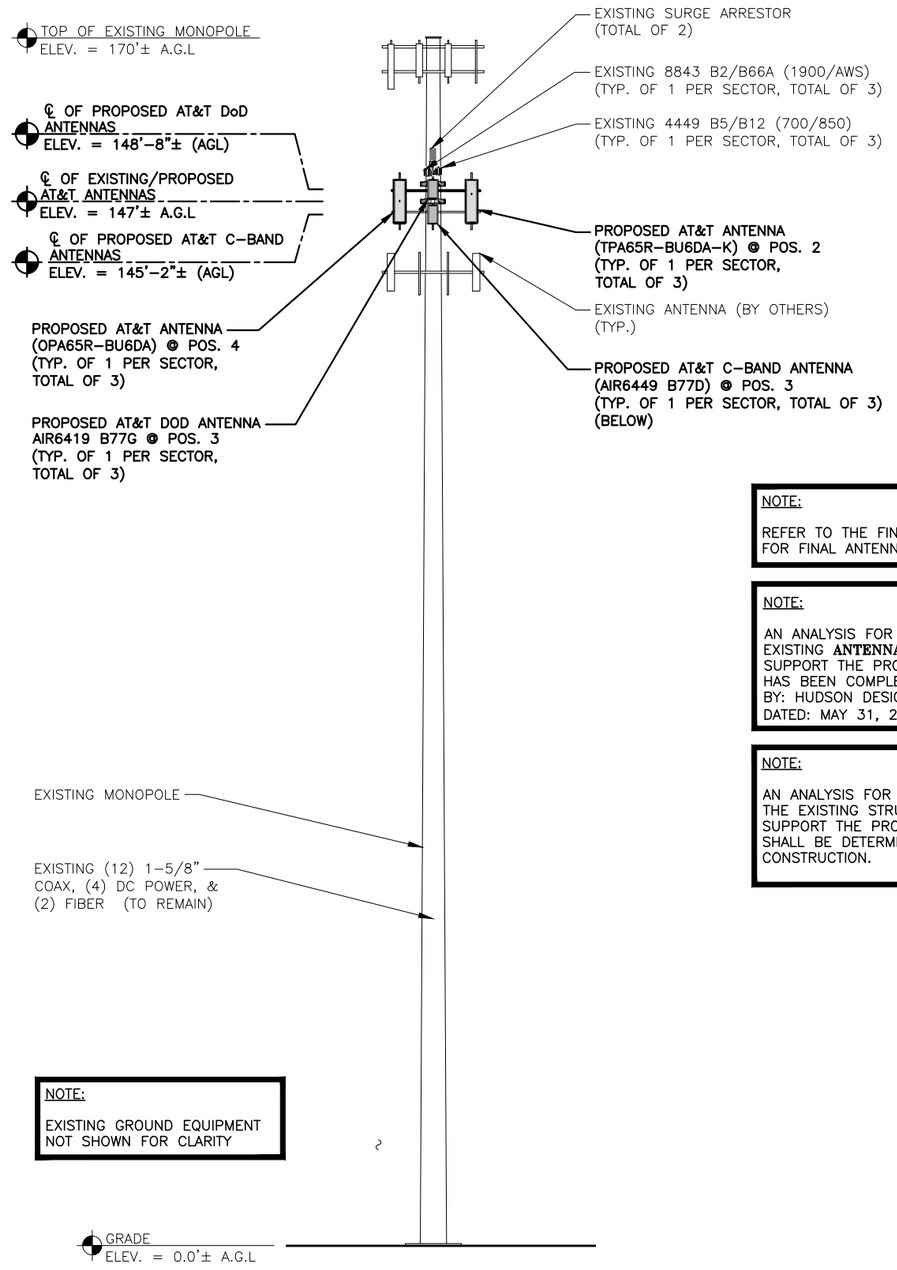
1 / A-2



PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

2 / A-2



NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

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

3 / A-2

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: MAY 31, 2022 (REV.1).

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

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

STATE OF CONNECTICUT
DANIEL B. MAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION
550 NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18
A2	**PROPOSED**	**LTE 700 B14/AWS/PCS**	**TPA65R-BU6DA-K**	**71.2X20.7X7.7**	**147'-0"±**	**150'-0"±**	**20°**	–	(E)(1) 8843 (PCS/AWS) **(P)(1)(G) 4478 B14 (700)**	– **18.1"x13.4"x8.3"**	**(P)(1) Y-CABLE**	
A3	**PROPOSED**	**DOD C-BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1X7.3" 30.6"X15.9"X10.6"**	**148'-8"± 145'-2"±**	**150'-0"± 146'-5"±**	**20°**	–	–	–	(E)(2) DC POWER, (1) FIBER	
A4	**PROPOSED**	LTE 700 BC/850/WCS	**OPA65R-BU6DA**	**71.2X21X7.8**	**147'-0"±**	**150'-0"±**	20°	–	(E)(1) 4449 B5/B12 (850/700)	–	**(P)(1) Y-CABLE**	
B1	–	–	–	–	–	–	–	–	–	–	–	(E) (1) RAYCAP DC6-48-60-18
B2	**PROPOSED**	**LTE 700 B14/AWS/PCS**	**TPA65R-BU6DA-K**	**71.2X20.7X7.7**	**147'-0"±**	**150'-0"±**	**150°**	–	(E)(1) 8843 (PCS/AWS) **(P)(1)(G) 4478 B14 (700)**	– **18.1"x13.4"x8.3"**	**(P)(1) Y-CABLE**	
B3	**PROPOSED**	**DOD C-BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1X7.3" 30.6"X15.9"X10.6"**	**148'-8"± 145'-2"±**	**150'-0"± 146'-5"±**	**150°**	–	–	–	(E)(2) DC POWER, (1) FIBER	
B4	**PROPOSED**	LTE 700 BC/850/WCS	**OPA65R-BU6DA**	**71.2X21X7.8**	147'-0"±	150'-0"±	150°	–	(E)(1) 4449 B5/B12 (850/700)	–	**(P)(1) Y-CABLE**	
C1	–	–	–	–	–	–	–	–	–	–	–	
C2	**PROPOSED**	**LTE 700 B14/AWS/PCS**	**TPA65R-BU6DA-K**	**71.2X20.7X7.7**	**147'-0"±**	**150'-0"±**	**280°**	–	(E)(1) 8843 (PCS/AWS) **(P)(1)(G) 4478 B14 (700)**	– **18.1"x13.4"x8.3"**	**(P)(1) Y-CABLE**	
C3	**PROPOSED**	**DOD C-BAND**	**AIR6419 B77G AIR6449 B77D (STACKED)**	**31.1"X16.1X7.3" 30.6"X15.9"X10.6"**	**148'-8"± 145'-2"±**	**150'-0"± 146'-5"±**	**280°**	–	–	–	–	
C4	**PROPOSED**	LTE 700 BC/850/WCS	**OPA65R-BU6DA**	**71.2X21X7.8**	147'-0"±	150'-0"±	280°	–	(E)(1) 4449 B5/B12 (850/700)	–	**(P)(1) Y-CABLE**	

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: MAY 31, 2022 (REV.1).

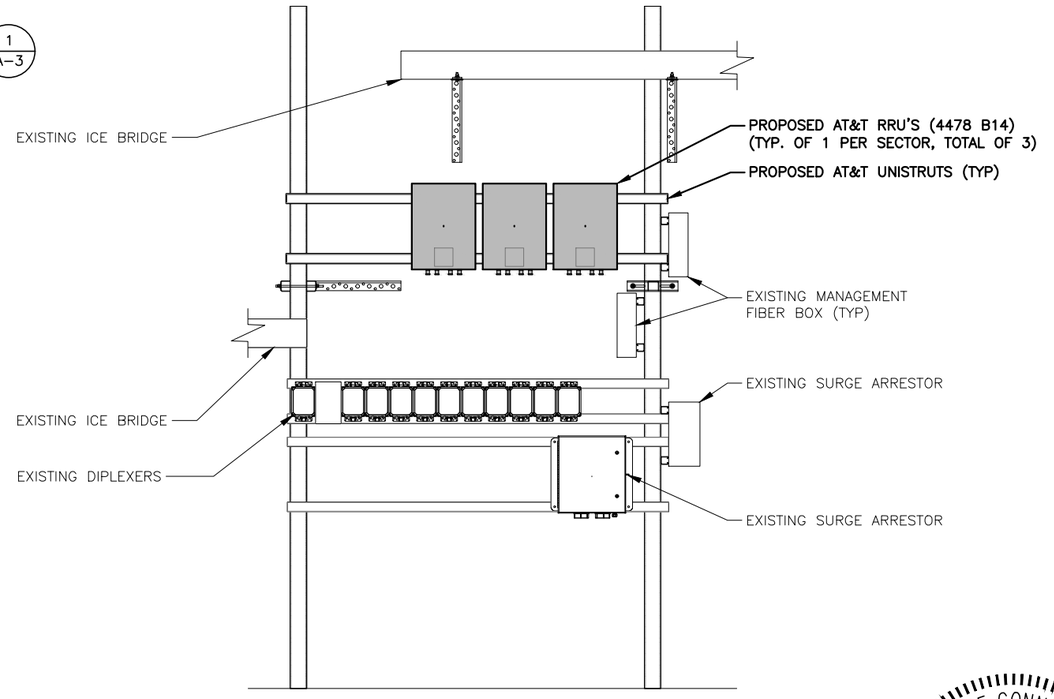
NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

FINAL ANTENNA SCHEDULE

SCALE: N.T.S

1 / A-3



PROPOSED RRUS MOUNTING DETAIL

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

3 / A-3

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

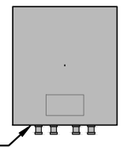
RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
3(E)	4449 (850/700)	17.9"x13.2"x10.4"
3(E)	8843 (PCS/AWS)	14.9"x13.2"x10.9"
3(P)	**4478 B14 (700)**	**18.1"x13.4"x8.3"**

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL

SCALE: N.T.S

2 / A-3

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A	06/15/22	ISSUED FOR REVIEW	JJ	HC	DSH

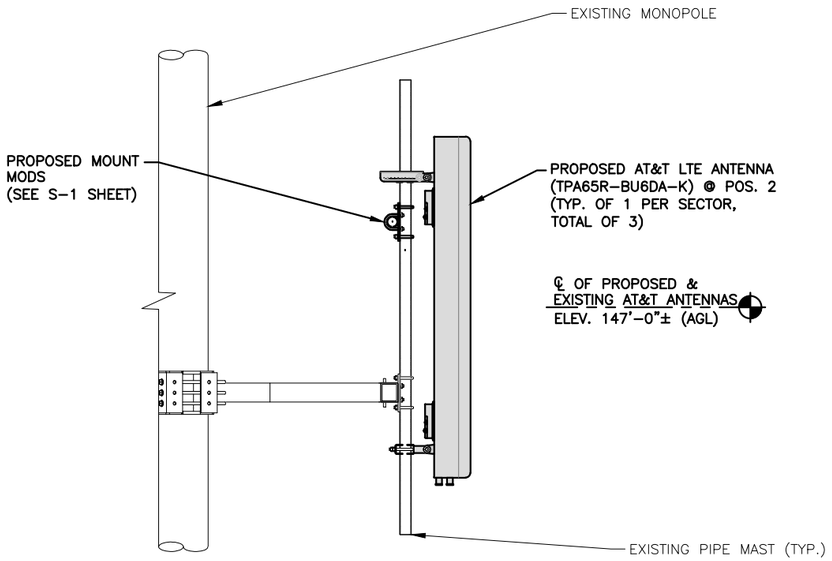
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ

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

AT&T

DETAILS
5G NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

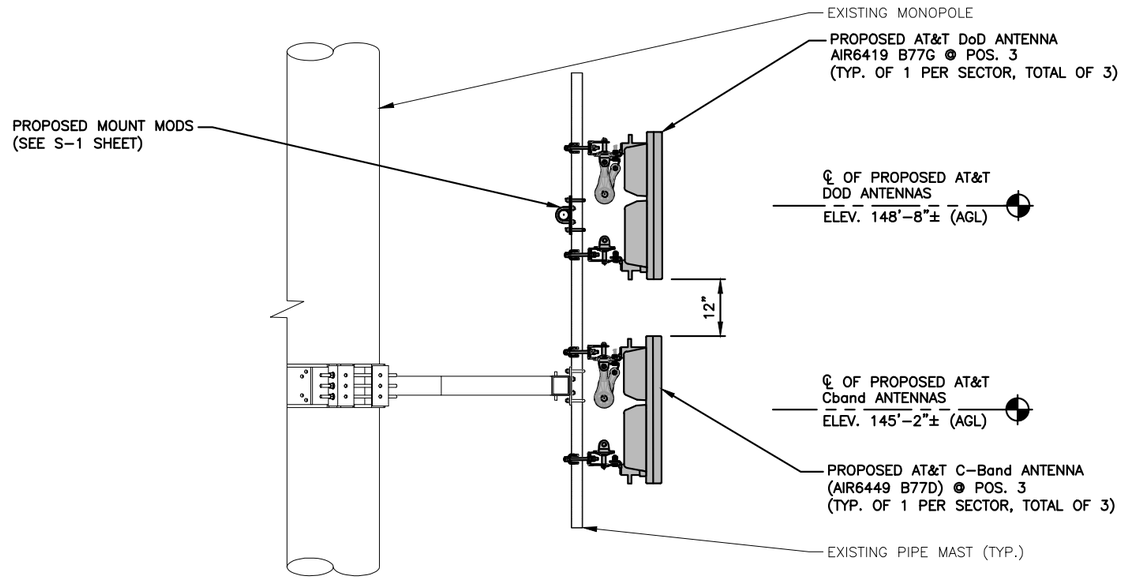
SITE NUMBER	DRAWING NUMBER	REV
CTL05639	A-3	1



PROPOSED LTE ANTENNA MOUNTING DETAIL @POS. 2 (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"

NOTE:

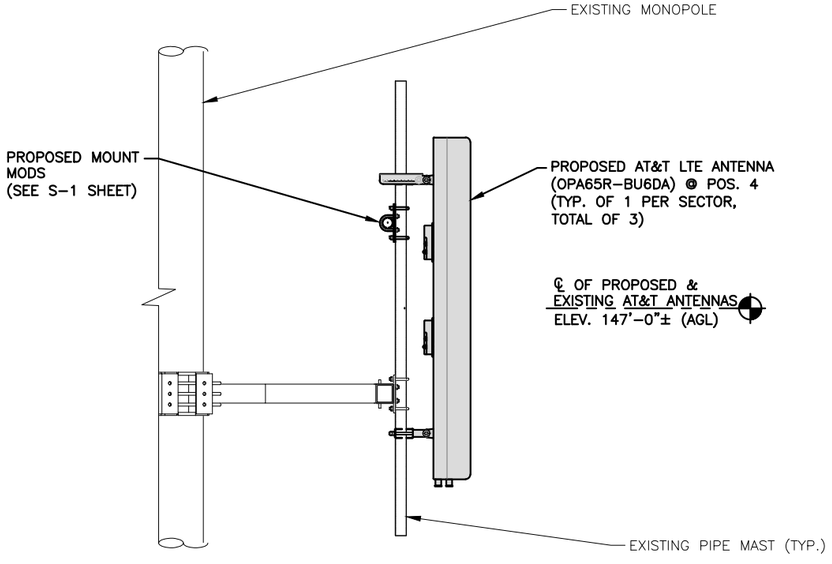
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: MAY 31, 2022 (REV.1).

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 4 (3 / A-4)

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

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

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

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AT&T

DETAILS
5G NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	A-4	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:	

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: CTL05639
SITE NAME: NORTH BRANFORT EAST

39 CIRO ROAD
NORTH BRANFORD, CT 06471
NEW HAVEN COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/13/22	ISSUED FOR CONSTRUCTION	JJ	HC	DPH
A	06/15/22	ISSUED FOR REVIEW	JJ	HC	DPH

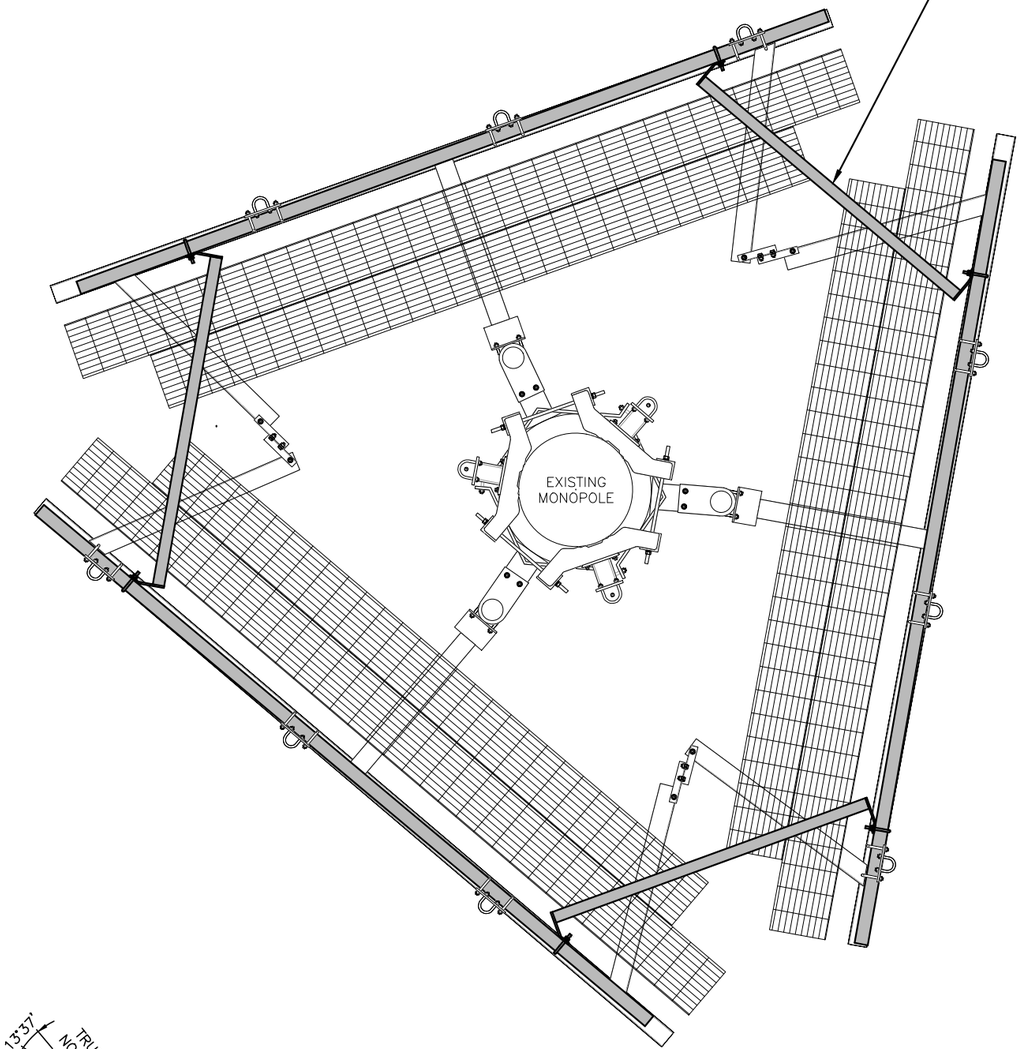
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ

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

AT&T

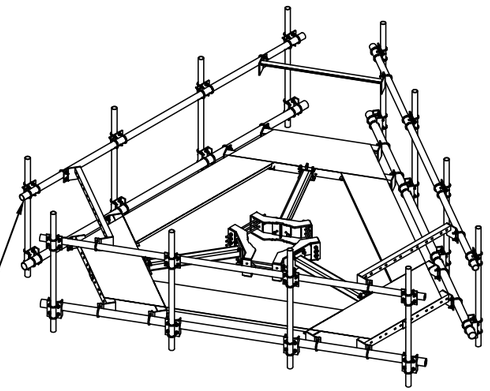
STRUCTURAL NOTES
CTL05639_NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	SN-1	1



INSTALL PROPOSED HANDRAIL KIT, SITEPRO1 P/N HRA14 (OR APPROVAL EQUAL). HANDRAIL KIT IS REQUIRED PER AT&T TECHNICAL DIRECTIVE TO STABILIZE EXISTING CANTILEVERED ANTENNA.

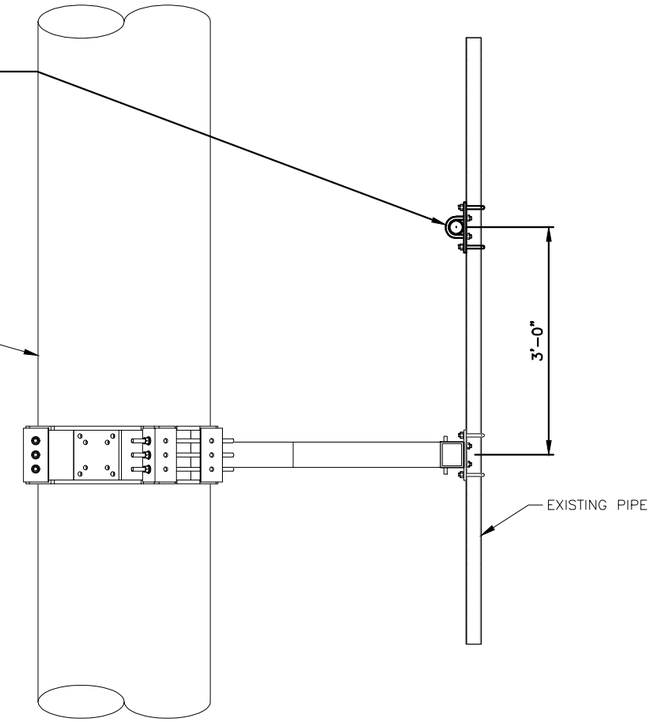
FURNISH AND INSTALL NEW HANDRAIL KIT (SITEPRO1 PART# HRA14)



HANDRAIL KIT DETAIL (3 / S-1)
SCALE: N.T.S

PROPOSED HANDRAIL KIT, SITEPRO1 P/N HRA14 (OR APPROVAL EQUAL). HANDRAIL KIT IS REQUIRED PER AT&T TECHNICAL DIRECTIVE TO STABILIZE EXISTING CANTILEVERED ANTENNA.

EXISTING MONOPOLE



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"

PROPOSED MOUNT MODIFICATIONS DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

0 0'-6" 1'-0" 2'-0" 3'-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: MAY 31, 2022 (REV.1).

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

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A	06/15/22	ISSUED FOR REVIEW	JJ	HC	DH

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

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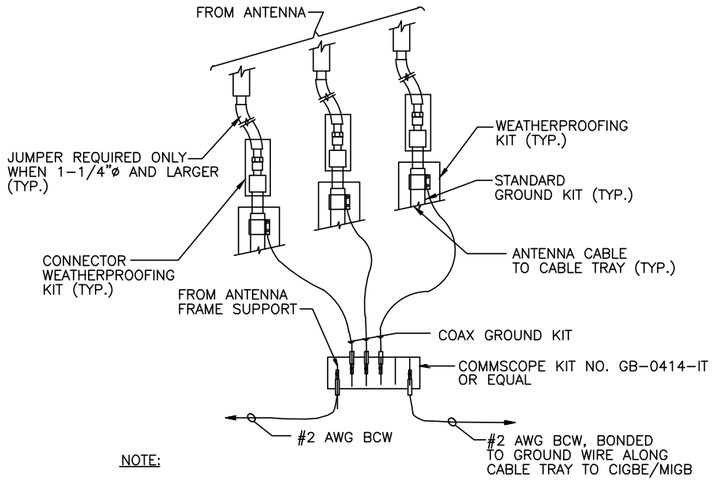
MOUNT MODIFICATION DESIGN
CTL5639_NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	S-1	1

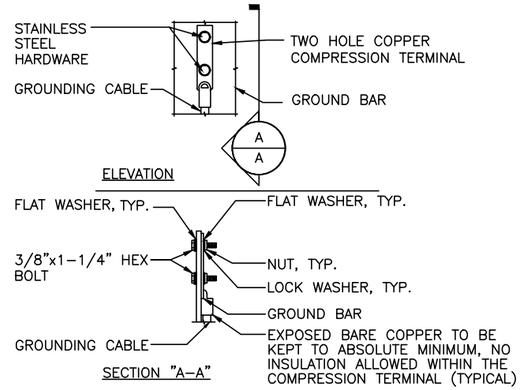


NOTE:

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 (1 / G-1)

SCALE: N.T.S

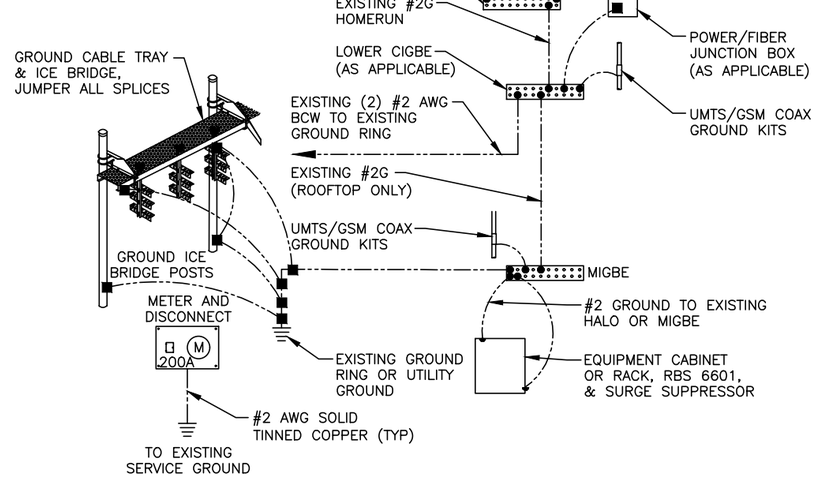


NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S

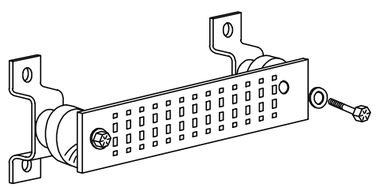
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

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

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

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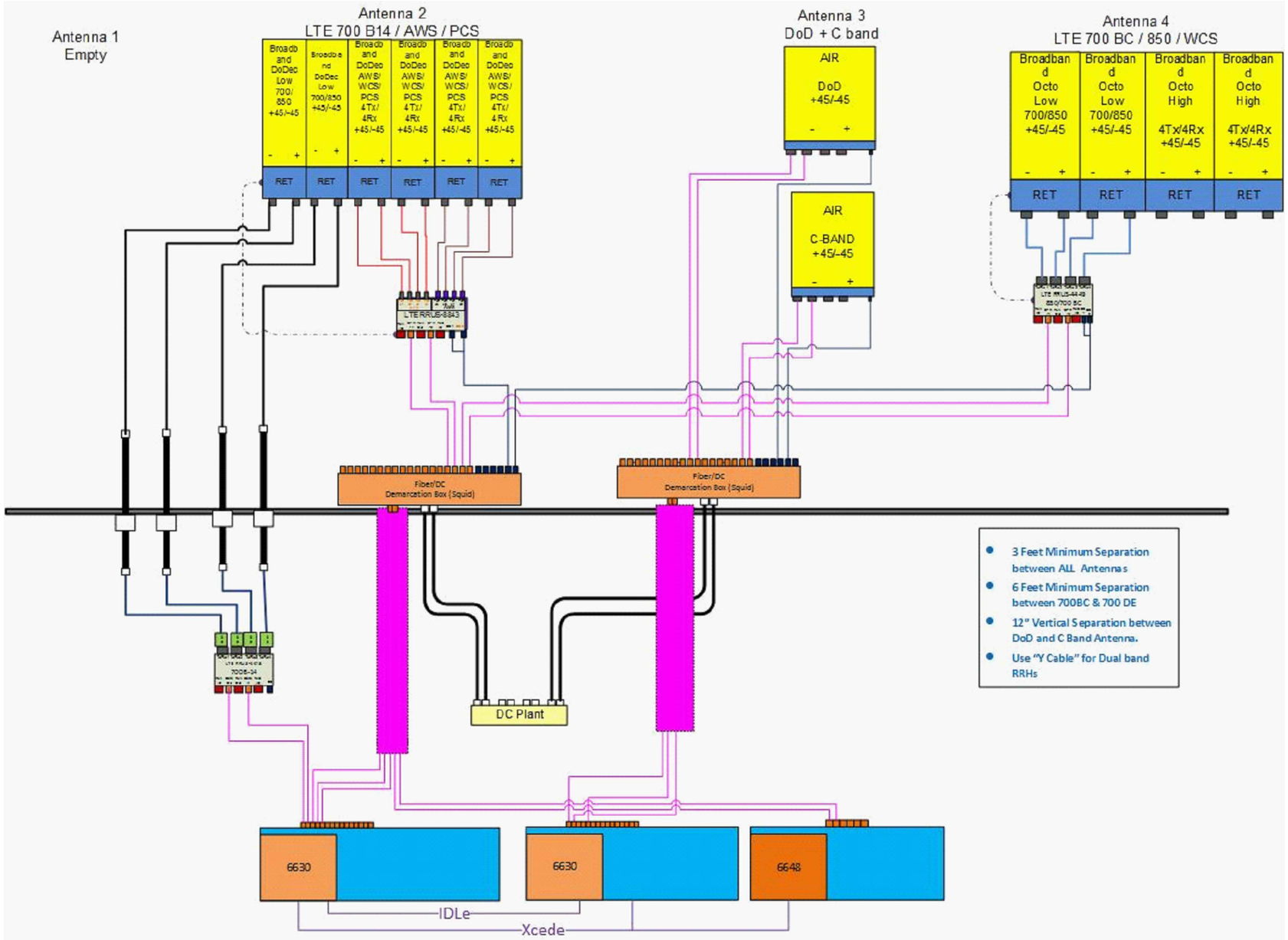
GROUNDING DETAILS
5G NR 1SR S-BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	G-1	1

NOTE:

REV: 1
DATED: 05/25/2022
RFDS ID: 4852134



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.
3. RFDS USED FOR REFERENCE.

