



September 10, 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 CT2040
265 Benham Street, Hamden, CT 06514 (the "Property")
Latitude: 41.370186 N Longitude: 72.931471 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 70' level on the existing 65' roof mounted guyed lattice tower ("Tower") at 265 Benham Street, Hamden, CT. The Property and Tower are owned by the Apostles of the Sacred Heart of Jesus, Inc. AT&T intends to modify its Facility by removing (3) antennas at the 70' level and adding (3) AIR6449 B77 antennas at the 67'10" level and adding (3) AIR6419 B77G antennas at the 71' 7" level of the Tower. The AIR6649 B77 & AIR6419 B77G antennas are stacked one on top of the other. The height of AT&Ts existing antennas is 70' and proposed antennas 67'10" & 71'7" 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 facility was approved by the Hamden Planning and Zoning Commission on August 22, 2000. The approval contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Lauren Garrett, Mayor, Town of Hamden, as elected official, Eugene Livshits, Town Planner, Town of Hamden, and the Apostles of the Sacred Heart of Jesus, the tower and property 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 Tower.
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 Tower and host building 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: Honorable Lauren Garrett, Mayor, Town of Hamden, elected official
Eugene Livshits, Town Planner, Town of Hamden
The Apostles of the Sacred Heart of Jesus, Inc. tower & property owner



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

Calculated Radio Frequency Exposure



CT2040

265 Benham Street, Hamden, CT

July 13, 2022

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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 rooftop located at 265 Benham Street in Hamden, CT. The coordinates of the existing rooftop are 41-22-12.67 N, 72-55-53.29 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&T¹ 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/cm²). 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 01/14/22.

3. RF Exposure Calculation Methods

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

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

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 rooftop 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 building. 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	70	1900	8	1223	0.8590	1.0000	8.59%
T-Mobile	70	2100	2	1485	0.2608	1.0000	2.61%
Hamden Fire Dept	72				0.0028	1.0000	0.03%
Hamden Police	93.5				0.0159	1.0000	0.16%
Verizon	61.5	869	1	348	0.0406	0.5793	0.70%
Verizon	63.5	1970	1	2334	0.2539	1.0000	2.54%
Verizon	60.5	746	1	1240	0.1501	0.4973	3.02%
Verizon	60.4	2145	1	2691	0.3270	1.0000	3.27%
AT&T	70	739	1	2878	0.0253	0.4927	5.13%
AT&T	70	763	1	2038	0.0179	0.5087	3.52%
AT&T	70	885	1	2286	0.0201	0.5900	3.40%
AT&T	70	1900	2	3883	0.0682	1.0000	6.82%
AT&T	70	2100	1	5960	0.0523	1.0000	5.23%
AT&T	70	2300	1	7856	0.0690	1.0000	6.90%
AT&T	71.6	3500	1	24286	0.2030	1.0000	20.30%
AT&T	68.1	3500	1	24286	0.2266	1.0000	22.66%
						Total	94.88%

Table 1: Carrier Information²³

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, Hamden Fire Dept, Hamden Police, Verizon and T-Mobile was taken directly from the CSC database dated 01/21/2022. Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

³ The T-Mobile facility, which is shown at the same antenna centerline as AT&T, is installed in a separate enclosure approximately 200 feet south-southeast on the same roof, not on the rooftop “tower” with AT&T. It is included in this analysis to represent the absolute worst case of emissions.

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 **94.88% 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.



July 13, 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 Exposure⁴

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 Exposure⁵

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)

⁴ 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

⁵ 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

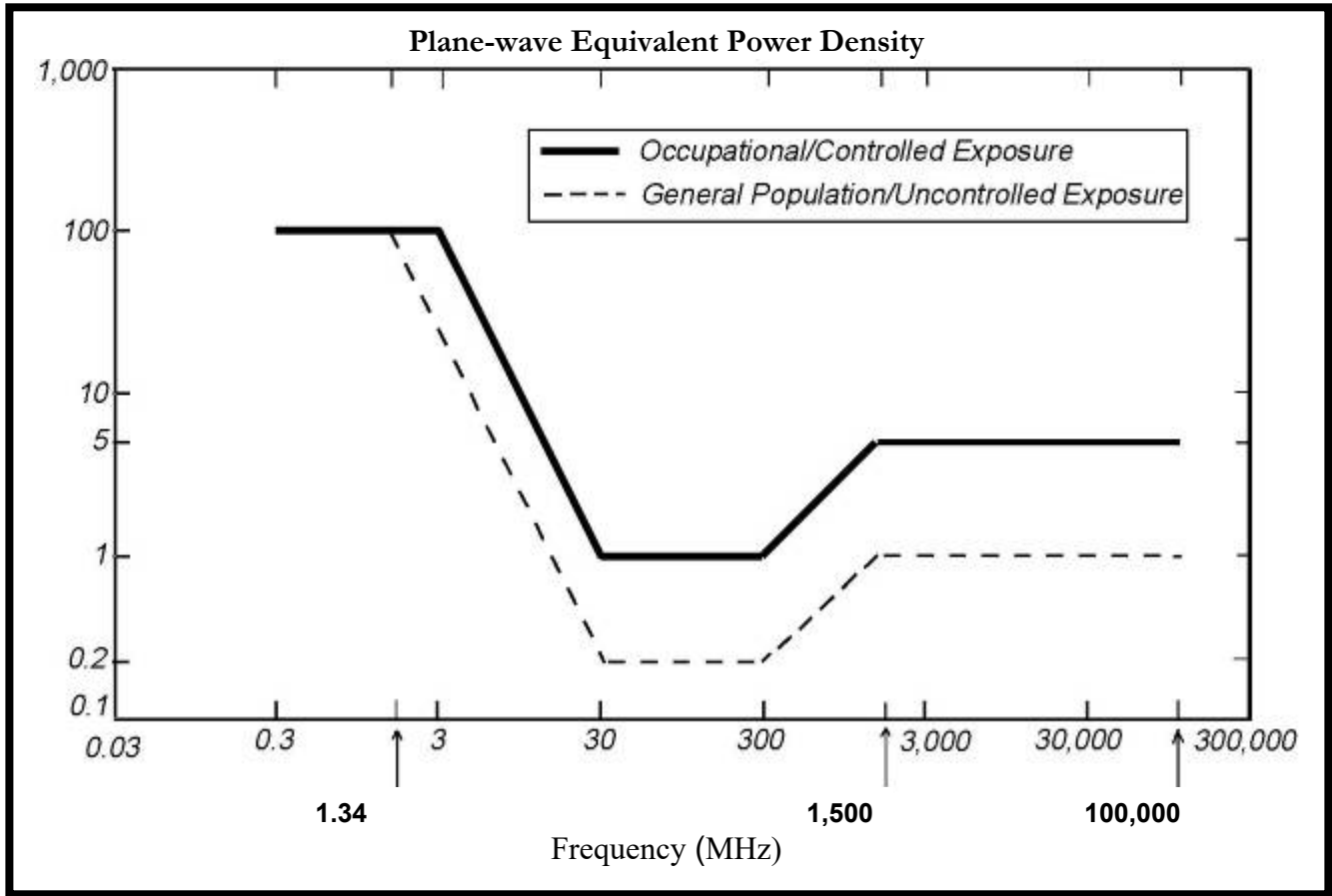
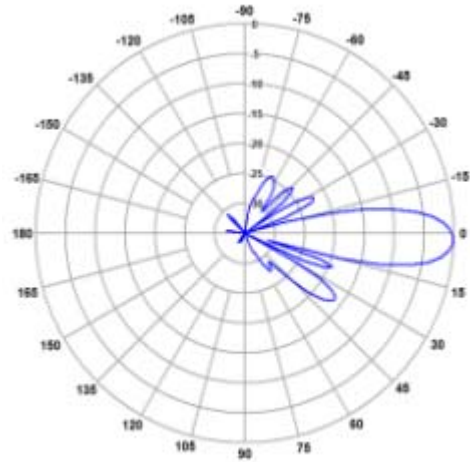


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

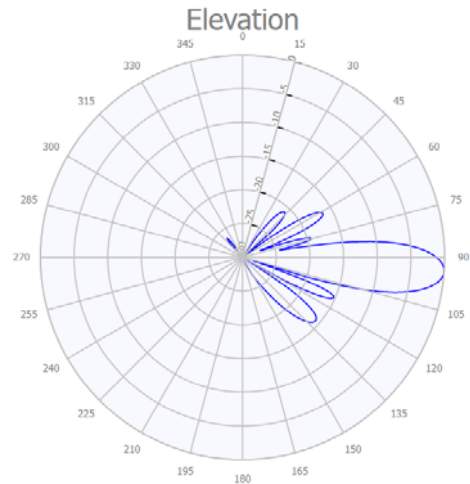
700 MHz

Manufacturer: KMW
 Model #: EPBQ-654L8H6-L2
 Frequency Band: 698-806 MHz
 Gain: 14.7 dBi
 Vertical Beamwidth: 12.6°
 Horizontal Beamwidth: 66°
 Polarization: ±45°
 Size L x W x D: 73" x 21" x 6.3"



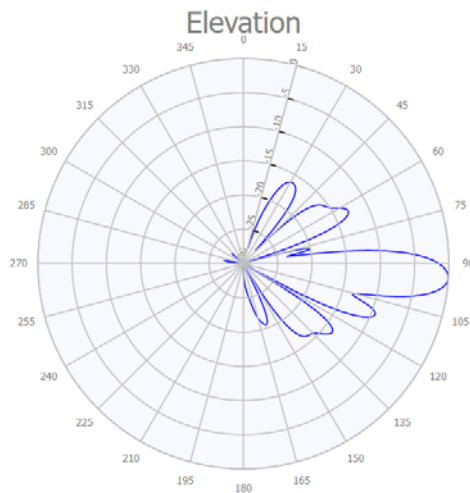
700 MHz

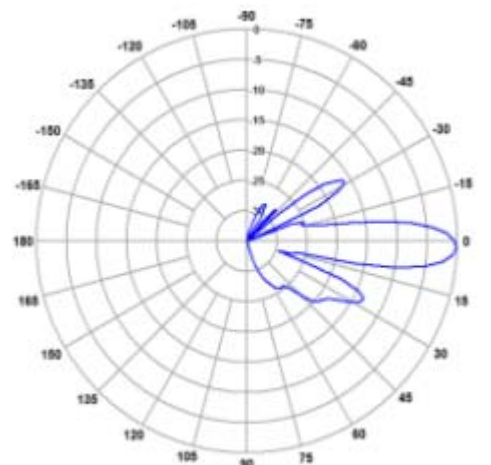
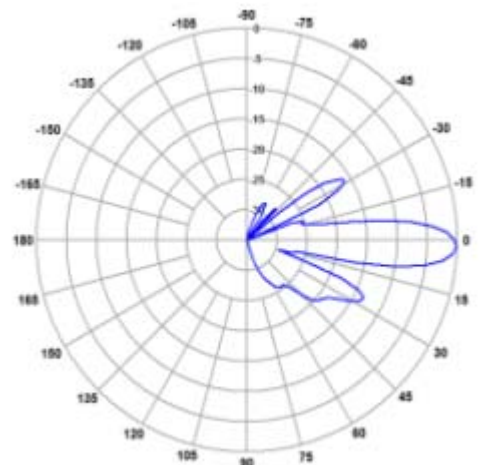
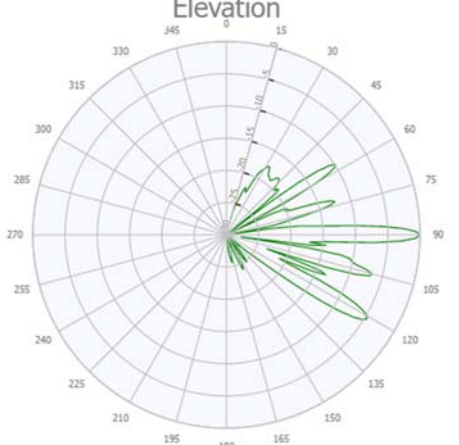
Manufacturer: CCI Products
 Model #: DMP65R-BU6D
 Frequency Band: 698-798 MHz
 Gain: 14 dBi
 Vertical Beamwidth: 13°
 Horizontal Beamwidth: 74°
 Polarization: Dual Linear 45°
 Size L x W x D: 71.2" x 20.7" x 7.7"



885 MHz

Manufacturer: CCI Products
 Model #: DMP65R-BU6D
 Frequency Band: 824 - 896 MHz
 Gain: 14.6 dBi
 Vertical Beamwidth: 11.1°
 Horizontal Beamwidth: 63°
 Polarization: Dual Linear 45°
 Size L x W x D: 71.2" x 20.7" x 7.7"



<p>1900 MHz</p> <p>Manufacturer: KMW Model #: EPBQ-654L8H6-L2 Frequency Band: 1850-1910 MHz Gain: 16 dBi Vertical Beamwidth: 10.3° Horizontal Beamwidth: 58° Polarization: ±45° Size L x W x D: 73" x 21" x 6.3"</p>	 <p>A polar plot showing the horizontal beam pattern for the 1900 MHz antenna. The plot is circular with concentric rings representing gain levels and radial lines representing angles from 0 to 180 degrees. The main beam is centered at 0 degrees and has a width of 58 degrees. There are several smaller side lobes extending outwards.</p>
<p>2100 MHz</p> <p>Manufacturer: KMW Model #: EPBQ-654L8H6-L2 Frequency Band: 1850-1910 MHz Gain: 16.1 dBi Vertical Beamwidth: 9.5° Horizontal Beamwidth: 62° Polarization: ±45° Size L x W x D: 73" x 21" x 6.3"</p>	 <p>A polar plot showing the horizontal beam pattern for the 2100 MHz antenna. The plot is circular with concentric rings representing gain levels and radial lines representing angles from 0 to 180 degrees. The main beam is centered at 0 degrees and has a width of 62 degrees. There are several smaller side lobes extending outwards.</p>
<p>2300 MHz</p> <p>Manufacturer: CCI Products Model #: DMP65R-BU6D Frequency Band: 2300-2400 MHz Gain: 18.4 dBi Vertical Beamwidth: 4.1° Horizontal Beamwidth: 54° Polarization: Dual Linear 45° Size L x W x D: 71.2" x 20.7" x 7.7"</p>	<p style="text-align: center;">Elevation</p>  <p>A polar plot showing the elevation beam pattern for the 2300 MHz antenna. The plot is circular with concentric rings representing gain levels and radial lines representing angles from 0 to 360 degrees. The main beam is centered at 90 degrees (elevation) and has a width of 54 degrees. There are several smaller side lobes extending outwards.</p>

PROJECT INFORMATION

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

- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 B77 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: DMP65R-BU6DA (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 4).
- EXISTING AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 4).
- EXISTING AT&T RRUS: 32 B30 (WCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 4).
- NEW AT&T SURGE ARRESTOR: DC9-48-60-24-8C-EV (TOTAL OF 1) WITH (1) AWG6 DC TRUNK AND (1) 24-PAIR FIBER LINE.
- ADD (3) Y-CABLES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (1) 6648 + XCEDE CABLE.
- ADD (3) RECTIFIERS.
- ADD (1) DC12.

ITEMS TO BE REMOVED:

- EXISTING AT&T UMTS ANTENNA: AM-X-CD-16-65-00T-RET (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T DIPLEXERS: CM1007-DBPXBC-003 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T TMA: DTMABP7819V612A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T SURGE ARRESTOR: DC ONLY (TOTAL OF 1).
- EXISTING AT&T (6) COAX CABLES.

ITEMS TO REMAIN:

- (6) ANTENNAS, (15) RRU'S, (2) SURGE ARRESTOR, (6) COAX CABLES, (6) DC POWER & (2) FIBER.

SITE ADDRESS: 265 BENHAM STREET
HAMDEN, CT 06514

LATITUDE: 41.370186° N, 41° 22' 12.66" N
LONGITUDE: 72.931471° W, 72° 55' 53.29" W

TYPE OF SITE: GUYED TOWER / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 105'-11"±
67'-10"± C-BAND
70'-0"± LTE
71'-7"± DOD

RAD CENTER: 70'-0"± LTE
71'-7"± DOD

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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



SITE NUMBER: CT2040

SITE NAME: HAMDEN BENHAM ST

FA CODE: 10035317

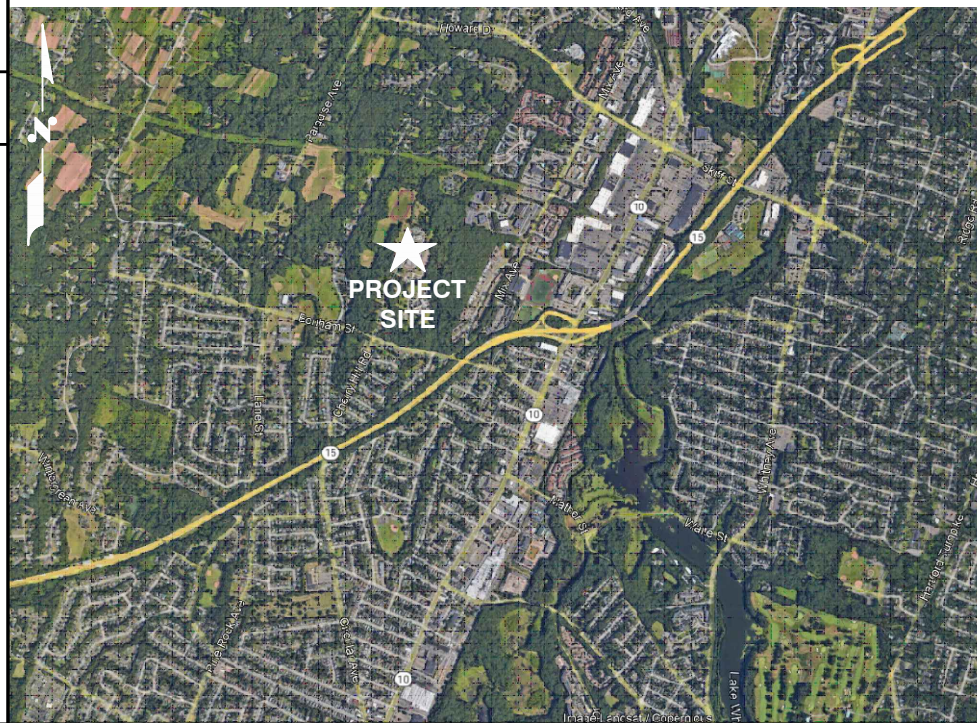
PACE ID: MRCTB052321, MRCTB051771, MRCTB051766

PROJECT: 5G NR 1SR C-BAND_ANTENNA RETROFIT UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

MERGE ONTO I-91 N. CONTINUE ON I-91 N TO EAST HARTFORD. TAKE EXIT 3 FROM CT-2 W. MERGE ONTO I-91 N. TAKE EXIT 29 TO MERGE ONTO CT-15 N/US-5 N TOWARD I-84 E/E HARTFORD/BOSTON. CONTINUE ON CT-15 N. TAKE EXIT 90 TOWARD CT-2 W. KEEP RIGHT TO STAY ON EXIT 90, FOLLOW SIGNS FOR CT-2 W/E RIVER DR AND MERGE ONTO CT-2 W. TAKE EXIT 3 FOR PITKIN ST. CONTINUE ON PITKIN ST TO YOUR DESTINATION. TURN LEFT ONTO PITKIN ST. TURN RIGHT ONTO DARLIN ST. TURN LEFT ONTO E RIVER DR. TURN RIGHT. TURN RIGHT. DESTINATION WILL BE ON THE LEFT. 99 E RIVER DR EAST HARTFORD, CT 06108



GENERAL NOTES

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

72 HOURS



CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2040
SITE NAME: HAMDEN BENHAM ST

265 BENHAM STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

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

3	07/27/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH		AT&T
2	05/20/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH		TITLE SHEET
1	03/29/22	ISSUED FOR REVIEW	JC	HC	DPH		5G NR 1SR C-BAND_ANTENNA RETROFIT UPGRADE
A	02/11/22	ISSUED FOR REVIEW	JC	HC	DPH		DRAWING NUMBER
NO.	DATE	REVISIONS	BY	CHK	APP'D		REV
SCALE: AS SHOWN			DESIGNED BY: HC		DRAWN BY: JC		CT2040
							T-1
							3

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;

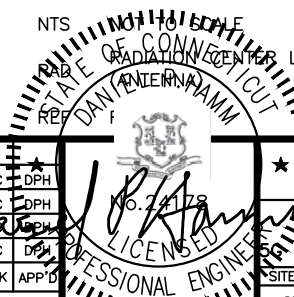
AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

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	GR	GRADATION CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING				



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

SAI
 12 INDUSTRIAL WAY SALEM, NH 03079

**SITE NUMBER: CT2040
 SITE NAME: HAMDEN BENHAM ST**

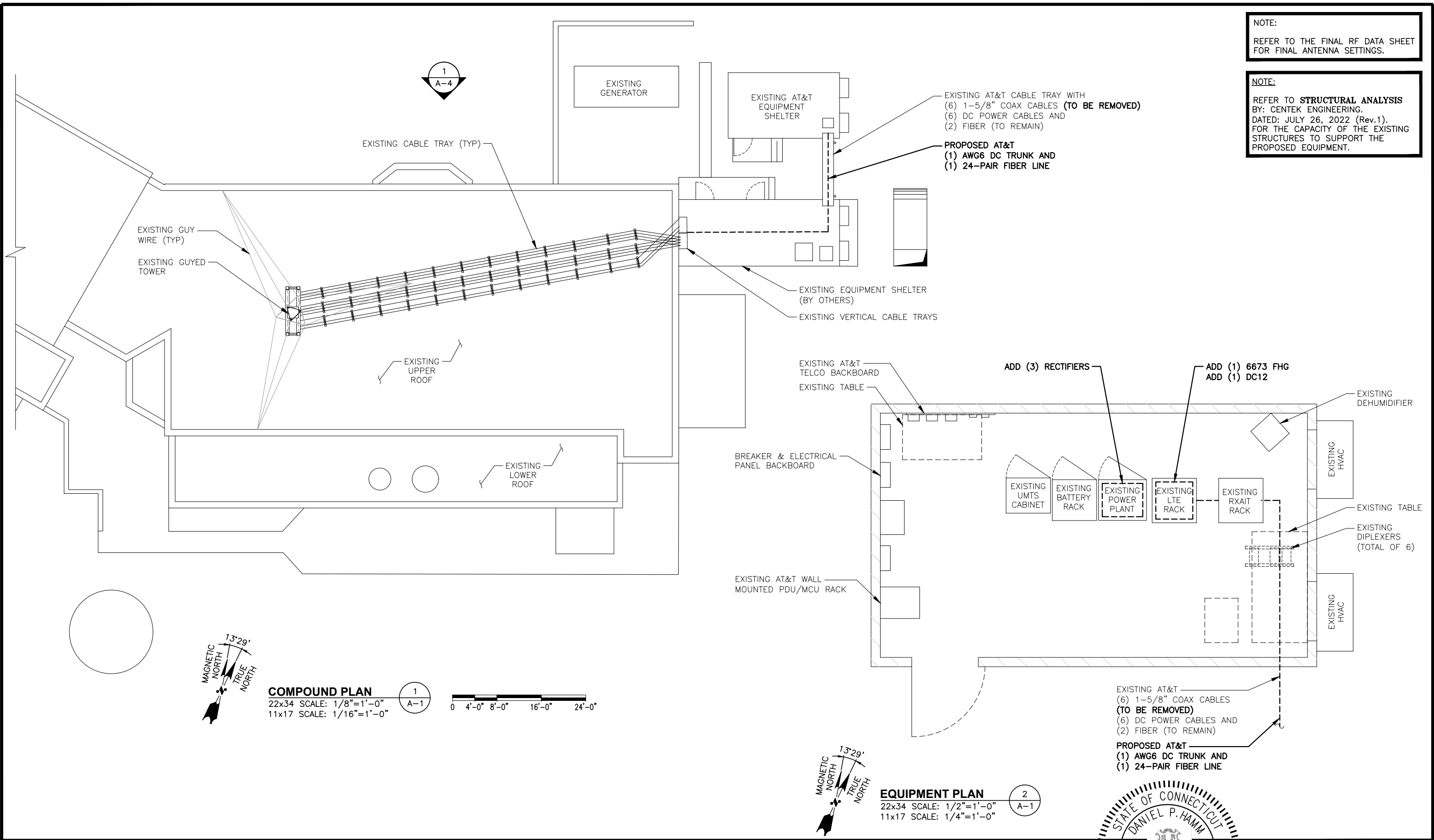
265 BENHAM STREET HAMDEN, CT 06514
 NEW HAVEN COUNTY

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

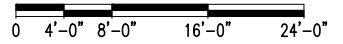
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2	05/20/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH		
1	03/29/22	ISSUED FOR REVIEW	JC	HC	DPH		
A	02/11/22	ISSUED FOR REVIEW	JC	HC	DPH		
NO.	DATE	REVISIONS	BY	CHK	APP'D	SITE NUMBER	DRAWING NUMBER
						CT2040	GN-1
SCALE: AS SHOWN						DESIGNED BY: HC	DRAWN BY: JC
							3

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

NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING. DATED: JULY 26, 2022 (Rev.1). FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



COMPOUND PLAN
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"



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

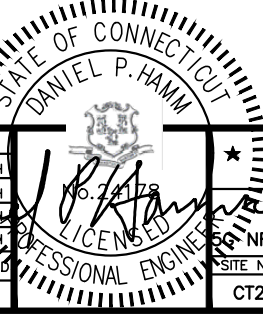
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SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2040
SITE NAME: HAMDEN BENHAM ST
265 BENHAM STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