NOTE:

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

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

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR S–BAND_BBU RECONFIGURATION_SITE OVERLAY.LTE.5TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05639	RF–1	1

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

Structural Analysis Report

Existing 170 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT04066-S

Customer Site Name: North Branford East

Carrier Name: AT&T (App#: 201260, V#1)

Carrier Site ID / Name: CT5639 / AWE-NORTH BRANFORT

Site Location: 39 Ciro Road

North Branford, Connecticut

New Haven County

Latitude: 41.331060

Longitude: -72.756172

Exp. 01/31/2024

06/24/2022

Analysis Result:

Max Structural Usage: 76.0% [Pass]

Max Foundation Usage: 93.0% [Pass]

Additional Usage Caused by Mount Modification: +1.0%

Report Prepared By: Ikram Efaz

Introduction

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

Sources of Information

Tower Drawings	Fred A. Nudd Corporation, Project # 01-8471-1 Dated 08/08/2001
Foundation Drawing	Fred A. Nudd Corporation, Project # 01-8471-1 Dated 08/08/2001
Geotechnical Report	Jaworski, Project # 01480G Dated 07/23/2001
Modification Drawings	N/A
Mount Analysis	HDG, PT Number #2051A11KN0, dated 05/31/2022 (Rev.1)

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 130.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 101.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.178, S_1 = 0.061

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	167.0	3	Ericsson AIR 21 B2A/B4P - Panel	Low Profile Platform w/ mods	(11) 1 5/8" (1) 1.9" Fiber	T-Mobile
2		3	Ericsson AIR 21 B4A/B2P - Panel			
3		3	Ericsson KRY 112 144/1 - TMA			
4		3	Ericsson 4480 B71 + B85 - RRU			
5	165.0	3	RFS APXVAALL24_43-U-NA20 - Panel			
-	147.0	3	Powerwave 7770 - Panel	Low Profile Platform	(12) 1 5/8" (4) 1/2" DC (1) 2" Conduit (2) 3/8" Fiber (3) 3/8" RET	AT&T*
-		6	Kathrein 800 10965 - Panel			
-		6	Powerwave LGP21402 TMA			
-		6	Powerwave LGP21903 Diplexer			
-		3	Ericsson RRUS 8843 B2 B66A			
-		3	Ericsson RRUS 4449 B5, B12			
-		1	Raycap DC6-48-60-18-8F			
-		1	Raycap DC6-48-60-18-8C			
16	137.0	3	RFS - APXVSPP18-C-A20 - Panel	Low Profile Platform	(3) 1 1/4"	Sprint**
17		3	RFS - APXVTM14-C-I20 - Panel			
18		3	ALU - 800MHz - RRH			
19		3	ALU - 1900MHz - RRH			
20		3	ALU - TD-RRH8x20-25 - RRU			
21		3	ALU - 800MHz Filter			
22		4	RFS - ACU-A20-N - RET			
23	110.0	3	JMA Wireless MX08FRO665-21 - Panel	Platform w/ Hand Rails [(1) Commscope MC-PK8-DSH]	(1) 1.6" Hybrid	Dish Wireless
24		3	Fujitsu TA08025-B605 - RRU			
25		3	Fujitsu TA08025-B604 - RRU			
26		1	Raycap RDIDC-9181-PF-48 - COVP			
27	75.0	1	GPS	(1) Standoff	(1) 1/2"	Sprint

*2" conduit will contain proposed fiber and DC lines

** Sprint is terminated but not yet removed, the loading is included in the current SA.

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
6	149.0	3	Ericsson- AIR6419 B77G - Panel	(1) Andrew MTC3335-Low Profile Platform with MODs (1) SitePro1 HRA14-Handrail Kit]	(12) 1 5/8'' Coax (1) 3/8'' Fiber (2) 1/2" DC (3) 3/8'' RET (1) 2" Conduit [(Housing (1) 3/8" Fiber & (2) 1/2" DC power)]	AT&T
7	147.0	3	Cci- TPA65R-BU6D - Panel			
8		3	Cci- OPA65R-BU6DA - Panel			
9		6	Powerwave- LGP21402- TMA			
10		6	Powerwave- LGP21903- Diplexer			
11		3	Ericsson- RRUS 4449 B5, B12- RRU			
12		3	Ericsson- RRUS 8843 B2 B66A- RRU			
13		1	Raycap- DC6-48-60-18-8F- OVP			
14		1	Raycap- DC6-48-60-18-8C- OVP			
15	145.0	3	Ericsson- AIR6449 B77D - Panel			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**49.1%**	**36.6%**	**76.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3680.8	31.8	60.7

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.7502 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

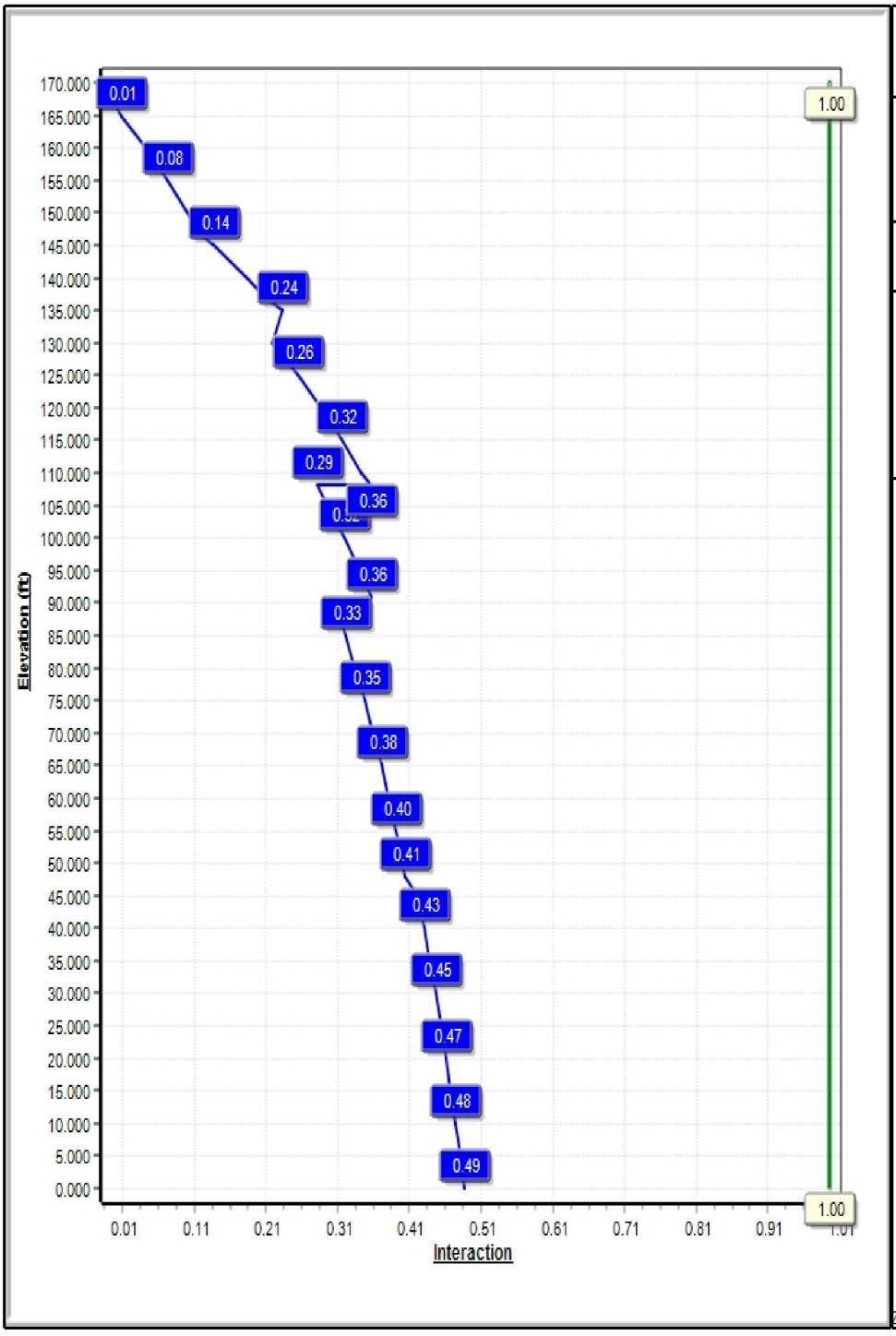
Usage Diagram - Max Ratio 49.13% at 0.0ft

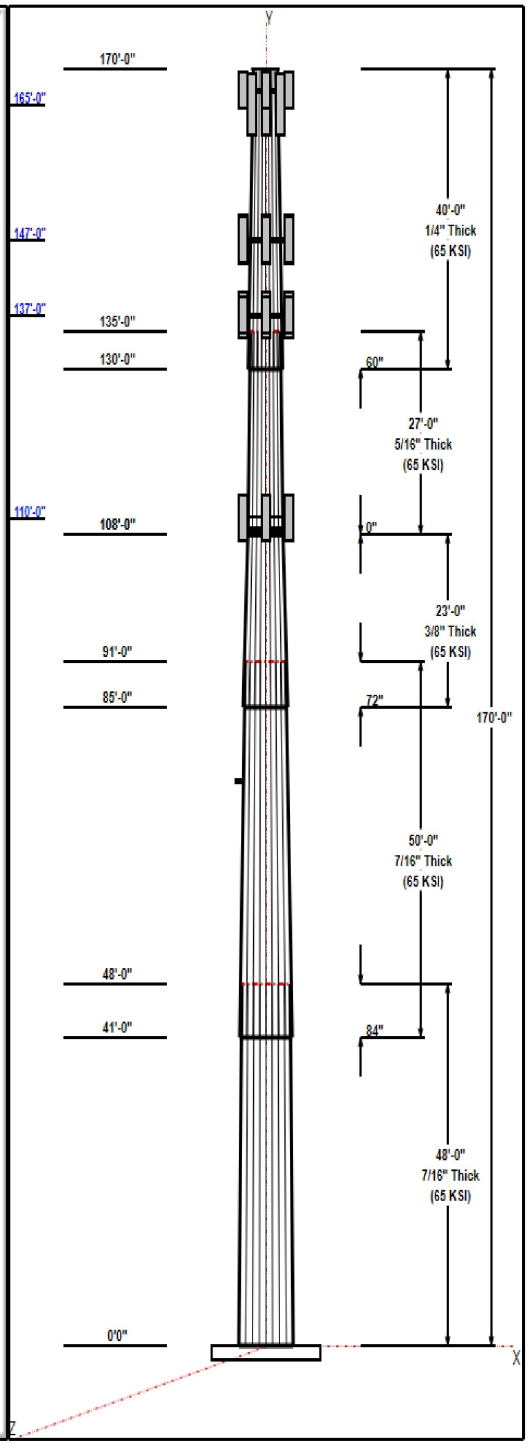
Structure:	CT04066-S-SBA	**Code:**	EIA/TIA-222-G	6/24/2022
Site Name:	North Branford East	**Exposure:**	B	
Height:	170.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	23
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 101 mph Wind





Structure: CT04066-S-SBA

Type: Tapered
Site Name: North Branford East
Height: 170.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25074

6/24/2022

Tower Engineering Solutions

Shaft Properties

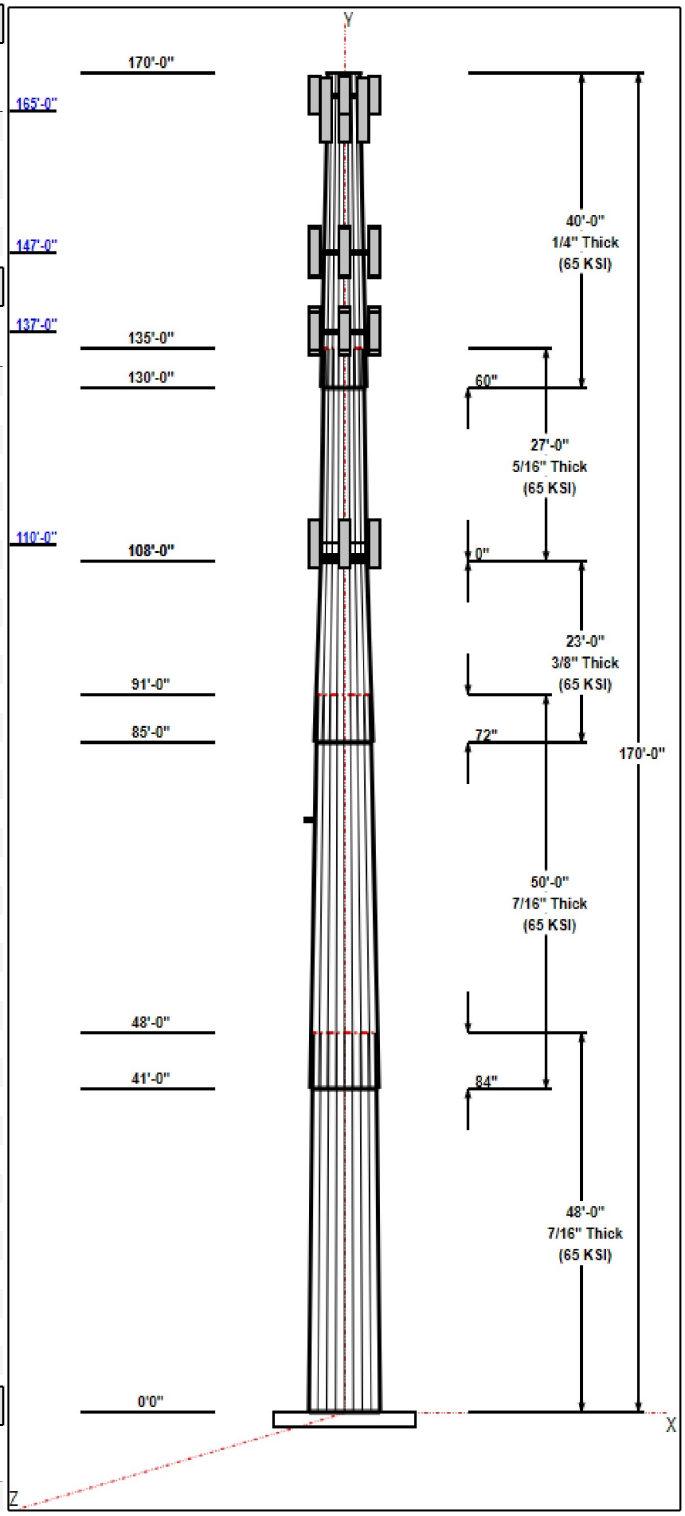
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	48.00	52.46	64.50	0.438		0.25074	65
2	50.00	42.56	55.09	0.438	Slip	0.25074	65
3	23.00	39.05	44.81	0.375	Slip	0.25074	65
4	27.00	32.28	39.05	0.313	Butt	0.25074	65
5	40.00	24.00	34.03	0.250	Slip	0.25074	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
170.00	170.00	1	6' Lightning rod	
167.00	167.00	3	Ericsson AIR 21 B2A/B4P	T-Mobile
167.00	167.00	3	Ericsson AIR 21 B4A/B2P	T-Mobile
167.00	167.00	3	Ericsson KRY 112 144/1	T-Mobile
167.00	167.00	1	Low Profile	T-Mobile
167.00	167.00	3	Ericsson 4480 B71 + B85	T-Mobile
167.00	167.00	1	addition 8'x2 7/8" mount	T-Mobile
165.00	165.00	3	RFS	T-Mobile
147.00	149.00	3	AIR6419 B77G	AT&T
147.00	147.00	3	TPA65R-BU6D	AT&T
147.00	147.00	3	OPA65R-BU6DA	AT&T
147.00	145.00	3	AIR6449 B77D	AT&T
147.00	147.00	1	HRK14	AT&T
147.00	147.00	6	Powerwave LGP21402	AT&T
147.00	147.00	6	Powerwave LGP21903	AT&T
147.00	147.00	3	Ericsson RRUS 8843 B2	AT&T
147.00	147.00	3	Ericsson RRUS 4449 B5,	AT&T
147.00	147.00	1	Raycap DC6-48-60-18-8F	AT&T
147.00	147.00	1	Raycap DC6-48-60-18-8C	AT&T
147.00	147.00	1	Low Profile	AT&T
137.00	137.00	3	APXVSPP18-C-A20	Sprint
137.00	137.00	3	APXVTM14-C-I20	Sprint
137.00	137.00	3	800MHz - RRH	Sprint
137.00	137.00	3	1900MHz - RRH	Sprint
137.00	137.00	3	TD-RRH8x20-25 - RRU	Sprint
137.00	137.00	4	ACU-A20-N - RET	Sprint
137.00	137.00	3	ALU - 800MHz Filter	Sprint
137.00	137.00	1	Low Profile	Sprint
110.00	110.00	3	JMA Wireless	Dish Wireless
110.00	110.00	3	Fujitsu TA08025-B605	Dish Wireless
110.00	110.00	3	Fujitsu TA08025-B604	Dish Wireless
110.00	110.00	1	Raycap	Dish Wireless
110.00	110.00	1	MC-PK8-DSH	Dish Wireless
75.00	75.00	1	Standoff	Sprint
75.00	75.00	1	GPS	Sprint

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	167.00	Inside	1 5/8" Coax	T-Mobile
0.00	167.00	Inside	1.9" Fiber	T-Mobile
0.00	147.00	Inside	1 5/8" Coax	AT&T
0.00	147.00	Inside	1/2" DC	AT&T
0.00	147.00	Inside	2" Conduit	AT&T
0.00	147.00	Inside	3/8" Fiber	AT&T



0.00	147.00	Inside	3/8" RET	AT&T
0.00	137.00	Inside	1 1/4" Coax	Sprint
0.00	110.00	Outside	1.6" Hybrid	Dish Wireless
0.00	75.00	Inside	1/2" Coax	Sprint

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
29	2.00" A687	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.2500	68.0	50.0	Round

Reactions

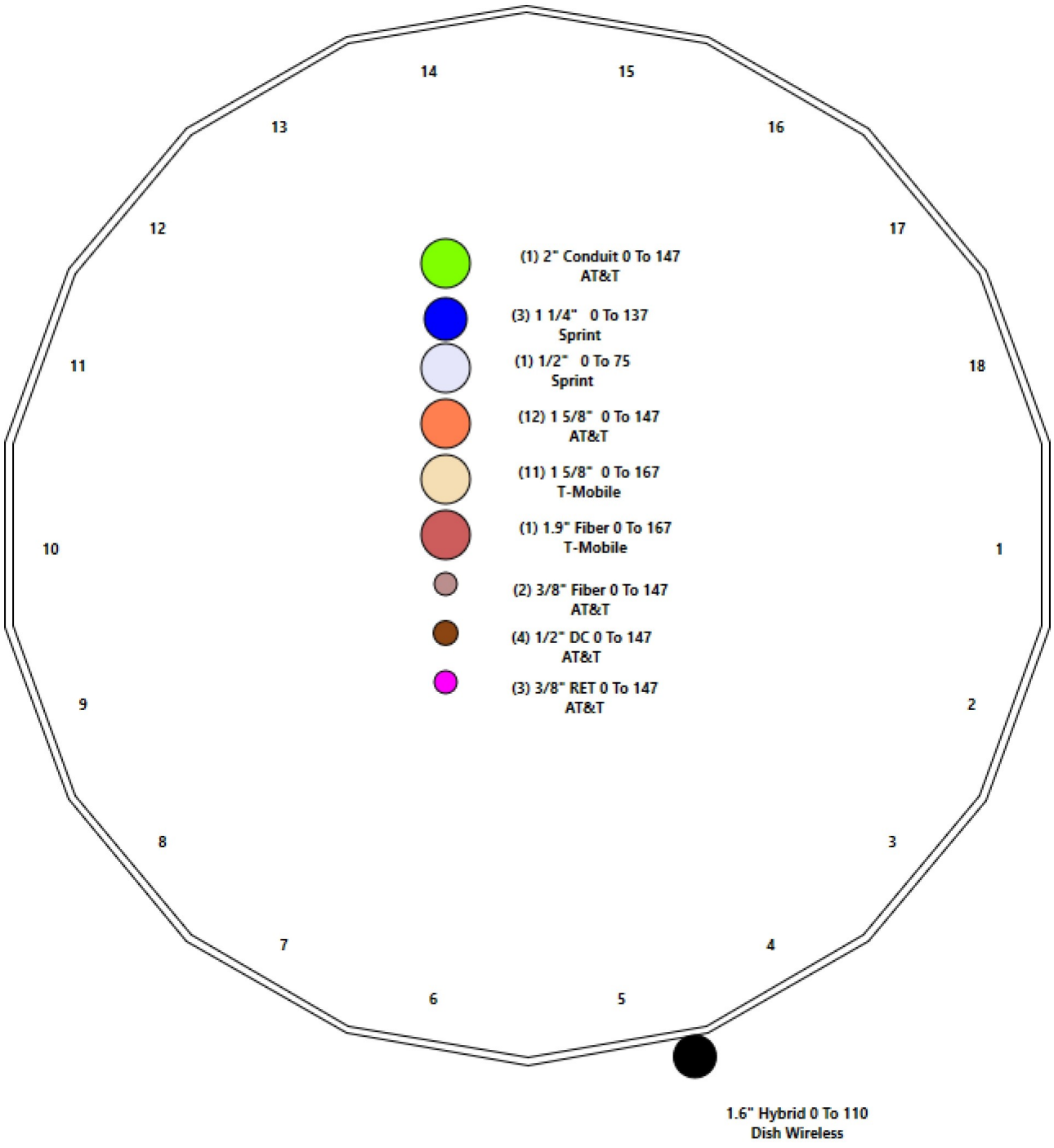
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	3680.8	31.8	60.7
0.9D + 1.6W 101 mph Wind	3649.8	31.7	45.5
1.2D + 1.0Di + 1.0Wi 50 mph Wind	958.0	8.4	89.2
1.2D + 1.0E	220.4	1.8	60.7
0.9D + 1.0E	218.2	1.8	45.5
1.0D + 1.0W 60 mph Wind	807.7	7.0	50.6

Structure: CT04066-S-SBA - Coax Line Placement

Type: Monopole
Site Name: North Branford East
Height: 170.00 (ft)

6/24/2022

Tower Engineering Solutions



Shaft Properties

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	48.000	0.4375	65		0.00	13,165
2	18	50.000	0.4375	65	Slip	84.00	11,432
3	18	23.000	0.3750	65	Slip	72.00	3,871
4	18	27.000	0.3125	65	Flange	0.00	3,221
5	18	40.000	0.2500	65	Slip	60.00	3,107
					Total Shaft Weight:		**34,795**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	64.50	0.00	88.96	46124.76	24.59	147.43	52.46	48.00	72.24	24706.6	19.73	119.9	0.250735
2	55.09	41.00	75.90	28646.28	20.79	125.93	42.56	91.00	58.49	13110.0	15.74	97.28	0.250735
3	44.81	85.00	52.89	13195.46	19.66	119.50	39.05	108.00	46.03	8695.97	16.95	104.1	0.250735
4	39.05	108.0	38.42	7281.83	20.62	124.95	32.28	135.00	31.70	4092.10	16.80	103.2	0.250735
5	34.03	130.0	26.80	3864.03	22.59	136.12	24.00	170.00	18.84	1343.00	15.52	96.00	0.250735

Load Summary

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	170.00	6' Lightning rod	1	6.50	0.38	1.00	43.26	1.481	1.00	0.00	0.00
2	167.00	Ericsson AIR 21 B2A/B4P	3	91.50	6.09	0.84	262.57	7.200	0.85	0.00	0.00
3	167.00	Ericsson AIR 21 B4A/B2P	3	90.40	6.09	0.85	261.47	7.200	0.85	0.00	0.00
4	167.00	Ericsson KRY 112 144/1	3	11.00	0.41	0.50	21.90	0.890	0.50	0.00	0.00
5	167.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2823.04	39.852	1.00	0.00	0.00
6	167.00	Ericsson 4480 B71 + B85	3	93.00	2.85	0.67	165.71	3.532	0.67	0.00	0.00
7	167.00	addition 8'x2 7/8" mount pipe	1	29.20	2.80	1.00	90.81	6.475	1.00	0.00	0.00
8	165.00	RFS APXVAALL24_43-U-NA20	3	122.80	20.24	0.73	555.12	22.159	0.73	0.00	0.00
9	147.00	AIR6419 B77G	3	66.10	3.80	0.76	162.12	4.594	0.76	0.00	2.00
10	147.00	TPA65R-BU6D	3	67.50	12.87	0.72	365.45	14.341	0.72	0.00	0.00
11	147.00	OPA65R-BU6DA	3	67.50	12.87	0.72	365.45	14.341	0.72	0.00	0.00
12	147.00	AIR6449 B77D	3	88.00	4.13	0.85	225.22	4.986	0.85	0.00	-2.00
13	147.00	HRK14	1	302.36	8.13	1.00	660.46	16.060	1.00	0.00	0.00
14	147.00	Powerwave LGP21402 TMA	6	14.10	1.29	0.50	39.05	2.124	0.50	0.00	0.00
15	147.00	Powerwave LGP21903 Diplexer	6	5.50	0.27	0.50	13.91	0.667	0.50	0.00	0.00
16	147.00	Ericsson RRUS 8843 B2 B66A	3	72.00	1.64	0.67	118.75	2.136	0.67	0.00	0.00
17	147.00	Ericsson RRUS 4449 B5, B12	3	71.00	1.97	0.67	124.27	2.516	0.67	0.00	0.00
18	147.00	Raycap DC6-48-60-18-8F	1	31.80	0.92	1.00	93.50	1.357	1.00	0.00	0.00
19	147.00	Raycap DC6-48-60-18-8C	1	20.00	1.26	1.00	72.65	1.918	1.00	0.00	0.00
20	147.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2806.27	39.626	1.00	0.00	0.00
21	137.00	APXVSPP18-C-A20	3	57.00	8.02	0.85	228.29	10.789	0.85	0.00	0.00
22	137.00	APXVTM14-C-I20	3	56.00	6.34	0.86	214.67	7.443	0.86	0.00	0.00
23	137.00	800MHz - RRH	3	53.00	2.49	0.67	126.29	3.623	0.67	0.00	0.00
24	137.00	1900MHz - RRH	3	44.00	3.80	0.67	152.18	5.178	0.67	0.00	0.00
25	137.00	TD-RRH8x20-25 - RRU	3	70.00	4.05	0.67	179.26	4.855	0.67	0.00	0.00
26	137.00	ACU-A20-N - RET	4	1.00	0.14	0.50	5.26	0.434	0.50	0.00	0.00
27	137.00	ALU - 800MHz Filter	3	8.80	0.78	0.50	26.28	1.421	0.50	0.00	0.00
28	137.00	Low Profile Platform-Round	1	1500.00	22.00	1.00	2797.10	39.502	1.00	0.00	0.00
29	110.00	JMA Wireless MX08FRO665-21	3	64.50	12.49	0.74	346.49	13.910	0.74	0.00	0.00
30	110.00	Fujitsu TA08025-B605	3	75.00	1.96	0.67	125.71	2.504	0.67	0.00	0.00
31	110.00	Fujitsu TA08025-B604	3	63.90	1.96	0.67	112.98	2.504	0.67	0.00	0.00
32	110.00	Raycap RDIDC-9181-PF-48	1	21.90	2.01	1.00	73.52	2.561	1.00	0.00	0.00
33	110.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3363.29	83.381	1.00	0.00	0.00
34	75.00	Standoff	1	40.00	2.63	0.75	114.90	8.199	0.75	0.00	0.00
35	75.00	GPS	1	10.00	1.00	1.00	37.36	1.664	1.00	0.00	0.00
		Totals:	**88**	**10,809.36**			**25,735.50**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	167.00	(11) 1 5/8" Coax	0.00	Inside
0.00	167.00	(1) 1.9" Fiber	0.00	Inside
0.00	147.00	(12) 1 5/8" Coax	0.00	Inside
0.00	147.00	(4) 1/2" DC	0.00	Inside
0.00	147.00	(1) 2" Conduit	0.00	Inside
0.00	147.00	(2) 3/8" Fiber	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
0.00	147.00	(3) 3/8" RET			0.00	Inside					
0.00	137.00	(3) 1 1/4" Coax			0.00	Inside					
0.00	110.00	(1) 1.6" Hybrid			1.60	Outside					
0.00	75.00	(1) 1/2" Coax			0.00	Inside					

Shaft Section Properties

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.4375	64.500	88.956	46124.8	24.59	147.43	72.5	1408.	0.0
5.00		0.4375	63.246	87.215	43469.5	24.08	144.56	73.1	1353.	1498.7
10.00		0.4375	61.993	85.474	40918.1	23.57	141.70	73.7	1300.	1469.1
15.00		0.4375	60.739	83.733	38468.6	23.07	138.83	74.3	1247.	1439.4
20.00		0.4375	59.485	81.992	36118.8	22.56	135.97	74.9	1195.	1409.8
25.00		0.4375	58.232	80.251	33866.7	22.06	133.10	75.5	1145.	1380.2
30.00		0.4375	56.978	78.511	31710.3	21.55	130.24	76.1	1096.	1350.6
35.00		0.4375	55.724	76.770	29647.4	21.05	127.37	76.6	1047.	1321.0
40.00		0.4375	54.471	75.029	27675.9	20.54	124.50	77.2	1000.	1291.3
41.00	Bot - Section 2	0.4375	54.220	74.681	27292.4	20.44	123.93	77.4	991.4	254.7
45.00		0.4375	53.217	73.288	25793.8	20.04	121.64	77.8	954.7	2030.6
48.00	Top - Section 1	0.4375	53.340	73.459	25974.3	20.09	121.92	0.0	0.0	1498.0
50.00		0.4375	52.838	72.762	25242.6	19.88	120.77	78.0	941.0	497.6
55.00		0.4375	51.585	71.022	23473.9	19.38	117.91	78.6	896.3	1223.2
60.00		0.4375	50.331	69.281	21789.7	18.87	115.04	79.2	852.7	1193.5
65.00		0.4375	49.077	67.540	20188.1	18.37	112.18	79.8	810.2	1163.9
70.00		0.4375	47.824	65.799	18667.0	17.86	109.31	80.4	768.8	1134.3
75.00		0.4375	46.570	64.058	17224.2	17.36	106.45	81.0	728.5	1104.7
80.00		0.4375	45.316	62.317	15857.8	16.85	103.58	81.6	689.2	1075.1
85.00	Bot - Section 3	0.4375	44.063	60.577	14565.6	16.35	100.71	82.2	651.1	1045.5
90.00		0.4375	42.809	58.836	13345.6	15.84	97.85	82.5	614.0	1903.0
91.00	Top - Section 2	0.3750	43.308	51.099	11900.1	18.95	115.49	0.0	0.0	374.0
95.00		0.3750	42.305	49.906	11085.5	18.48	112.81	79.7	516.1	687.4
100.00		0.3750	41.051	48.413	10120.6	17.89	109.47	80.4	485.6	836.4
105.00		0.3750	39.798	46.921	9213.4	17.30	106.13	81.0	456.0	811.0
108.00	Top - Section 3	0.3750	39.046	46.026	8696.0	16.95	104.12	81.5	438.7	474.4
108.00	Bot - Section 4	0.3125	39.046	38.417	7281.8	20.34	124.95	77.1	367.3	
110.00		0.3125	38.544	37.920	7002.6	20.34	123.34	77.5	357.8	259.8
115.00		0.3125	37.290	36.676	6336.1	19.63	119.33	78.3	334.7	634.6
120.00		0.3125	36.037	35.433	5713.3	18.92	115.32	79.1	312.3	613.4
125.00		0.3125	34.783	34.189	5132.6	18.22	111.31	80.0	290.6	592.3
130.00	Bot - Section 5	0.3125	33.529	32.946	4592.7	17.51	107.29	80.8	269.8	571.1
135.00	Top - Section 4	0.2500	32.776	25.808	3449.6	21.71	131.10	0.0	0.0	997.5
137.00		0.2500	32.274	25.410	3292.5	21.35	129.10	76.3	200.9	174.3
140.00		0.2500	31.522	24.813	3065.9	20.82	126.09	76.9	191.6	256.4
145.00		0.2500	30.268	23.819	2711.7	19.94	121.07	78.0	176.5	413.7
147.00		0.2500	29.767	23.421	2578.1	19.58	119.07	78.4	170.6	160.7
150.00		0.2500	29.015	22.824	2386.0	19.05	116.06	79.0	162.0	236.0
155.00		0.2500	27.761	21.829	2087.4	18.17	111.04	80.0	148.1	379.9
160.00		0.2500	26.507	20.834	1814.8	17.29	106.03	81.1	134.9	362.9
165.00		0.2500	25.254	19.840	1567.1	16.40	101.01	82.1	122.2	346.0
167.00		0.2500	24.752	19.442	1474.7	16.05	99.01	82.5	117.3	133.7
170.00		0.2500	24.000	18.845	1343.0	15.52	96.00	82.5	110.2	195.4
										34795.0

Wind Loading - Shaft

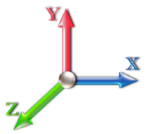
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	461.21	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	452.24	0.650	0.000	5.00	27.024	17.57	536.9	0.0	1798.4
10.00		1.00	0.70	17.366	19.10	443.28	0.650	0.000	5.00	26.494	17.22	526.4	0.0	1762.9
15.00		1.00	0.70	17.366	19.10	434.32	0.650	0.000	5.00	25.964	16.88	515.8	0.0	1727.3
20.00		1.00	0.70	17.366	19.10	425.35	0.650	0.000	5.00	25.433	16.53	505.3	0.0	1691.8
25.00		1.00	0.70	17.366	19.10	416.39	0.650	0.000	5.00	24.903	16.19	494.7	0.0	1656.2
30.00		1.00	0.70	17.381	19.12	407.59	0.650	0.000	5.00	24.372	15.84	484.6	0.0	1620.7
35.00		1.00	0.73	18.163	19.98	407.50	0.650	0.000	5.00	23.842	15.50	495.4	0.0	1585.2
40.00		1.00	0.76	18.870	20.76	406.01	0.650	0.000	5.00	23.311	15.15	503.2	0.0	1549.6
41.00	Bot - Section 2	1.00	0.77	19.003	20.90	405.56	0.650	0.000	1.00	4.599	2.99	100.0	0.0	305.7
45.00		1.00	0.79	19.516	21.47	403.39	0.650	0.000	4.00	18.479	12.01	412.5	0.0	2436.7
48.00	Top - Section 1	1.00	0.80	19.879	21.87	401.37	0.650	0.000	3.00	13.636	8.86	310.1	0.0	1797.6
50.00		1.00	0.81	20.112	22.12	406.59	0.650	0.000	2.00	8.985	5.84	206.7	0.0	597.1
55.00		1.00	0.83	20.667	22.73	402.39	0.650	0.000	5.00	22.090	14.36	522.3	0.0	1467.8
60.00		1.00	0.85	21.187	23.31	397.52	0.650	0.000	5.00	21.560	14.01	522.6	0.0	1432.3
65.00		1.00	0.87	21.678	23.85	392.08	0.650	0.000	5.00	21.030	13.67	521.5	0.0	1396.7
70.00		1.00	0.89	22.142	24.36	386.13	0.650	0.000	5.00	20.499	13.32	519.2	0.0	1361.2
75.00	Appurtenance(s)	1.00	0.91	22.582	24.84	379.73	0.650	0.000	5.00	19.969	12.98	515.9	0.0	1325.6
80.00		1.00	0.93	23.003	25.30	372.93	0.650	0.000	5.00	19.438	12.63	511.5	0.0	1290.1
85.00	Bot - Section 3	1.00	0.94	23.404	25.74	365.77	0.650	0.000	5.00	18.908	12.29	506.3	0.0	1254.5
90.00		1.00	0.96	23.790	26.17	358.27	0.650	0.000	5.00	18.695	12.15	508.8	0.0	2283.6
91.00	Top - Section 2	1.00	0.96	23.865	26.25	356.74	0.650	0.000	1.00	3.675	2.39	100.3	0.0	448.8
95.00		1.00	0.97	24.160	26.58	356.80	0.650	0.000	4.00	14.489	9.42	400.5	0.0	824.9
100.00		1.00	0.99	24.517	26.97	348.78	0.650	0.000	5.00	17.634	11.46	494.6	0.0	1003.7
105.00		1.00	1.00	24.861	27.35	340.49	0.650	0.000	5.00	17.103	11.12	486.4	0.0	973.2
108.00	Top - Section 3	1.00	1.01	25.062	27.57	335.40	0.650	0.000	3.00	10.007	6.50	286.9	0.0	569.3
110.00	Appurtenance(s)	1.00	1.02	25.194	27.71	331.96	0.650	0.000	2.00	6.566	4.27	189.2	0.0	311.7
115.00		1.00	1.03	25.516	28.07	323.21	0.650	0.000	5.00	16.043	10.43	468.3	0.0	761.5
120.00		1.00	1.04	25.828	28.41	314.25	0.650	0.000	5.00	15.512	10.08	458.3	0.0	736.1
125.00		1.00	1.05	26.131	28.74	305.09	0.650	0.000	5.00	14.982	9.74	447.9	0.0	710.7
130.00	Bot - Section 5	1.00	1.07	26.425	29.07	295.75	0.650	0.000	5.00	14.451	9.39	436.9	0.0	685.3
135.00	Top - Section 4	1.00	1.08	26.712	29.38	286.23	0.650	0.000	5.00	14.132	9.19	431.9	0.0	1197.0
137.00	Appurtenance(s)	1.00	1.08	26.824	29.51	286.82	0.650	0.000	2.00	5.504	3.58	168.9	0.0	209.1
140.00		1.00	1.09	26.991	29.69	281.00	0.650	0.000	3.00	8.098	5.26	250.0	0.0	307.6
145.00		1.00	1.10	27.263	29.99	271.18	0.650	0.000	5.00	13.072	8.50	407.7	0.0	496.5
147.00	Appurtenance(s)	1.00	1.10	27.370	30.11	267.21	0.650	0.000	2.00	5.080	3.30	159.1	0.0	192.9
150.00		1.00	1.11	27.528	30.28	261.21	0.650	0.000	3.00	7.461	4.85	235.0	0.0	283.2
155.00		1.00	1.12	27.787	30.57	251.10	0.650	0.000	5.00	12.011	7.81	381.8	0.0	455.8
160.00		1.00	1.13	28.040	30.84	240.85	0.650	0.000	5.00	11.480	7.46	368.3	0.0	435.5
165.00	Appurtenance(s)	1.00	1.14	28.288	31.12	230.47	0.650	0.000	5.00	10.950	7.12	354.4	0.0	415.2
167.00	Appurtenance(s)	1.00	1.14	28.386	31.22	226.28	0.650	0.000	2.00	4.231	2.75	137.4	0.0	160.4
170.00	Appurtenance(s)	1.00	1.15	28.530	31.38	219.96	0.650	0.000	3.00	6.188	4.02	202.0	0.0	234.5
								Totals:	**170.00**			**16,085.4**		**41,754.0**

Discrete Appurtenance Forces

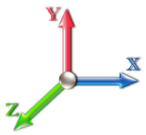
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	170.00	6' Lightning rod	1	28.530	31.383	1.00	1.00	0.38	7.80	0.000	0.000	19.08	0.00	0.00
2	167.00	addition 8'x2 7/8" mount	1	28.386	31.224	1.00	1.00	2.80	35.04	0.000	0.000	139.88	0.00	0.00
3	167.00	Ericsson 4480 B71 + B85	3	28.386	31.224	0.54	0.80	4.58	334.80	0.000	0.000	228.95	0.00	0.00
4	167.00	Low Profile	1	28.386	31.224	1.00	1.00	22.00	1800.00	0.000	0.000	1099.09	0.00	0.00
5	167.00	Ericsson KRY 112 144/1	3	28.386	31.224	0.40	0.80	0.49	39.60	0.000	0.000	24.58	0.00	0.00
6	167.00	Ericsson AIR 21 B4A/B2P	3	28.386	31.224	0.77	0.90	13.98	325.44	0.000	0.000	698.25	0.00	0.00
7	167.00	Ericsson AIR 21 B2A/B4P	3	28.386	31.224	0.76	0.90	13.81	329.40	0.000	0.000	690.04	0.00	0.00
8	165.00	RFS	3	28.288	31.117	0.58	0.80	35.46	442.08	0.000	0.000	1765.47	0.00	0.00
9	147.00	HRK14	1	27.370	30.107	1.00	1.00	8.13	362.83	0.000	0.000	391.63	0.00	0.00
10	147.00	Powerwave LGP21402	6	27.370	30.107	0.38	0.75	2.90	101.52	0.000	0.000	139.82	0.00	0.00
11	147.00	Powerwave LGP21903	6	27.370	30.107	0.38	0.75	0.61	39.60	0.000	0.000	29.26	0.00	0.00
12	147.00	AIR6449 B77D	3	27.263	29.989	0.64	0.75	7.90	316.80	0.000	-2.000	379.00	0.00	-757.99
13	147.00	Low Profile	1	27.370	30.107	1.00	1.00	22.00	1800.00	0.000	0.000	1059.75	0.00	0.00
14	147.00	Ericsson RRUS 8843 B2	3	27.370	30.107	0.50	0.75	2.47	259.20	0.000	0.000	119.09	0.00	0.00
15	147.00	Ericsson RRUS 4449 B5,	3	27.370	30.107	0.50	0.75	2.97	255.60	0.000	0.000	143.06	0.00	0.00
16	147.00	Raycap DC6-48-60-18-8F	1	27.370	30.107	0.75	0.75	0.69	38.16	0.000	0.000	33.24	0.00	0.00
17	147.00	Raycap DC6-48-60-18-8C	1	27.370	30.107	0.75	0.75	0.95	24.00	0.000	0.000	45.52	0.00	0.00
18	147.00	OPA65R-BU6DA	3	27.370	30.107	0.54	0.75	20.85	243.00	0.000	0.000	1004.33	0.00	0.00
19	147.00	AIR6419 B77G	3	27.476	30.223	0.57	0.75	6.50	237.96	0.000	2.000	314.22	0.00	628.45
20	147.00	TPA65R-BU6D	3	27.370	30.107	0.54	0.75	20.85	243.00	0.000	0.000	1004.33	0.00	0.00
21	137.00	1900MHz - RRH	3	26.824	29.507	0.54	0.80	6.11	158.40	0.000	0.000	288.48	0.00	0.00
22	137.00	APXVSPP18-C-A20	3	26.824	29.507	0.68	0.80	16.36	205.20	0.000	0.000	772.41	0.00	0.00
23	137.00	800MHz - RRH	3	26.824	29.507	0.54	0.80	4.00	190.80	0.000	0.000	189.03	0.00	0.00
24	137.00	APXVTM14-C-I20	3	26.824	29.507	0.69	0.80	13.09	201.60	0.000	0.000	617.79	0.00	0.00
25	137.00	ACU-A20-N - RET	4	26.824	29.507	0.40	0.80	0.22	4.80	0.000	0.000	10.58	0.00	0.00
26	137.00	ALU - 800MHz Filter	3	26.824	29.507	0.40	0.80	0.94	31.68	0.000	0.000	44.19	0.00	0.00
27	137.00	Low Profile	1	26.824	29.507	1.00	1.00	22.00	1800.00	0.000	0.000	1038.64	0.00	0.00
28	137.00	TD-RRH8x20-25 - RRU	3	26.824	29.507	0.54	0.80	6.51	252.00	0.000	0.000	307.46	0.00	0.00
29	110.00	Fujitsu TA08025-B605	3	25.194	27.713	0.50	0.75	2.95	270.00	0.000	0.000	131.01	0.00	0.00
30	110.00	JMA Wireless	3	25.194	27.713	0.55	0.75	20.80	232.20	0.000	0.000	922.11	0.00	0.00
31	110.00	Raycap	1	25.194	27.713	0.75	0.75	1.51	26.28	0.000	0.000	66.84	0.00	0.00
32	110.00	Fujitsu TA08025-B604	3	25.194	27.713	0.50	0.75	2.95	230.04	0.000	0.000	131.01	0.00	0.00
33	110.00	MC-PK8-DSH	1	25.194	27.713	1.00	1.00	37.59	2072.40	0.000	0.000	1666.77	0.00	0.00
34	75.00	GPS	1	22.582	24.841	0.80	0.80	0.80	12.00	0.000	0.000	31.80	0.00	0.00
35	75.00	Standoff	1	22.582	24.841	0.56	0.75	1.48	48.00	0.000	0.000	58.80	0.00	0.00
							Totals:		**12,971.23**			**15,605.48**		

Total Applied Force Summary

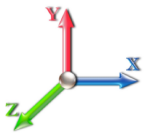
Structure:	CT04066-S-SBA		**Code:**	TIA-222-G	6/24/2022
Site Name:	North Branford East		**Exposure:**	B	
Height:	170.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		536.89	1998.63	0.00	0.00
10.00		526.35	1963.08	0.00	0.00
15.00		515.82	1927.54	0.00	0.00
20.00		505.28	1892.00	0.00	0.00
25.00		494.74	1856.46	0.00	0.00
30.00		484.61	1820.92	0.00	0.00
35.00		495.41	1785.37	0.00	0.00
40.00		503.23	1749.83	0.00	0.00
41.00		99.97	345.70	0.00	0.00
45.00		412.55	2596.85	0.00	0.00
48.00		310.10	1917.78	0.00	0.00
50.00		206.72	677.16	0.00	0.00
55.00		522.29	1668.01	0.00	0.00
60.00		522.58	1632.47	0.00	0.00
65.00		521.51	1596.93	0.00	0.00
70.00		519.24	1561.39	0.00	0.00
75.00	(2) attachments	606.47	1585.85	0.00	0.00
80.00		511.52	1484.06	0.00	0.00
85.00		506.25	1448.52	0.00	0.00
90.00		508.79	2477.58	0.00	0.00
91.00		100.34	487.60	0.00	0.00
95.00		400.46	980.06	0.00	0.00
100.00		494.58	1197.65	0.00	0.00
105.00		486.44	1167.19	0.00	0.00
108.00		286.92	685.69	0.00	0.00
110.00	(11) attachments	3106.98	3220.22	0.00	0.00
115.00		468.28	944.56	0.00	0.00
120.00		458.34	919.17	0.00	0.00
125.00		447.86	893.78	0.00	0.00
130.00		436.87	868.40	0.00	0.00
135.00		431.86	1380.08	0.00	0.00
137.00	(23) attachments	3437.47	3126.85	0.00	0.00
140.00		250.03	410.33	0.00	0.00
145.00		407.68	667.63	0.00	0.00
147.00	(34) attachments	4822.31	4183.04	0.00	-129.54
150.00		234.96	328.39	0.00	0.00
155.00		381.80	531.07	0.00	0.00
160.00		368.27	510.77	0.00	0.00
165.00	(3) attachments	2119.83	932.54	0.00	0.00
167.00	(14) attachments	3018.20	3054.78	0.00	0.00
170.00	(1) attachments	221.05	242.31	0.00	0.00
	Totals:	**31,690.87**	**60,718.24**	**0.00**	**-129.54**

Linear Appurtenance Segment Forces (Factored)

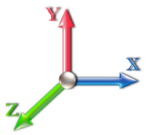
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.025	0.000	17.366	0.00	10.92
10.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.025	0.000	17.366	0.00	10.92
15.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.026	0.000	17.366	0.00	10.92
20.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.026	0.000	17.366	0.00	10.92
25.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.027	0.000	17.366	0.00	10.92
30.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.027	0.000	17.381	0.00	10.92
35.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.028	0.000	18.163	0.00	10.92
40.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.029	0.000	18.870	0.00	10.92
41.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.13	0.00	0.029	0.000	19.003	0.00	2.18
45.00	1.6" Hybrid	Yes	4.00	0.000	1.60	0.53	0.00	0.029	0.000	19.516	0.00	8.74
48.00	1.6" Hybrid	Yes	3.00	0.000	1.60	0.40	0.00	0.030	0.000	19.879	0.00	6.55
50.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.27	0.00	0.030	0.000	20.112	0.00	4.37
55.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.030	0.000	20.667	0.00	10.92
60.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.031	0.000	21.187	0.00	10.92
65.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.032	0.000	21.678	0.00	10.92
70.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.033	0.000	22.142	0.00	10.92
75.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.033	0.000	22.582	0.00	10.92
80.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.034	0.000	23.003	0.00	10.92
85.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.035	0.000	23.404	0.00	10.92
90.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.036	0.000	23.790	0.00	10.92
91.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.13	0.00	0.037	0.000	23.865	0.00	2.18
95.00	1.6" Hybrid	Yes	4.00	0.000	1.60	0.53	0.00	0.037	0.000	24.160	0.00	8.74
100.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.038	0.000	24.517	0.00	10.92
105.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.039	0.000	24.861	0.00	10.92
108.00	1.6" Hybrid	Yes	3.00	0.000	1.60	0.40	0.00	0.040	0.000	25.062	0.00	6.55
110.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.27	0.00	0.041	0.000	25.194	0.00	4.37
										Totals:	**0.0**	**240.2**

Calculated Forces

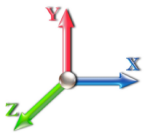
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-60.69	-31.75	0.00	-3680.7	0.00	3680.77	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.491
5.00	-58.63	-31.33	0.00	-3522.0	0.00	3522.02	5736.18	2868.09	14817.2	7419.63	0.06	-0.111	0.000	0.485
10.00	-56.60	-30.91	0.00	-3365.3	0.00	3365.39	5667.41	2833.70	14345.3	7183.34	0.24	-0.224	0.000	0.479
15.00	-54.62	-30.49	0.00	-3210.8	0.00	3210.86	5596.76	2798.38	13875.9	6948.30	0.53	-0.338	0.000	0.472
20.00	-52.67	-30.08	0.00	-3058.4	0.00	3058.41	5524.26	2762.13	13409.4	6714.68	0.95	-0.454	0.000	0.465
25.00	-50.76	-29.67	0.00	-2908.0	0.00	2908.01	5449.89	2724.95	12945.9	6482.61	1.49	-0.571	0.000	0.458
30.00	-48.88	-29.27	0.00	-2759.6	0.00	2759.64	5373.66	2686.83	12485.9	6252.24	2.15	-0.691	0.000	0.451
35.00	-47.04	-28.85	0.00	-2613.2	0.00	2613.29	5295.57	2647.79	12029.5	6023.71	2.94	-0.811	0.000	0.443
40.00	-45.26	-28.38	0.00	-2469.0	0.00	2469.03	5215.62	2607.81	11577.1	5797.18	3.86	-0.933	0.000	0.435
41.00	-44.89	-28.32	0.00	-2440.6	0.00	2440.65	5199.41	2599.70	11487.1	5752.13	4.05	-0.958	0.000	0.433
45.00	-42.25	-27.93	0.00	-2327.3	0.00	2327.36	5133.81	2566.90	11129.0	5572.78	4.90	-1.058	0.000	0.426
48.00	-40.31	-27.63	0.00	-2243.5	0.00	2243.57	5141.90	2570.95	11172.7	5594.66	5.59	-1.133	0.000	0.409
50.00	-39.60	-27.47	0.00	-2188.3	0.00	2188.32	5108.73	2554.36	10994.5	5505.45	6.07	-1.184	0.000	0.405
55.00	-37.89	-26.99	0.00	-2050.9	0.00	2050.99	5024.49	2512.24	10552.4	5284.05	7.38	-1.304	0.000	0.396
60.00	-36.21	-26.50	0.00	-1916.0	0.00	1916.06	4938.39	2469.19	10115.2	5065.12	8.81	-1.424	0.000	0.386
65.00	-34.57	-26.01	0.00	-1783.5	0.00	1783.55	4850.42	2425.21	9683.22	4848.81	10.37	-1.545	0.000	0.375
70.00	-32.97	-25.52	0.00	-1653.4	0.00	1653.49	4760.60	2380.30	9256.75	4635.26	12.05	-1.666	0.000	0.364
75.00	-31.35	-24.93	0.00	-1525.8	0.00	1525.89	4668.91	2334.45	8836.09	4424.61	13.86	-1.787	0.000	0.352
80.00	-29.84	-24.44	0.00	-1401.2	0.00	1401.24	4575.36	2287.68	8421.51	4217.02	15.80	-1.908	0.000	0.339
85.00	-28.36	-23.94	0.00	-1279.0	0.00	1279.06	4479.95	2239.97	8013.32	4012.62	17.86	-2.028	0.000	0.325
90.00	-25.87	-23.37	0.00	-1159.3	0.00	1159.37	4371.20	2185.60	7591.89	3801.59	20.05	-2.147	0.000	0.311
91.00	-25.36	-23.28	0.00	-1136.0	0.00	1136.00	3638.14	1819.07	6412.59	3211.06	20.50	-2.172	0.000	0.361
95.00	-24.35	-22.89	0.00	-1042.8	0.00	1042.88	3578.07	1789.03	6158.09	3083.62	22.36	-2.266	0.000	0.345
100.00	-23.13	-22.40	0.00	-928.44	0.00	928.44	3501.29	1750.65	5844.19	2926.44	24.80	-2.393	0.000	0.324
105.00	-21.95	-21.90	0.00	-816.45	0.00	816.45	3422.66	1711.33	5535.26	2771.74	27.37	-2.515	0.000	0.301
108.00	-21.25	-21.60	0.00	-750.76	0.00	750.76	3374.59	1687.29	5352.40	2680.18	28.98	-2.588	0.000	0.287
108.00	-21.25	-21.60	0.00	-750.76	0.00	750.76	2667.38	1333.69	4244.39	2125.35	28.98	-2.588	0.000	0.361
110.00	-18.15	-18.38	0.00	-707.56	0.00	707.56	2644.20	1322.10	4152.60	2079.39	30.07	-2.636	0.000	0.347
115.00	-17.18	-17.91	0.00	-615.65	0.00	615.65	2584.96	1292.48	3925.36	1965.60	32.91	-2.770	0.000	0.320
120.00	-16.25	-17.44	0.00	-526.11	0.00	526.11	2523.85	1261.93	3701.54	1853.52	35.88	-2.898	0.000	0.290
125.00	-15.35	-16.98	0.00	-438.90	0.00	438.90	2460.88	1230.44	3481.44	1743.31	38.98	-3.018	0.000	0.258
130.00	-14.47	-16.52	0.00	-354.01	0.00	354.01	2396.05	1198.03	3265.33	1635.09	42.20	-3.128	0.000	0.223
135.00	-13.10	-16.03	0.00	-271.41	0.00	271.41	1762.27	881.13	2355.65	1179.58	45.53	-3.225	0.000	0.238
137.00	-10.16	-12.43	0.00	-239.35	0.00	239.35	1744.61	872.31	2295.82	1149.62	46.88	-3.260	0.000	0.214
140.00	-9.75	-12.17	0.00	-202.07	0.00	202.07	1717.57	858.78	2206.74	1105.01	48.95	-3.318	0.000	0.189
145.00	-9.10	-11.73	0.00	-141.23	0.00	141.23	1671.00	835.50	2060.16	1031.61	52.47	-3.397	0.000	0.143
147.00	-5.21	-6.67	0.00	-117.78	0.00	117.78	1651.86	825.93	2002.25	1002.61	53.90	-3.424	0.000	0.121
150.00	-4.89	-6.42	0.00	-97.77	0.00	97.77	1622.58	811.29	1916.22	959.54	56.06	-3.460	0.000	0.105
155.00	-4.38	-6.01	0.00	-65.68	0.00	65.68	1572.29	786.15	1775.21	888.92	59.71	-3.509	0.000	0.077
160.00	-3.89	-5.61	0.00	-35.64	0.00	35.64	1520.15	760.07	1637.42	819.92	63.40	-3.543	0.000	0.046
165.00	-3.09	-3.44	0.00	-7.58	0.00	7.58	1466.13	733.07	1503.13	752.68	67.12	-3.560	0.000	0.012
167.00	-0.23	-0.24	0.00	-0.71	0.00	0.71	1444.01	722.00	1450.46	726.31	68.62	-3.562	0.000	0.001
170.00	0.00	-0.22	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	70.85	-3.562	0.000	0.000

Wind Loading - Shaft

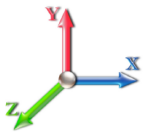
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	17.366	19.10	461.21	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	17.366	19.10	452.24	0.650	0.000	5.00	27.024	17.57	536.9	0.0	1348.8
10.00		1.00	0.70	17.366	19.10	443.28	0.650	0.000	5.00	26.494	17.22	526.4	0.0	1322.1
15.00		1.00	0.70	17.366	19.10	434.32	0.650	0.000	5.00	25.964	16.88	515.8	0.0	1295.5
20.00		1.00	0.70	17.366	19.10	425.35	0.650	0.000	5.00	25.433	16.53	505.3	0.0	1268.8
25.00		1.00	0.70	17.366	19.10	416.39	0.650	0.000	5.00	24.903	16.19	494.7	0.0	1242.2
30.00		1.00	0.70	17.381	19.12	407.59	0.650	0.000	5.00	24.372	15.84	484.6	0.0	1215.5
35.00		1.00	0.73	18.163	19.98	407.50	0.650	0.000	5.00	23.842	15.50	495.4	0.0	1188.9
40.00		1.00	0.76	18.870	20.76	406.01	0.650	0.000	5.00	23.311	15.15	503.2	0.0	1162.2
41.00	Bot - Section 2	1.00	0.77	19.003	20.90	405.56	0.650	0.000	1.00	4.599	2.99	100.0	0.0	229.2
45.00		1.00	0.79	19.516	21.47	403.39	0.650	0.000	4.00	18.479	12.01	412.5	0.0	1827.5
48.00	Top - Section 1	1.00	0.80	19.879	21.87	401.37	0.650	0.000	3.00	13.636	8.86	310.1	0.0	1348.2
50.00		1.00	0.81	20.112	22.12	406.59	0.650	0.000	2.00	8.985	5.84	206.7	0.0	447.8
55.00		1.00	0.83	20.667	22.73	402.39	0.650	0.000	5.00	22.090	14.36	522.3	0.0	1100.8
60.00		1.00	0.85	21.187	23.31	397.52	0.650	0.000	5.00	21.560	14.01	522.6	0.0	1074.2
65.00		1.00	0.87	21.678	23.85	392.08	0.650	0.000	5.00	21.030	13.67	521.5	0.0	1047.5
70.00		1.00	0.89	22.142	24.36	386.13	0.650	0.000	5.00	20.499	13.32	519.2	0.0	1020.9
75.00	Appurtenance(s)	1.00	0.91	22.582	24.84	379.73	0.650	0.000	5.00	19.969	12.98	515.9	0.0	994.2
80.00		1.00	0.93	23.003	25.30	372.93	0.650	0.000	5.00	19.438	12.63	511.5	0.0	967.6
85.00	Bot - Section 3	1.00	0.94	23.404	25.74	365.77	0.650	0.000	5.00	18.908	12.29	506.3	0.0	940.9
90.00		1.00	0.96	23.790	26.17	358.27	0.650	0.000	5.00	18.695	12.15	508.8	0.0	1712.7
91.00	Top - Section 2	1.00	0.96	23.865	26.25	356.74	0.650	0.000	1.00	3.675	2.39	100.3	0.0	336.6
95.00		1.00	0.97	24.160	26.58	356.80	0.650	0.000	4.00	14.489	9.42	400.5	0.0	618.7
100.00		1.00	0.99	24.517	26.97	348.78	0.650	0.000	5.00	17.634	11.46	494.6	0.0	752.8
105.00		1.00	1.00	24.861	27.35	340.49	0.650	0.000	5.00	17.103	11.12	486.4	0.0	729.9
108.00	Top - Section 3	1.00	1.01	25.062	27.57	335.40	0.650	0.000	3.00	10.007	6.50	286.9	0.0	427.0
110.00	Appurtenance(s)	1.00	1.02	25.194	27.71	331.96	0.650	0.000	2.00	6.566	4.27	189.2	0.0	233.8
115.00		1.00	1.03	25.516	28.07	323.21	0.650	0.000	5.00	16.043	10.43	468.3	0.0	571.1
120.00		1.00	1.04	25.828	28.41	314.25	0.650	0.000	5.00	15.512	10.08	458.3	0.0	552.1
125.00		1.00	1.05	26.131	28.74	305.09	0.650	0.000	5.00	14.982	9.74	447.9	0.0	533.0
130.00	Bot - Section 5	1.00	1.07	26.425	29.07	295.75	0.650	0.000	5.00	14.451	9.39	436.9	0.0	514.0
135.00	Top - Section 4	1.00	1.08	26.712	29.38	286.23	0.650	0.000	5.00	14.132	9.19	431.9	0.0	897.8
137.00	Appurtenance(s)	1.00	1.08	26.824	29.51	286.82	0.650	0.000	2.00	5.504	3.58	168.9	0.0	156.9
140.00		1.00	1.09	26.991	29.69	281.00	0.650	0.000	3.00	8.098	5.26	250.0	0.0	230.7
145.00		1.00	1.10	27.263	29.99	271.18	0.650	0.000	5.00	13.072	8.50	407.7	0.0	372.3
147.00	Appurtenance(s)	1.00	1.10	27.370	30.11	267.21	0.650	0.000	2.00	5.080	3.30	159.1	0.0	144.7
150.00		1.00	1.11	27.528	30.28	261.21	0.650	0.000	3.00	7.461	4.85	235.0	0.0	212.4
155.00		1.00	1.12	27.787	30.57	251.10	0.650	0.000	5.00	12.011	7.81	381.8	0.0	341.9
160.00		1.00	1.13	28.040	30.84	240.85	0.650	0.000	5.00	11.480	7.46	368.3	0.0	326.6
165.00	Appurtenance(s)	1.00	1.14	28.288	31.12	230.47	0.650	0.000	5.00	10.950	7.12	354.4	0.0	311.4
167.00	Appurtenance(s)	1.00	1.14	28.386	31.22	226.28	0.650	0.000	2.00	4.231	2.75	137.4	0.0	120.3
170.00	Appurtenance(s)	1.00	1.15	28.530	31.38	219.96	0.650	0.000	3.00	6.188	4.02	202.0	0.0	175.9
								Totals:	**170.00**			**16,085.4**		**31,315.5**

Discrete Appurtenance Forces

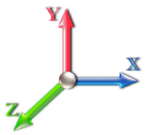
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	170.00	6' Lightning rod	1	28.530	31.383	1.00	1.00	0.38	5.85	0.000	0.000	19.08	0.00	0.00
2	167.00	addition 8'x2 7/8" mount	1	28.386	31.224	1.00	1.00	2.80	26.28	0.000	0.000	139.88	0.00	0.00
3	167.00	Ericsson 4480 B71 + B85	3	28.386	31.224	0.54	0.80	4.58	251.10	0.000	0.000	228.95	0.00	0.00
4	167.00	Low Profile	1	28.386	31.224	1.00	1.00	22.00	1350.00	0.000	0.000	1099.09	0.00	0.00
5	167.00	Ericsson KRY 112 144/1	3	28.386	31.224	0.40	0.80	0.49	29.70	0.000	0.000	24.58	0.00	0.00
6	167.00	Ericsson AIR 21 B4A/B2P	3	28.386	31.224	0.77	0.90	13.98	244.08	0.000	0.000	698.25	0.00	0.00
7	167.00	Ericsson AIR 21 B2A/B4P	3	28.386	31.224	0.76	0.90	13.81	247.05	0.000	0.000	690.04	0.00	0.00
8	165.00	RFS	3	28.288	31.117	0.58	0.80	35.46	331.56	0.000	0.000	1765.47	0.00	0.00
9	147.00	HRK14	1	27.370	30.107	1.00	1.00	8.13	272.12	0.000	0.000	391.63	0.00	0.00
10	147.00	Powerwave LGP21402	6	27.370	30.107	0.38	0.75	2.90	76.14	0.000	0.000	139.82	0.00	0.00
11	147.00	Powerwave LGP21903	6	27.370	30.107	0.38	0.75	0.61	29.70	0.000	0.000	29.26	0.00	0.00
12	147.00	AIR6449 B77D	3	27.263	29.989	0.64	0.75	7.90	237.60	0.000	-2.000	379.00	0.00	-757.99
13	147.00	Low Profile	1	27.370	30.107	1.00	1.00	22.00	1350.00	0.000	0.000	1059.75	0.00	0.00
14	147.00	Ericsson RRUS 8843 B2	3	27.370	30.107	0.50	0.75	2.47	194.40	0.000	0.000	119.09	0.00	0.00
15	147.00	Ericsson RRUS 4449 B5,	3	27.370	30.107	0.50	0.75	2.97	191.70	0.000	0.000	143.06	0.00	0.00
16	147.00	Raycap DC6-48-60-18-8F	1	27.370	30.107	0.75	0.75	0.69	28.62	0.000	0.000	33.24	0.00	0.00
17	147.00	Raycap DC6-48-60-18-8C	1	27.370	30.107	0.75	0.75	0.95	18.00	0.000	0.000	45.52	0.00	0.00
18	147.00	OPA65R-BU6DA	3	27.370	30.107	0.54	0.75	20.85	182.25	0.000	0.000	1004.33	0.00	0.00
19	147.00	AIR6419 B77G	3	27.476	30.223	0.57	0.75	6.50	178.47	0.000	2.000	314.22	0.00	628.45
20	147.00	TPA65R-BU6D	3	27.370	30.107	0.54	0.75	20.85	182.25	0.000	0.000	1004.33	0.00	0.00
21	137.00	1900MHz - RRH	3	26.824	29.507	0.54	0.80	6.11	118.80	0.000	0.000	288.48	0.00	0.00
22	137.00	APXVSPP18-C-A20	3	26.824	29.507	0.68	0.80	16.36	153.90	0.000	0.000	772.41	0.00	0.00
23	137.00	800MHz - RRH	3	26.824	29.507	0.54	0.80	4.00	143.10	0.000	0.000	189.03	0.00	0.00
24	137.00	APXVTM14-C-I20	3	26.824	29.507	0.69	0.80	13.09	151.20	0.000	0.000	617.79	0.00	0.00
25	137.00	ACU-A20-N - RET	4	26.824	29.507	0.40	0.80	0.22	3.60	0.000	0.000	10.58	0.00	0.00
26	137.00	ALU - 800MHz Filter	3	26.824	29.507	0.40	0.80	0.94	23.76	0.000	0.000	44.19	0.00	0.00
27	137.00	Low Profile	1	26.824	29.507	1.00	1.00	22.00	1350.00	0.000	0.000	1038.64	0.00	0.00
28	137.00	TD-RRH8x20-25 - RRU	3	26.824	29.507	0.54	0.80	6.51	189.00	0.000	0.000	307.46	0.00	0.00
29	110.00	Fujitsu TA08025-B605	3	25.194	27.713	0.50	0.75	2.95	202.50	0.000	0.000	131.01	0.00	0.00
30	110.00	JMA Wireless	3	25.194	27.713	0.55	0.75	20.80	174.15	0.000	0.000	922.11	0.00	0.00
31	110.00	Raycap	1	25.194	27.713	0.75	0.75	1.51	19.71	0.000	0.000	66.84	0.00	0.00
32	110.00	Fujitsu TA08025-B604	3	25.194	27.713	0.50	0.75	2.95	172.53	0.000	0.000	131.01	0.00	0.00
33	110.00	MC-PK8-DSH	1	25.194	27.713	1.00	1.00	37.59	1554.30	0.000	0.000	1666.77	0.00	0.00
34	75.00	GPS	1	22.582	24.841	0.80	0.80	0.80	9.00	0.000	0.000	31.80	0.00	0.00
35	75.00	Standoff	1	22.582	24.841	0.56	0.75	1.48	36.00	0.000	0.000	58.80	0.00	0.00
							Totals:		**9,728.42**			**15,605.48**		