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

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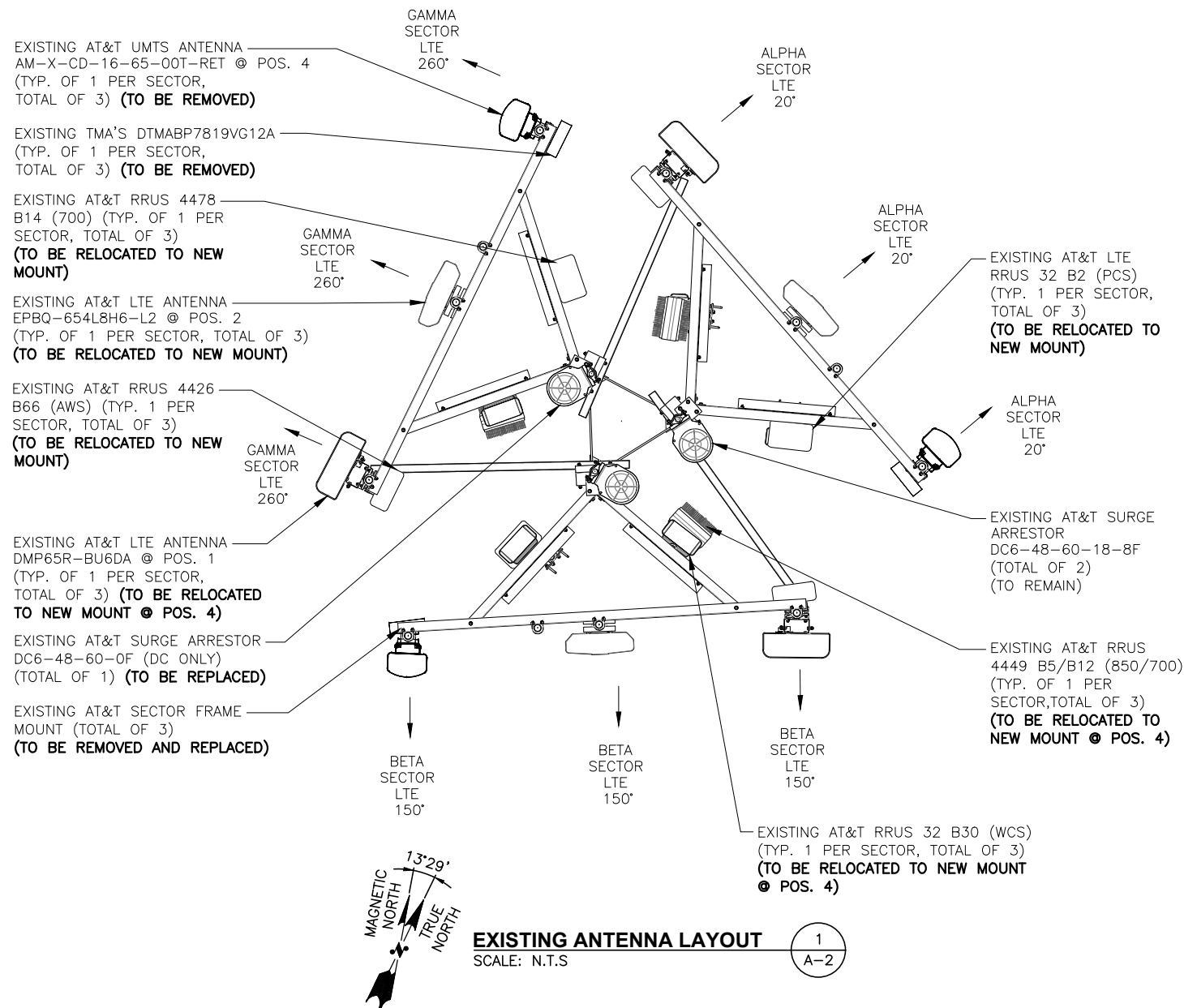


AT&T
COMPOUND & EQUIPMENT PLANS
EG-NR 1SR C-BAND_ ANTENNA RETROFIT UPGRADE
SITE NUMBER: CT2040
DRAWING NUMBER: A-1
REV: 3

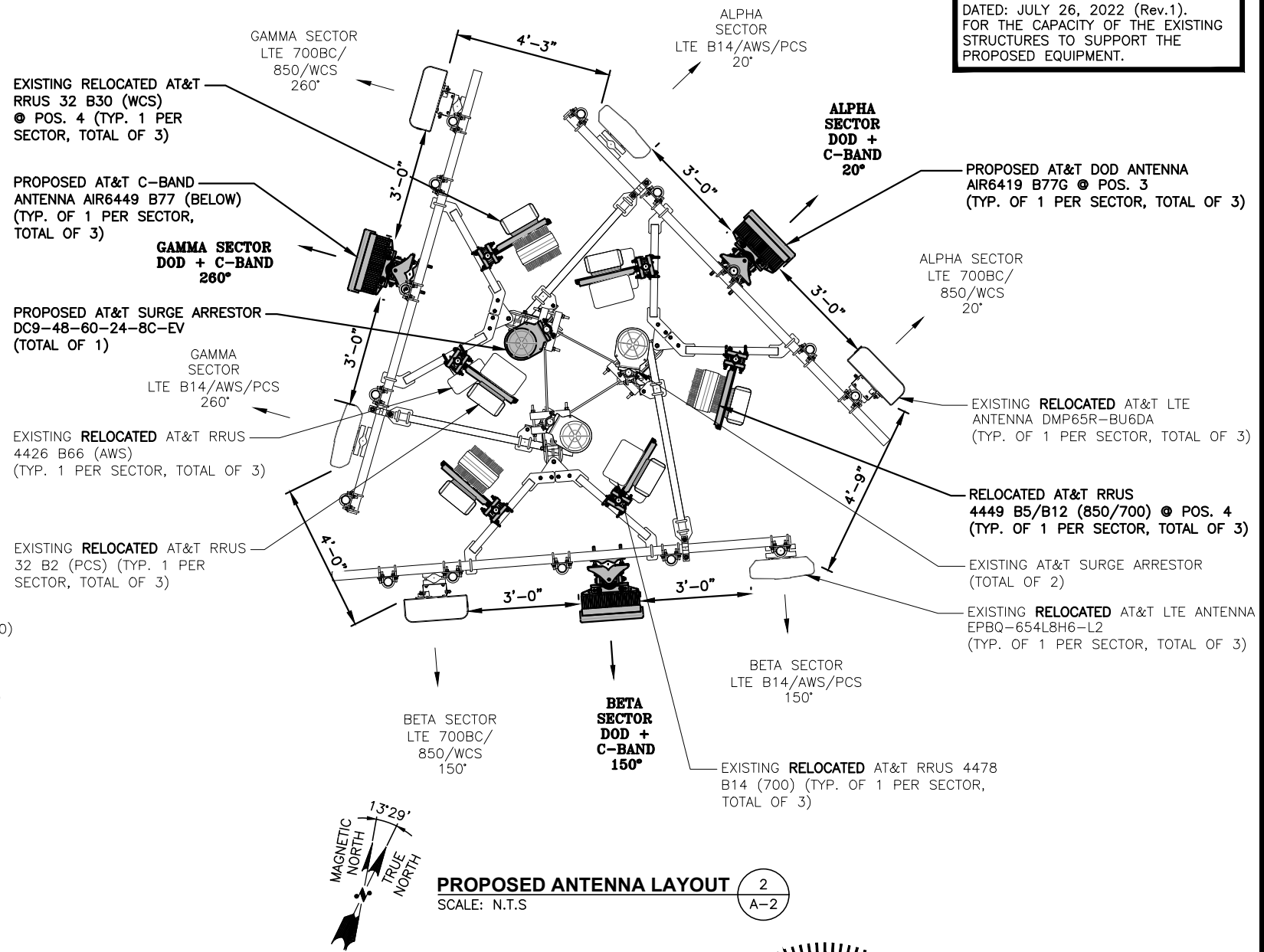
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE PROPOSED ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: JANUARY 14, 2022.

NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING.
DATED: JULY 26, 2022 (Rev.1).
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S. A-2

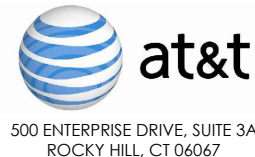


PROPOSED ANTENNA LAYOUT 2
SCALE: N.T.S. A-2

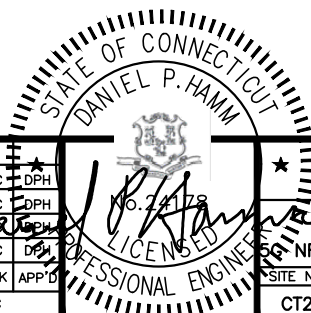


SITE NUMBER: CT2040
SITE NAME: HAMDEN BENHAM ST

265 BENHAM STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY



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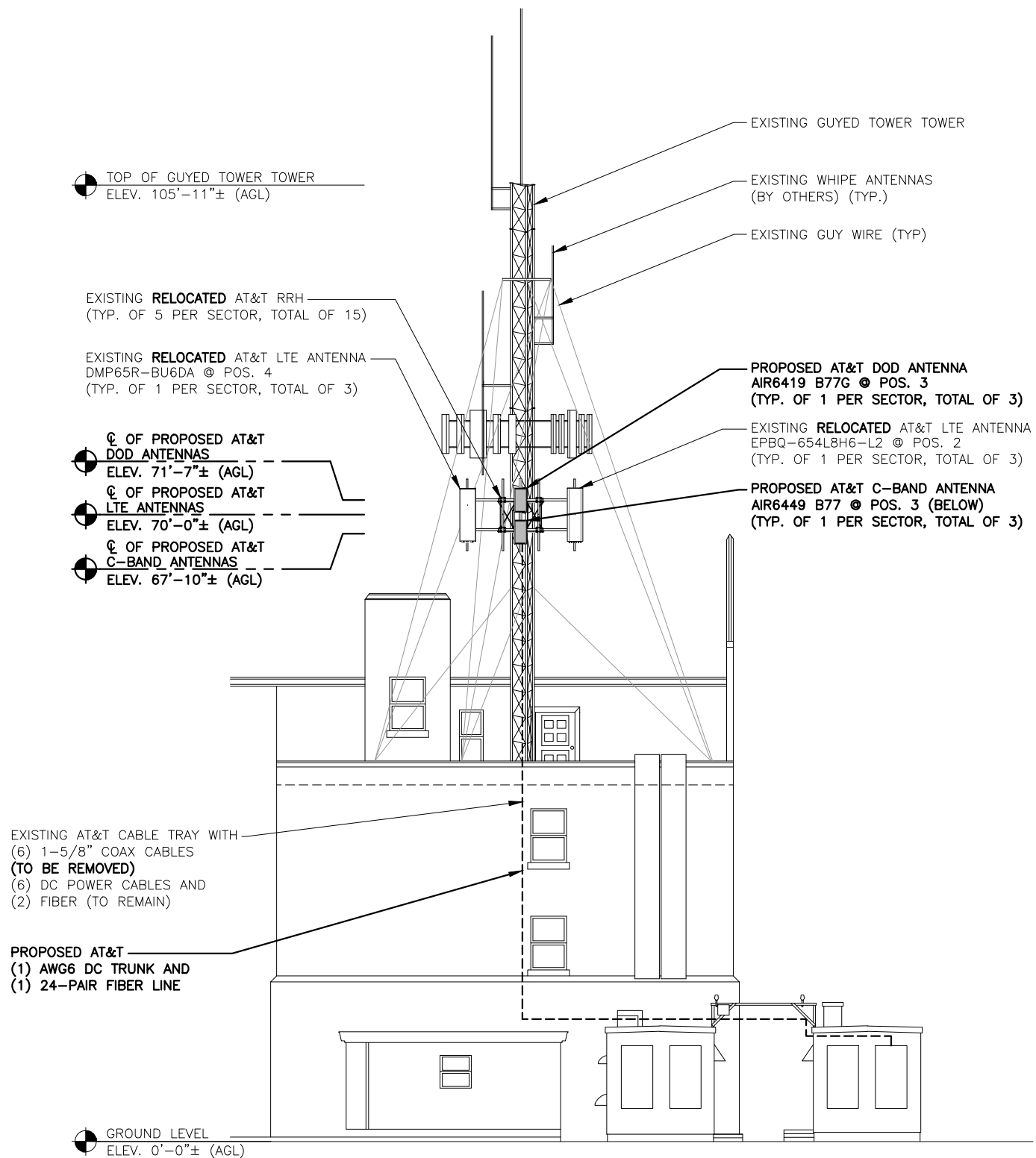


AT&T	
ANTENNA LAYOUTS	
PROJECT: NR 1SR C-BAND_ANTENNA RETROFIT UPGRADE	
SITE NUMBER: CT2040	DRAWING NUMBER: A-2
	REV: 3

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

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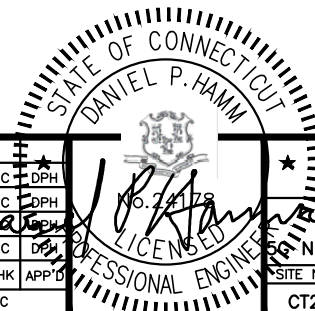
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ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

1
A-4



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



12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2040
SITE NAME: HAMDEN BENHAM ST

265 BENHAM STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY



500 ENTERPRISE DRIVE, SUITE 3A
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SCALE: AS SHOWN			DESIGNED BY: HC		DRAWN BY: JC

AT&T

ELEVATION

NR 1SR C-BAND_ANTENNA RETROFIT UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2040	A-3	3

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ø HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	-	-	-	-	-	-	-	-	-	-	-
A2	EXISTING	LTE B14/AWS/PCS	EPBQ-654L8H6-L2	73X21X6.3	70'-0"±	20°	-	(E)(1) RRU-4426 B66 (AWS) (E)(1) RRUS-32 B2 (PCS) (E)(1) 4478 B14 (700)	-	(E)(2) DC POWER & (1) FIBER	(E)(1) RAYCAP DC6-48-60-18-8F
A3	PROPOSED	DOD + C-BAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	71'-7"± 67'-10"±	20°	-	-	-	-	(E)(1) RAYCAP DC6-48-60-18-8F
A4	EXISTING	LTE 700BC/ 850/WCS	DMP65R-BU6DA	71.2X20.7X7.7	70'-0"±	20°	-	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	-	-	(E)(1) RAYCAP DC6-48-60-18-8F
B1	-	-	-	-	-	-	-	-	-	-	-
B2	EXISTING	LTE B14/AWS/PCS	EPBQ-654L8H6-L2	73X21X6.3	70'-0"±	150°	-	(E)(1) RRU-4426 B66 (AWS) (E)(1) RRUS-32 B2 (PCS) (E)(1) 4478 B14 (700)	-	(E)(2) DC POWER & (1) FIBER	(E)(1) RAYCAP DC6-48-60-18-8F
B3	PROPOSED	DOD + C-BAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	71'-7"± 67'-10"±	150°	-	-	-	-	(E)(1) RAYCAP DC6-48-60-18-8F
B4	EXISTING	LTE 700BC/ 850/WCS	DMP65R-BU6DA	71.2X20.7X7.7	70'-0"±	150°	-	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	-	-	(E)(1) RAYCAP DC6-48-60-18-8F
C1	-	-	-	-	-	-	-	-	-	-	-
C2	EXISTING	LTE B14/AWS/PCS	EPBQ-654L8H6-L2	73X21X6.3	70'-0"±	260°	-	(E)(1) RRU-4426 B66 (AWS) (E)(1) RRUS-32 B2 (PCS) (E)(1) 4478 B14 (700)	-	(E)(2) DC POWER, (P)(1) DC POWER & (P)(1) FIBER	(P)(1) RAYCAP DC9-48-60-24-8C-EV
C3	PROPOSED	DOD + C-BAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	71'-7"± 67'-10"±	260°	-	-	-	-	(P)(1) RAYCAP DC9-48-60-24-8C-EV
C4	EXISTING	LTE 700BC/ 850/WCS	DMP65R-BU6DA	71.2X20.7X7.7	70'-0"±	260°	-	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	-	-	(P)(1) RAYCAP DC9-48-60-24-8C-EV

RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
3(E)	4449 (850/700)	17.9"x13.2"x10.4"
3(E)	4478 B14 (700)	18.1"x13.4"x8.3"
3(E)	4426	14.9"x13.2"x5.8"
6(E)	RRUS-32 (WCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

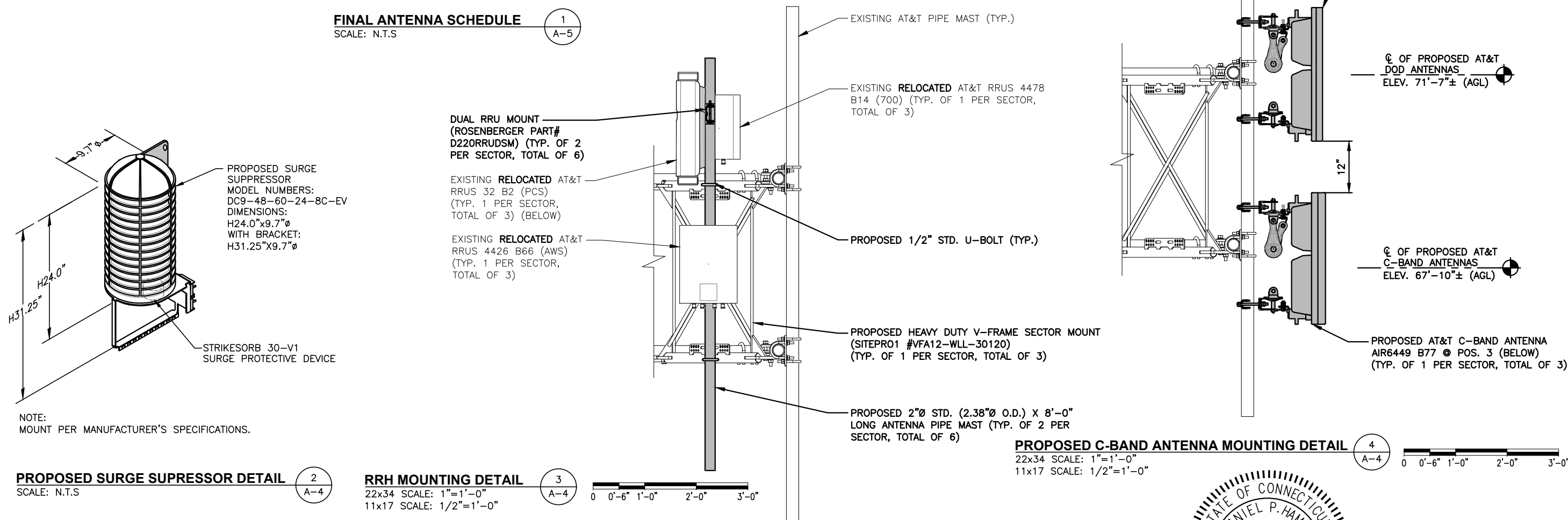
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
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HUDSON DESIGN GROUP, LLC.
DATED: JANUARY 14, 2022.

NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: CENTEK ENGINEERING.
DATED: JULY 26, 2022 (Rev.1).
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

FINAL ANTENNA SCHEDULE
SCALE: N.T.S

1
A-5



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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2040
SITE NAME: HAMDEN BENHAM ST
265 BENHAM STREET
HAMDEN, CT 06514
NEW HAVEN COUNTY

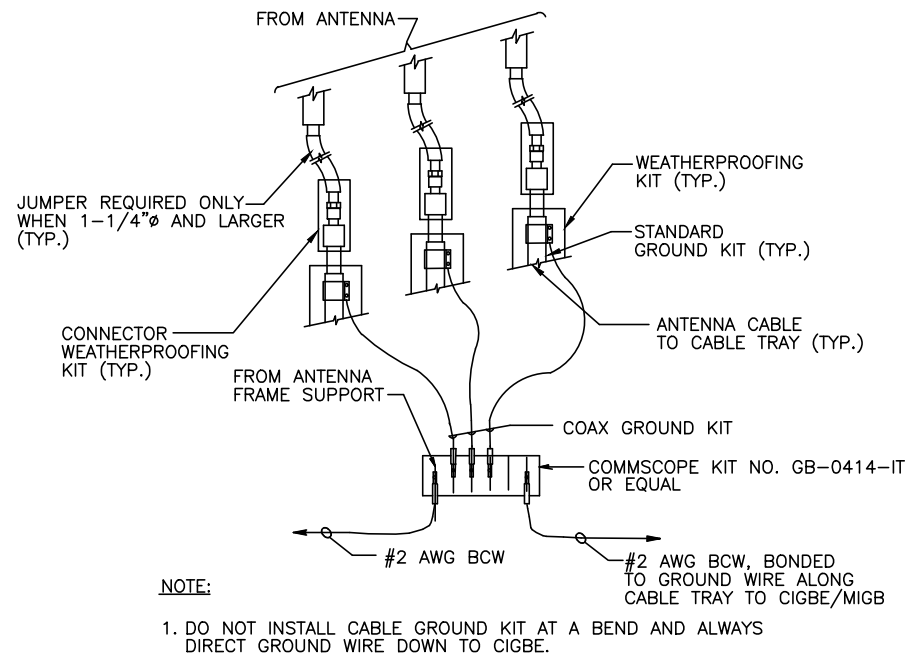
at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
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A	02/11/22	ISSUED FOR REVIEW	JC	HC	DPH

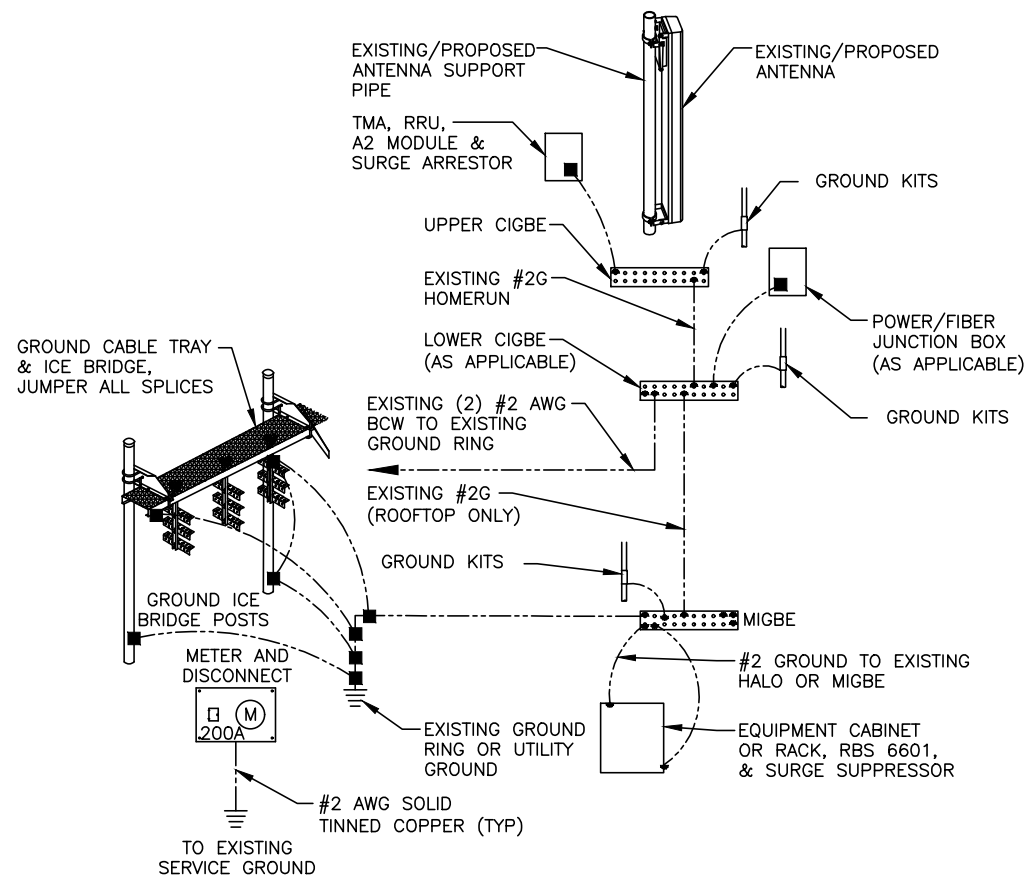
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STATE OF CONNECTICUT
DANIEL P. HAMM
LICENSED PROFESSIONAL ENGINEER
No. 22178

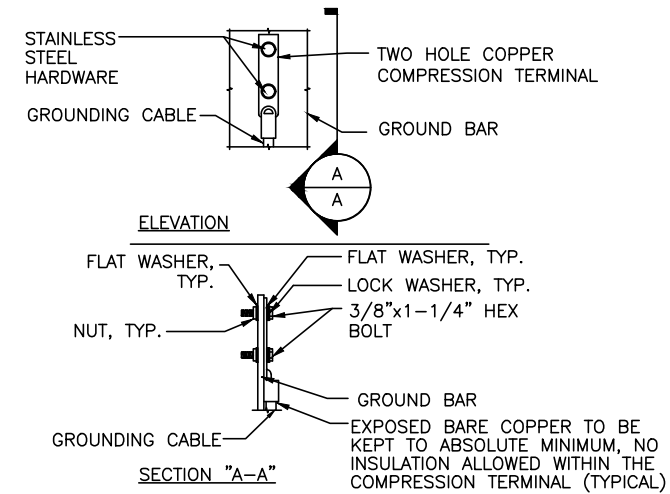
AT&T
DETAILS
NR 1SR C-BAND_ ANTENNA RETROFIT UPGRADE
SITE NUMBER: CT2040
DRAWING NUMBER: A-4
REV: 3



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



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



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

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

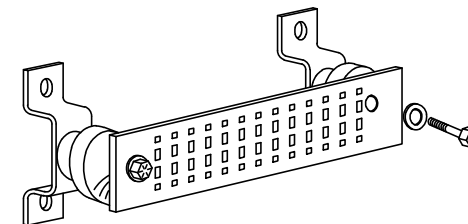
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

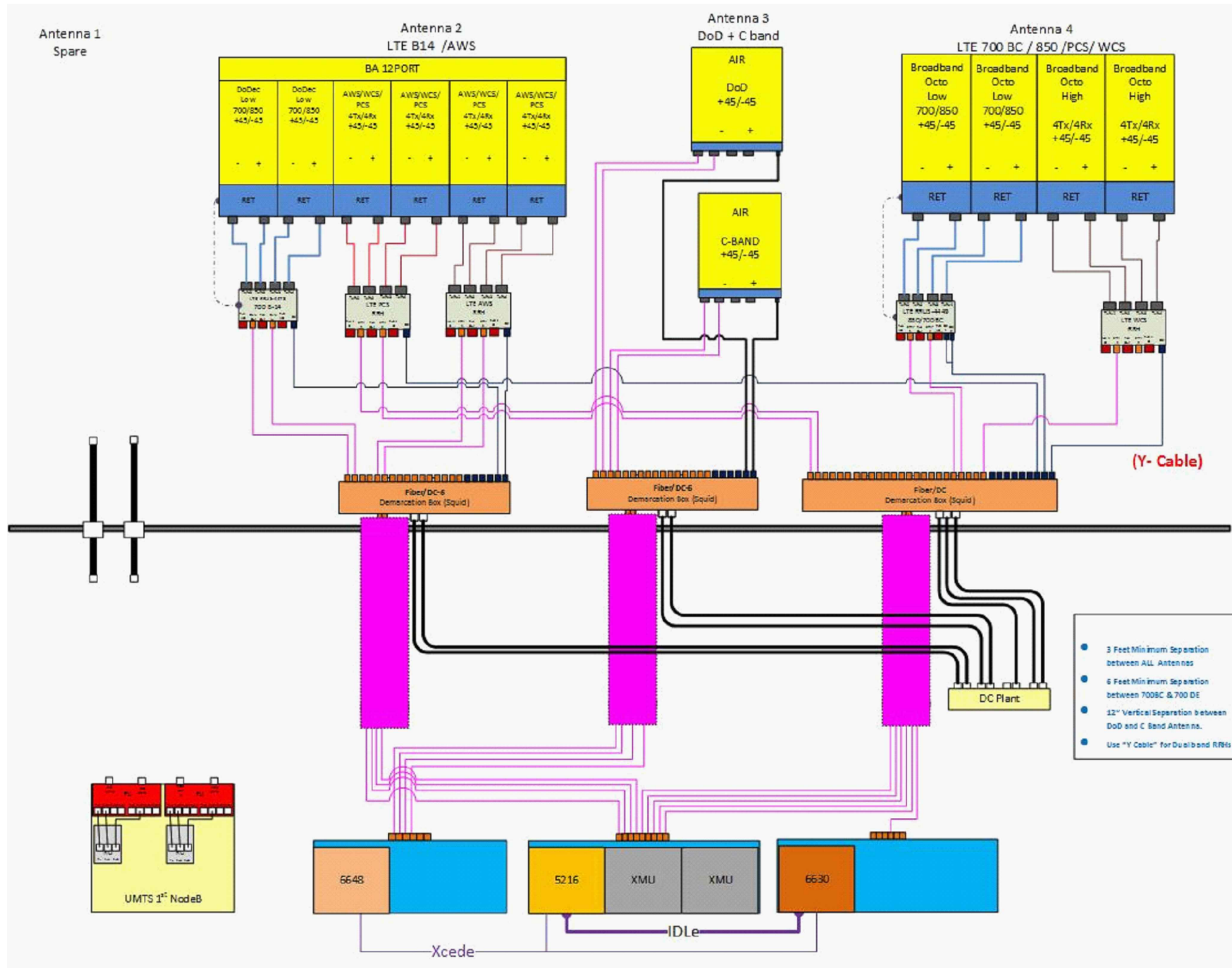
- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED)
SCALE: N.T.S.