Total Applied Force Summary

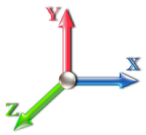
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		536.89	1498.97	0.00	0.00
10.00		526.35	1472.31	0.00	0.00
15.00		515.82	1445.66	0.00	0.00
20.00		505.28	1419.00	0.00	0.00
25.00		494.74	1392.34	0.00	0.00
30.00		484.61	1365.69	0.00	0.00
35.00		495.41	1339.03	0.00	0.00
40.00		503.23	1312.37	0.00	0.00
41.00		99.97	259.28	0.00	0.00
45.00		412.55	1947.64	0.00	0.00
48.00		310.10	1438.34	0.00	0.00
50.00		206.72	507.87	0.00	0.00
55.00		522.29	1251.01	0.00	0.00
60.00		522.58	1224.35	0.00	0.00
65.00		521.51	1197.70	0.00	0.00
70.00		519.24	1171.04	0.00	0.00
75.00	(2) attachments	606.47	1189.38	0.00	0.00
80.00		511.52	1113.05	0.00	0.00
85.00		506.25	1086.39	0.00	0.00
90.00		508.79	1858.19	0.00	0.00
91.00		100.34	365.70	0.00	0.00
95.00		400.46	735.04	0.00	0.00
100.00		494.58	898.24	0.00	0.00
105.00		486.44	875.39	0.00	0.00
108.00		286.92	514.27	0.00	0.00
110.00	(11) attachments	3106.98	2415.16	0.00	0.00
115.00		468.28	708.42	0.00	0.00
120.00		458.34	689.38	0.00	0.00
125.00		447.86	670.34	0.00	0.00
130.00		436.87	651.30	0.00	0.00
135.00		431.86	1035.06	0.00	0.00
137.00	(23) attachments	3437.47	2345.13	0.00	0.00
140.00		250.03	307.75	0.00	0.00
145.00		407.68	500.73	0.00	0.00
147.00	(34) attachments	4822.31	3137.28	0.00	-129.54
150.00		234.96	246.30	0.00	0.00
155.00		381.80	398.31	0.00	0.00
160.00		368.27	383.07	0.00	0.00
165.00	(3) attachments	2119.83	699.40	0.00	0.00
167.00	(14) attachments	3018.20	2291.08	0.00	0.00
170.00	(1) attachments	221.05	181.73	0.00	0.00
	Totals:	**31,690.87**	**45,538.68**	**0.00**	**-129.54**

Linear Appurtenance Segment Forces (Factored)

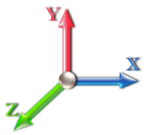
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.025	0.000	17.366	0.00	8.19
10.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.025	0.000	17.366	0.00	8.19
15.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.026	0.000	17.366	0.00	8.19
20.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.026	0.000	17.366	0.00	8.19
25.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.027	0.000	17.366	0.00	8.19
30.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.027	0.000	17.381	0.00	8.19
35.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.028	0.000	18.163	0.00	8.19
40.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.029	0.000	18.870	0.00	8.19
41.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.13	0.00	0.029	0.000	19.003	0.00	1.64
45.00	1.6" Hybrid	Yes	4.00	0.000	1.60	0.53	0.00	0.029	0.000	19.516	0.00	6.55
48.00	1.6" Hybrid	Yes	3.00	0.000	1.60	0.40	0.00	0.030	0.000	19.879	0.00	4.91
50.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.27	0.00	0.030	0.000	20.112	0.00	3.28
55.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.030	0.000	20.667	0.00	8.19
60.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.031	0.000	21.187	0.00	8.19
65.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.032	0.000	21.678	0.00	8.19
70.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.033	0.000	22.142	0.00	8.19
75.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.033	0.000	22.582	0.00	8.19
80.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.034	0.000	23.003	0.00	8.19
85.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.035	0.000	23.404	0.00	8.19
90.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.036	0.000	23.790	0.00	8.19
91.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.13	0.00	0.037	0.000	23.865	0.00	1.64
95.00	1.6" Hybrid	Yes	4.00	0.000	1.60	0.53	0.00	0.037	0.000	24.160	0.00	6.55
100.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.038	0.000	24.517	0.00	8.19
105.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.039	0.000	24.861	0.00	8.19
108.00	1.6" Hybrid	Yes	3.00	0.000	1.60	0.40	0.00	0.040	0.000	25.062	0.00	4.91
110.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.27	0.00	0.041	0.000	25.194	0.00	3.28
									Totals:		**0.0**	**180.2**

Calculated Forces

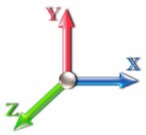
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.51	-31.74	0.00	-3649.8	0.00	3649.84	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.485
5.00	-43.95	-31.28	0.00	-3491.1	0.00	3491.17	5736.18	2868.09	14817.2	7419.63	0.06	-0.110	0.000	0.478
10.00	-42.42	-30.84	0.00	-3334.7	0.00	3334.76	5667.41	2833.70	14345.3	7183.34	0.24	-0.222	0.000	0.472
15.00	-40.91	-30.39	0.00	-3180.5	0.00	3180.59	5596.76	2798.38	13875.9	6948.30	0.53	-0.335	0.000	0.465
20.00	-39.44	-29.96	0.00	-3028.6	0.00	3028.62	5524.26	2762.13	13409.4	6714.68	0.94	-0.450	0.000	0.458
25.00	-37.99	-29.53	0.00	-2878.8	0.00	2878.83	5449.89	2724.95	12945.9	6482.61	1.48	-0.566	0.000	0.451
30.00	-36.57	-29.11	0.00	-2731.1	0.00	2731.19	5373.66	2686.83	12485.9	6252.24	2.13	-0.684	0.000	0.444
35.00	-35.18	-28.67	0.00	-2585.6	0.00	2585.67	5295.57	2647.79	12029.5	6023.71	2.91	-0.803	0.000	0.436
40.00	-33.84	-28.19	0.00	-2442.3	0.00	2442.34	5215.62	2607.81	11577.1	5797.18	3.82	-0.924	0.000	0.428
41.00	-33.55	-28.12	0.00	-2414.1	0.00	2414.15	5199.41	2599.70	11487.1	5752.13	4.02	-0.949	0.000	0.426
45.00	-31.57	-27.72	0.00	-2301.6	0.00	2301.68	5133.81	2566.90	11129.0	5572.78	4.85	-1.047	0.000	0.419
48.00	-30.10	-27.41	0.00	-2218.5	0.00	2218.53	5141.90	2570.95	11172.7	5594.66	5.54	-1.122	0.000	0.403
50.00	-29.56	-27.24	0.00	-2163.7	0.00	2163.70	5108.73	2554.36	10994.5	5505.45	6.02	-1.172	0.000	0.399
55.00	-28.27	-26.75	0.00	-2027.5	0.00	2027.50	5024.49	2512.24	10552.4	5284.05	7.31	-1.291	0.000	0.389
60.00	-27.00	-26.26	0.00	-1893.7	0.00	1893.74	4938.39	2469.19	10115.2	5065.12	8.72	-1.409	0.000	0.379
65.00	-25.76	-25.76	0.00	-1762.4	0.00	1762.47	4850.42	2425.21	9683.22	4848.81	10.27	-1.529	0.000	0.369
70.00	-24.55	-25.26	0.00	-1633.6	0.00	1633.68	4760.60	2380.30	9256.75	4635.26	11.93	-1.648	0.000	0.358
75.00	-23.33	-24.66	0.00	-1507.4	0.00	1507.40	4668.91	2334.45	8836.09	4424.61	13.72	-1.768	0.000	0.346
80.00	-22.18	-24.16	0.00	-1384.0	0.00	1384.08	4575.36	2287.68	8421.51	4217.02	15.64	-1.887	0.000	0.333
85.00	-21.07	-23.66	0.00	-1263.2	0.00	1263.26	4479.95	2239.97	8013.32	4012.62	17.68	-2.006	0.000	0.320
90.00	-19.20	-23.11	0.00	-1144.9	0.00	1144.94	4371.20	2185.60	7591.89	3801.59	19.84	-2.124	0.000	0.306
91.00	-18.81	-23.02	0.00	-1121.8	0.00	1121.83	3638.14	1819.07	6412.59	3211.06	20.29	-2.148	0.000	0.355
95.00	-18.05	-22.62	0.00	-1029.7	0.00	1029.76	3578.07	1789.03	6158.09	3083.62	22.13	-2.241	0.000	0.339
100.00	-17.13	-22.13	0.00	-916.64	0.00	916.64	3501.29	1750.65	5844.19	2926.44	24.55	-2.366	0.000	0.318
105.00	-16.24	-21.63	0.00	-805.98	0.00	805.98	3422.66	1711.33	5535.26	2771.74	27.09	-2.487	0.000	0.296
108.00	-15.71	-21.34	0.00	-741.08	0.00	741.08	3374.59	1687.29	5352.40	2680.18	28.68	-2.559	0.000	0.281
108.00	-15.71	-21.34	0.00	-741.08	0.00	741.08	2667.38	1333.69	4244.39	2125.35	28.68	-2.559	0.000	0.355
110.00	-13.41	-18.15	0.00	-698.40	0.00	698.40	2644.20	1322.10	4152.60	2079.39	29.76	-2.606	0.000	0.341
115.00	-12.69	-17.68	0.00	-607.65	0.00	607.65	2584.96	1292.48	3925.36	1965.60	32.56	-2.739	0.000	0.314
120.00	-11.98	-17.21	0.00	-519.26	0.00	519.26	2523.85	1261.93	3701.54	1853.52	35.50	-2.865	0.000	0.285
125.00	-11.30	-16.75	0.00	-433.19	0.00	433.19	2460.88	1230.44	3481.44	1743.31	38.56	-2.984	0.000	0.253
130.00	-10.65	-16.30	0.00	-349.43	0.00	349.43	2396.05	1198.03	3265.33	1635.09	41.74	-3.092	0.000	0.218
135.00	-9.62	-15.82	0.00	-267.92	0.00	267.92	1762.27	881.13	2355.65	1179.58	45.03	-3.188	0.000	0.233
137.00	-7.46	-12.27	0.00	-236.27	0.00	236.27	1744.61	872.31	2295.82	1149.62	46.38	-3.223	0.000	0.210
140.00	-7.15	-12.01	0.00	-199.47	0.00	199.47	1717.57	858.78	2206.74	1105.01	48.42	-3.279	0.000	0.185
145.00	-6.67	-11.58	0.00	-139.43	0.00	139.43	1671.00	835.50	2060.16	1031.61	51.90	-3.358	0.000	0.139
147.00	-3.82	-6.58	0.00	-116.27	0.00	116.27	1651.86	825.93	2002.25	1002.61	53.31	-3.385	0.000	0.118
150.00	-3.58	-6.34	0.00	-96.52	0.00	96.52	1622.58	811.29	1916.22	959.54	55.45	-3.420	0.000	0.103
155.00	-3.20	-5.93	0.00	-64.85	0.00	64.85	1572.29	786.15	1775.21	888.92	59.06	-3.468	0.000	0.075
160.00	-2.84	-5.54	0.00	-35.18	0.00	35.18	1520.15	760.07	1637.42	819.92	62.71	-3.502	0.000	0.045
165.00	-2.27	-3.38	0.00	-7.47	0.00	7.47	1466.13	733.07	1503.13	752.68	66.38	-3.519	0.000	0.011
167.00	-0.17	-0.23	0.00	-0.70	0.00	0.70	1444.01	722.00	1450.46	726.31	67.86	-3.520	0.000	0.001
170.00	0.00	-0.22	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	70.07	-3.521	0.000	0.000

Wind Loading - Shaft

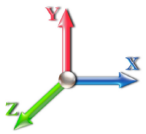
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	28.059	33.67	157.6	501.8	2300.2
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.331	5.00	27.603	33.12	155.1	528.1	2290.9
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.386	5.00	27.119	32.54	152.4	539.5	2266.8
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.427	5.00	26.622	31.95	149.6	544.4	2236.2
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.459	5.00	26.118	31.34	146.7	545.5	2201.8
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.486	5.00	25.610	30.73	144.0	544.1	2164.8
35.00		1.00	0.73	4.451	4.90	0.00	1.200	1.509	5.00	25.099	30.12	147.5	540.9	2126.1
40.00		1.00	0.76	4.625	5.09	0.00	1.200	1.529	5.00	24.586	29.50	150.1	536.4	2086.0
41.00	Bot - Section 2	1.00	0.77	4.657	5.12	0.00	1.200	1.533	1.00	4.854	5.82	29.8	107.1	412.7
45.00		1.00	0.79	4.783	5.26	0.00	1.200	1.547	4.00	19.510	23.41	123.2	431.4	2868.1
48.00	Top - Section 1	1.00	0.80	4.872	5.36	0.00	1.200	1.557	3.00	14.415	17.30	92.7	321.3	2118.9
50.00		1.00	0.81	4.929	5.42	0.00	1.200	1.564	2.00	9.506	11.41	61.8	213.1	810.2
55.00		1.00	0.83	5.065	5.57	0.00	1.200	1.579	5.00	23.406	28.09	156.5	525.7	1993.5
60.00		1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	22.887	27.46	156.9	517.9	1950.2
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	22.367	26.84	156.9	509.6	1906.3
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	21.847	26.22	156.5	500.8	1862.0
75.00	Appurtenance(s)	1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	21.326	25.59	155.8	491.6	1817.2
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	20.804	24.96	154.8	482.0	1772.1
85.00	Bot - Section 3	1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	20.282	24.34	153.6	472.1	1726.6
90.00		1.00	0.96	5.830	6.41	0.00	1.200	1.658	5.00	20.077	24.09	154.5	469.6	2753.2
91.00	Top - Section 2	1.00	0.96	5.849	6.43	0.00	1.200	1.660	1.00	3.952	4.74	30.5	93.5	542.3
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	4.00	15.601	18.72	121.9	367.3	1192.2
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	5.00	19.030	22.84	150.9	448.5	1452.1
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	5.00	18.507	22.21	148.8	437.5	1410.7
108.00	Top - Section 3	1.00	1.01	6.142	6.76	0.00	1.200	1.689	3.00	10.852	13.02	88.0	258.5	827.8
110.00	Appurtenance(s)	1.00	1.02	6.174	6.79	0.00	1.200	1.692	2.00	7.130	8.56	58.1	170.5	482.2
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	17.459	20.95	144.1	415.0	1176.5
120.00		1.00	1.04	6.330	6.96	0.00	1.200	1.707	5.00	16.934	20.32	141.5	403.4	1139.5
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	5.00	16.410	19.69	138.7	391.7	1102.4
130.00	Bot - Section 5	1.00	1.07	6.476	7.12	0.00	1.200	1.720	5.00	15.885	19.06	135.8	379.8	1065.1
135.00	Top - Section 4	1.00	1.08	6.546	7.20	0.00	1.200	1.727	5.00	15.572	18.69	134.6	373.1	1570.1
137.00	Appurtenance(s)	1.00	1.08	6.574	7.23	0.00	1.200	1.729	2.00	6.081	7.30	52.8	147.3	356.4
140.00		1.00	1.09	6.615	7.28	0.00	1.200	1.733	3.00	8.964	10.76	78.3	216.5	524.2
145.00		1.00	1.10	6.681	7.35	0.00	1.200	1.739	5.00	14.521	17.43	128.1	348.6	845.0
147.00	Appurtenance(s)	1.00	1.10	6.708	7.38	0.00	1.200	1.742	2.00	5.661	6.79	50.1	137.4	330.3
150.00		1.00	1.11	6.746	7.42	0.00	1.200	1.745	3.00	8.334	10.00	74.2	201.7	484.9
155.00		1.00	1.12	6.810	7.49	0.00	1.200	1.751	5.00	13.470	16.16	121.1	323.5	779.4
160.00		1.00	1.13	6.872	7.56	0.00	1.200	1.757	5.00	12.944	15.53	117.4	310.8	746.3
165.00	Appurtenance(s)	1.00	1.14	6.933	7.63	0.00	1.200	1.762	5.00	12.418	14.90	113.6	298.0	713.2
167.00	Appurtenance(s)	1.00	1.14	6.957	7.65	0.00	1.200	1.764	2.00	4.819	5.78	44.3	117.1	277.5
170.00	Appurtenance(s)	1.00	1.15	6.992	7.69	0.00	1.200	1.767	3.00	7.072	8.49	65.3	171.0	405.5
								Totals:	**170.00**			**4,893.9**		**57,087.7**

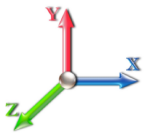
Discrete Appurtenance Forces

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	170.00	6' Lightning rod	1	6.992	7.691	1.00	1.00	1.48	39.26	0.000	0.000	11.39	0.00	0.00
2	167.00	addition 8'x2 7/8" mount	1	6.957	7.652	1.00	1.00	6.47	82.55	0.000	0.000	49.55	0.00	0.00
3	167.00	Ericsson 4480 B71 + B85	3	6.957	7.652	0.54	0.80	5.68	501.93	0.000	0.000	43.46	0.00	0.00
4	167.00	Low Profile	1	6.957	7.652	1.00	1.00	39.85	2823.04	0.000	0.000	304.96	0.00	0.00
5	167.00	Ericsson KRY 112 144/1	3	6.957	7.652	0.40	0.80	1.07	62.99	0.000	0.000	8.17	0.00	0.00
6	167.00	Ericsson AIR 21 B4A/B2P	3	6.957	7.652	0.77	0.90	16.52	838.64	0.000	0.000	126.44	0.00	0.00
7	167.00	Ericsson AIR 21 B2A/B4P	3	6.957	7.652	0.77	0.90	16.52	842.60	0.000	0.000	126.44	0.00	0.00
8	165.00	RFS	3	6.933	7.626	0.58	0.80	38.82	1739.03	0.000	0.000	296.06	0.00	0.00
9	147.00	HRK14	1	6.708	7.378	1.00	1.00	16.06	1023.29	0.000	0.000	118.49	0.00	0.00
10	147.00	Powerwave LGP21402	6	6.708	7.378	0.38	0.75	4.78	208.62	0.000	0.000	35.26	0.00	0.00
11	147.00	Powerwave LGP21903	6	6.708	7.378	0.38	0.75	1.50	75.66	0.000	0.000	11.07	0.00	0.00
12	147.00	AIR6449 B77D	3	6.681	7.350	0.64	0.75	9.53	728.45	0.000	-2.000	70.08	0.00	-140.15
13	147.00	Low Profile	1	6.708	7.378	1.00	1.00	39.63	2806.27	0.000	0.000	292.37	0.00	0.00
14	147.00	Ericsson RRUS 8843 B2	3	6.708	7.378	0.50	0.75	3.22	363.45	0.000	0.000	23.76	0.00	0.00
15	147.00	Ericsson RRUS 4449 B5,	3	6.708	7.378	0.50	0.75	3.79	374.62	0.000	0.000	27.99	0.00	0.00
16	147.00	Raycap DC6-48-60-18-8F	1	6.708	7.378	0.75	0.75	1.02	82.16	0.000	0.000	7.51	0.00	0.00
17	147.00	Raycap DC6-48-60-18-8C	1	6.708	7.378	0.75	0.75	1.44	61.55	0.000	0.000	10.62	0.00	0.00
18	147.00	OPA65R-BU6DA	3	6.708	7.378	0.54	0.75	23.23	931.96	0.000	0.000	171.41	0.00	0.00
19	147.00	AIR6419 B77G	3	6.734	7.407	0.57	0.75	7.86	457.91	0.000	2.000	58.19	0.00	116.38
20	147.00	TPA65R-BU6D	3	6.708	7.378	0.54	0.75	23.23	931.96	0.000	0.000	171.41	0.00	0.00
21	137.00	1900MHz - RRH	3	6.574	7.231	0.54	0.80	8.33	389.34	0.000	0.000	60.20	0.00	0.00
22	137.00	APXVSPP18-C-A20	3	6.574	7.231	0.68	0.80	22.01	570.58	0.000	0.000	159.15	0.00	0.00
23	137.00	800MHz - RRH	3	6.574	7.231	0.54	0.80	5.83	347.38	0.000	0.000	42.13	0.00	0.00
24	137.00	APXVTM14-C-I20	3	6.574	7.231	0.69	0.80	15.36	677.62	0.000	0.000	111.09	0.00	0.00
25	137.00	ACU-A20-N - RET	4	6.574	7.231	0.40	0.80	0.69	16.63	0.000	0.000	5.02	0.00	0.00
26	137.00	ALU - 800MHz Filter	3	6.574	7.231	0.40	0.80	1.71	69.13	0.000	0.000	12.33	0.00	0.00
27	137.00	Low Profile	1	6.574	7.231	1.00	1.00	39.50	2797.10	0.000	0.000	285.65	0.00	0.00
28	137.00	TD-RRH8x20-25 - RRU	3	6.574	7.231	0.54	0.80	7.81	579.78	0.000	0.000	56.46	0.00	0.00
29	110.00	Fujitsu TA08025-B605	3	6.174	6.792	0.50	0.75	3.77	384.32	0.000	0.000	25.64	0.00	0.00
30	110.00	JMA Wireless	3	6.174	6.792	0.55	0.75	23.16	876.57	0.000	0.000	157.30	0.00	0.00
31	110.00	Raycap	1	6.174	6.792	0.75	0.75	1.92	65.20	0.000	0.000	13.04	0.00	0.00
32	110.00	Fujitsu TA08025-B604	3	6.174	6.792	0.50	0.75	3.77	340.99	0.000	0.000	25.64	0.00	0.00
33	110.00	MC-PK8-DSH	1	6.174	6.792	1.00	1.00	83.38	3335.69	0.000	0.000	566.31	0.00	0.00
34	75.00	GPS	1	5.534	6.088	0.80	0.80	1.33	31.36	0.000	0.000	8.11	0.00	0.00
35	75.00	Standoff	1	5.534	6.088	0.56	0.75	4.61	99.90	0.000	0.000	28.08	0.00	0.00
							Totals:		**25,557.53**			**3,520.77**		

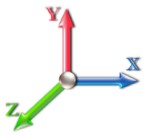
Total Applied Force Summary

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		157.64	2518.64	0.00	0.00
10.00		155.07	2511.34	0.00	0.00
15.00		152.35	2488.49	0.00	0.00
20.00		149.56	2458.79	0.00	0.00
25.00		146.73	2425.13	0.00	0.00
30.00		144.00	2388.85	0.00	0.00
35.00		147.48	2350.69	0.00	0.00
40.00		150.08	2311.10	0.00	0.00
41.00		29.84	457.76	0.00	0.00
45.00		123.17	3048.51	0.00	0.00
48.00		92.70	2254.42	0.00	0.00
50.00		61.85	900.59	0.00	0.00
55.00		156.49	2219.81	0.00	0.00
60.00		156.87	2176.84	0.00	0.00
65.00		156.85	2133.31	0.00	0.00
70.00		156.48	2089.28	0.00	0.00
75.00	(2) attachments	191.97	2176.08	0.00	0.00
80.00		154.81	1993.73	0.00	0.00
85.00		153.56	1948.52	0.00	0.00
90.00		154.51	2975.40	0.00	0.00
91.00		30.51	586.76	0.00	0.00
95.00		121.93	1370.14	0.00	0.00
100.00		150.93	1674.76	0.00	0.00
105.00		148.84	1633.57	0.00	0.00
108.00		87.98	961.59	0.00	0.00
110.00	(11) attachments	846.03	5574.23	0.00	0.00
115.00		144.11	1359.52	0.00	0.00
120.00		141.49	1322.57	0.00	0.00
125.00		138.72	1285.45	0.00	0.00
130.00		135.79	1248.15	0.00	0.00
135.00		134.56	1753.19	0.00	0.00
137.00	(23) attachments	784.80	5877.21	0.00	0.00
140.00		78.27	626.88	0.00	0.00
145.00		128.07	1016.22	0.00	0.00
147.00	(34) attachments	1048.28	8444.73	0.00	-23.77
150.00		74.21	530.07	0.00	0.00
155.00		121.08	854.60	0.00	0.00
160.00		117.42	821.58	0.00	0.00
165.00	(3) attachments	409.70	2527.48	0.00	0.00
167.00	(14) attachments	703.28	5459.38	0.00	0.00
170.00	(1) attachments	76.66	444.80	0.00	0.00
	Totals:	**8,414.67**	**89,200.17**	**0.00**	**-23.77**

Linear Appurtenance Segment Forces (Factored)

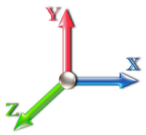
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.70	0.00	0.025	0.000	4.256	0.00	29.14
10.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.78	0.00	0.025	0.000	4.256	0.00	31.10
15.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.82	0.00	0.026	0.000	4.256	0.00	32.35
20.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.86	0.00	0.026	0.000	4.256	0.00	33.30
25.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.88	0.00	0.027	0.000	4.256	0.00	34.07
30.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.90	0.00	0.027	0.000	4.260	0.00	34.72
35.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.92	0.00	0.028	0.000	4.451	0.00	35.28
40.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.94	0.00	0.029	0.000	4.625	0.00	35.79
41.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.39	0.00	0.029	0.000	4.657	0.00	7.18
45.00	1.6" Hybrid	Yes	4.00	0.000	1.60	1.56	0.00	0.029	0.000	4.783	0.00	28.99
48.00	1.6" Hybrid	Yes	3.00	0.000	1.60	1.18	0.00	0.030	0.000	4.872	0.00	21.90
50.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.79	0.00	0.030	0.000	4.929	0.00	14.66
55.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.98	0.00	0.030	0.000	5.065	0.00	37.03
60.00	1.6" Hybrid	Yes	5.00	0.000	1.60	1.99	0.00	0.031	0.000	5.193	0.00	37.39
65.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.00	0.00	0.032	0.000	5.313	0.00	37.72
70.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.01	0.00	0.033	0.000	5.426	0.00	38.03
75.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.02	0.00	0.033	0.000	5.534	0.00	38.32
80.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.03	0.00	0.034	0.000	5.637	0.00	38.59
85.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.04	0.00	0.035	0.000	5.736	0.00	38.86
90.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.05	0.00	0.036	0.000	5.830	0.00	39.11
91.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.41	0.00	0.037	0.000	5.849	0.00	7.83
95.00	1.6" Hybrid	Yes	4.00	0.000	1.60	1.64	0.00	0.037	0.000	5.921	0.00	31.48
100.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.06	0.00	0.038	0.000	6.008	0.00	39.57
105.00	1.6" Hybrid	Yes	5.00	0.000	1.60	2.07	0.00	0.039	0.000	6.093	0.00	39.79
108.00	1.6" Hybrid	Yes	3.00	0.000	1.60	1.24	0.00	0.040	0.000	6.142	0.00	23.95
110.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.83	0.00	0.041	0.000	6.174	0.00	16.00
									Totals:		**0.0**	**802.1**

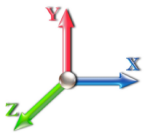
Calculated Forces

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-89.20	-8.44	0.00	-957.99	0.00	957.99	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.140
5.00	-86.68	-8.32	0.00	-915.80	0.00	915.80	5736.18	2868.09	14817.2	7419.63	0.02	-0.029	0.000	0.139
10.00	-84.16	-8.21	0.00	-874.19	0.00	874.19	5667.41	2833.70	14345.3	7183.34	0.06	-0.058	0.000	0.137
15.00	-81.67	-8.10	0.00	-833.14	0.00	833.14	5596.76	2798.38	13875.9	6948.30	0.14	-0.088	0.000	0.135
20.00	-79.20	-7.98	0.00	-792.66	0.00	792.66	5524.26	2762.13	13409.4	6714.68	0.25	-0.118	0.000	0.132
25.00	-76.78	-7.87	0.00	-752.74	0.00	752.74	5449.89	2724.95	12945.9	6482.61	0.39	-0.148	0.000	0.130
30.00	-74.38	-7.76	0.00	-713.38	0.00	713.38	5373.66	2686.83	12485.9	6252.24	0.56	-0.179	0.000	0.128
35.00	-72.03	-7.65	0.00	-674.57	0.00	674.57	5295.57	2647.79	12029.5	6023.71	0.76	-0.210	0.000	0.126
40.00	-69.72	-7.51	0.00	-636.34	0.00	636.34	5215.62	2607.81	11577.1	5797.18	1.00	-0.242	0.000	0.123
41.00	-69.26	-7.50	0.00	-628.83	0.00	628.83	5199.41	2599.70	11487.1	5752.13	1.05	-0.248	0.000	0.123
45.00	-66.21	-7.39	0.00	-598.84	0.00	598.84	5133.81	2566.90	11129.0	5572.78	1.27	-0.274	0.000	0.120
48.00	-63.95	-7.30	0.00	-576.69	0.00	576.69	5141.90	2570.95	11172.7	5594.66	1.45	-0.293	0.000	0.116
50.00	-63.05	-7.26	0.00	-562.08	0.00	562.08	5108.73	2554.36	10994.5	5505.45	1.58	-0.306	0.000	0.114
55.00	-60.82	-7.12	0.00	-525.79	0.00	525.79	5024.49	2512.24	10552.4	5284.05	1.91	-0.337	0.000	0.112
60.00	-58.64	-6.98	0.00	-490.18	0.00	490.18	4938.39	2469.19	10115.2	5065.12	2.28	-0.368	0.000	0.109
65.00	-56.51	-6.84	0.00	-455.27	0.00	455.27	4850.42	2425.21	9683.22	4848.81	2.68	-0.399	0.000	0.106
70.00	-54.42	-6.70	0.00	-421.06	0.00	421.06	4760.60	2380.30	9256.75	4635.26	3.12	-0.430	0.000	0.102
75.00	-52.24	-6.52	0.00	-387.56	0.00	387.56	4668.91	2334.45	8836.09	4424.61	3.59	-0.460	0.000	0.099
80.00	-50.24	-6.37	0.00	-354.96	0.00	354.96	4575.36	2287.68	8421.51	4217.02	4.08	-0.491	0.000	0.095
85.00	-48.29	-6.23	0.00	-323.09	0.00	323.09	4479.95	2239.97	8013.32	4012.62	4.61	-0.521	0.000	0.091
90.00	-45.32	-6.06	0.00	-291.94	0.00	291.94	4371.20	2185.60	7591.89	3801.59	5.18	-0.551	0.000	0.087
91.00	-44.73	-6.04	0.00	-285.88	0.00	285.88	3638.14	1819.07	6412.59	3211.06	5.29	-0.558	0.000	0.101
95.00	-43.36	-5.92	0.00	-261.73	0.00	261.73	3578.07	1789.03	6158.09	3083.62	5.77	-0.581	0.000	0.097
100.00	-41.68	-5.78	0.00	-232.12	0.00	232.12	3501.29	1750.65	5844.19	2926.44	6.40	-0.613	0.000	0.091
105.00	-40.05	-5.63	0.00	-203.24	0.00	203.24	3422.66	1711.33	5535.26	2771.74	7.06	-0.644	0.000	0.085
108.00	-39.08	-5.54	0.00	-186.36	0.00	186.36	3374.59	1687.29	5352.40	2680.18	7.47	-0.662	0.000	0.081
108.00	-39.08	-5.54	0.00	-186.36	0.00	186.36	2667.38	1333.69	4244.39	2125.35	7.47	-0.662	0.000	0.102
110.00	-33.52	-4.64	0.00	-175.28	0.00	175.28	2644.20	1322.10	4152.60	2079.39	7.75	-0.674	0.000	0.097
115.00	-32.16	-4.50	0.00	-152.08	0.00	152.08	2584.96	1292.48	3925.36	1965.60	8.47	-0.707	0.000	0.090
120.00	-30.84	-4.36	0.00	-129.59	0.00	129.59	2523.85	1261.93	3701.54	1853.52	9.23	-0.738	0.000	0.082
125.00	-29.55	-4.22	0.00	-107.80	0.00	107.80	2460.88	1230.44	3481.44	1743.31	10.02	-0.768	0.000	0.074
130.00	-28.30	-4.08	0.00	-86.73	0.00	86.73	2396.05	1198.03	3265.33	1635.09	10.84	-0.795	0.000	0.065
135.00	-26.55	-3.92	0.00	-66.35	0.00	66.35	1762.27	881.13	2355.65	1179.58	11.68	-0.819	0.000	0.071
137.00	-20.68	-3.06	0.00	-58.50	0.00	58.50	1744.61	872.31	2295.82	1149.62	12.03	-0.827	0.000	0.063
140.00	-20.06	-2.98	0.00	-49.33	0.00	49.33	1717.57	858.78	2206.74	1105.01	12.55	-0.841	0.000	0.056
145.00	-19.04	-2.84	0.00	-34.44	0.00	34.44	1671.00	835.50	2060.16	1031.61	13.44	-0.861	0.000	0.045
147.00	-10.61	-1.66	0.00	-28.77	0.00	28.77	1651.86	825.93	2002.25	1002.61	13.81	-0.867	0.000	0.035
150.00	-10.08	-1.58	0.00	-23.78	0.00	23.78	1622.58	811.29	1916.22	959.54	14.35	-0.876	0.000	0.031
155.00	-9.23	-1.45	0.00	-15.86	0.00	15.86	1572.29	786.15	1775.21	888.92	15.28	-0.888	0.000	0.024
160.00	-8.41	-1.32	0.00	-8.60	0.00	8.60	1520.15	760.07	1637.42	819.92	16.21	-0.896	0.000	0.016
165.00	-5.89	-0.87	0.00	-2.00	0.00	2.00	1466.13	733.07	1503.13	752.68	17.15	-0.900	0.000	0.007
167.00	-0.44	-0.08	0.00	-0.25	0.00	0.25	1444.01	722.00	1450.46	726.31	17.53	-0.901	0.000	0.001
170.00	0.00	-0.08	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	18.10	-0.901	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.37	**SA**	0.04	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1498.6	0.00	0.03	0.02	24.45	
10.00		1469.0	0.01	0.05	0.03	35.86	
15.00		1439.4	0.01	0.06	0.04	41.37	
20.00		1409.8	0.03	0.07	0.04	43.88	
25.00		1380.2	0.04	0.07	0.04	44.87	
30.00		1350.5	0.06	0.07	0.04	45.16	
35.00		1320.9	0.08	0.07	0.04	45.19	
40.00		1291.3	0.10	0.07	0.04	45.13	
41.00	Bot - Section 2	254.71	0.11	0.07	0.04	8.94	
45.00		2030.5	0.13	0.07	0.03	72.40	
48.00	Top - Section 1	1498.0	0.15	0.07	0.03	53.95	
50.00		497.56	0.16	0.07	0.03	18.01	
55.00		1223.1	0.20	0.06	0.02	44.45	
60.00		1193.5	0.24	0.06	0.02	42.65	
65.00		1163.9	0.28	0.05	0.01	39.49	
70.00		1134.3	0.32	0.04	0.01	34.52	
75.00	Appurtenance(s)	1154.6	0.37	0.03	0.01	28.64	
80.00		1075.0	0.42	0.01	0.01	18.08	
85.00	Bot - Section 3	1045.4	0.47	-0.01	0.01	7.01	
90.00		1903.0	0.53	-0.03	0.01	-8.83	
91.00	Top - Section 2	374.00	0.54	-0.03	0.01	-2.59	
95.00		687.39	0.59	-0.05	0.01	-10.87	
100.00		836.39	0.65	-0.07	0.02	-21.16	
105.00		811.01	0.72	-0.09	0.03	-25.84	
108.00	Top - Section 3	474.42	0.76	-0.10	0.04	-16.17	
110.00	Appurtenance(s)	2618.8	0.79	-0.11	0.05	-91.16	
115.00		634.58	0.86	-0.12	0.07	-21.47	
120.00		613.43	0.94	-0.12	0.10	-17.70	
125.00		592.27	1.02	-0.10	0.14	-11.81	
130.00	Bot - Section 5	571.11	1.11	-0.07	0.19	-4.06	
135.00	Top - Section 4	997.52	1.19	0.00	0.25	9.59	
137.00	Appurtenance(s)	2544.6	1.23	0.03	0.28	44.28	
140.00		256.35	1.28	0.10	0.32	7.75	
145.00		413.71	1.37	0.24	0.41	22.68	
147.00	Appurtenance(s)	3428.8	1.41	0.31	0.45	225.50	
150.00		236.04	1.47	0.43	0.51	19.68	
155.00		379.86	1.57	0.69	0.63	44.07	
160.00		362.94	1.67	1.03	0.78	55.46	
165.00	Appurtenance(s)	714.41	1.78	1.45	0.94	138.45	
167.00	Appurtenance(s)	2520.5	1.82	1.65	1.02	532.83	
170.00	Appurtenance(s)	201.92	1.89	1.98	1.14	48.28	
	Totals:	**45,604.4**				**1,611.0**	**Total Wind:** **31,690.9**

Calculated Forces

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E							**Iterations**	21
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.37	**SA**	0.04	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-60.72	-1.85	0.00	-220.37	0.00	220.37	5803.10	2901.55	15291.3	7657.05		0.00	0.00	0.039
5.00	-58.72	-1.83	0.00	-211.15	0.00	211.15	5736.18	2868.09	14817.2	7419.63		0.00	-0.01	0.039
10.00	-56.76	-1.80	0.00	-202.01	0.00	202.01	5667.41	2833.70	14345.3	7183.34		0.01	-0.01	0.038
15.00	-54.83	-1.76	0.00	-193.01	0.00	193.01	5596.76	2798.38	13875.9	6948.30		0.03	-0.02	0.038
20.00	-52.94	-1.73	0.00	-184.20	0.00	184.20	5524.26	2762.13	13409.4	6714.68		0.06	-0.03	0.037
25.00	-51.08	-1.69	0.00	-175.57	0.00	175.57	5449.89	2724.95	12945.9	6482.61		0.09	-0.03	0.036
30.00	-49.26	-1.65	0.00	-167.14	0.00	167.14	5373.66	2686.83	12485.9	6252.24		0.13	-0.04	0.036
35.00	-47.47	-1.61	0.00	-158.92	0.00	158.92	5295.57	2647.79	12029.5	6023.71		0.18	-0.05	0.035
40.00	-45.72	-1.56	0.00	-150.89	0.00	150.89	5215.62	2607.81	11577.1	5797.18		0.23	-0.06	0.035
41.00	-45.38	-1.56	0.00	-149.33	0.00	149.33	5199.41	2599.70	11487.1	5752.13		0.24	-0.06	0.035
45.00	-42.78	-1.48	0.00	-143.11	0.00	143.11	5133.81	2566.90	11129.0	5572.78		0.29	-0.06	0.034
48.00	-40.86	-1.43	0.00	-138.65	0.00	138.65	5141.90	2570.95	11172.7	5594.66		0.34	-0.07	0.033
50.00	-40.19	-1.42	0.00	-135.79	0.00	135.79	5108.73	2554.36	10994.5	5505.45		0.37	-0.07	0.033
55.00	-38.52	-1.37	0.00	-128.71	0.00	128.71	5024.49	2512.24	10552.4	5284.05		0.45	-0.08	0.032
60.00	-36.88	-1.33	0.00	-121.84	0.00	121.84	4938.39	2469.19	10115.2	5065.12		0.53	-0.09	0.032
65.00	-35.29	-1.30	0.00	-115.17	0.00	115.17	4850.42	2425.21	9683.22	4848.81		0.63	-0.09	0.031
70.00	-33.73	-1.26	0.00	-108.68	0.00	108.68	4760.60	2380.30	9256.75	4635.26		0.73	-0.10	0.031
75.00	-32.14	-1.24	0.00	-102.36	0.00	102.36	4668.91	2334.45	8836.09	4424.61		0.84	-0.11	0.030
80.00	-30.66	-1.22	0.00	-96.17	0.00	96.17	4575.36	2287.68	8421.51	4217.02		0.96	-0.12	0.030
85.00	-29.21	-1.22	0.00	-90.07	0.00	90.07	4479.95	2239.97	8013.32	4012.62		1.09	-0.13	0.029
90.00	-26.73	-1.21	0.00	-83.99	0.00	83.99	4371.20	2185.60	7591.89	3801.59		1.23	-0.14	0.028
91.00	-26.24	-1.21	0.00	-82.78	0.00	82.78	3638.14	1819.07	6412.59	3211.06		1.26	-0.14	0.033
95.00	-25.26	-1.21	0.00	-77.93	0.00	77.93	3578.07	1789.03	6158.09	3083.62		1.38	-0.14	0.032
100.00	-24.06	-1.21	0.00	-71.86	0.00	71.86	3501.29	1750.65	5844.19	2926.44		1.53	-0.15	0.031
105.00	-22.90	-1.21	0.00	-65.79	0.00	65.79	3422.66	1711.33	5535.26	2771.74		1.70	-0.16	0.030
108.00	-22.21	-1.21	0.00	-62.14	0.00	62.14	3374.59	1687.29	5352.40	2680.18		1.80	-0.17	0.030
108.00	-22.21	-1.21	0.00	-62.14	0.00	62.14	2667.38	1333.69	4244.39	2125.35		1.80	-0.17	0.038
110.00	-18.99	-1.21	0.00	-59.71	0.00	59.71	2644.20	1322.10	4152.60	2079.39		1.87	-0.17	0.036
115.00	-18.05	-1.21	0.00	-53.67	0.00	53.67	2584.96	1292.48	3925.36	1965.60		2.06	-0.18	0.034
120.00	-17.13	-1.21	0.00	-47.63	0.00	47.63	2523.85	1261.93	3701.54	1853.52		2.26	-0.20	0.032
125.00	-16.23	-1.21	0.00	-41.59	0.00	41.59	2460.88	1230.44	3481.44	1743.31		2.47	-0.21	0.030
130.00	-15.36	-1.21	0.00	-35.55	0.00	35.55	2396.05	1198.03	3265.33	1635.09		2.70	-0.22	0.028
135.00	-13.98	-1.19	0.00	-29.50	0.00	29.50	1762.27	881.13	2355.65	1179.58		2.93	-0.23	0.033
137.00	-10.86	-1.14	0.00	-27.11	0.00	27.11	1744.61	872.31	2295.82	1149.62		3.03	-0.23	0.030
140.00	-10.45	-1.13	0.00	-23.70	0.00	23.70	1717.57	858.78	2206.74	1105.01		3.18	-0.24	0.028
145.00	-9.78	-1.11	0.00	-18.04	0.00	18.04	1671.00	835.50	2060.16	1031.61		3.43	-0.25	0.023
147.00	-5.60	-0.86	0.00	-15.83	0.00	15.83	1651.86	825.93	2002.25	1002.61		3.54	-0.25	0.019
150.00	-5.27	-0.84	0.00	-13.24	0.00	13.24	1622.58	811.29	1916.22	959.54		3.70	-0.26	0.017
155.00	-4.74	-0.80	0.00	-9.02	0.00	9.02	1572.29	786.15	1775.21	888.92		3.97	-0.26	0.013
160.00	-4.23	-0.74	0.00	-5.04	0.00	5.04	1520.15	760.07	1637.42	819.92		4.25	-0.27	0.009
165.00	-3.29	-0.60	0.00	-1.34	0.00	1.34	1466.13	733.07	1503.13	752.68		4.53	-0.27	0.004
167.00	-0.24	-0.05	0.00	-0.15	0.00	0.15	1444.01	722.00	1450.46	726.31		4.64	-0.27	0.000
170.00	0.00	-0.05	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38		4.81	-0.27	0.000

Seismic Segment Forces (Factored)

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.19	**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.37	**SA**	0.04	**S1**	0.06
						Seismic Importance Factor	1.00

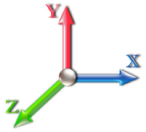
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1498.6	0.00	0.03	0.02	24.45	
10.00		1469.0	0.01	0.05	0.03	35.86	
15.00		1439.4	0.01	0.06	0.04	41.37	
20.00		1409.8	0.03	0.07	0.04	43.88	
25.00		1380.2	0.04	0.07	0.04	44.87	
30.00		1350.5	0.06	0.07	0.04	45.16	
35.00		1320.9	0.08	0.07	0.04	45.19	
40.00		1291.3	0.10	0.07	0.04	45.13	
41.00	Bot - Section 2	254.71	0.11	0.07	0.04	8.94	
45.00		2030.5	0.13	0.07	0.03	72.40	
48.00	Top - Section 1	1498.0	0.15	0.07	0.03	53.95	
50.00		497.56	0.16	0.07	0.03	18.01	
55.00		1223.1	0.20	0.06	0.02	44.45	
60.00		1193.5	0.24	0.06	0.02	42.65	
65.00		1163.9	0.28	0.05	0.01	39.49	
70.00		1134.3	0.32	0.04	0.01	34.52	
75.00	Appurtenance(s)	1154.6	0.37	0.03	0.01	28.64	
80.00		1075.0	0.42	0.01	0.01	18.08	
85.00	Bot - Section 3	1045.4	0.47	-0.01	0.01	7.01	
90.00		1903.0	0.53	-0.03	0.01	-8.83	
91.00	Top - Section 2	374.00	0.54	-0.03	0.01	-2.59	
95.00		687.39	0.59	-0.05	0.01	-10.87	
100.00		836.39	0.65	-0.07	0.02	-21.16	
105.00		811.01	0.72	-0.09	0.03	-25.84	
108.00	Top - Section 3	474.42	0.76	-0.10	0.04	-16.17	
110.00	Appurtenance(s)	2618.8	0.79	-0.11	0.05	-91.16	
115.00		634.58	0.86	-0.12	0.07	-21.47	
120.00		613.43	0.94	-0.12	0.10	-17.70	
125.00		592.27	1.02	-0.10	0.14	-11.81	
130.00	Bot - Section 5	571.11	1.11	-0.07	0.19	-4.06	
135.00	Top - Section 4	997.52	1.19	0.00	0.25	9.59	
137.00	Appurtenance(s)	2544.6	1.23	0.03	0.28	44.28	
140.00		256.35	1.28	0.10	0.32	7.75	
145.00		413.71	1.37	0.24	0.41	22.68	
147.00	Appurtenance(s)	3428.8	1.41	0.31	0.45	225.50	
150.00		236.04	1.47	0.43	0.51	19.68	
155.00		379.86	1.57	0.69	0.63	44.07	
160.00		362.94	1.67	1.03	0.78	55.46	
165.00	Appurtenance(s)	714.41	1.78	1.45	0.94	138.45	
167.00	Appurtenance(s)	2520.5	1.82	1.65	1.02	532.83	
170.00	Appurtenance(s)	201.92	1.89	1.98	1.14	48.28	
	Totals:	**45,604.4**				**1,611.0**	**Total Wind:** **31,690.9**

Calculated Forces

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.19			**Iterations**	20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.18
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.37	**SA**	0.04			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.54	-1.84	0.00	-218.25	0.00	218.25	5803.10	2901.55	15291.3	7657.05		0.00	0.00	0.036
5.00	-44.04	-1.82	0.00	-209.03	0.00	209.03	5736.18	2868.09	14817.2	7419.63		0.00	-0.01	0.036
10.00	-42.57	-1.79	0.00	-199.90	0.00	199.90	5667.41	2833.70	14345.3	7183.34		0.01	-0.01	0.035
15.00	-41.12	-1.76	0.00	-190.94	0.00	190.94	5596.76	2798.38	13875.9	6948.30		0.03	-0.02	0.035
20.00	-39.70	-1.72	0.00	-182.16	0.00	182.16	5524.26	2762.13	13409.4	6714.68		0.06	-0.03	0.034
25.00	-38.31	-1.68	0.00	-173.57	0.00	173.57	5449.89	2724.95	12945.9	6482.61		0.09	-0.03	0.034
30.00	-36.94	-1.63	0.00	-165.19	0.00	165.19	5373.66	2686.83	12485.9	6252.24		0.13	-0.04	0.033
35.00	-35.60	-1.59	0.00	-157.02	0.00	157.02	5295.57	2647.79	12029.5	6023.71		0.17	-0.05	0.033
40.00	-34.29	-1.55	0.00	-149.06	0.00	149.06	5215.62	2607.81	11577.1	5797.18		0.23	-0.06	0.032
41.00	-34.03	-1.54	0.00	-147.51	0.00	147.51	5199.41	2599.70	11487.1	5752.13		0.24	-0.06	0.032
45.00	-32.08	-1.47	0.00	-141.34	0.00	141.34	5133.81	2566.90	11129.0	5572.78		0.29	-0.06	0.032
48.00	-30.65	-1.42	0.00	-136.93	0.00	136.93	5141.90	2570.95	11172.7	5594.66		0.33	-0.07	0.030
50.00	-30.14	-1.40	0.00	-134.09	0.00	134.09	5108.73	2554.36	10994.5	5505.45		0.36	-0.07	0.030
55.00	-28.89	-1.36	0.00	-127.09	0.00	127.09	5024.49	2512.24	10552.4	5284.05		0.44	-0.08	0.030
60.00	-27.66	-1.32	0.00	-120.29	0.00	120.29	4938.39	2469.19	10115.2	5065.12		0.53	-0.09	0.029
65.00	-26.46	-1.28	0.00	-113.70	0.00	113.70	4850.42	2425.21	9683.22	4848.81		0.62	-0.09	0.029
70.00	-25.29	-1.25	0.00	-107.30	0.00	107.30	4760.60	2380.30	9256.75	4635.26		0.72	-0.10	0.028
75.00	-24.10	-1.22	0.00	-101.06	0.00	101.06	4668.91	2334.45	8836.09	4424.61		0.83	-0.11	0.028
80.00	-22.99	-1.20	0.00	-94.96	0.00	94.96	4575.36	2287.68	8421.51	4217.02		0.95	-0.12	0.028
85.00	-21.90	-1.20	0.00	-88.95	0.00	88.95	4479.95	2239.97	8013.32	4012.62		1.08	-0.13	0.027
90.00	-20.05	-1.19	0.00	-82.96	0.00	82.96	4371.20	2185.60	7591.89	3801.59		1.21	-0.13	0.026
91.00	-19.68	-1.20	0.00	-81.77	0.00	81.77	3638.14	1819.07	6412.59	3211.06		1.24	-0.14	0.031
95.00	-18.95	-1.20	0.00	-76.99	0.00	76.99	3578.07	1789.03	6158.09	3083.62		1.36	-0.14	0.030
100.00	-18.05	-1.20	0.00	-71.01	0.00	71.01	3501.29	1750.65	5844.19	2926.44		1.51	-0.15	0.029
105.00	-17.17	-1.20	0.00	-65.02	0.00	65.02	3422.66	1711.33	5535.26	2771.74		1.68	-0.16	0.028
108.00	-16.66	-1.20	0.00	-61.43	0.00	61.43	3374.59	1687.29	5352.40	2680.18		1.78	-0.17	0.028
108.00	-16.66	-1.20	0.00	-61.43	0.00	61.43	2667.38	1333.69	4244.39	2125.35		1.78	-0.17	0.035
110.00	-14.24	-1.19	0.00	-59.04	0.00	59.04	2644.20	1322.10	4152.60	2079.39		1.85	-0.17	0.034
115.00	-13.53	-1.19	0.00	-53.08	0.00	53.08	2584.96	1292.48	3925.36	1965.60		2.04	-0.18	0.032
120.00	-12.84	-1.19	0.00	-47.12	0.00	47.12	2523.85	1261.93	3701.54	1853.52		2.24	-0.19	0.031
125.00	-12.17	-1.19	0.00	-41.16	0.00	41.16	2460.88	1230.44	3481.44	1743.31		2.44	-0.21	0.029
130.00	-11.52	-1.19	0.00	-35.20	0.00	35.20	2396.05	1198.03	3265.33	1635.09		2.67	-0.22	0.026
135.00	-10.49	-1.18	0.00	-29.24	0.00	29.24	1762.27	881.13	2355.65	1179.58		2.90	-0.23	0.031
137.00	-8.14	-1.13	0.00	-26.88	0.00	26.88	1744.61	872.31	2295.82	1149.62		2.99	-0.23	0.028
140.00	-7.83	-1.12	0.00	-23.50	0.00	23.50	1717.57	858.78	2206.74	1105.01		3.14	-0.24	0.026
145.00	-7.33	-1.10	0.00	-17.90	0.00	17.90	1671.00	835.50	2060.16	1031.61		3.39	-0.25	0.022
147.00	-4.20	-0.86	0.00	-15.71	0.00	15.71	1651.86	825.93	2002.25	1002.61		3.49	-0.25	0.018
150.00	-3.95	-0.84	0.00	-13.14	0.00	13.14	1622.58	811.29	1916.22	959.54		3.65	-0.25	0.016
155.00	-3.55	-0.79	0.00	-8.96	0.00	8.96	1572.29	786.15	1775.21	888.92		3.92	-0.26	0.012
160.00	-3.17	-0.73	0.00	-5.00	0.00	5.00	1520.15	760.07	1637.42	819.92		4.20	-0.27	0.008
165.00	-2.47	-0.59	0.00	-1.33	0.00	1.33	1466.13	733.07	1503.13	752.68		4.48	-0.27	0.003
167.00	-0.18	-0.05	0.00	-0.15	0.00	0.15	1444.01	722.00	1450.46	726.31		4.59	-0.27	0.000
170.00	0.00	-0.05	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38		4.76	-0.27	0.000

Wind Loading - Shaft

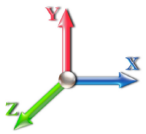
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	273.99	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	268.66	0.650	0.000	5.00	27.024	17.57	118.4	0.0	1498.7
10.00		1.00	0.70	6.129	6.74	263.33	0.650	0.000	5.00	26.494	17.22	116.1	0.0	1469.1
15.00		1.00	0.70	6.129	6.74	258.01	0.650	0.000	5.00	25.964	16.88	113.8	0.0	1439.4
20.00		1.00	0.70	6.129	6.74	252.68	0.650	0.000	5.00	25.433	16.53	111.4	0.0	1409.8
25.00		1.00	0.70	6.129	6.74	247.36	0.650	0.000	5.00	24.903	16.19	109.1	0.0	1380.2
30.00		1.00	0.70	6.134	6.75	242.14	0.650	0.000	5.00	24.372	15.84	106.9	0.0	1350.6
35.00		1.00	0.73	6.410	7.05	242.08	0.650	0.000	5.00	23.842	15.50	109.3	0.0	1321.0
40.00		1.00	0.76	6.659	7.33	241.19	0.650	0.000	5.00	23.311	15.15	111.0	0.0	1291.3
41.00	Bot - Section 2	1.00	0.77	6.706	7.38	240.93	0.650	0.000	1.00	4.599	2.99	22.1	0.0	254.7
45.00		1.00	0.79	6.887	7.58	239.64	0.650	0.000	4.00	18.479	12.01	91.0	0.0	2030.6
48.00	Top - Section 1	1.00	0.80	7.015	7.72	238.44	0.650	0.000	3.00	13.636	8.86	68.4	0.0	1498.0
50.00		1.00	0.81	7.098	7.81	241.54	0.650	0.000	2.00	8.985	5.84	45.6	0.0	497.6
55.00		1.00	0.83	7.294	8.02	239.04	0.650	0.000	5.00	22.090	14.36	115.2	0.0	1223.2
60.00		1.00	0.85	7.477	8.22	236.15	0.650	0.000	5.00	21.560	14.01	115.3	0.0	1193.5
65.00		1.00	0.87	7.650	8.42	232.92	0.650	0.000	5.00	21.030	13.67	115.0	0.0	1163.9
70.00		1.00	0.89	7.814	8.60	229.38	0.650	0.000	5.00	20.499	13.32	114.5	0.0	1134.3
75.00	Appurtenance(s)	1.00	0.91	7.969	8.77	225.58	0.650	0.000	5.00	19.969	12.98	113.8	0.0	1104.7
80.00		1.00	0.93	8.118	8.93	221.54	0.650	0.000	5.00	19.438	12.63	112.8	0.0	1075.1
85.00	Bot - Section 3	1.00	0.94	8.260	9.09	217.29	0.650	0.000	5.00	18.908	12.29	111.7	0.0	1045.5
90.00		1.00	0.96	8.396	9.24	212.84	0.650	0.000	5.00	18.695	12.15	112.2	0.0	1903.0
91.00	Top - Section 2	1.00	0.96	8.422	9.26	211.92	0.650	0.000	1.00	3.675	2.39	22.1	0.0	374.0
95.00		1.00	0.97	8.526	9.38	211.96	0.650	0.000	4.00	14.489	9.42	88.3	0.0	687.4
100.00		1.00	0.99	8.652	9.52	207.19	0.650	0.000	5.00	17.634	11.46	109.1	0.0	836.4
105.00		1.00	1.00	8.774	9.65	202.27	0.650	0.000	5.00	17.103	11.12	107.3	0.0	811.0
108.00	Top - Section 3	1.00	1.01	8.845	9.73	199.25	0.650	0.000	3.00	10.007	6.50	63.3	0.0	474.4
110.00	Appurtenance(s)	1.00	1.02	8.891	9.78	197.21	0.650	0.000	2.00	6.566	4.27	41.7	0.0	259.8
115.00		1.00	1.03	9.005	9.91	192.01	0.650	0.000	5.00	16.043	10.43	103.3	0.0	634.6
120.00		1.00	1.04	9.115	10.03	186.68	0.650	0.000	5.00	15.512	10.08	101.1	0.0	613.4
125.00		1.00	1.05	9.222	10.14	181.24	0.650	0.000	5.00	14.982	9.74	98.8	0.0	592.3
130.00	Bot - Section 5	1.00	1.07	9.326	10.26	175.69	0.650	0.000	5.00	14.451	9.39	96.4	0.0	571.1
135.00	Top - Section 4	1.00	1.08	9.427	10.37	170.04	0.650	0.000	5.00	14.132	9.19	95.3	0.0	997.5
137.00	Appurtenance(s)	1.00	1.08	9.466	10.41	170.39	0.650	0.000	2.00	5.504	3.58	37.3	0.0	174.3
140.00		1.00	1.09	9.525	10.48	166.93	0.650	0.000	3.00	8.098	5.26	55.1	0.0	256.4
145.00		1.00	1.10	9.621	10.58	161.10	0.650	0.000	5.00	13.072	8.50	89.9	0.0	413.7
147.00	Appurtenance(s)	1.00	1.10	9.659	10.62	158.74	0.650	0.000	2.00	5.080	3.30	35.1	0.0	160.7
150.00		1.00	1.11	9.715	10.69	155.18	0.650	0.000	3.00	7.461	4.85	51.8	0.0	236.0
155.00		1.00	1.12	9.806	10.79	149.17	0.650	0.000	5.00	12.011	7.81	84.2	0.0	379.9
160.00		1.00	1.13	9.896	10.89	143.08	0.650	0.000	5.00	11.480	7.46	81.2	0.0	362.9
165.00	Appurtenance(s)	1.00	1.14	9.983	10.98	136.91	0.650	0.000	5.00	10.950	7.12	78.2	0.0	346.0
167.00	Appurtenance(s)	1.00	1.14	10.017	11.02	134.42	0.650	0.000	2.00	4.231	2.75	30.3	0.0	133.7
170.00	Appurtenance(s)	1.00	1.15	10.069	11.08	130.67	0.650	0.000	3.00	6.188	4.02	44.5	0.0	195.4
								Totals:	**170.00**			**3,547.9**		**34,795.0**

Discrete Appurtenance Forces

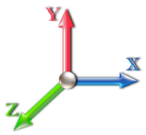
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	170.00	6' Lightning rod	1	10.069	11.075	1.00	1.00	0.38	6.50	0.000	0.000	4.21	0.00	0.00
2	167.00	addition 8'x2 7/8" mount	1	10.017	11.019	1.00	1.00	2.80	29.20	0.000	0.000	30.85	0.00	0.00
3	167.00	Ericsson 4480 B71 + B85	3	10.017	11.019	0.54	0.80	4.58	279.00	0.000	0.000	50.50	0.00	0.00
4	167.00	Low Profile	1	10.017	11.019	1.00	1.00	22.00	1500.00	0.000	0.000	242.42	0.00	0.00
5	167.00	Ericsson KRY 112 144/1	3	10.017	11.019	0.40	0.80	0.49	33.00	0.000	0.000	5.42	0.00	0.00
6	167.00	Ericsson AIR 21 B4A/B2P	3	10.017	11.019	0.77	0.90	13.98	271.20	0.000	0.000	154.01	0.00	0.00
7	167.00	Ericsson AIR 21 B2A/B4P	3	10.017	11.019	0.76	0.90	13.81	274.50	0.000	0.000	152.20	0.00	0.00
8	165.00	RFS	3	9.983	10.981	0.58	0.80	35.46	368.40	0.000	0.000	389.40	0.00	0.00
9	147.00	HRK14	1	9.659	10.625	1.00	1.00	8.13	302.36	0.000	0.000	86.38	0.00	0.00
10	147.00	Powerwave LGP21402	6	9.659	10.625	0.38	0.75	2.90	84.60	0.000	0.000	30.84	0.00	0.00
11	147.00	Powerwave LGP21903	6	9.659	10.625	0.38	0.75	0.61	33.00	0.000	0.000	6.45	0.00	0.00
12	147.00	AIR6449 B77D	3	9.621	10.583	0.64	0.75	7.90	264.00	0.000	-2.000	83.59	0.00	-167.19
13	147.00	Low Profile	1	9.659	10.625	1.00	1.00	22.00	1500.00	0.000	0.000	233.75	0.00	0.00
14	147.00	Ericsson RRUS 8843 B2	3	9.659	10.625	0.50	0.75	2.47	216.00	0.000	0.000	26.27	0.00	0.00
15	147.00	Ericsson RRUS 4449 B5,	3	9.659	10.625	0.50	0.75	2.97	213.00	0.000	0.000	31.55	0.00	0.00
16	147.00	Raycap DC6-48-60-18-8F	1	9.659	10.625	0.75	0.75	0.69	31.80	0.000	0.000	7.33	0.00	0.00
17	147.00	Raycap DC6-48-60-18-8C	1	9.659	10.625	0.75	0.75	0.95	20.00	0.000	0.000	10.04	0.00	0.00
18	147.00	OPA65R-BU6DA	3	9.659	10.625	0.54	0.75	20.85	202.50	0.000	0.000	221.52	0.00	0.00
19	147.00	AIR6419 B77G	3	9.696	10.666	0.57	0.75	6.50	198.30	0.000	2.000	69.31	0.00	138.61
20	147.00	TPA65R-BU6D	3	9.659	10.625	0.54	0.75	20.85	202.50	0.000	0.000	221.52	0.00	0.00
21	137.00	1900MHz - RRH	3	9.466	10.413	0.54	0.80	6.11	132.00	0.000	0.000	63.63	0.00	0.00
22	137.00	APXVSPP18-C-A20	3	9.466	10.413	0.68	0.80	16.36	171.00	0.000	0.000	170.37	0.00	0.00
23	137.00	800MHz - RRH	3	9.466	10.413	0.54	0.80	4.00	159.00	0.000	0.000	41.69	0.00	0.00
24	137.00	APXVTM14-C-I20	3	9.466	10.413	0.69	0.80	13.09	168.00	0.000	0.000	136.26	0.00	0.00
25	137.00	ACU-A20-N - RET	4	9.466	10.413	0.40	0.80	0.22	4.00	0.000	0.000	2.33	0.00	0.00
26	137.00	ALU - 800MHz Filter	3	9.466	10.413	0.40	0.80	0.94	26.40	0.000	0.000	9.75	0.00	0.00
27	137.00	Low Profile	1	9.466	10.413	1.00	1.00	22.00	1500.00	0.000	0.000	229.09	0.00	0.00
28	137.00	TD-RRH8x20-25 - RRU	3	9.466	10.413	0.54	0.80	6.51	210.00	0.000	0.000	67.81	0.00	0.00
29	110.00	Fujitsu TA08025-B605	3	8.891	9.780	0.50	0.75	2.95	225.00	0.000	0.000	28.90	0.00	0.00
30	110.00	JMA Wireless	3	8.891	9.780	0.55	0.75	20.80	193.50	0.000	0.000	203.39	0.00	0.00
31	110.00	Raycap	1	8.891	9.780	0.75	0.75	1.51	21.90	0.000	0.000	14.74	0.00	0.00
32	110.00	Fujitsu TA08025-B604	3	8.891	9.780	0.50	0.75	2.95	191.70	0.000	0.000	28.90	0.00	0.00
33	110.00	MC-PK8-DSH	1	8.891	9.780	1.00	1.00	37.59	1727.00	0.000	0.000	367.63	0.00	0.00
34	75.00	GPS	1	7.969	8.766	0.80	0.80	0.80	10.00	0.000	0.000	7.01	0.00	0.00
35	75.00	Standoff	1	7.969	8.766	0.56	0.75	1.48	40.00	0.000	0.000	12.97	0.00	0.00
							Totals:		**10,809.36**			**3,442.05**		