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NO.	DATE	REVISIONS		BY	CHK	APP'D	SITE NUMBER	DRAWING NUMBER
SCALE: AS SHOWN		DESIGNED BY: HC		DRAWN BY: JC			CT2040	G-1
								3

NOTE:
 REV: 2
 DATED: 07/30/2021
 RFDS ID: 4392716



RF PLUMBING DIAGRAM
 SCALE: N.T.S.

1
RF-1

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.

3	07/27/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
2	05/20/22	ISSUED FOR CONSTRUCTION	TR	HC	DPH
1	03/29/22	ISSUED FOR REVIEW	JC	HC	DPH
A	02/11/22	ISSUED FOR REVIEW	JC	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: JC		

Structural Analysis Report

*65' Existing Roof Top Mounted
NUDD Guyed Lattice Tower*

*Proposed AT&T Mobility
Antenna Upgrade*

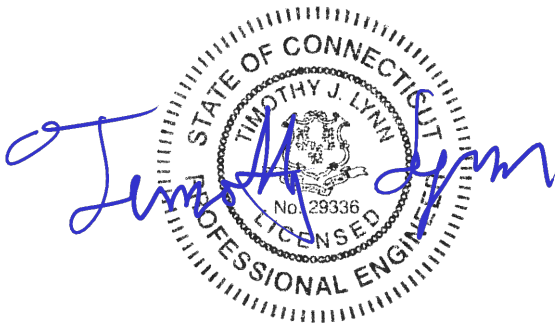
AT&T Site Ref: CT2040

*265 Benham Street
Hamden, CT*

CEN TEK Project No. 22007.03

~~Date: March 4, 2022~~

Rev 1: July 26, 2022



Prepared for:

*AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06405*

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I n t r o d u c t i o n

The purpose of this report is to summarize the results of the non-linear, P- Δ structural analysis of the antenna upgrade proposed by AT&T Mobility on the existing lattice tower located in Hamden, Connecticut.

The host tower is a 65-ft, four-section, three-legged guyed lattice tower originally designed and manufactured by Fred A Nudd Corporation. The tower type, geometry and structure member sizes were taken from a previous structural analysis report prepared by Centek Engineering project no. 21111.00 dated February 9, 2022.

The tower is made up of four (4) vertical sections consisting of A36 MOD-50 solid steel legs. Diagonal and horizontal bracing consists of A36 solid round and steel angle construction. The vertical tower legs are connected together with bolted flanges while bracing is connected by fully welded connections. The width of the tower face is 2'-6".

Antenna and appurtenance inventory was taken from the aforementioned Centek structural analysis report, a previous structural analysis prepared by Gaviria Engineering, LLC project no. 2022-0215.004A dated June 8, 2022 and an AT&T RF datasheet.

A n t e n n a a n d A p p u r t e n a n c e S u m m a r y

The existing and proposed loads considered in the analysis consist of the following:

- MUNICIPAL (Existing):
Antennas: One (1) 2-ft dish leg mounted with an elevation of 108-ft above grade (66-ft above tower base).
Cable: One (1) 7/8" dia. coax cable.
- MUNICIPAL (Existing):
Antennas: Two (2) 1-ftx1-ft panel antennas leg mounted with an elevation of 107-ft above grade (65-ft above tower base).
Cable: Two (2) 3/8" dia. coax cables
- MUNICIPAL (Existing):
Antennas: One (1) 10-ft Omni-directional whip antenna mounted on a 2-ft side arm with an elevation of 106-ft above grade (64-ft above tower base).
Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- MUNICIPAL (Existing):
Antennas: One (1) 20-ft dipole antenna mounted on a 3-ft side arm with an elevation of 106-ft above grade (64-ft above tower base).
Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- MUNICIPAL (Existing):
Antennas: One (1) 1-ftx1-ft panel antennas leg mounted with an elevation of 104-ft above grade (62-ft above tower base).
Cable: One (1) 3/8" dia. coax cable.

- MUNICIPAL (Existing):
Antennas: One (1) 1-ftx1-ft panel antennas leg mounted with an elevation of 99.5-ft above grade (57.5-ft above tower base).
Cable: One (1) 3/8" dia. coax cable.
- MUNICIPAL (Existing):
Antennas: One (1) 20-ft dipole antenna mounted on a 3-ft side arm with an elevation of 85-ft above grade (43-ft above tower base).
Cable: One (1) 7/8" dia. coax cable running on the face of the existing tower as specified in Section 3 of this report.
- VERIZON (Existing to Remain):
Antennas: Four (4) Andrew DB844G65ZAXY, two (2) Commscope NHH-45B panel antennas, four (4) Commscope NHH-65B panel antennas, three (3) Samsung MT6407-77A panel antennas, three (3) Samsung XXDWMM-12.5-65-8T panel antennas, two (2) RFS APL866513 panel antennas mounted to existing T-frames with a RAD center elevation of 80-ft above existing grade (38-ft above tower base).
Appurtenances: Three (3) Samsung B5/B13 RRH-BRO4C remote radio heads, three (3) Samsung RF4439-25A remote radio heads, three (3) Samsung CBRS RT4401-48A remote radio heads and three (3) main distribution boxes mounted to existing T-frames with a RAD center elevation of 80-ft above existing grade (38-ft above tower base).
Coax Cables: Twelve (12) 1-5/8" \varnothing coax cables and three (3) 1-5/8" \varnothing fiber line running on the face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remain):
Antennas: Three (3) CCI DMP65R-BU6DA panel antennas, three (3) KMW EPBQ-654L8H6-L2 panel antennas mounted on three (3) sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
Appurtenances: Three (3) Ericsson 4449 b5/b12 remote radio, three (3) Ericsson 4478 b14 remote radio heads, six (6) Ericsson RRUS-32 remote radio heads, three (3) 4426 remote radio heads and two (2) surge arrestors mounted on (3) tower stand-off sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
Coax Cables: Six (6) DC power cables and two (2) fiber cables running on a face of the existing tower as specified in Section 3 of this report.
- AT&T (Existing to Remove):
Antennas: Three (3) KMW AMX-CD-16-65-00T-RET panel antennas mounted on three (3) sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
Appurtenances: Three (3) CCI DTMABP7819VG12A TMAs and one (1) DC6 surge arrestor mounted on (3) tower stand-off sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
Coax Cables: Six (6) 1-5/8" \varnothing coax cables running on a face of the existing tower as specified in Section 3 of this report.

CENTEK Engineering, Inc.

Structural Analysis – 65-ft NUDD Guyed Lattice Tower

AT&T Mobility Antenna Upgrade – CT2040

Hamden, CT

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- **AT&T (Proposed):**
 - Antennas:** Three (3) Ericsson AIR6449 panel antennas, three (3) Ericsson AIR6419 panel antennas mounted on three (3) sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
 - Appurtenances:** One (1) DC9 surge arrester mounted on three (3) sector frames with a RAD center elevation of 70-ft above existing grade (28-ft above tower base).
 - Coax Cables:** One (1) DC power cable and one (1) fiber cable running on a face of the existing tower as specified in Section 3 of this report.

Please note the grade varies around the host building supporting the tower. All elevations listed above and used in the analysis are based off the grade low point located on the northeast side of the building.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables should be routed as specified in section 3 of this report.

A n a l y s i s

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-G-2005 entitled “Structural Standard for Antenna Support Structures and Antennas”, the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix N of the CSBC¹ and the wind speed data available in the TIA-222-G-2005 Standard.

T o w e r L o a d i n g

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-G-2005, gravity loads of the tower structure and its components, and the application of 0.75” radial ice on the tower structure and its components.

Basic Wind Speed:	Hamden; $v = 97$ mph (3 second gust)	[Appendix N of the 2018 CT Building Code]
Load Cases:	<u>Load Case 1</u> ; 97 mph wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	[Appendix N of the 2018 CT Building Code]
	<u>Load Case 2</u> ; 50 mph wind speed w/ 0.75” radial ice plus gravity load – used in calculation of tower stresses.	[Annex B of TIA-222-G-2005]

¹ The 2015 International Building Code as amended by the 2018 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses were found to be within allowable limits.

Tower Section	Elevation (AGL)	Stress Ratio (percentage of capacity)	Result
Leg (T4)	42'-0"-62'-0"	74.9%	PASS
Diagonal (T3)	62'-0"-82'-0"	99.8%	PASS
Guy B (T4)	42'-0"-62'-0"	40.4%	PASS

Existing Guy Anchors and Tower Base

Guy forces are transferred to the existing building structure via six (6) 9/16" and three (3) 3/4" \varnothing galvanized steel guy wires with turnbuckles. All guy anchorage posts are positively attached to the existing building structure and consist of 6"x6"x1/4" tube steel with 1/2" thick guy connection plates with three 5/8" \varnothing A325-N bolts in double shear. Connections to the existing building were originally designed by Natcomm for Verizon Wireless on October 02, 2000, reference project no. 985094.

The guyed tower base is pin connected to a 1-3/4" thick x 24" square base plate welded to an existing W8 steel dunnage frame. Frame loads are then transferred down onto the existing concrete roof structure via four (4) 6"x6"x1/4" tube steel posts with 1-1/4" thick x 12in square base plates.

Review of the anchor and tower base connections consisted of verification of applied loads obtained from the tower design calculations and code checks of allowable stresses:

- The worst case tower base and guy anchor reactions developed from the governing Load Case 2 were used in the verification of the anchorage:

Tower Guy Reactions	
Vector	Guy C
Horizontal (In Plane of GW)	15 kips
Horizontal (Out of Plane of GW)	0 kips
Vertical	24 kips
Tower Base Reactions	
Vector	Proposed Reaction
Horizontal Shear	1 kips
Axial Compression	67kips

- The guy anchor bolts were found to be within allowable limits.

Location	Design Limit	Load	Stress Ratio (percentage of capacity)	Result
Guy Anchor B	Shear	28.1 kips	75%	PASS

Host Building

- Calculated stresses were found to be within allowable limits.

Location	Stress Ratio (percentage of capacity)	Result
Guy Anchor	67.3%	PASS
Tower Base	87.5%	PASS

CENTEK Engineering, Inc.

Structural Analysis – 65-ft NUDD Guyed Lattice Tower

AT&T Mobility Antenna Upgrade – CT2040

Hamden, CT

Rev 1 ~ July 26, 2022

Conclusion

This analysis shows that the subject tower and host building are **adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by AT&T Mobility. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer



*Standard Conditions for Furnishing of
Professional Engineering Services on
Existing Structures*

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

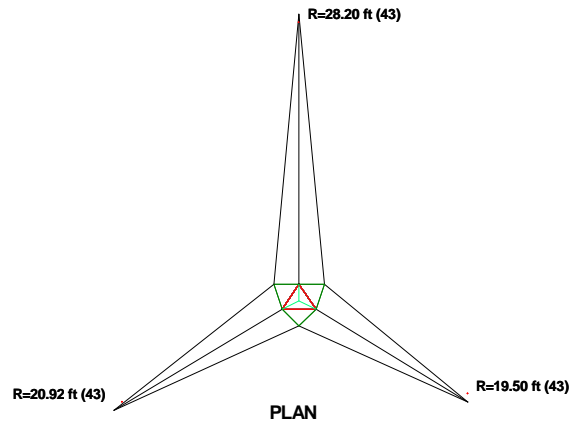
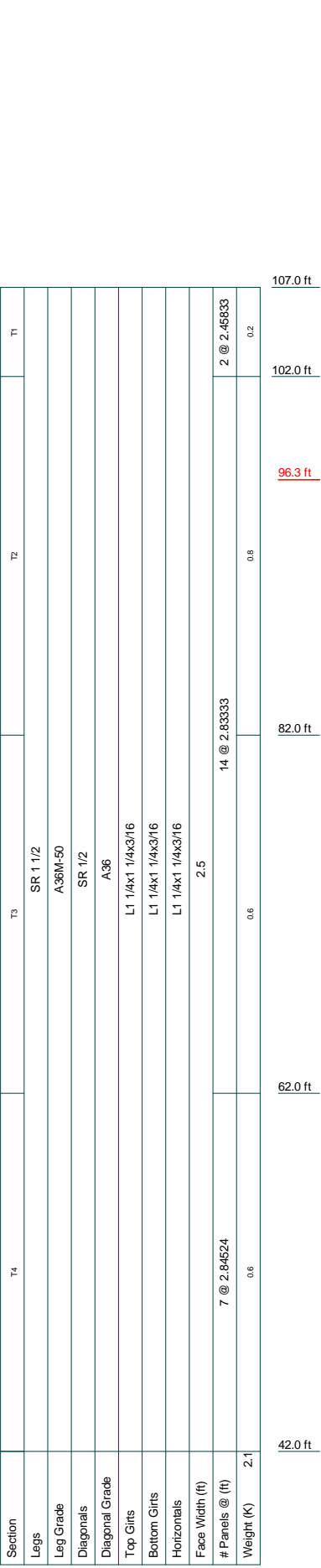
- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

TnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, TnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

TnxTower Features:

- TnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-G (2005) standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD 14th Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- TnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
2' Dish	108	MT6407-77A (Verizon - Existing)	80
1' x 1' Panel	107	XXDWMM-12.5-65-8T (Verizon - Existing)	80
1' x 1' Panel	107	DB844G65ZAXY (Verizon - Existing)	80
10' x 2' Dia Omni (Municipal)	106	NHH-65B-R2B (Verizon - Existing)	80
2-ft Stand Off (Municipal)	106	MT6407-77A (Verizon - Existing)	80
20' 4-Bay Dipole (Municipal)	106	NHH-65B-R2B (Verizon - Existing)	80
1' x 1' Panel	104	APL866513-42T0 (Verizon - Existing)	80
1' x 1' Panel	99.5	NHH-65B-R2B (Verizon - Existing)	80
3' Side arm mount (Municipal)	85	NHH-65B-R2B (Verizon - Existing)	80
20' 4-Bay Dipole (Municipal)	85	NHH-65B-R2B (Verizon - Existing)	80
B5/B15 RRH -BRO4C (Verizon - Existing)	81	DB844G65ZAXY (Verizon - Existing)	80
B5/B15 RRH -BRO4C (Verizon - Existing)	81	AIR6449 (ATI - Proposed)	70
B5/B15 RRH -BRO4C (Verizon - Existing)	81	4426 B66 (ATI - Existing)	70
B5/B15 RRH -BRO4C (Verizon - Existing)	81	4426 B66 (ATI - Existing)	70
B5/B15 RRH -BRO4C (Verizon - Existing)	81	4426 B66 (ATI - Existing)	70
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	81	4449 B5/B12 (ATI - Existing)	70
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	81	4449 B5/B12 (ATI - Existing)	70
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	81	4449 B5/B12 (ATI - Existing)	70
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	81	4478 B14 (ATI - Existing)	70
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	81	4478 B14 (ATI - Existing)	70
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	81	4478 B14 (ATI - Existing)	70
CBRS RRH-RT4401-48A (Verizon - Existing)	81	DC9 (ATI - Proposed)	70
CBRS RRH-RT4401-48A (Verizon - Existing)	81	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	70
CBRS RRH-RT4401-48A (Verizon - Existing)	81	DC6-48-60-18-8F Surge Arrestor (ATI - Existing)	70
DB-T1-6Z-8AB-0Z (Verizon - Existing)	80	AIR6419 (ATI - Proposed)	70
DB-T1-6Z-8AB-0Z (Verizon - Existing)	80	AIR6419 (ATI - Proposed)	70
XXDWMM-12.5-65-8T (Verizon - Existing)	80	AIR6419 (ATI - Proposed)	70
APL866513-42T0 (Verizon - Existing)	80	DMP65R-BU6DA (ATI - Existing)	70
DB844G65ZAXY (Verizon - Existing)	80	DMP65R-BU6DA (ATI - Existing)	70
NHH-65B-R2B (Verizon - Existing)	80	DMP65R-BU6DA (ATI - Existing)	70
NHH-65B-R2B (Verizon - Existing)	80	EPBQ-654L8H6-L2 (ATI - Existing)	70
NHH-65B-R2B (Verizon - Existing)	80	EPBQ-654L8H6-L2 (ATI - Existing)	70
MT6407-77A (Verizon - Existing)	80	EPBQ-654L8H6-L2 (ATI - Existing)	70
XXDWMM-12.5-65-8T (Verizon - Existing)	80	AIR6449 (ATI - Proposed)	70
DB844G65ZAXY (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
DB-T1-6Z-8AB-0Z (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	SitePro VFA12-HD (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	SitePro VFA12-HD (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	SitePro VFA12-HD (ATI - Existing)	69
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	80	RRUS-32 (ATI - Existing)	69

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36M-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.8%

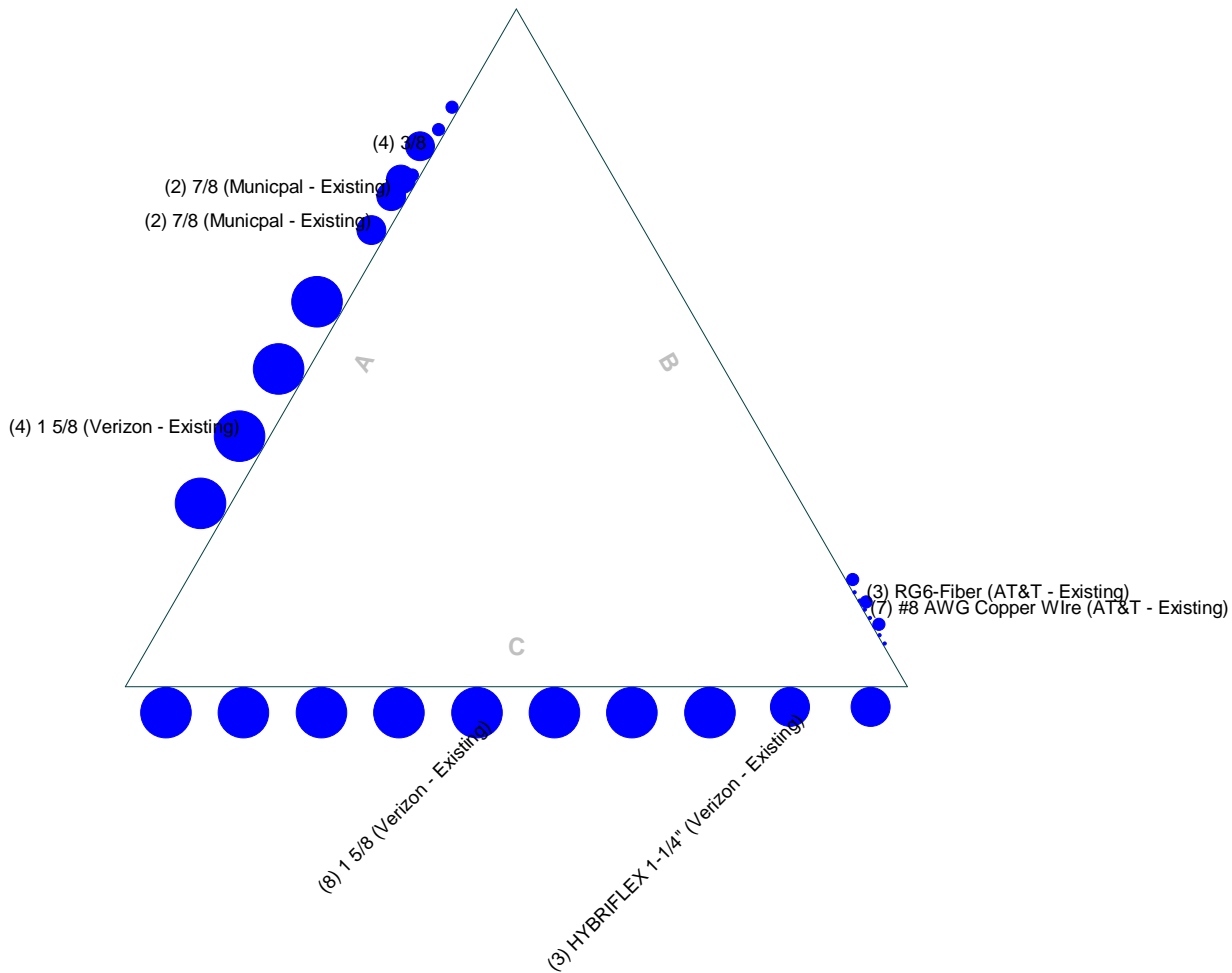
ALL REACTION:



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: 22007.03 - CT2040		
	Project: 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	Client: AT&T Mobility	Drawn by: TJL
Code: TIA-222-G	Date: 03/04/22	Scale: NTS	Dwg No. E-1
Path:			

Feed Line Plan

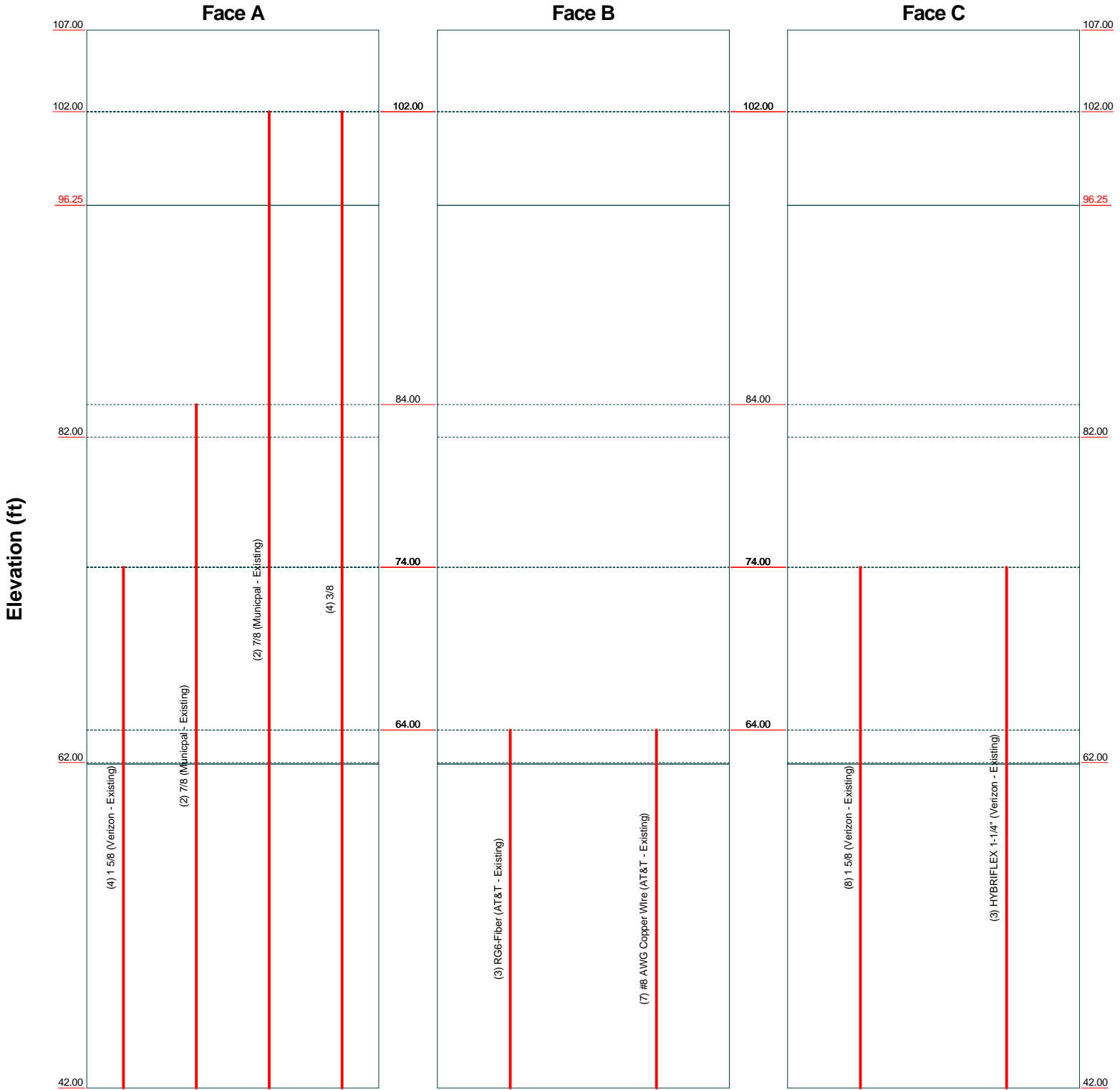
— Round
 — Flat
 — App In Face
 — App Out Face



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587		Job: 22007.03 - CT2040	
		Project: 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	
Client: AT&T Mobility	Drawn by: T.JL	App'd:	
Code: TIA-222-G	Date: 03/04/22	Scale: NTS	
Path:	Dwg No. E-7		

Feed Line Distribution Chart 42' - 107'