Total Applied Force Summary

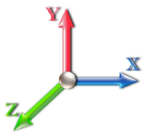
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		118.42	1665.52	0.00	0.00
10.00		116.10	1635.90	0.00	0.00
15.00		113.77	1606.28	0.00	0.00
20.00		111.45	1576.67	0.00	0.00
25.00		109.12	1547.05	0.00	0.00
30.00		106.89	1517.43	0.00	0.00
35.00		109.27	1487.81	0.00	0.00
40.00		110.99	1458.19	0.00	0.00
41.00		22.05	288.08	0.00	0.00
45.00		90.99	2164.04	0.00	0.00
48.00		68.40	1598.15	0.00	0.00
50.00		45.60	564.30	0.00	0.00
55.00		115.20	1390.01	0.00	0.00
60.00		115.26	1360.39	0.00	0.00
65.00		115.03	1330.78	0.00	0.00
70.00		114.53	1301.16	0.00	0.00
75.00	(2) attachments	133.77	1321.54	0.00	0.00
80.00		112.82	1236.72	0.00	0.00
85.00		111.66	1207.10	0.00	0.00
90.00		112.22	2064.65	0.00	0.00
91.00		22.13	406.33	0.00	0.00
95.00		88.33	816.71	0.00	0.00
100.00		109.09	998.04	0.00	0.00
105.00		107.29	972.66	0.00	0.00
108.00		63.29	571.41	0.00	0.00
110.00	(11) attachments	685.30	2683.52	0.00	0.00
115.00		103.29	787.13	0.00	0.00
120.00		101.09	765.98	0.00	0.00
125.00		98.78	744.82	0.00	0.00
130.00		96.36	723.66	0.00	0.00
135.00		95.25	1150.07	0.00	0.00
137.00	(23) attachments	758.19	2605.71	0.00	0.00
140.00		55.15	341.94	0.00	0.00
145.00		89.92	556.36	0.00	0.00
147.00	(34) attachments	1063.64	3485.87	0.00	-28.57
150.00		51.83	273.66	0.00	0.00
155.00		84.21	442.56	0.00	0.00
160.00		81.23	425.64	0.00	0.00
165.00	(3) attachments	467.56	777.11	0.00	0.00
167.00	(14) attachments	665.71	2545.65	0.00	0.00
170.00	(1) attachments	48.76	201.92	0.00	0.00
	Totals:	**6,989.95**	**50,598.53**	**0.00**	**-28.57**

Linear Appurtenance Segment Forces (Factored)

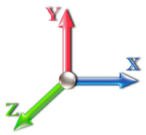
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.025	0.000	6.129	0.00	9.10
10.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.025	0.000	6.129	0.00	9.10
15.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.026	0.000	6.129	0.00	9.10
20.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.026	0.000	6.129	0.00	9.10
25.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.027	0.000	6.129	0.00	9.10
30.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.027	0.000	6.134	0.00	9.10
35.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.028	0.000	6.410	0.00	9.10
40.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.029	0.000	6.659	0.00	9.10
41.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.13	0.00	0.029	0.000	6.706	0.00	1.82
45.00	1.6" Hybrid	Yes	4.00	0.000	1.60	0.53	0.00	0.029	0.000	6.887	0.00	7.28
48.00	1.6" Hybrid	Yes	3.00	0.000	1.60	0.40	0.00	0.030	0.000	7.015	0.00	5.46
50.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.27	0.00	0.030	0.000	7.098	0.00	3.64
55.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.030	0.000	7.294	0.00	9.10
60.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.031	0.000	7.477	0.00	9.10
65.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.032	0.000	7.650	0.00	9.10
70.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.033	0.000	7.814	0.00	9.10
75.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.033	0.000	7.969	0.00	9.10
80.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.034	0.000	8.118	0.00	9.10
85.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.035	0.000	8.260	0.00	9.10
90.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.036	0.000	8.396	0.00	9.10
91.00	1.6" Hybrid	Yes	1.00	0.000	1.60	0.13	0.00	0.037	0.000	8.422	0.00	1.82
95.00	1.6" Hybrid	Yes	4.00	0.000	1.60	0.53	0.00	0.037	0.000	8.526	0.00	7.28
100.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.038	0.000	8.652	0.00	9.10
105.00	1.6" Hybrid	Yes	5.00	0.000	1.60	0.67	0.00	0.039	0.000	8.774	0.00	9.10
108.00	1.6" Hybrid	Yes	3.00	0.000	1.60	0.40	0.00	0.040	0.000	8.845	0.00	5.46
110.00	1.6" Hybrid	Yes	2.00	0.000	1.60	0.27	0.00	0.041	0.000	8.891	0.00	3.64
									Totals:		**0.0**	**200.2**

Calculated Forces

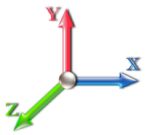
Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-50.60	-7.00	0.00	-807.67	0.00	807.67	5803.10	2901.55	15291.3	7657.05	0.00	0.000	0.000	0.114
5.00	-48.93	-6.90	0.00	-772.66	0.00	772.66	5736.18	2868.09	14817.2	7419.63	0.01	-0.024	0.000	0.113
10.00	-47.29	-6.81	0.00	-738.15	0.00	738.15	5667.41	2833.70	14345.3	7183.34	0.05	-0.049	0.000	0.111
15.00	-45.68	-6.71	0.00	-704.12	0.00	704.12	5596.76	2798.38	13875.9	6948.30	0.12	-0.074	0.000	0.110
20.00	-44.10	-6.62	0.00	-670.57	0.00	670.57	5524.26	2762.13	13409.4	6714.68	0.21	-0.100	0.000	0.108
25.00	-42.55	-6.52	0.00	-637.48	0.00	637.48	5449.89	2724.95	12945.9	6482.61	0.33	-0.125	0.000	0.106
30.00	-41.03	-6.43	0.00	-604.86	0.00	604.86	5373.66	2686.83	12485.9	6252.24	0.47	-0.151	0.000	0.104
35.00	-39.54	-6.34	0.00	-572.70	0.00	572.70	5295.57	2647.79	12029.5	6023.71	0.64	-0.178	0.000	0.103
40.00	-38.08	-6.23	0.00	-541.02	0.00	541.02	5215.62	2607.81	11577.1	5797.18	0.85	-0.205	0.000	0.101
41.00	-37.79	-6.22	0.00	-534.79	0.00	534.79	5199.41	2599.70	11487.1	5752.13	0.89	-0.210	0.000	0.100
45.00	-35.63	-6.13	0.00	-509.92	0.00	509.92	5133.81	2566.90	11129.0	5572.78	1.07	-0.232	0.000	0.098
48.00	-34.03	-6.06	0.00	-491.53	0.00	491.53	5141.90	2570.95	11172.7	5594.66	1.23	-0.248	0.000	0.094
50.00	-33.46	-6.03	0.00	-479.40	0.00	479.40	5108.73	2554.36	10994.5	5505.45	1.33	-0.260	0.000	0.094
55.00	-32.07	-5.92	0.00	-449.27	0.00	449.27	5024.49	2512.24	10552.4	5284.05	1.62	-0.286	0.000	0.091
60.00	-30.71	-5.81	0.00	-419.68	0.00	419.68	4938.39	2469.19	10115.2	5065.12	1.93	-0.312	0.000	0.089
65.00	-29.37	-5.70	0.00	-390.63	0.00	390.63	4850.42	2425.21	9683.22	4848.81	2.27	-0.339	0.000	0.087
70.00	-28.07	-5.59	0.00	-362.12	0.00	362.12	4760.60	2380.30	9256.75	4635.26	2.64	-0.365	0.000	0.084
75.00	-26.75	-5.46	0.00	-334.16	0.00	334.16	4668.91	2334.45	8836.09	4424.61	3.04	-0.392	0.000	0.081
80.00	-25.51	-5.35	0.00	-306.85	0.00	306.85	4575.36	2287.68	8421.51	4217.02	3.46	-0.418	0.000	0.078
85.00	-24.30	-5.24	0.00	-280.09	0.00	280.09	4479.95	2239.97	8013.32	4012.62	3.92	-0.444	0.000	0.075
90.00	-22.24	-5.12	0.00	-253.87	0.00	253.87	4371.20	2185.60	7591.89	3801.59	4.39	-0.470	0.000	0.072
91.00	-21.83	-5.10	0.00	-248.75	0.00	248.75	3638.14	1819.07	6412.59	3211.06	4.49	-0.476	0.000	0.083
95.00	-21.01	-5.01	0.00	-228.36	0.00	228.36	3578.07	1789.03	6158.09	3083.62	4.90	-0.497	0.000	0.080
100.00	-20.01	-4.90	0.00	-203.29	0.00	203.29	3501.29	1750.65	5844.19	2926.44	5.44	-0.524	0.000	0.075
105.00	-19.04	-4.80	0.00	-178.77	0.00	178.77	3422.66	1711.33	5535.26	2771.74	6.00	-0.551	0.000	0.070
108.00	-18.47	-4.73	0.00	-164.38	0.00	164.38	3374.59	1687.29	5352.40	2680.18	6.35	-0.567	0.000	0.067
108.00	-18.47	-4.73	0.00	-164.38	0.00	164.38	2667.38	1333.69	4244.39	2125.35	6.35	-0.567	0.000	0.084
110.00	-15.79	-4.02	0.00	-154.92	0.00	154.92	2644.20	1322.10	4152.60	2079.39	6.59	-0.577	0.000	0.080
115.00	-15.00	-3.92	0.00	-134.80	0.00	134.80	2584.96	1292.48	3925.36	1965.60	7.21	-0.607	0.000	0.074
120.00	-14.23	-3.82	0.00	-115.20	0.00	115.20	2523.85	1261.93	3701.54	1853.52	7.86	-0.635	0.000	0.068
125.00	-13.49	-3.72	0.00	-96.11	0.00	96.11	2460.88	1230.44	3481.44	1743.31	8.54	-0.661	0.000	0.061
130.00	-12.76	-3.62	0.00	-77.53	0.00	77.53	2396.05	1198.03	3265.33	1635.09	9.25	-0.685	0.000	0.053
135.00	-11.61	-3.51	0.00	-59.44	0.00	59.44	1762.27	881.13	2355.65	1179.58	9.98	-0.707	0.000	0.057
137.00	-9.02	-2.72	0.00	-52.42	0.00	52.42	1744.61	872.31	2295.82	1149.62	10.28	-0.714	0.000	0.051
140.00	-8.68	-2.66	0.00	-44.26	0.00	44.26	1717.57	858.78	2206.74	1105.01	10.73	-0.727	0.000	0.045
145.00	-8.12	-2.57	0.00	-30.94	0.00	30.94	1671.00	835.50	2060.16	1031.61	11.50	-0.744	0.000	0.035
147.00	-4.65	-1.46	0.00	-25.80	0.00	25.80	1651.86	825.93	2002.25	1002.61	11.81	-0.750	0.000	0.029
150.00	-4.37	-1.41	0.00	-21.42	0.00	21.42	1622.58	811.29	1916.22	959.54	12.29	-0.758	0.000	0.025
155.00	-3.93	-1.32	0.00	-14.39	0.00	14.39	1572.29	786.15	1775.21	888.92	13.09	-0.769	0.000	0.019
160.00	-3.51	-1.23	0.00	-7.81	0.00	7.81	1520.15	760.07	1637.42	819.92	13.90	-0.776	0.000	0.012
165.00	-2.74	-0.75	0.00	-1.66	0.00	1.66	1466.13	733.07	1503.13	752.68	14.71	-0.780	0.000	0.004
167.00	-0.20	-0.05	0.00	-0.15	0.00	0.15	1444.01	722.00	1450.46	726.31	15.04	-0.780	0.000	0.000
170.00	0.00	-0.05	0.00	0.00	0.00	0.00	1400.09	700.04	1362.73	682.38	15.53	-0.780	0.000	0.000

Final Analysis Summary

Structure:	CT04066-S-SBA	**Code:**	TIA-222-G	6/24/2022	
Site Name:	North Branford East	**Exposure:**	B		
Height:	170.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	31.8	0.00	60.69	0.00	0.00	3680.77
0.9D + 1.6W 101 mph Wind	31.7	0.00	45.51	0.00	0.00	3649.84
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.4	0.00	89.20	0.00	0.00	957.99
1.2D + 1.0E	1.8	0.00	60.72	0.00	0.00	220.37
0.9D + 1.0E	1.8	0.00	45.54	0.00	0.00	218.25
1.0D + 1.0W 60 mph Wind	7.0	0.00	50.60	0.00	0.00	807.67

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-60.69	-31.75	0.00	-3680.7	0.00	-3680.7	5803.10	2901.5	15291.3	7657.05	0.00	0.491
0.9D + 1.6W 101 mph Wind	-45.51	-31.74	0.00	-3649.8	0.00	-3649.8	5803.10	2901.5	15291.3	7657.05	0.00	0.485
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-89.20	-8.44	0.00	-957.99	0.00	-957.99	5803.10	2901.5	15291.3	7657.05	0.00	0.140
1.2D + 1.0E	-60.72	-1.85	0.00	-220.37	0.00	-220.37	5803.10	2901.5	15291.3	7657.05	0.00	0.039
0.9D + 1.0E	-45.54	-1.84	0.00	-218.25	0.00	-218.25	5803.10	2901.5	15291.3	7657.05	0.00	0.036
1.0D + 1.0W 60 mph Wind	-50.60	-7.00	0.00	-807.67	0.00	-807.67	5803.10	2901.5	15291.3	7657.05	0.00	0.114

Monopole Mat Foundation Design

			Date: 6/24/2022
Customer Name:	AT&T	**TIA Standard:**	TIA-222-G
Site Name:		**Structure Height (Ft.):**	170
Site Number:	CT04066-S-SBA	**Engineer Name:**	I. Hasan Efaz
Engr. Number:	130841	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

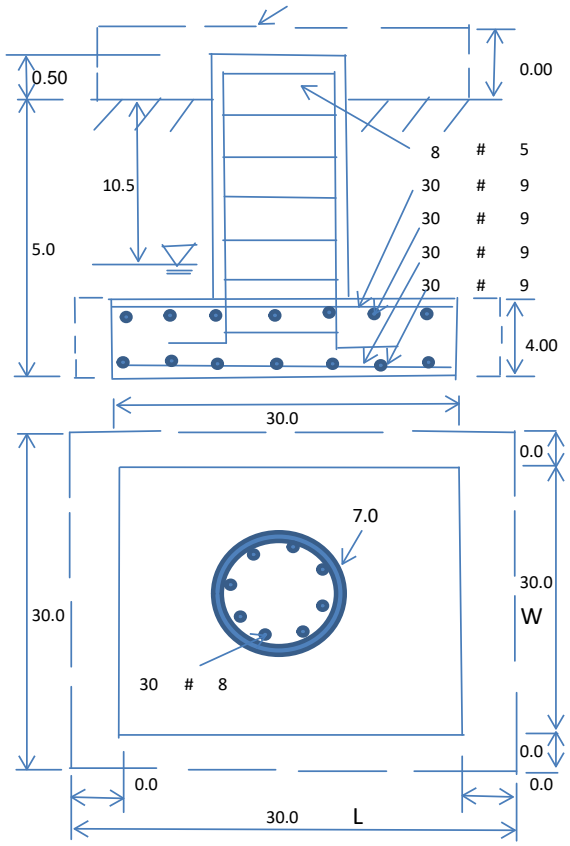
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	60.7	Shear Force (Kips):	31.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3680.8
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	5.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	4.00
Length of Pad (ft.):	30	Width of Pad (ft.):	30
Final Length of pad (ft)	30.0	Final width of pad (ft):	30.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	9.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	10.5	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	80000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

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

Total Dry Soil Volume (cu. Ft.):	861.52	Total Dry Soil Weight (Kips):	103.38
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	103.38	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3657.73	Total Dry Concrete Weight (Kips):	548.66
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	548.66	Total Vertical Load on Base (Kips):	712.74

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1631	<	Allowable Factored Soil Bearing (psf):	60000	0.03	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	9713.1	>	Design Factored Momont (kips-ft):	3716	0.38	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.61	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	4023.7	>	Design Factored Moment (Mu, Kips-F	3728.5	0.93	OK!
Calculated Shear Capacity (Kips):	733.1	>	Design Factored Shear (Kips):	31.8	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	1279.8	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7317.0	>	Design Factored Axial Load (Pu Kips):	60.7	0.01	OK!
Moment & Axial Strength Combination:	0.93	OK!	Check Tie Spacing (Design/Required):		0.75	OK!
Pier Reinforcement Ratio:	0.004		Reinforcement Ratio is too small			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	1314.3	>	One-Way Factored Shear (L-D. Kips):	230.1	0.18	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1314.3	>	One-Way Factored Shear (W-D., Kips)	230.1	0.18	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	1227.6	>	One-Way Factored Shear (C-C, Kips):	220.2	0.18	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0019	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0019		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5866.7	>	Moment at Bottom (L-Dir. K-Ft):	1680.9	0.29	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5866.7	>	Moment at Bottom (W-Dir. K-Ft):	1680.9	0.29	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8259.8	>	Moment at Bottom (C-C Dir. K-Ft):	2377.2	0.29	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0019	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0019		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5866.7	>	Moment at the top (L-Dir K-Ft):	655.7	0.11	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5866.7	>	Moment at the top (W-Dir K-Ft):	655.7	0.11	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8259.8	>	Moment at the top (C-C Dir. K-Ft):	612.3	0.07	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1472.3	k-ft.	Max. factored shear stress v_{u_CD}:		2.7	Psi
Max. factored shear stress v_{u_AB}:	7.8	Psi	Factored shear Strength ϕv_n:		164.3	Psi
Max. factored shear stress v_u:	7.8	Psi	Check Usage of Punching Shear Capacity:		0.05	OK!

May 23, 2022
May 31, 2022 (Rev.1)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT5639
	FA Number:	10071170
	PACE Number:	MRCTB055633
	PT Number:	2051A11KN0
	Site Name:	NORTH BRANFORT EAST
	Site Address:	39 Ciro Road North Branford, CT 06471

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 mount to determine its capability of supporting the following additional loading:

- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each) (Tower Mounted)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each) (Tower Mounted)
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- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)**
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- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) OPA65R-BU6DA Antennas (71.2"x21.0"x7.8" – Wt. = 64 lbs. /each)**

*Proposed equipment shown in bold.

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on November 29, 2018. HDG conducted a ground audit of the existing AT&T antenna mount on November 20, 2021.

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 – R16.
- 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 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.16 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.179 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.061.
- 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 4.
- 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 and threaded rods. HDG considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that existing mount **IS CAPABLE** of supporting the proposed installation with the following modification.

- **Install proposed handrail kit, SitePro1 P/N HRA14 (or approved equal). Handrail is required per AT&T Technical Directive to stabilize existing cantilevered antennas.**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	28	LC28	60%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

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 mount 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.

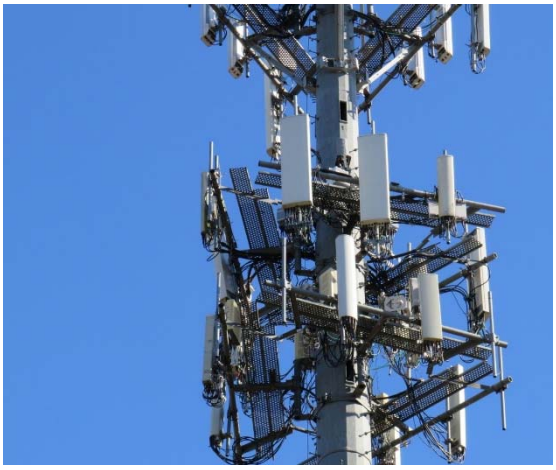
Respectfully Submitted,
Hudson Design Group LLC

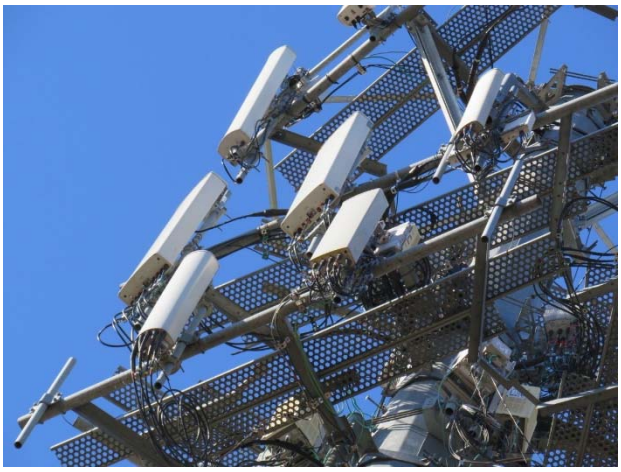
Michael Cabral
Vice President

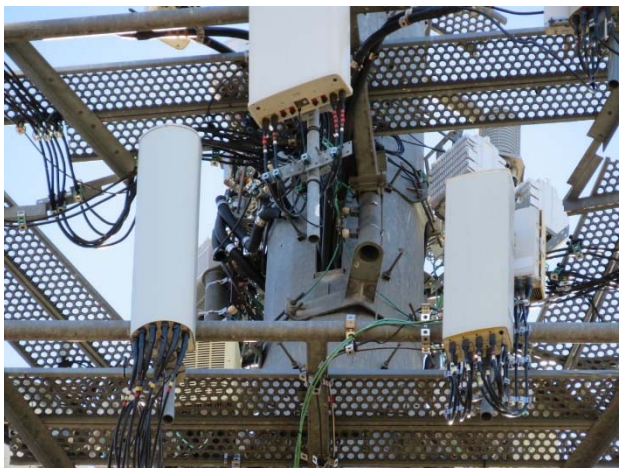
STATE OF CONNECTICUT
DANIEL HAMM
24178
LICENSED
PROFESSIONAL ENGINEER

Daniel P. Hamm, PE
Principal

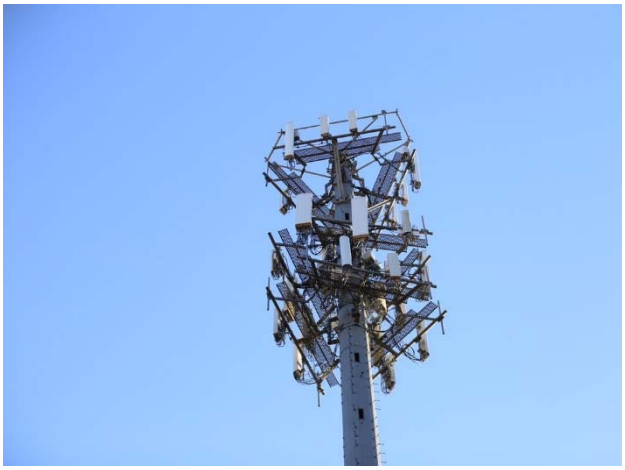
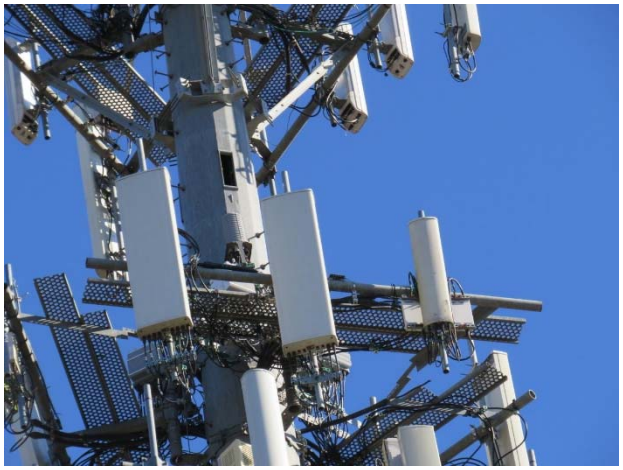
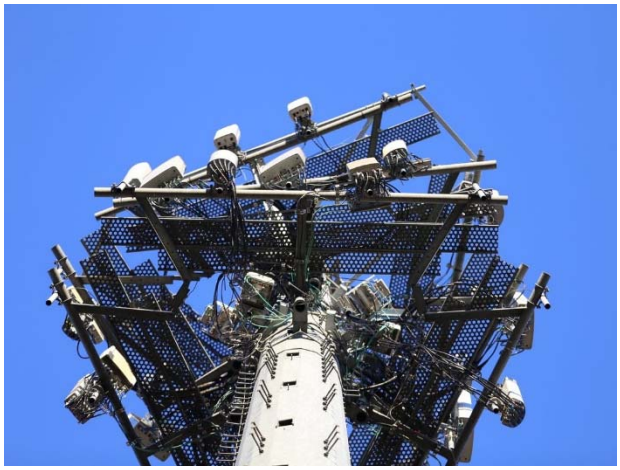
FIELD PHOTOS:







FIELD PHOTOS (CONT.):


HUDSON Design Group LLC

May 23, 2022

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Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

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 mount 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.

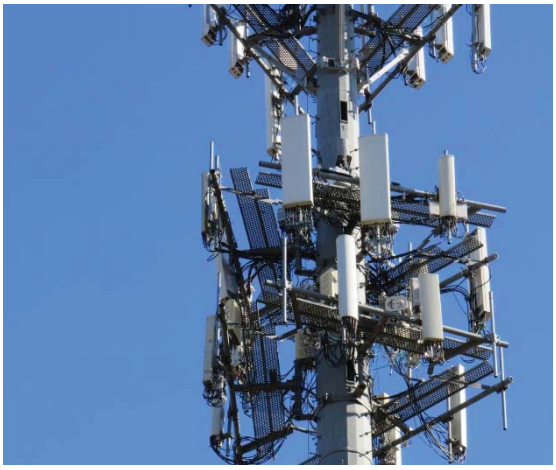
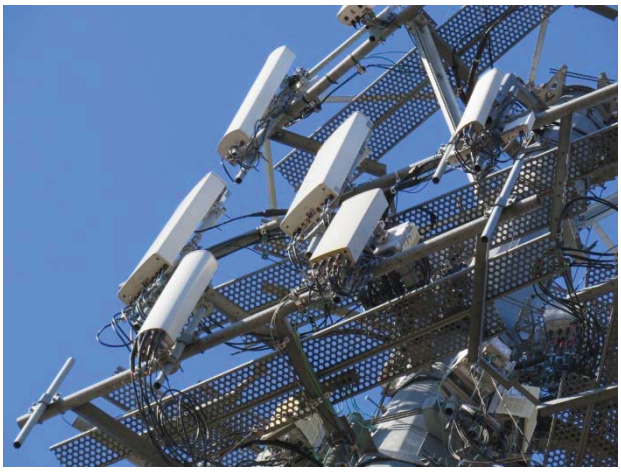
Please feel free to contact our office should you have any questions.

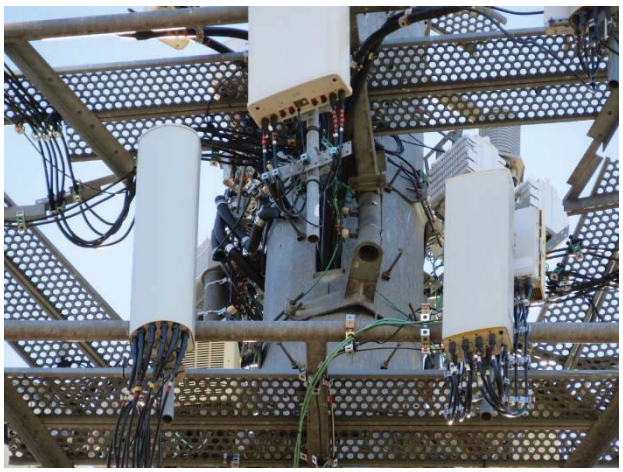
Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 5/23/2022
Project Name: NORTH BRANFORT EAST
Project No.: CT5639
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	147.00	(ft)
z_g=	1200	(ft)
α=	7	

K_z= 1.103

Kzmin ≤ Kz ≤ 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=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	147	
z_s=	101	(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 =	1.00	in
Importance Factor = I=	1.00	(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} = 1.16 in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	170	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=	1.103	(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=	**45.18**	K_e=	1.00	(from 2.6.8)
$q_{z\ (ice)}$=	**6.68**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.41**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
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 = 1.16 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.44	1.24	574	98	31
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	189	34	10
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	183	33	10
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.39	1.24	581	99	31
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	74	15	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	89	17	5
DC6-48-60-18 Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	70	14	4
Plate 6x1/2	0.5	12.0		0.04	0.04	2.00	4		
2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	19		
4x4 Angle	4.0	12.0		0.33	0.33	2.00	30		
2" Pipe	2.4	12.0		0.20	0.20	1.20	11		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	13		
3-1/2" Pipe	4.0	12.0		0.33	0.33	1.20	18		
4" Pipe	4.5	12.0		0.38	0.38	1.20	20		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	19		

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HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.16	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	574	254	494
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	189	91	164
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	183	124	168
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	581	256	500
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	74	61	71
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	89	63	83

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.75	5.12	3.19	7.34	1.23	1.41	97	48	85
AIR6419 Antenna	33.4	18.4	9.6	4.28	2.23	1.81	3.47	1.20	1.24	34	19	30
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.95	1.81	2.55	1.20	1.20	33	24	31
OPA65R-BU6DA Antenna	73.5	23.3	10.1	11.91	5.17	3.15	7.26	1.23	1.41	98	49	86
8843 B2/B66A RRH	17.2	15.5	13.2	1.86	1.58	1.11	1.30	1.20	1.20	15	13	14
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.73	1.20	1.20	17	13	16

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	26
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	9
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	31	14	27
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4

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WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.16	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	574	254	334
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	189	91	115
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	183	124	139
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	581	256	338
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	74	61	64
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	89	63	70

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.75	5.12	3.19	7.34	1.23	1.41	97	48	60
AIR6419 Antenna	33.4	18.4	9.6	4.28	2.23	1.81	3.47	1.20	1.24	34	19	22
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.95	1.81	2.55	1.20	1.20	33	24	26
OPA65R-BU6DA Antenna	73.5	23.3	10.1	11.91	5.17	3.15	7.26	1.23	1.41	98	49	61
8843 B2/B66A RRH	17.2	15.5	13.2	1.86	1.58	1.11	1.30	1.20	1.20	15	13	13
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.73	1.20	1.20	17	13	14

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	18
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	7
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	31	14	18
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4

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HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.16	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	574	254	254
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	189	91	91
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	183	124	124
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	581	256	256
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	74	61	61
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	89	63	63

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.75	5.12	3.19	7.34	1.23	1.41	97	48	48
AIR6419 Antenna	33.4	18.4	9.6	4.28	2.23	1.81	3.47	1.20	1.24	34	19	19
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.95	1.81	2.55	1.20	1.20	33	24	24
OPA65R-BU6DA Antenna	73.5	23.3	10.1	11.91	5.17	3.15	7.26	1.23	1.41	98	49	49
8843 B2/B66A RRH	17.2	15.5	13.2	1.86	1.58	1.11	1.30	1.20	1.20	15	13	13
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.73	1.20	1.20	17	13	13

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	14
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	7
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	31	14	14
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	3

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Project Name: NORTH BRANFORT EAST
Project No.: CT5639
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.16	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	574	254	334
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	189	91	115
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	183	124	139
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	581	256	338
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	74	61	64
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	89	63	70

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.75	5.12	3.19	7.34	1.23	1.41	97	48	60
AIR6419 Antenna	33.4	18.4	9.6	4.28	2.23	1.81	3.47	1.20	1.24	34	19	22
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.95	1.81	2.55	1.20	1.20	33	24	26
OPA65R-BU6DA Antenna	73.5	23.3	10.1	11.91	5.17	3.15	7.26	1.23	1.41	98	49	61
8843 B2/B66A RRH	17.2	15.5	13.2	1.86	1.58	1.11	1.30	1.20	1.20	15	13	13
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.73	1.20	1.20	17	13	14

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	18
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	7
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	31	14	18
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4

Date: 5/23/2022
Project Name: NORTH BRANFORT EAST
Project No.: CT5639
Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.16	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	574	254	494
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	189	91	164
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	183	124	168
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	581	256	500
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	74	61	71
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	89	63	83

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.75	5.12	3.19	7.34	1.23	1.41	97	48	85
AIR6419 Antenna	33.4	18.4	9.6	4.28	2.23	1.81	3.47	1.20	1.24	34	19	30
AIR6449 Antenna	32.9	18.2	12.9	4.17	2.95	1.81	2.55	1.20	1.20	33	24	31
OPA65R-BU6DA Antenna	73.5	23.3	10.1	11.91	5.17	3.15	7.26	1.23	1.41	98	49	86
8843 B2/B66A RRH	17.2	15.5	13.2	1.86	1.58	1.11	1.30	1.20	1.20	15	13	14
4449 B5/B12 RRH	20.2	15.5	11.7	2.18	1.65	1.30	1.73	1.20	1.20	17	13	16

WIND LOADS AT 30 MPH:

TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	31	14	26
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	10	7	9
OPA65R-BU6DA Antenna	71.2	21.0	7.8	10.38	3.86	3.39	9.13	1.24	1.47	31	14	27
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4

Date: 5/23/2022
Project Name: NORTH BRANFORT EAST
Project No.: CT5639
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.16 in.
Density of ice: 56 pcf

TPA65R-BU6DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		195 lbs
Weight of object:	69.0 lbs	
Combined weight of ice and object:		264 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:

Height (in):	31.1	
Width (in):	16.1	
Depth (in):	7.3	
Total weight of ice on object:		69 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		135 lbs

AIR6449 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:		73 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		155 lbs

OPA65R-BU6DA Antenna

Weight of ice based on total radial SF area:

Height (in):	71.2	
Width (in):	21.0	
Depth (in):	7.8	
Total weight of ice on object:		198 lbs
Weight of object:	64.0 lbs	
Combined weight of ice and object:		262 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		32 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		104 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		37 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		110 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		42 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		75 lbs

PL 6x1/2

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.50	
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:		5 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		7 plf

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		6 plf

L 4x4 Angles

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		10 plf

3-1/2" Pipe

Per foot weight of ice:

diameter (in):	4	
Per foot weight of ice on object:		7 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		10 plf

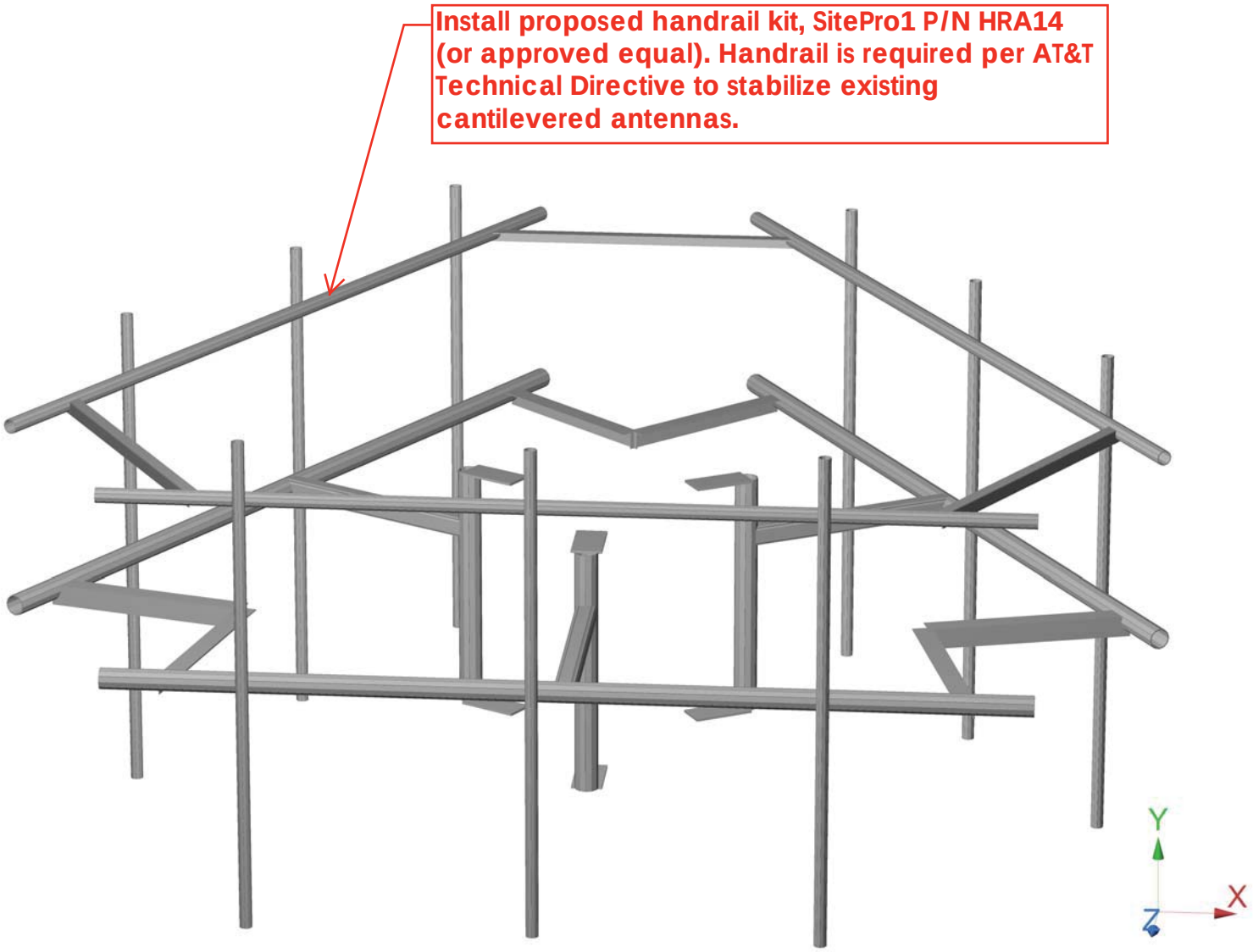
4" Pipe

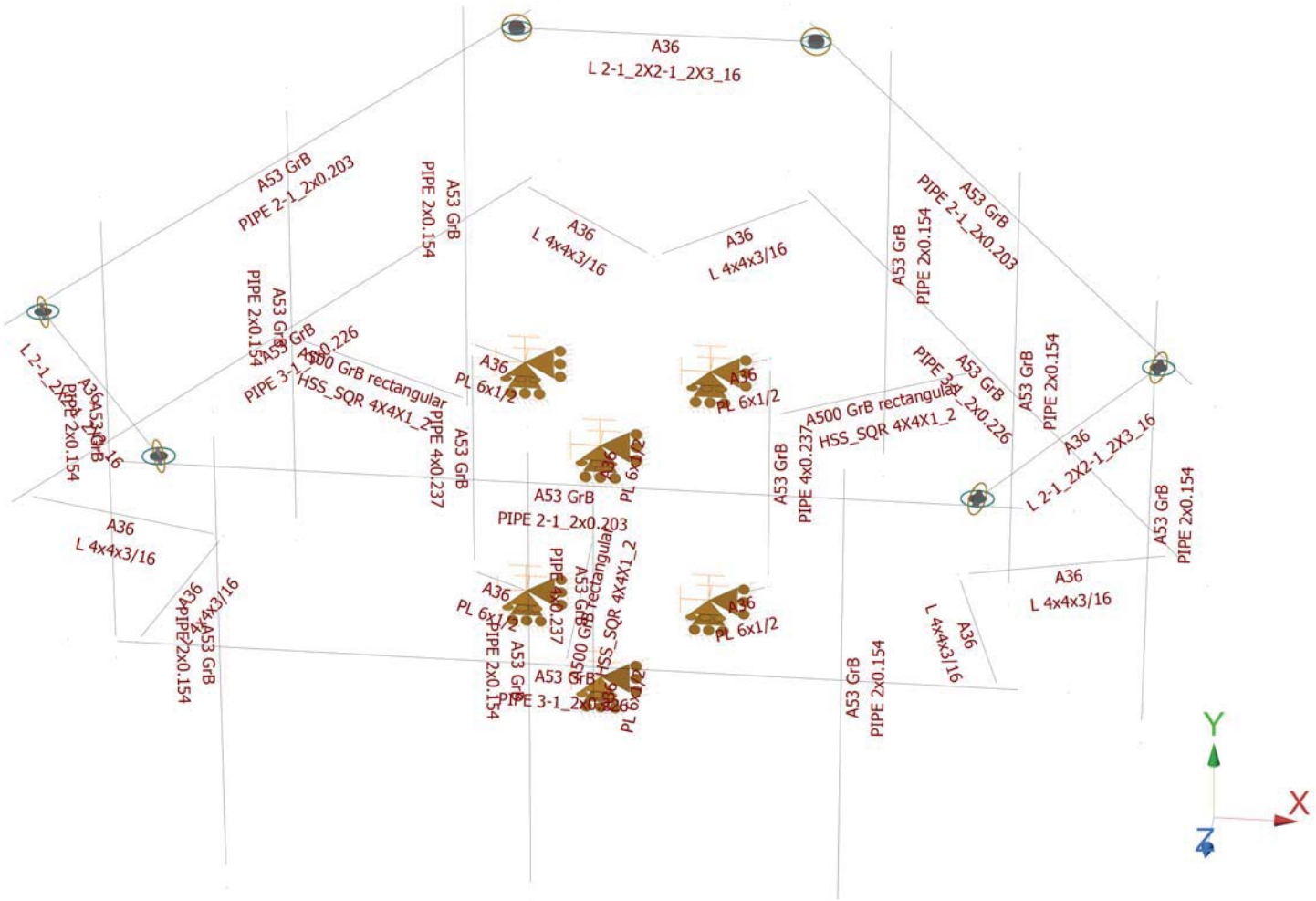
Per foot weight of ice:

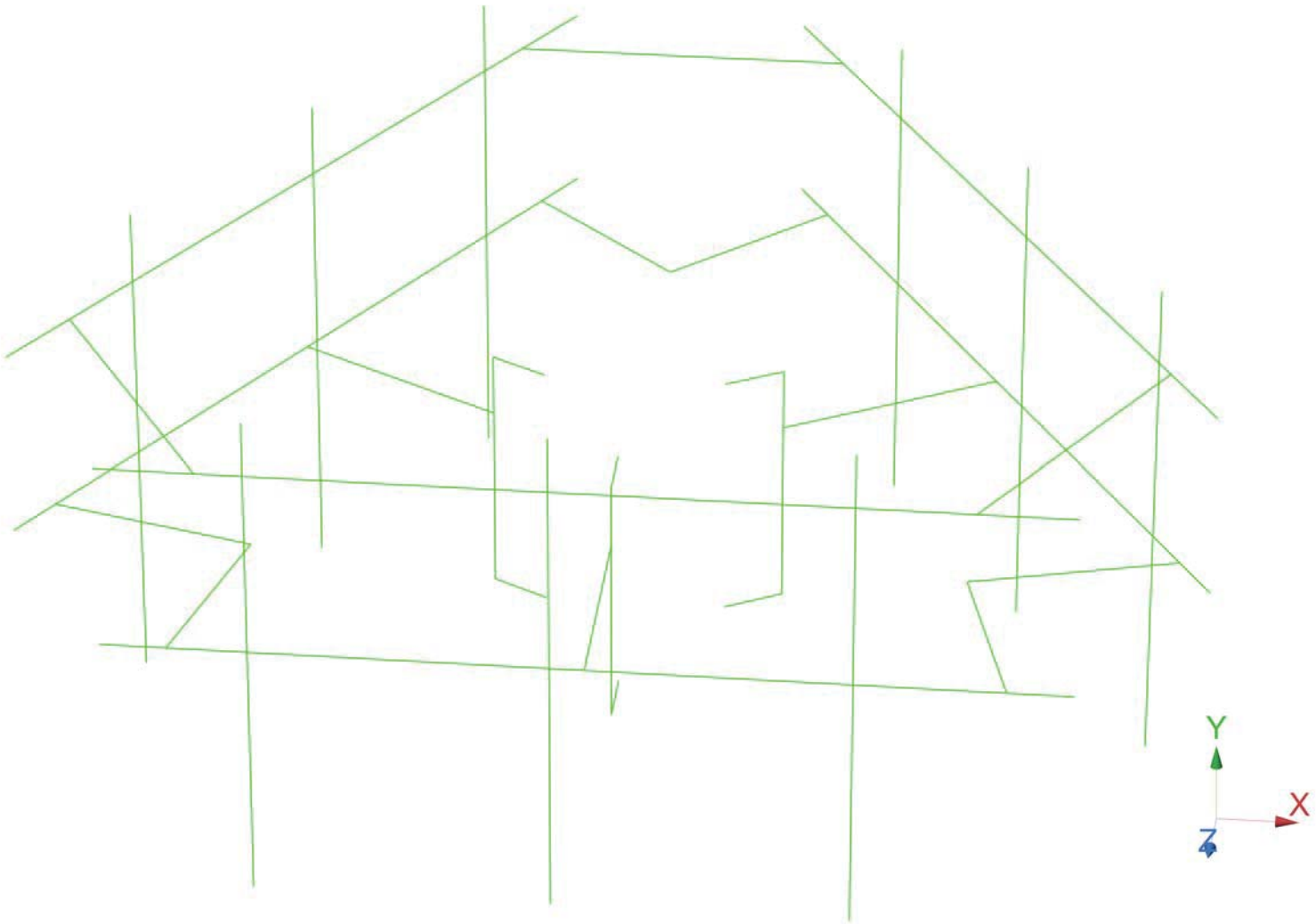
diameter (in):	4.5	
Per foot weight of ice on object:		8 plf

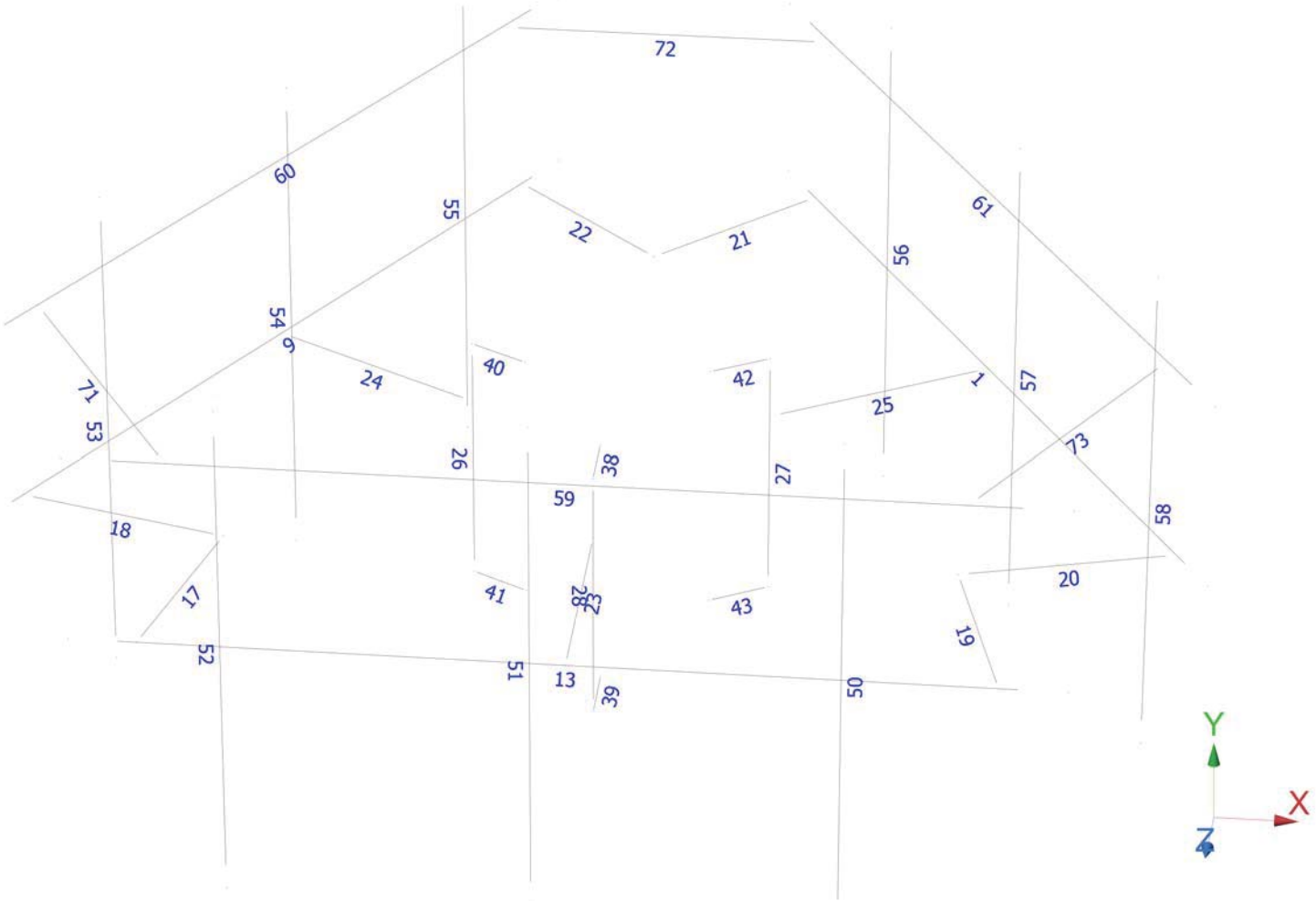
HUDSON
Design Group LLC

Mount Calculations
(Proposed Conditions)


Install proposed handrail kit, SitePro1 P/N HRA14 (or approved equal). Handrail is required per AT&T Technical Directive to stabilize existing cantilevered antennas.
Y
X
Z


A36
L 2-1_2X2-1_2X3_16
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2x0.154
A36
L 4x4x3/16
A36
L 4x4x3/16
A53 GrB
PIPE 2-1_2x0.203
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A500 GrB rectangular
HSS_SQR 4X4X1_2
A53 GrB
PIPE 4x0.237
A36
PL 6x1/2
A36
PL 6x1/2
A500 GrB rectangular
HSS_SQR 4X4X1_2
A53 GrB
PIPE 2-1_2x0.226
A53 GrB
PIPE 2x0.154
A36
L 2-1_2X2-1_2X3_16
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2-1_2x0.203
A36
L 4x4x3/16
A36
L 4x4x3/16
A36
PL 6x1/2
A36
PL 6x1/2
A53 GrB
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
A36
L 4x4x3/16
A36
L 4x4x3/16
A53 GrB
PIPE 2x0.154
Y
X
Z


Y
X
Z


72
60
55
22
21
61
56
54
9
24
40
42
1
57
25
71
53
26
38
27
73
59
58
18
20
17
41
23
43
19
52
51
13
39
50
Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 5/23/2022 3:56 PM
Units system: English

Load data

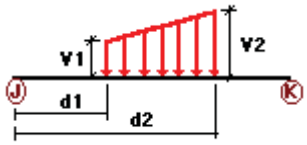
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load 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

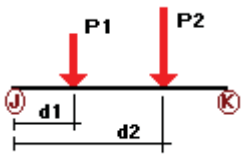


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	17	y	-0.01	0.00	0.00	No	0.00	No
	18	y	-0.01	0.00	0.00	No	0.00	No
	19	y	-0.01	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	21	y	-0.01	0.00	0.00	No	0.00	No
	22	y	-0.01	0.00	0.00	No	0.00	No
W0	1	z	-0.018	0.00	0.00	No	0.00	No
	9	z	-0.018	0.00	0.00	No	0.00	No
	13	z	-0.018	0.00	0.00	No	0.00	No
	17	z	-0.03	0.00	0.00	No	0.00	No
	18	z	-0.03	0.00	0.00	No	0.00	No
	19	z	-0.03	0.00	0.00	No	0.00	No
	20	z	-0.03	0.00	0.00	No	0.00	No
	21	z	-0.03	0.00	0.00	No	0.00	No
	22	z	-0.03	0.00	0.00	No	0.00	No
	23	z	-0.019	0.00	0.00	No	0.00	No

	24	z	-0.019	0.00	0.00	No	0.00	No
	25	z	-0.019	0.00	0.00	No	0.00	No
	26	z	-0.02	0.00	0.00	No	0.00	No
	27	z	-0.02	0.00	0.00	No	0.00	No
	28	z	-0.02	0.00	0.00	No	0.00	No
	38	z	-0.004	0.00	0.00	No	0.00	No
	39	z	-0.004	0.00	0.00	No	0.00	No
	40	z	-0.004	0.00	0.00	No	0.00	No
	41	z	-0.004	0.00	0.00	No	0.00	No
	42	z	-0.004	0.00	0.00	No	0.00	No
	43	z	-0.004	0.00	0.00	No	0.00	No
	53	z	-0.011	0.00	0.00	No	0.00	No
	54	z	-0.011	0.00	0.00	No	0.00	No
	55	z	-0.011	0.00	0.00	No	0.00	No
	56	z	-0.011	0.00	0.00	No	0.00	No
	57	z	-0.011	0.00	0.00	No	0.00	No
	58	z	-0.011	0.00	0.00	No	0.00	No
	59	z	-0.013	0.00	0.00	No	0.00	No
	60	z	-0.013	0.00	0.00	No	0.00	No
	61	z	-0.013	0.00	0.00	No	0.00	No
	71	z	-0.019	0.00	0.00	No	0.00	No
	72	z	-0.019	0.00	0.00	No	0.00	No
	73	z	-0.019	0.00	0.00	No	0.00	No
W30	1	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.018	0.00	0.00	No	0.00	No
	17	x	-0.03	0.00	0.00	No	0.00	No
	18	x	-0.03	0.00	0.00	No	0.00	No
	19	x	-0.03	0.00	0.00	No	0.00	No
	20	x	-0.03	0.00	0.00	No	0.00	No
	21	x	-0.03	0.00	0.00	No	0.00	No
	22	x	-0.03	0.00	0.00	No	0.00	No
	23	x	-0.019	0.00	0.00	No	0.00	No
	24	x	-0.019	0.00	0.00	No	0.00	No
	25	x	-0.019	0.00	0.00	No	0.00	No
	26	x	-0.02	0.00	0.00	No	0.00	No
	27	x	-0.02	0.00	0.00	No	0.00	No
	28	x	-0.02	0.00	0.00	No	0.00	No
	38	x	-0.004	0.00	0.00	No	0.00	No
	39	x	-0.004	0.00	0.00	No	0.00	No
	40	x	-0.004	0.00	0.00	No	0.00	No
	41	x	-0.004	0.00	0.00	No	0.00	No
	42	x	-0.004	0.00	0.00	No	0.00	No
	43	x	-0.004	0.00	0.00	No	0.00	No
	50	x	-0.011	0.00	0.00	No	0.00	No
	51	x	-0.011	0.00	0.00	No	0.00	No
	52	x	-0.011	0.00	0.00	No	0.00	No
	53	x	-0.011	0.00	0.00	No	0.00	No
	54	x	-0.011	0.00	0.00	No	0.00	No
	55	x	-0.011	0.00	0.00	No	0.00	No
	56	x	-0.011	0.00	0.00	No	0.00	No
	57	x	-0.011	0.00	0.00	No	0.00	No
	58	x	-0.011	0.00	0.00	No	0.00	No
	60	x	-0.013	0.00	0.00	No	0.00	No
	61	x	-0.013	0.00	0.00	No	0.00	No
	71	x	-0.019	0.00	0.00	No	0.00	No
	72	x	-0.019	0.00	0.00	No	0.00	No
	73	x	-0.019	0.00	0.00	No	0.00	No
Di	1	y	-0.007	0.00	0.00	No	0.00	No
	9	y	-0.007	0.00	0.00	No	0.00	No
	13	y	-0.007	0.00	0.00	No	0.00	No

17	y	-0.01	0.00	0.00	No	0.00	No
18	y	-0.01	0.00	0.00	No	0.00	No
19	y	-0.01	0.00	0.00	No	0.00	No
20	y	-0.01	0.00	0.00	No	0.00	No
21	y	-0.01	0.00	0.00	No	0.00	No
22	y	-0.01	0.00	0.00	No	0.00	No
23	y	-0.01	0.00	0.00	No	0.00	No
24	y	-0.01	0.00	0.00	No	0.00	No
25	y	-0.01	0.00	0.00	No	0.00	No
26	y	-0.008	0.00	0.00	No	0.00	No
27	y	-0.008	0.00	0.00	No	0.00	No
28	y	-0.008	0.00	0.00	No	0.00	No
38	y	-0.01	0.00	0.00	No	0.00	No
39	y	-0.01	0.00	0.00	No	0.00	No
40	y	-0.01	0.00	0.00	No	0.00	No
41	y	-0.01	0.00	0.00	No	0.00	No
42	y	-0.01	0.00	0.00	No	0.00	No
43	y	-0.01	0.00	0.00	No	0.00	No
50	y	-0.005	0.00	0.00	No	0.00	No
51	y	-0.005	0.00	0.00	No	0.00	No
52	y	-0.005	0.00	0.00	No	0.00	No
53	y	-0.005	0.00	0.00	No	0.00	No
54	y	-0.005	0.00	0.00	No	0.00	No
55	y	-0.005	0.00	0.00	No	0.00	No
56	y	-0.005	0.00	0.00	No	0.00	No
57	y	-0.005	0.00	0.00	No	0.00	No
58	y	-0.005	0.00	0.00	No	0.00	No
59	y	-0.006	0.00	0.00	No	0.00	No
60	y	-0.006	0.00	0.00	No	0.00	No
61	y	-0.006	0.00	0.00	No	0.00	No
71	y	-0.007	0.00	0.00	No	0.00	No
72	y	-0.007	0.00	0.00	No	0.00	No
73	y	-0.007	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	50	y	-0.035	1.50	No
		y	-0.035	6.50	No
	51	y	-0.033	1.25	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	6.75	No
	52	y	-0.032	1.50	No
		y	-0.032	6.50	No
	53	y	-0.035	1.50	No
		y	-0.035	6.50	No
	54	y	-0.033	1.25	No
		y	-0.033	3.00	No

		y	-0.041	5.00	No
		y	-0.041	6.75	No
	55	y	-0.032	1.50	No
		y	-0.032	6.50	No
	56	y	-0.035	1.50	No
		y	-0.035	6.50	No
	57	y	-0.033	1.25	No
		y	-0.033	3.00	No
		y	-0.041	5.00	No
		y	-0.041	6.75	No
	58	y	-0.032	1.50	No
		y	-0.032	6.50	No
W0	50	z	-0.288	1.50	No
		z	-0.288	6.50	No
	51	z	-0.095	1.25	No
		z	-0.095	3.00	No
		z	-0.092	5.00	No
		z	-0.092	6.75	No
	52	z	-0.291	1.50	No
		z	-0.291	6.50	No
	53	z	-0.167	1.50	No
		z	-0.167	6.50	No
	54	z	-0.058	1.25	No
		z	-0.058	3.00	No
		z	-0.07	5.00	No
		z	-0.07	6.75	No
	55	z	-0.169	1.50	No
		z	-0.169	6.50	No
	56	z	-0.167	1.50	No
		z	-0.167	6.50	No
	57	z	-0.058	1.25	No
		z	-0.058	3.00	No
		z	-0.07	5.00	No
		z	-0.07	6.75	No
	58	z	-0.169	1.50	No
		z	-0.169	6.50	No
W30	50	x	-0.127	1.50	No
		x	-0.127	6.50	No
	51	x	-0.046	1.25	No
		x	-0.046	3.00	No
		x	-0.062	5.00	No
		x	-0.062	6.75	No
	52	x	-0.129	1.50	No
		x	-0.129	6.50	No
	53	x	-0.248	1.50	No
		x	-0.248	6.50	No
	54	x	-0.083	1.25	No
		x	-0.083	3.00	No
		x	-0.085	5.00	No
		x	-0.085	6.75	No
	55	x	-0.251	1.50	No
		x	-0.251	6.50	No
	56	x	-0.248	1.50	No
		x	-0.248	6.50	No
	57	x	-0.083	1.25	No
		x	-0.083	3.00	No
		x	-0.085	5.00	No
		x	-0.085	6.75	No
	58	x	-0.251	1.50	No
		x	-0.251	6.50	No

Di	50	y	-0.098	1.50	No
		y	-0.098	6.50	No
	51	y	-0.035	1.25	No
		y	-0.035	3.00	No
		y	-0.037	5.00	No
		y	-0.037	6.75	No
	52	y	-0.10	1.50	No
		y	-0.10	6.50	No
	53	y	-0.098	1.50	No
		y	-0.098	6.50	No
	54	y	-0.035	1.25	No
		y	-0.035	3.00	No
		y	-0.037	5.00	No
		y	-0.037	6.75	No
	55	y	-0.10	1.50	No
		y	-0.10	6.50	No
	56	y	-0.098	1.50	No
		y	-0.098	6.50	No
	57	y	-0.035	1.25	No
		y	-0.035	3.00	No
		y	-0.037	5.00	No
		y	-0.037	6.75	No
	58	y	-0.10	1.50	No
		y	-0.10	6.50	No
Wi0	50	z	-0.049	1.50	No
		z	-0.049	6.50	No
	51	z	-0.018	1.25	No
		z	-0.018	3.00	No
		z	-0.017	5.00	No
		z	-0.017	6.75	No
	52	z	-0.05	1.50	No
		z	-0.05	6.50	No
	53	z	-0.031	1.50	No
		z	-0.031	6.50	No
	54	z	-0.012	1.25	No
		z	-0.012	3.00	No
		z	-0.014	5.00	No
		z	-0.014	6.75	No
	55	z	-0.031	1.50	No
		z	-0.031	6.50	No
	56	z	-0.031	1.50	No
		z	-0.031	6.50	No
	57	z	-0.012	1.25	No
		z	-0.012	3.00	No
		z	-0.014	5.00	No
		z	-0.014	6.75	No
	58	z	-0.031	1.50	No
		z	-0.031	6.50	No
Wi30	50	x	-0.025	1.50	No
		x	-0.025	6.50	No
	51	x	-0.01	1.25	No
		x	-0.01	3.00	No
		x	-0.012	5.00	No
		x	-0.012	6.75	No
	52	x	-0.025	1.50	No
		x	-0.025	6.50	No
	53	x	-0.043	1.50	No
		x	-0.043	6.50	No
	54	x	-0.016	1.25	No
		x	-0.016	3.00	No

		x	-0.016	5.00	No
		x	-0.016	6.75	No
	55	x	-0.043	1.50	No
		x	-0.043	6.50	No
	56	x	-0.043	1.50	No
		x	-0.043	6.50	No
	57	x	-0.016	1.25	No
		x	-0.016	3.00	No
		x	-0.016	5.00	No
		x	-0.016	6.75	No
	58	x	-0.043	1.50	No
		x	-0.043	6.50	No
WL0	50	z	-0.016	1.50	No
		z	-0.016	6.50	No
	51	z	-0.006	1.25	No
		z	-0.006	3.00	No
		z	-0.005	5.00	No
		z	-0.005	6.75	No
	52	z	-0.016	1.50	No
		z	-0.016	6.50	No
	53	z	-0.009	1.50	No
		z	-0.009	6.50	No
	54	z	-0.004	1.25	No
		z	-0.004	3.00	No
		z	-0.004	5.00	No
		z	-0.004	6.75	No
	55	z	-0.009	1.50	No
		z	-0.009	6.50	No
	56	z	-0.009	1.50	No
		z	-0.009	6.50	No
	57	z	-0.004	1.25	No
		z	-0.004	3.00	No
		z	-0.004	5.00	No
		z	-0.004	6.75	No
	58	z	-0.009	1.50	No
		z	-0.009	6.50	No
WL30	50	x	-0.007	1.50	No
		x	-0.007	6.50	No
	51	x	-0.003	1.25	No
		x	-0.003	3.00	No
		x	-0.004	5.00	No
		x	-0.004	6.75	No
	52	x	-0.007	1.50	No
		x	-0.007	6.50	No
	53	x	-0.014	1.50	No
		x	-0.014	6.50	No
	54	x	-0.005	1.25	No
		x	-0.005	3.00	No
		x	-0.005	5.00	No
		x	-0.005	6.75	No
	55	x	-0.014	1.50	No
		x	-0.014	6.50	No
	56	x	-0.014	1.50	No
		x	-0.014	6.50	No
	57	x	-0.005	1.25	No
		x	-0.005	3.00	No
		x	-0.005	5.00	No
		x	-0.005	6.75	No
	58	x	-0.014	1.50	No
		x	-0.014	6.50	No