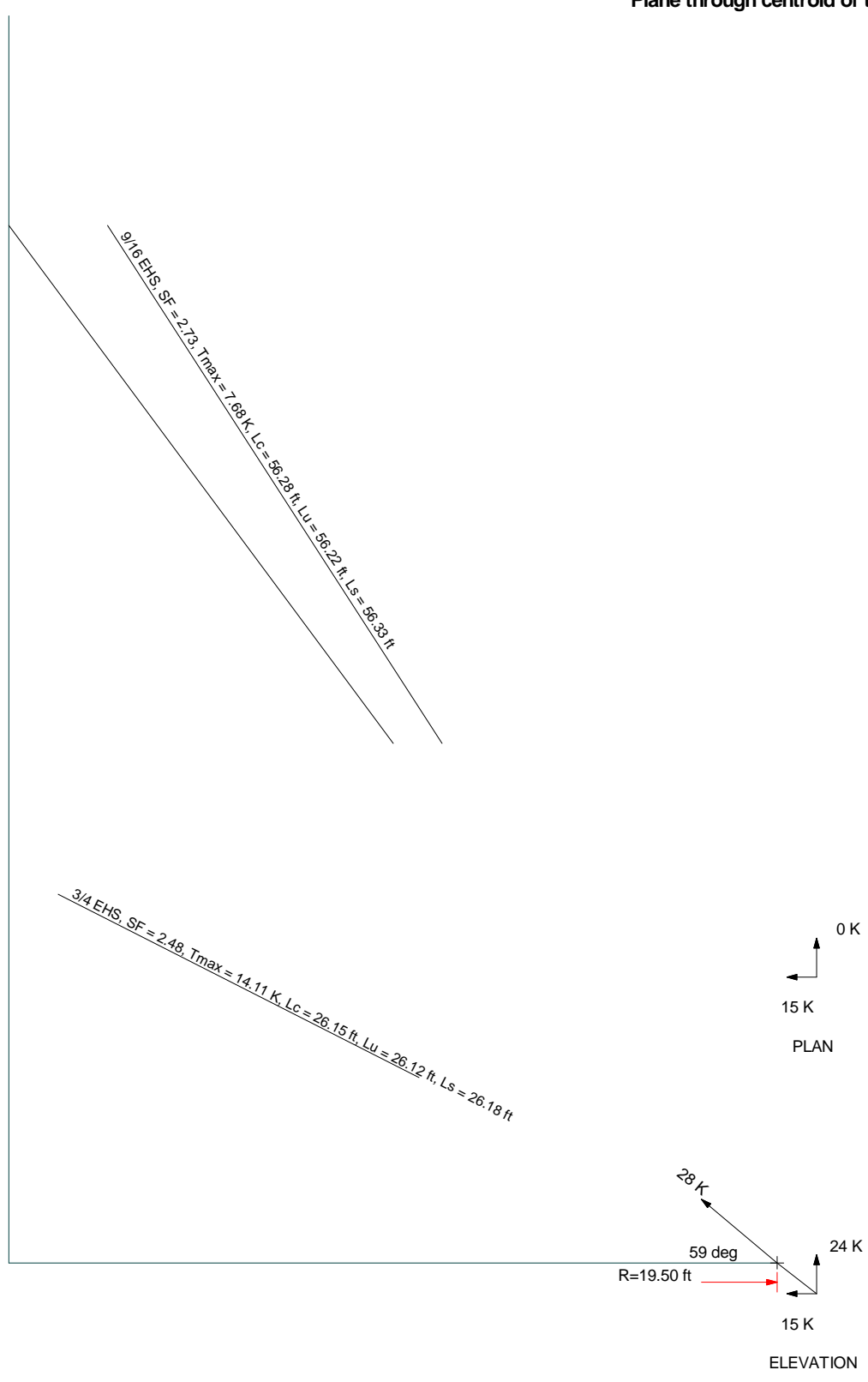
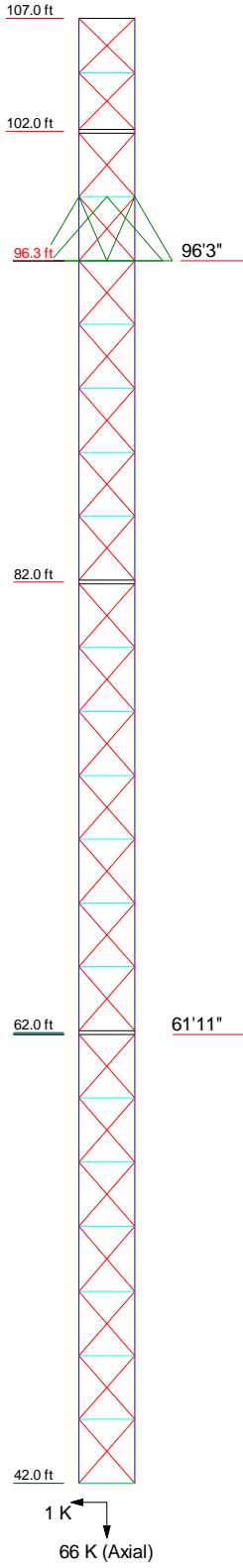
— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



Centek Engineering Inc.		Job: 22007.03 - CT2040	
63-2 North Branford Rd. Branford, CT 06405		Project: 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	
Phone: (203) 488-0580	Code: TIA-222-G	Drawn by: T.JL	App'd:
FAX: (203) 488-8587	Path:	Date: 03/04/22	Scale: NTS
			Dwg No. E-7

Guy Tensions and Tower Reactions
TIA-222-G - 97 mph/50 mph 0.750 in Ice Exposure B

Maximum Values
Anchor 'B' @19.5 ft Azimuth 120 deg Elev 43 ft
Plane through centroid of tower



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: 22007.03 - CT2040		
	Project: 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT		
	Client: AT&T Mobility	Drawn by: T.JL	App'd:
	Code: TIA-222-G	Date: 03/04/22	Scale: NTS
	Path:	Dwg No. E-6	

tnxTower Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job 22007.03 - CT2040	Page 1 of 38
	Project 65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	Date 08:42:19 03/04/22
	Client AT&T Mobility	Designed by TJL

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 107.00 ft above the ground line.

The base of the tower is set at an elevation of 42.00 ft above the ground line.

The face width of the tower is 2.50 ft at the top and 2.50 ft at the base.

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

The following design criteria apply:

Tower is located in New Haven County, Connecticut.

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

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

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Tension only take-up is 0.031 in.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

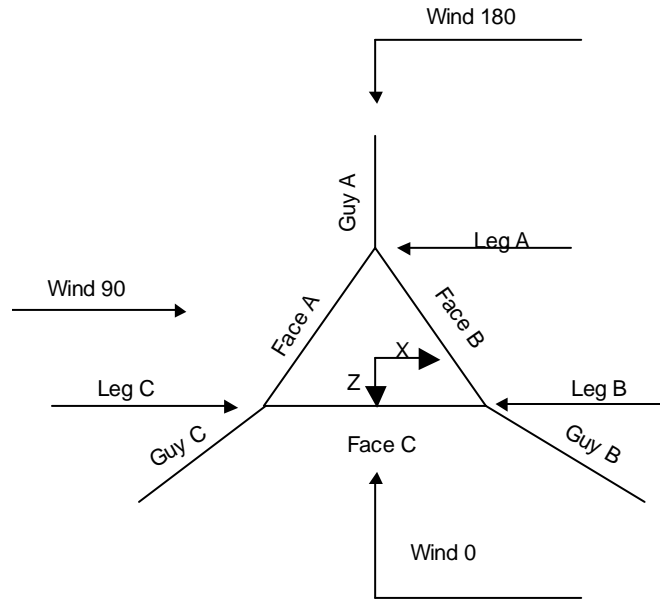
Safety factor used in guy design is 1.

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

Options

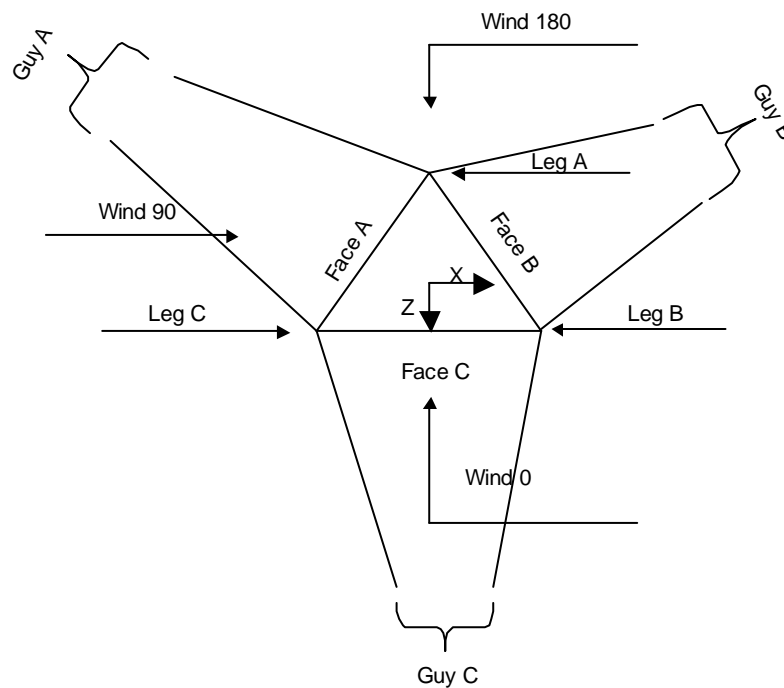
<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity √ Leg Bolts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

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Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	107.00-102.00			2.50	1	5.00
T2	102.00-82.00			2.50	1	20.00
T3	82.00-62.00			2.50	1	20.00
T4	62.00-42.00			2.50	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	107.00-102.00	2.46	TX Brace	No	Yes	0.000	1.000

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Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T2	102.00-82.00	2.83	TX Brace	No	Yes	1.000	1.000
T3	82.00-62.00	2.83	TX Brace	No	Yes	1.000	1.000
T4	62.00-42.00	2.85	TX Brace	No	Yes	1.000	0.000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 107.00-102.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T2 102.00-82.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T3 82.00-62.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)
T4 62.00-42.00	Solid Round	1 1/2	A36M-50 (50 ksi)	Solid Round	1/2	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 107.00-102.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 102.00-82.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T3 82.00-62.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T4 62.00-42.00	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 107.00-102.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T2 102.00-82.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T3 82.00-62.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)
T4 62.00-42.00	None	Flat Bar		A36 (36 ksi)	Single Angle	L1 1/4x1 1/4x3/16	A36 (36 ksi)

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Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 107.00-102.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 102.00-82.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 82.00-62.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 62.00-42.00	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
				Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 107.00-102.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T2 102.00-82.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T3 82.00-62.00	Flange	0.875 A325N	1	0.000 A325N	0	0.500 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T4 62.00-42.00	Flange	0.875 A325N	1	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L _u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
96.25	EHS	A 9/16	3.50	10%	21000	0.671	59.60	28.20	0.0000	43.00	100%
		B 9/16	3.50	10%	21000	0.671	56.24	19.50	0.0000	43.00	100%
		C 9/16	3.50	10%	21000	0.671	56.71	20.92	0.0000	43.00	100%
61.9167	EHS	A 3/4	5.83	10%	19000	1.155	32.74	28.20	0.0000	43.00	100%
		B 3/4	5.83	10%	19000	1.155	26.13	19.50	0.0000	43.00	100%
		C 3/4	5.83	10%	19000	1.155	27.13	20.92	0.0000	43.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
96.25	Torque Arm	5.00	45.0000	Dog Ear	A36 (36 ksi)	Single Angle	L2x2x5/16 L3x3x1/4

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Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
61.9167	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
96.25	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Single Angle	
61.92	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Single Angle	

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
96.25	0.04	0.04	0.04		0.34	0.30	0.31	
61.9167	0.04	0.03	0.03		1.0 sec/pulse 0.11	0.9 sec/pulse 0.07	1.0 sec/pulse 0.07	
					0.6 sec/pulse	0.4 sec/pulse	0.5 sec/pulse	

Guy Data (cont'd)

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
96.25	Yes	Yes	1	1	1	1	1	1
61.9167	No	No			1	1	1	1

Guy Data (cont'd)

Guy Elevation ft	Torque-Arm				Pull Off				Diagonal			
	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U	Bolt Size in	Number	Net Width Deduct in	U
96.25	0.000	0	0.000	1	0.625	0	0.000	0.75	0.625	0	0.000	0.75
	A325N				A325N				A325N			
61.9167	0.000	0	0.000	1	0.625	0	0.000	0.75	0.625	0	0.000	0.75
	A325N				A325N				A325N			

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Guy Pressures

Guy Elevation ft	Guy Location	z ft	q _z psf	q _z Ice psf	Ice Thickness in
96.25	A	69.63	18	5	1.616
	B	69.63	18	5	1.616
	C	69.63	18	5	1.616
61.9167	A	52.46	17	4	1.571
	B	52.46	17	4	1.571
	C	52.46	17	4	1.571

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft	
96.25	A	63.2217	3.54	-0.15	3.16	-1.58	-4.56	4.16	-7.90	
			3.50	0.15	3.16	-1.58	-4.56	-4.16	7.90	
	B	71.1026	3.54	1.06	3.35	0.43	9.66	3.05	0.00	
			3.50	0.90	3.35	0.70	-4.83	-3.05	-8.37	
	C	69.7581	3.54	-0.97	3.32	0.74	-4.79	3.24	8.30	
			3.50	-1.12	3.32	0.47	9.58	-3.24	0.00	
61.9167	A	35.2599	Sum:	-0.14	19.65	-0.82	0.50	0.00	-0.07	
			5.85	0.00	3.39	-4.77	-4.89	0.00	0.00	
	B	46.3325	5.83	3.49	4.24	2.02	3.06	0.00	-5.30	
			5.85	-3.63	4.09	2.09	2.95	-0.00	5.11	
	C	44.1644	5.83	Sum:	-0.14	11.72	-0.66	1.11	0.00	-0.19
			5.85							

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom K	F _x K	F _y K	F _z K	M _x kip-ft	M _y kip-ft	M _z kip-ft
96.25	A	63.2217	5.10	-0.21	4.58	-2.23	-6.61	5.87	-11.45
			4.83	0.21	4.58	-2.23	-6.61	-5.87	11.45
	B	71.1026	5.03	1.47	4.78	0.60	13.79	4.24	0.00

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Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z	
ft		°		K	K	K	kip-ft	kip-ft	kip-ft	
61.9167	B	71.1026	4.77	1.25	4.78	0.97	-6.90	-4.24	-11.94	
			5.03							
	C	69.7581	4.77	-1.35	4.75	1.03	-6.85	4.52	11.87	
			5.04							
	C	69.7581	4.78	-1.57	4.75	0.66	13.71	-4.52	0.00	
			5.04							
	A	35.2599	4.78	Sum:	-0.19	28.21	-1.20	0.53	0.00	-0.07
			8.06	0.00	4.71	-6.53	-6.80	0.00	0.00	
	B	46.3325	7.95	8.01	4.76	5.83	2.75	4.21	0.00	-7.29
			7.90							
	C	44.1644	8.02	8.02	-4.95	5.62	2.86	4.06	-0.00	7.03
			7.91							
			Sum:	-0.19	16.17	-0.93	1.46	0.00	-0.26	

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F _x	F _y	F _z	M _x	M _y	M _z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
96.25	A	63.2217	3.54	-0.15	3.16	-1.58	-4.56	4.16	-7.90
			3.50						
	A	63.2217	3.54	0.15	3.16	-1.58	-4.56	-4.16	7.90
			3.50						
	B	71.1026	3.54	1.06	3.35	0.43	9.66	3.05	0.00
			3.50						
	B	71.1026	3.54	0.90	3.35	0.70	-4.83	-3.05	-8.37
			3.50						
	C	69.7581	3.54	-0.97	3.32	0.74	-4.79	3.24	8.30
			3.50						
	C	69.7581	3.54	-1.12	3.32	0.47	9.58	-3.24	0.00
			3.50						
A	35.2599	Sum:	5.85	-0.14	19.65	-0.82	0.50	0.00	-0.07
		5.83	0.00	3.39	-4.77	-4.89	0.00	0.00	
B	46.3325	5.83	5.85	3.49	4.24	2.02	3.06	0.00	-5.30
		5.83							
C	44.1644	5.85	5.85	-3.63	4.09	2.09	2.95	-0.00	5.11
		5.83							
			Sum:	-0.14	11.72	-0.66	1.11	0.00	-0.19