LL1	13	y	-0.25	50.00	Yes
LL2	13	y	-0.25	0.00	Yes
LLa2	50	y	-0.50	50.00	Yes
LLa3	51	y	-0.50	50.00	Yes
LLa4	52	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	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 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. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	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
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4
LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_2	**23**	LC10 at 0.00%	0.22	OK	
		24	LC9 at 0.00%	**0.22**	**OK**	
		25	LC10 at 0.00%	0.22	OK	
	L 2-1_2X2-1_2X3_16	**71**	LC4 at 50.00%	0.06	OK	
		72	LC3 at 50.00%	**0.08**	**OK**	
		73	LC2 at 50.00%	0.06	OK	
	L 4x4x3/16	**17**	LC3 at 0.00%	0.45	OK	
		18	LC2 at 0.00%	0.41	OK	
		19	LC3 at 0.00%	0.46	OK	
		20	LC4 at 0.00%	0.42	OK	
		21	LC4 at 0.00%	**0.47**	**OK**	
		22	LC2 at 0.00%	0.42	OK	
	PIPE 2-1_2x0.203	**59**	LC28 at 46.88%	**0.24**	**OK**	
		60	LC4 at 46.88%	0.22	OK	
		61	LC2 at 45.83%	0.22	OK	

PIPE 2x0.154	**50**	LC1 at 47.92%	0.54	OK
	51	LC1 at 47.92%	0.52	OK
	52	LC1 at 47.92%	0.49	OK
	53	LC4 at 47.92%	0.48	OK
	54	LC4 at 47.92%	0.56	OK
	55	LC4 at 47.92%	0.47	OK
	56	LC2 at 47.92%	0.51	OK
	57	LC2 at 47.92%	**0.57**	**OK**
	58	LC2 at 47.92%	0.44	OK
PIPE 3-1_2x0.226	**1**	LC4 at 49.11%	**0.51**	**OK**
	9	LC2 at 50.00%	0.50	OK
	13	LC3 at 50.00%	0.42	OK
PIPE 4x0.237	**26**	LC12 at 25.00%	0.59	OK
	27	LC10 at 25.00%	0.58	OK
	28	LC28 at 25.00%	**0.60**	**OK**
PL 6x1/2	**38**	LC10 at 100.00%	0.45	OK
	39	LC9 at 0.00%	0.57	OK
	40	LC1 at 100.00%	0.49	OK
	41	LC12 at 0.00%	**0.58**	**OK**
	42	LC1 at 100.00%	0.48	OK
	43	LC10 at 0.00%	0.57	OK

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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
3	1.8656	0.00	-9.4487	0
4	9.1156	0.00	3.1087	0
19	-9.1156	0.00	3.1087	0
20	-1.8656	0.00	-9.4487	0
27	7.25	0.00	6.34	0
28	-7.25	0.00	6.34	0
38	5.4552	0.00	3.1496	0
39	0.00	0.00	-6.2991	0
40	-5.4552	0.00	3.1496	0
41	-2.3656	0.00	-8.5827	0
42	-8.6156	0.00	2.2427	0
45	2.3656	0.00	-8.5827	0
46	8.6156	0.00	2.2427	0
47	6.25	0.00	6.34	0
48	-6.25	0.00	6.34	0
49	0.00	0.00	6.34	0
50	5.4906	0.00	-3.17	0
51	-5.4906	0.00	-3.17	0
52	2.2776	0.00	-1.315	0
54	-2.2776	0.00	-1.315	0
55	0.00	0.00	2.63	0
56	0.00	1.00	2.63	0
57	-2.2776	1.00	-1.315	0

58	2.2776	1.00	-1.315	0
59	2.2776	-3.00	-1.315	0
60	-2.2776	-3.00	-1.315	0
61	0.00	-3.00	2.63	0
65	-5.00	4.00	6.54	0
66	-0.50	4.00	6.54	0
67	4.00	4.00	6.54	0
74	-5.00	-4.00	6.54	0
75	-0.50	-4.00	6.54	0
76	4.00	-4.00	6.54	0
80	0.00	1.00	1.63	0
81	0.00	-3.00	1.63	0
82	-1.4116	1.00	-0.815	0
83	-1.4116	-3.00	-0.815	0
84	1.4116	1.00	-0.815	0
85	1.4116	-3.00	-0.815	0
98	-7.6638	4.00	0.1941	0
99	-7.6638	-4.00	0.1941	0
100	-5.4138	4.00	-3.703	0
101	-5.4138	-4.00	-3.703	0
102	-3.1638	4.00	-7.6001	0
103	-3.1638	-4.00	-7.6001	0
104	3.6638	4.00	-6.7341	0
105	3.6638	-4.00	-6.7341	0
106	5.9138	4.00	-2.837	0
107	5.9138	-4.00	-2.837	0
108	8.1638	4.00	1.0601	0
109	8.1638	-4.00	1.0601	0
128	-7.25	3.00	6.34	0
129	7.25	3.00	6.34	0
130	-1.8656	3.00	-9.4487	0
131	-9.1156	3.00	3.1087	0
132	9.1156	3.00	3.1087	0
133	1.8656	3.00	-9.4487	0
134	-5.75	3.00	6.34	0
135	-8.3656	3.00	1.8096	0
136	-2.6156	3.00	-8.1496	0
137	2.6156	3.00	-8.1496	0
138	8.3656	3.00	1.8096	0
139	5.75	3.00	6.34	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
80	1	1	1	1	1	1
81	1	1	1	1	1	1
82	1	1	1	1	1	1
83	1	1	1	1	1	1
84	1	1	1	1	1	1
85	1	1	1	1	1	1

Members

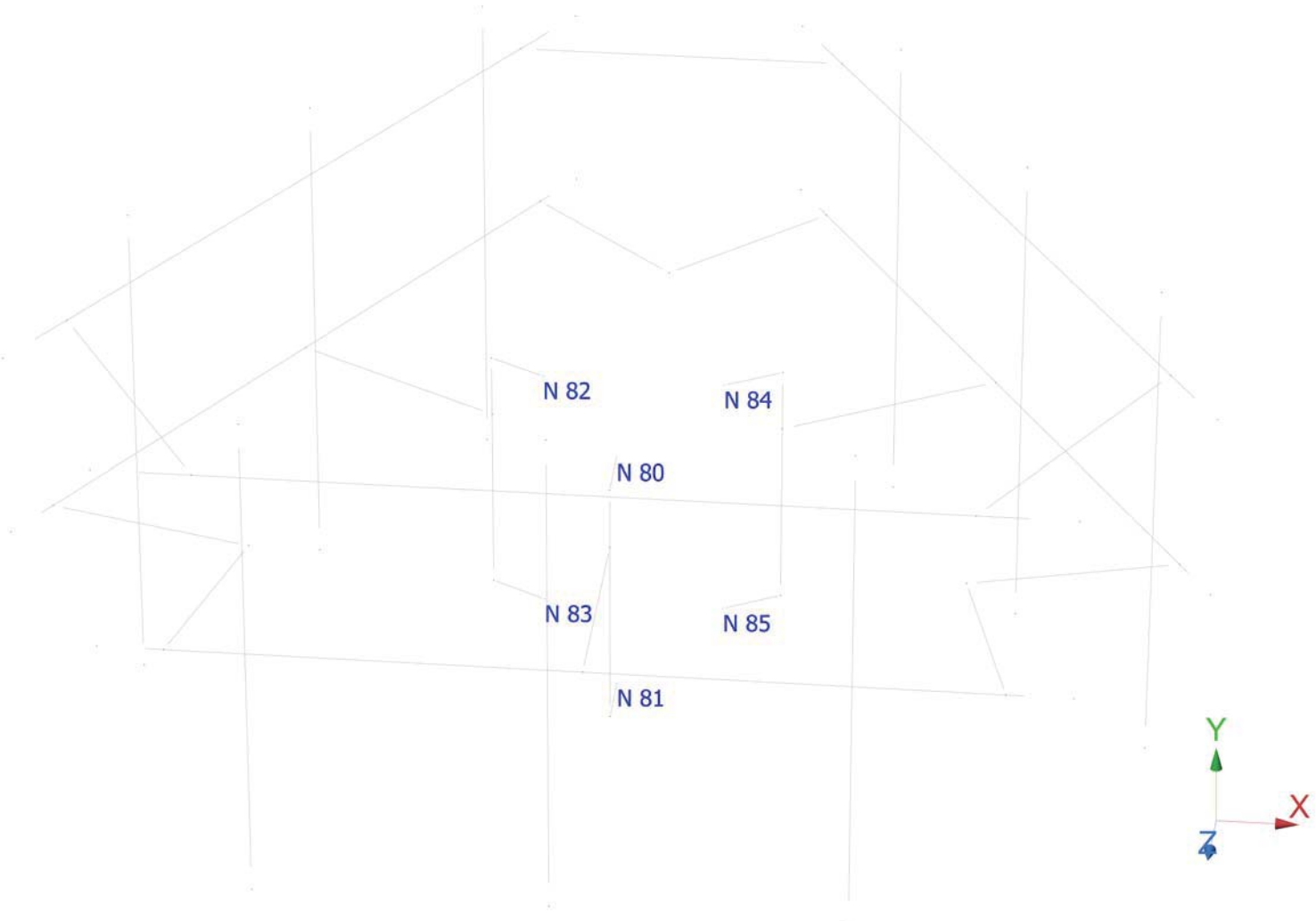
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	4	3		PIPE 3-1_2x0.226	A53 GrB	0.00	0.00	0.00
9	20	19		PIPE 3-1_2x0.226	A53 GrB	0.00	0.00	0.00
13	28	27		PIPE 3-1_2x0.226	A53 GrB	0.00	0.00	0.00
17	48	40		L 4x4x3/16	A36	0.00	0.00	0.00
18	42	40		L 4x4x3/16	A36	0.00	0.00	0.00
19	47	38		L 4x4x3/16	A36	0.00	0.00	0.00
20	46	38		L 4x4x3/16	A36	0.00	0.00	0.00
21	45	39		L 4x4x3/16	A36	0.00	0.00	0.00
22	41	39		L 4x4x3/16	A36	0.00	0.00	0.00
23	55	49		HSS_SQR 4X4X1_2	A500 GrB rectangular	0.00	0.00	0.00
24	54	51		HSS_SQR 4X4X1_2	A500 GrB rectangular	0.00	0.00	0.00
25	52	50		HSS_SQR 4X4X1_2	A500 GrB rectangular	0.00	0.00	0.00
26	57	60		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
27	58	59		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
28	56	61		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
38	56	80		PL 6x1/2	A36	0.00	0.00	0.00
39	61	81		PL 6x1/2	A36	0.00	0.00	0.00
40	57	82		PL 6x1/2	A36	0.00	0.00	0.00
41	60	83		PL 6x1/2	A36	0.00	0.00	0.00
42	58	84		PL 6x1/2	A36	0.00	0.00	0.00
43	59	85		PL 6x1/2	A36	0.00	0.00	0.00
50	67	76		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
51	66	75		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
52	65	74		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
53	98	99		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
54	100	101		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
55	102	103		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
56	104	105		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
57	106	107		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
58	108	109		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
59	128	129		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
60	130	131		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
61	132	133		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
71	134	135		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
72	136	137		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
73	138	139		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
17	90.00	0	0.00	0.00	0.00
18	180.00	0	0.00	0.00	0.00
19	180.00	0	0.00	0.00	0.00
20	90.00	0	0.00	0.00	0.00
21	180.00	0	0.00	0.00	0.00
22	90.00	0	0.00	0.00	0.00
38	90.00	0	0.00	0.00	0.00
39	90.00	0	0.00	0.00	0.00
40	90.00	0	0.00	0.00	0.00
41	90.00	0	0.00	0.00	0.00
42	90.00	0	0.00	0.00	0.00
43	90.00	0	0.00	0.00	0.00
71	90.00	0	0.00	0.00	0.00
72	90.00	0	0.00	0.00	0.00
73	90.00	0	0.00	0.00	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
71	1	1	0	0	1	1	0	0	0	0	Full
72	1	1	0	0	1	1	0	0	0	0	Full
73	1	1	0	0	1	1	0	0	0	0	Full


N 82
N 84
N 80
N 83
N 85
N 81
Y
X
Z

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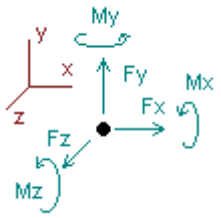
Analysis result

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.4DL
LC14=1.2DL+1.6LL1
LC15=1.2DL+1.6LL2
LC16=1.2DL+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4
LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
80	Max	1.127	LC2	0.805	LC11	1.083	LC5	-0.14497	LC5	2.48307	LC2	0.01287	LC21
	Min	-1.088	LC8	0.246	LC5	-2.530	LC3	-0.42288	LC11	-2.44977	LC8	-0.01711	LC31
81	Max	0.460	LC21	1.096	LC9	1.703	LC9	-0.18135	LC7	0.92372	LC6	0.01629	LC31
	Min	-0.615	LC31	0.364	LC7	0.203	LC7	-0.52102	LC9	-0.95830	LC4	-0.01223	LC21

82	Max	2.491	LC2	0.804	LC10	1.946	LC1	0.21352	LC11	3.10029	LC1	-0.13029	LC7
	Min	-1.257	LC8	0.257	LC8	-1.189	LC7	0.06706	LC8	-3.06698	LC7	-0.36550	LC9
83	Max	-0.084	LC6	1.093	LC12	0.028	LC5	0.25969	LC12	1.15821	LC5	-0.16030	LC5
	Min	-1.450	LC12	0.364	LC6	-0.904	LC11	0.08210	LC6	-1.19279	LC3	-0.45031	LC12
84	Max	1.299	LC6	0.804	LC12	1.846	LC1	0.21112	LC12	2.98680	LC3	0.36710	LC9
	Min	-2.572	LC4	0.258	LC6	-1.156	LC7	0.06591	LC6	-2.95350	LC5	0.12985	LC7
85	Max	1.502	LC10	1.094	LC10	0.032	LC5	0.26220	LC10	1.10769	LC7	0.44922	LC10
	Min	0.080	LC8	0.360	LC8	-0.814	LC11	0.08111	LC8	-1.14227	LC1	0.15927	LC8

HUDSON
Design Group LLC

Connection Check

Date: 5/23/2022
Project Name: NORTH BRANFORT EAST
Project No.: CT5639
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = A36 3/4" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 9609 lbs.

Allowable Shear Load =

F_{Vall} = 5765 lbs.

TENSILE FORCES

Reaction **F =** 804 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 2572 lbs. (See Bentley Output)
Reactions in Z direction: 1846 lbs. (See Bentley Output)

Resultant: 3166 lbs.

No. of Supports = 1
No. of Bolts / Support = 2

Tension Design Load /Bolts =

f_t = 402.00 lbs. < 9609 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 1582.95 lbs. < 5765 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.042	+	0.275	=	0.316	<	1.0	**Therefore, OK !**

39 CIRO RD

Location	39 CIRO RD	**Mblu**	27/C 39F/ / /
Acct#	000629	**Owner**	CASAGRANDE JOSEPH J JR
Assessment	$151,200	**Appraisal**	$216,000
PID	2083	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$48,300	$167,700	$216,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$33,800	$117,400	$151,200

Owner of Record

Owner	CASAGRANDE JOSEPH J JR	**Sale Price**	$165,000
Co-Owner		**Certificate**	
Address	4 LOCHBOURNE DR CLINTON, CT 06413-1412	**Book & Page**	0326/0604
		Sale Date	12/23/2002
		Instrument	01

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CASAGRANDE JOSEPH J JR	$165,000		0326/0604	01	12/23/2002
CASAGRANDE PASQUALINA	$0		0271/0303		06/25/1998
CASAGRANDE JOSEPH	$0		0092/0202		05/07/1974

Building Information

Building 1 : Section 1

Year Built:	1974
Living Area:	2,562
Replacement Cost:	$117,903
Building Percent Good:	41

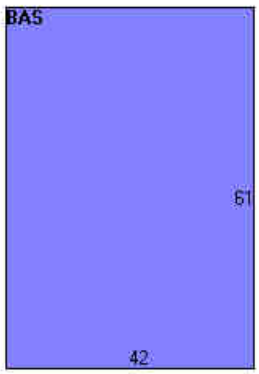
Replacement Cost
Less Depreciation: $48,300

Building Attributes	
Field	**Description**
Style:	Warehouse
Model	Ind or Comm
Grade	Low Cost
Stories:	1
Occupancy	1.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Struct Class	
Bldg Use	COMM WHSE MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3320
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	14.00
% Comn Wall	0.00

Building Photo

(https://images.vgsi.com/photos/NorthBranfordCTPhotos//\00\00\52\91.jpg)

Building Layout



(https://images.vgsi.com/photos/NorthBranfordCTPhotos//Sketches/2083_

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,562	2,562
		2,562	2,562

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	316I
Description	COMM WHSE MDL-96
Zone	I2
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.48
Frontage	0
Depth	0
Assessed Value	$117,400
Appraised Value	$167,700

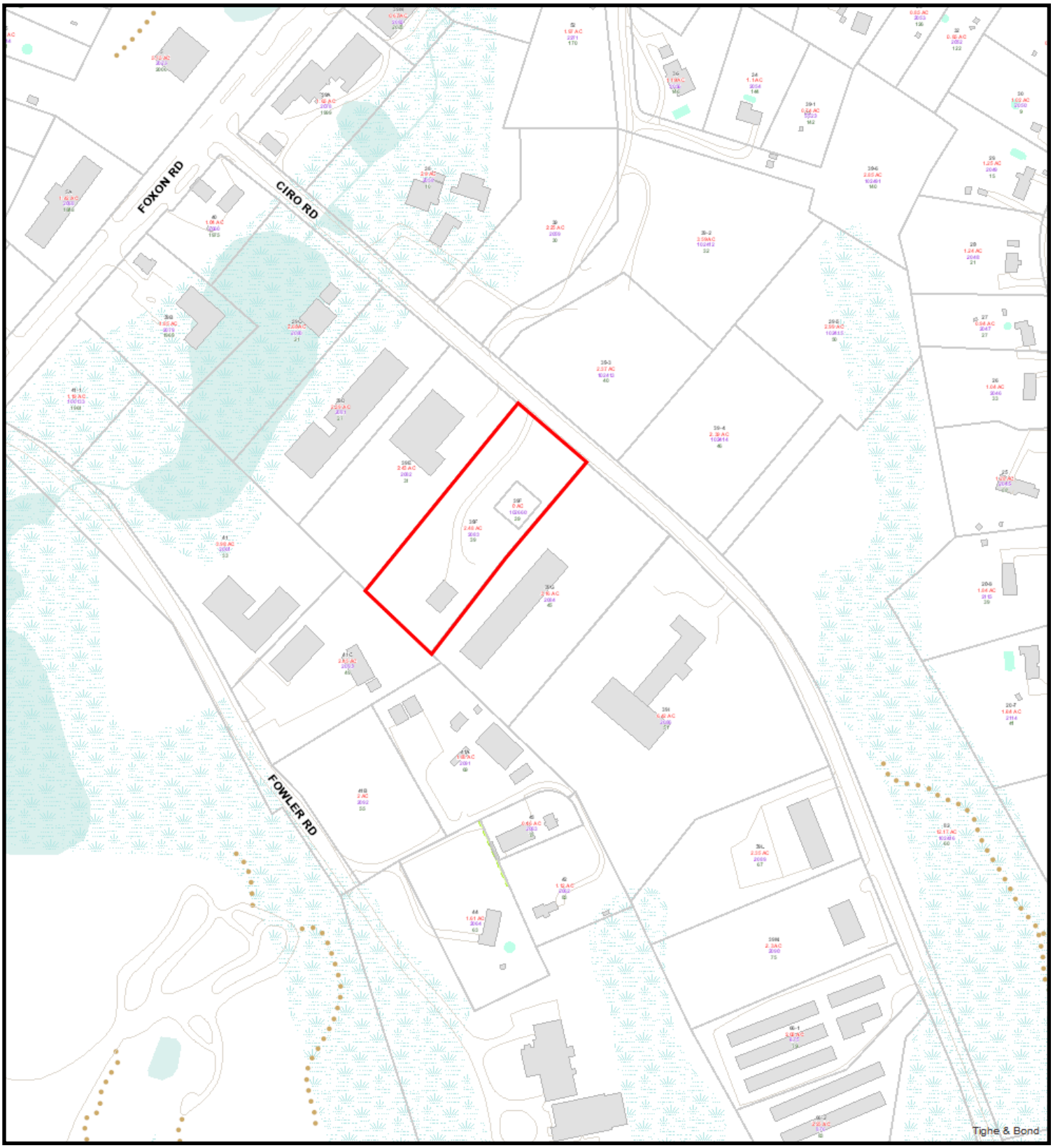
Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$48,300	$167,700	$216,000
2019	$52,600	$163,000	$215,600
2018	$52,600	$163,000	$215,600

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$33,800	$117,400	$151,200
2019	$36,800	$114,200	$151,000
2018	$36,800	$114,200	$151,000



39 Ciro Road

5/17/2022 1:28:10 PM

Scale: 1"=300'

Scale is approximate

N
W
E
S

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

TOWN OF NORTH BRANFORD

TOWN HALL P.O. BOX 287 1599 FOXON ROAD NORTH BRANFORD, CONNECTICUT 06471-0287
TOWN MANAGER (203) 315-6000 TOWN HALL FAX (203) 315-6025

Certified Mail #7099 3220 0010 3404 6145
June 20, 2001

Wendell G. Davis, Jr., Esq.
SBA Properties, Inc.
80 Eastern Boulevard
Glastonbury, CT 06033

Re: ZBA Application #2000/01-24

Dear Mr. Davis:

At its Regular Meeting of June 18, 2001 the North Branford Zoning Board of Appeals voted to approve Application #2000/01-24, 39 Ciro Road, North Branford, (Assessor Map 27, Lot 39F), seeking a variance of Section 23.1 (use) and Section 24.3 (height) to allow the construction of a 170 foot telecommunications tower and facility within an Industrial I-2 zone. Owner: Pasquelini Casagrande, Applicant: SBA, Properties Inc.

Notice of this decision has been published on June 21, 2001 in the New Haven Register. Pursuant to Section 8-7 of the Connecticut General Statutes, this decision is subject to a 15-day appeal period, which ends on July 6, 2001.

You are requested by Connecticut General Statutes, Section 8-7 to record the attached form in the Town Clerk's Office. Note that there is a filing fee per paper. Return the second copy of the attached form with the Town Clerk's Attestation to the Planning and Zoning Office. We advise you to consider filing these forms after the 15 day appeal period.

You are also advised that any area, location and bulk variance granted by the Zoning Board of Appeals shall expire and be null and void unless 1) **within one (1) year** from the effective date of the variance a Building Permit or Certificate of Zoning Compliance is obtained for the building or other structure authorized by the variance, or 2) approval for final subdivision plan shall have been obtained within one (1) year from the effective date of such variance. The Zoning Board of Appeals may grant one (1) extension of such period for an additional period not to exceed one (1) year for good cause.

Sincerely,

Steve Kenning RF

Steve Kenning, Chairman
Zoning Board of Appeals

VOL. 302PAGE 053

I, Steve Kenning, Chairman of the North Branford Zoning Board of Appeals hereby certify that on June 18, 2001 the Zoning Board of Appeals of the Town of North Branford granted a variance of Section 23.1 and Section 24.3 of the North Branford Zoning Regulations as follows (including conditions, if any):

> Granted: **Application #2000/01-24, 39 Ciro Road, North Branford, (Assessor Map 27, Lot 39F), seeking a variance of Section 23.1 (use) and Section 24.3 (height) to allow the construction of a 170 foot telecommunications tower and facility within an Industrial I-2 zone. Owner: Pasquelini Casagrande, Applicant: SBA, Properties Inc.**

Said variance was granted for the property located at: 39 Ciro Road and more particularly described as follows as per the Assessor's Maps:

Map #27, Lot # 39F

The owner of record is said parcel is Pasquelini Casagrande

Dated at North Branford, Connecticut this 18th day of June, 2001

Steve Kenning Ch.
Steve Kenning, Chairman

dfs

Sec. 8-3d, CGS

Received for Record this _____ day of _____ 200__.

Received for record July 13, 2001

at 2 h 45 m p m, and recorded by

Lisa A. Valenti

North Branford Town Clerk

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 26, 2002

Julie M. Donaldson, Esq.
Hurwitz & Sagarin LLC
147 North Broad Street, P.O. Box 112
Milford, CT 06460-0112

RE: **PETITION NO. 564** - SBA Properties, Inc. petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed shared use of an existing telecommunications facility located at 39 Ciro Road in North Branford, Connecticut.

Dear Attorney Donaldson:

At a public meeting held on June 25, 2002, the Connecticut Siting Council (Council) considered and ruled that the existing telecommunications facility located at 39 Ciro Road in North Branford, Connecticut would not require a Certificate of Environmental Compatibility and Public Need, pursuant to General Statutes § 16-50k. The Council also ruled that the proposed shared use of this existing facility by AT&T Wireless PCS, LLC is technically, legally, environmentally, and economically feasible and meets public safety concerns. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated June 6, 2002.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/laf

Enclosure: Staff Report dated June 25, 2002

c: Honorable Joanne Wentworth, Mayor, Town of North Branford
Karl Kilduff, Town Manager, Town of North Branford
Christopher Fisher, Esq., Cuddy & Feder & Worby

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

Petition No. 564
SBA Properties Inc. (SBA)
North Branford, Connecticut
Staff Report
June 25, 2002

SBA seeks a declaratory ruling from the Council that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for an existing telecommunications facility located at 39 Ciro Road in North Branford Connecticut. This is a speculation tower owned by SBA. SBA also requests that the Council approve the proposed shared use of the existing telecommunications facility by AT&T Wireless PCS, LLC (AT&T).

In a letter to municipalities dated January 25, 2002, the Council requested tower owners to notify the Council of towers approved by municipalities between July 10, 2001 and December 17, 2001, by filing a petition for a declaratory ruling as to whether such towers have a substantial adverse environmental effect. This telecommunications facility was approved by the Town of North Branford Zoning Board of Appeals on June 18, 2001. Council Staff visited this site on June 11, 2002, and took the accompanying photograph on that date.

The existing telecommunications facility consists of a 170-foot monopole, with four antenna platforms, within a 75-foot by 80-foot fenced compound. The existing telecommunications facility currently supports Sprint's antennas at the 137 feet above ground level (AGL), and a ten-foot by 20-foot equipment building within the fenced compound. AT&T proposes to attach six panel antennas at 147 feet AGL to the tower, and place four equipment cabinets on an approximately six-foot by ten-foot concrete pad within the fenced compound. The existing telecommunications facility is located in an Industrial I-2 zone. The calculated cumulative worst-case radiofrequency (RF) power density level for all telecommunications operations at the site would be approximately 12.4% of the applicable American National Standards Institute (ANSI) standard for RF exposure in uncontrolled environments. The existing monopole is structurally capable of supporting the existing and proposed antennas.

SBA contends that the proposed shared use of the existing telecommunications facility would not increase noise levels by six decibels or more; would not alter the access or storm drainage at the site; would not increase the height of the tower; would not require any clearing, grading, or expansion of the site boundaries; and therefore would not cause a substantial adverse environmental effect.

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

T + 561.995.7670
F + 561.995.7626

sbasite.com

LETTER OF AUTHORIZATION

SBA Site ID: CT04066-S, North Branford East

Property Located at: 39 Ciro Road, North Branford, CT, 06471-1521

THE CITY/COUNTY OF: North Branford / New Haven/N Branford

APPLICATION FOR ZONING/USE/BUILDING PERMIT

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

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

SBA Properties, LLC

Jason Silberstein

Executive VP, Site Leasing

Date: 6/23/2022

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SALEM NH 03079-2837

Expected Delivery Date: 07/28/22
Ref#: CT5639
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R006

MICHAEL T. PAULHUS, TOWN MANAGER ERIC
TOWN OF NORTH BRANFORD
909 FOXON RD
N BRANFORD CT 06471-1290

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PRIORITY MAIL®

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

Expected Delivery Date: 07/28/22
Ref#: CT5639
0000

R002

MR. JOSEPH J CASAGRANDE, JR
4 LOCHBOURNE DR
CLINTON CT 06413-1410

USPS TRACKING #

9405 5036 9930 0304 8935 36

Electronic Rate Approved #038555749

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PRIORITY MAIL®

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

Expected Delivery Date: 07/29/22
Ref#: CT5639
0000

C036

SBA PROPERTIES LLC
8051 CONGRESS AVE
BOCA RATON FL 33487-1307

USPS TRACKING #

9405 5036 9930 0304 8935 50

Electronic Rate Approved #038555749

Cut on dotted line.

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07/26/2022 Mailed from 03079

PRIORITY MAIL®

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

Expected Delivery Date: 07/28/22
Ref#: CT5639
0000

C006

MELANIE BACHMAN EXECUTIVE DIRECTOR
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

USPS TRACKING #

9405 5036 9930 0304 8935 98

Electronic Rate Approved #038555749

From: auto-reply@usps.com
To: Hollis Redding
Subject: USPS® Expected Delivery by Wednesday, July 27, 2022 arriving by 9:00pm 9405503699300304893499
Date: Tuesday, July 26, 2022 1:41:42 PM

Town Manager & Town Planner Copies

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 1:19 pm on July 26, 2022 in MERIDEN, CT 06450.

Tracking Number:
9405503699300304893499

Expected Delivery By

27
July

By 9:00pm

By 9:00pm

Hollis Redding

Property Owner Copy

From: auto-reply@usps.com
Sent: Tuesday, July 26, 2022 1:42 PM
To: Hollis Redding
Subject: USPS® Expected Delivery by Wednesday, July 27, 2022 arriving by 9:00pm 9405503699300304893536

UNITED STATES POSTAL SERVICE

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 1:19 pm on July 26, 2022 in MERIDEN

Tracking Number: **9405503699300304893536**

Expected Delivery By

Wed
27
July

By 9:00pm

Tracking & Delivery Options

My Account

Hollis Redding Tower Owner Copy

From: auto-reply@usps.com
Sent: Tuesday, July 26, 2022 1:42 PM
To: Hollis Redding
Subject: USPS® Expected Delivery by Friday, July 29, 2022 arriving by 9:00pm 9405503699300304893550

UNITED STATES POSTAL SERVICE

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 1:19 pm on July 26, 2022 in MERIDEN

Tracking Number: **9405503699300304893550**

Expected Delivery By

Fri
29
July

By 9:00pm

Tracking & Delivery Options

My Account