Guy-Tensioning Information

Temperature At Time Of Tensioning						
0 F	20 F	40 F	60 F	80 F	100 F	120 F

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Guy Elevation		H	V	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept	Initial Tension	Intercept
ft		ft	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft	K	ft
96.25	A	26.87	53.25	3.823	0.31	3.715	0.32	3.608	0.33	3.500	0.34	3.393	0.35	3.285	0.36	3.178	0.37
	B	18.23	53.25	3.667	0.29	3.611	0.29	3.556	0.30	3.500	0.30	3.444	0.31	3.389	0.31	3.333	0.32
	C	19.64	53.25	3.691	0.29	3.627	0.30	3.563	0.30	3.500	0.31	3.437	0.31	3.373	0.32	3.310	0.32
61.9167	A	26.76	18.92	7.488	0.08	6.935	0.09	6.382	0.10	5.830	0.11	5.278	0.12	4.728	0.13	4.178	0.15
	B	18.06	18.92	7.017	0.06	6.621	0.06	6.225	0.06	5.830	0.07	5.435	0.07	5.040	0.08	4.645	0.08
	C	19.48	18.92	7.111	0.06	6.684	0.06	6.257	0.07	5.830	0.07	5.403	0.08	4.977	0.09	4.551	0.09

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	# Row	# Row	Clear Per Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8 (Verizon - Existing)	A	No	No	Ar (CaAa)	74.00 - 42.00	0.000	-0.1	4	4	1.000 1.980	1.980		1.04
1 5/8 (Verizon - Existing)	C	No	No	Ar (CaAa)	74.00 - 42.00	0.000	0.1	8	8	1.000	1.980		1.04
7/8 (Municipal - Existing)	A	No	No	Ar (CaAa)	84.00 - 42.00	0.000	0.2	2	2	1.110	1.110		0.54
7/8 (Municipal - Existing)	A	No	No	Ar (CaAa)	102.00 - 42.00	0.000	0.25	2	2	1.110	1.110		0.54
RG6-Fiber (AT&T - Existing)	B	No	No	Ar (CaAa)	64.00 - 42.00	0.000	0.38	3	3	0.500	0.500		1.00
#8 AWG Copper Wre (AT&T - Existing)	B	No	No	Ar (CaAa)	64.00 - 42.00	0.000	0.4	7	7	0.250	0.129		0.05
HYBRIFLEX 1-1/4" (Verizon - Existing)	C	No	No	Ar (CaAa)	74.00 - 42.00	0.000	-0.35	3	3	1.540	1.540		1.30
3/8	A	No	No	Ar (CaAa)	102.00 - 42.00	0.000	0.3	4	4	0.500	0.500		0.40

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	107.00-102.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	102.00-82.00	A	0.000	0.000	8.884	0.000	0.06
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	82.00-62.00	A	0.000	0.000	22.384	0.000	0.13
		B	0.000	0.000	0.480	0.000	0.01
		C	0.000	0.000	24.552	0.000	0.15
T4	62.00-42.00	A	0.000	0.000	28.720	0.000	0.16

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Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
		B	0.000	0.000	4.799	0.000	0.07
		C	0.000	0.000	40.920	0.000	0.24

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	107.00-102.00	A	1.683	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	102.00-82.00	A	1.662	0.000	0.000	41.544	0.000	0.43
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	82.00-62.00	A	1.622	0.000	0.000	81.347	0.000	0.90
		B		0.000	0.000	3.357	0.000	0.03
		C		0.000	0.000	57.817	0.000	0.84
T4	62.00-42.00	A	1.570	0.000	0.000	95.038	0.000	1.08
		B		0.000	0.000	32.858	0.000	0.32
		C		0.000	0.000	95.714	0.000	1.36

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	107.00-102.00	0.000	0.000	0.000	0.000
T2	102.00-82.00	-0.928	-2.923	-0.662	-2.040
T3	82.00-62.00	-1.863	1.024	-1.082	-0.387
T4	62.00-42.00	-1.404	2.412	-0.136	0.984

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T2	3	7/8	82.00 - 84.00	0.6000	0.3012
T2	4	7/8	82.00 - 102.00	0.6000	0.3012
T2	9	3/8	82.00 - 102.00	0.6000	0.3012
T3	1	1 5/8	62.00 - 74.00	0.6000	0.3126
T3	2	1 5/8	62.00 - 74.00	0.6000	0.3126
T3	3	7/8	62.00 - 82.00	0.6000	0.3126
T3	4	7/8	62.00 - 82.00	0.6000	0.3126
T3	5	RG6-Fiber	62.00 - 64.00	0.6000	0.3126
T3	6	#8 AWG Copper Wire	62.00 - 64.00	0.6000	0.3126
T3	8	HYBRIFLEX 1-1/4"	62.00 - 74.00	0.6000	0.3126
T3	9	3/8	62.00 - 82.00	0.6000	0.3126
T4	1	1 5/8	42.00 - 62.00	0.6000	0.3268
T4	2	1 5/8	42.00 - 62.00	0.6000	0.3268

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	Client AT&T Mobility	Designed by TJL

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T4	3	7/8	42.00 - 62.00	0.6000	0.3268
T4	4	7/8	42.00 - 62.00	0.6000	0.3268
T4	5	RG6-Fiber	42.00 - 62.00	0.6000	0.3268
T4	6	#8 AWG Copper Wire	42.00 - 62.00	0.6000	0.3268
T4	8	HYBRIFLEX 1-1/4"	42.00 - 62.00	0.6000	0.3268
T4	9	3/8	42.00 - 62.00	0.6000	0.3268

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
DB844G65ZAXY (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			6.00			1/2" Ice	4.66	3.92	0.05
			0.00			1" Ice	4.98	4.23	0.09
NHH-65B-R2B (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	11.19	8.69	0.07
			2.00			1/2" Ice	11.69	9.17	0.15
			0.00			1" Ice	12.20	9.66	0.24
NHH-65B-R2B (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	11.19	8.69	0.07
			2.00			1/2" Ice	11.69	9.17	0.15
			0.00			1" Ice	12.20	9.66	0.24
MT6407-77A (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	4.71	1.84	0.00
			-2.00			1/2" Ice	5.00	2.06	0.03
			1.50			1" Ice	5.29	2.29	0.06
XXDWMM-12.5-65-8T (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	0.89	0.17	0.01
			-2.00			1/2" Ice	1.01	0.25	0.01
			-1.50			1" Ice	1.14	0.34	0.02
DB844G65ZAXY (Verizon - Existing)	A	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			-6.00			1/2" Ice	4.66	3.92	0.05
			0.00			1" Ice	4.98	4.23	0.09
APL866513-42T0 (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	4.05	3.61	0.02
			6.00			1/2" Ice	4.36	3.92	0.05
			0.00			1" Ice	4.68	4.23	0.08
NHH-65B-R2B (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	11.19	8.69	0.07
			6.00			1/2" Ice	11.69	9.17	0.15
			0.00			1" Ice	12.20	9.66	0.24
NHH-65B-R2B (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	11.19	8.69	0.07
			6.00			1/2" Ice	11.69	9.17	0.15
			0.00			1" Ice	12.20	9.66	0.24
MT6407-77A (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	4.71	1.84	0.00
			-2.00			1/2" Ice	5.00	2.06	0.03
			1.50			1" Ice	5.29	2.29	0.06
XXDWMM-12.5-65-8T (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	0.89	0.17	0.01
			-2.00			1/2" Ice	1.01	0.25	0.01
			-1.50			1" Ice	1.14	0.34	0.02
APL866513-42T0 (Verizon - Existing)	B	From Leg	3.00	0.0000	80.00	No Ice	4.05	3.61	0.02
			-6.00			1/2" Ice	4.36	3.92	0.05
			0.00			1" Ice	4.68	4.23	0.08
DB844G65ZAXY (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			6.00			1/2" Ice	4.66	3.92	0.05
			0.00			1" Ice	4.98	4.23	0.09

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	Project	65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT	Date	08:42:19 03/04/22
	Client	AT&T Mobility	Designed by	TJL

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
NHH-65B-R2B (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	11.19	8.69	0.07
			6.00			1/2" Ice	11.69	9.17	0.15
			0.00			1" Ice	12.20	9.66	0.24
NHH-65B-R2B (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	11.19	8.69	0.07
			6.00			1/2" Ice	11.69	9.17	0.15
			0.00			1" Ice	12.20	9.66	0.24
MT6407-77A (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	4.71	1.84	0.00
			-2.00			1/2" Ice	5.00	2.06	0.03
			1.50			1" Ice	5.29	2.29	0.06
XXDWMM-12.5-65-8T (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	0.89	0.17	0.01
			-2.00			1/2" Ice	1.01	0.25	0.01
			-1.50			1" Ice	1.14	0.34	0.02
DB844G65ZAXY (Verizon - Existing)	C	From Leg	3.00	0.0000	80.00	No Ice	4.34	3.61	0.02
			-6.00			1/2" Ice	4.66	3.92	0.05
			0.00			1" Ice	4.98	4.23	0.09
DB-T1-6Z-8AB-0Z (Verizon - Existing)	C	From Face	0.50	0.0000	80.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
DB-T1-6Z-8AB-0Z (Verizon - Existing)	A	From Face	0.50	0.0000	80.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
DB-T1-6Z-8AB-0Z (Verizon - Existing)	A	From Face	0.50	0.0000	80.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
B5/B15 RRH -BRO4C (Verizon - Existing)	A	From Face	2.00	0.0000	81.00	No Ice	1.87	1.02	0.07
			0.00			1/2" Ice	2.03	1.15	0.09
			0.00			1" Ice	2.21	1.29	0.11
B5/B15 RRH -BRO4C (Verizon - Existing)	B	From Face	2.00	0.0000	81.00	No Ice	1.87	1.02	0.07
			0.00			1/2" Ice	2.03	1.15	0.09
			0.00			1" Ice	2.21	1.29	0.11
B5/B15 RRH -BRO4C (Verizon - Existing)	C	From Face	2.00	0.0000	81.00	No Ice	1.87	1.02	0.07
			0.00			1/2" Ice	2.03	1.15	0.09
			0.00			1" Ice	2.21	1.29	0.11
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	A	From Face	2.00	0.0000	81.00	No Ice	1.88	1.25	0.08
			0.00			1/2" Ice	2.05	1.39	0.09
			0.00			1" Ice	2.22	1.54	0.11
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	B	From Face	2.00	0.0000	81.00	No Ice	1.88	1.25	0.08
			0.00			1/2" Ice	2.05	1.39	0.09
			0.00			1" Ice	2.22	1.54	0.11
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	C	From Face	2.00	0.0000	81.00	No Ice	1.88	1.25	0.08
			0.00			1/2" Ice	2.05	1.39	0.09
			0.00			1" Ice	2.22	1.54	0.11
CBRS RRH-RT4401-48A (Verizon - Existing)	A	From Face	2.00	0.0000	81.00	No Ice	0.86	0.42	0.02
			0.00			1/2" Ice	0.98	0.51	0.03
			0.00			1" Ice	1.10	0.61	0.04
CBRS RRH-RT4401-48A (Verizon - Existing)	B	From Face	2.00	0.0000	81.00	No Ice	0.86	0.42	0.02
			0.00			1/2" Ice	0.98	0.51	0.03
			0.00			1" Ice	1.10	0.61	0.04
CBRS RRH-RT4401-48A (Verizon - Existing)	C	From Face	2.00	0.0000	81.00	No Ice	0.86	0.42	0.02
			0.00			1/2" Ice	0.98	0.51	0.03
			0.00			1" Ice	1.10	0.61	0.04
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	A	From Leg	2.00	0.0000	80.00	No Ice	13.60	13.60	0.47
			0.00			1/2" Ice	18.40	18.40	0.60
			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	B	From Leg	2.00	0.0000	80.00	No Ice	13.60	13.60	0.47
			0.00			1/2" Ice	18.40	18.40	0.60
			0.00			1" Ice	23.20	23.20	0.73

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	Project		65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT		Date		08:42:19 03/04/22	
	Client		AT&T Mobility		Designed by		TJL	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
Pirod 12' T-Frame Sector Mount (1)	C	From Leg	2.00	0.0000		80.00	No Ice	13.60	0.47
(Verizon - Existing)			0.00				1/2" Ice	18.40	0.60
AIR6419			0.00				1" Ice	23.20	0.73
(AT&T - Proposed)	A	From Face	2.00	0.0000		70.00	No Ice	3.66	0.07
			-5.00				1/2" Ice	3.91	0.09
AIR6419			2.00				1" Ice	4.16	0.12
(AT&T - Proposed)	B	From Face	2.00	0.0000		70.00	No Ice	3.66	0.07
			-5.00				1/2" Ice	3.91	0.09
AIR6419			2.00				1" Ice	4.16	0.12
(AT&T - Proposed)	C	From Face	2.00	0.0000		70.00	No Ice	3.66	0.07
			-5.00				1/2" Ice	3.91	0.09
			2.00				1" Ice	4.16	0.12
DMP65R-BU6DA	A	From Face	2.00	0.0000		70.00	No Ice	12.71	0.08
(AT&T - Existing)			5.00				1/2" Ice	13.21	0.15
			0.00				1" Ice	13.71	0.23
DMP65R-BU6DA	B	From Face	2.00	0.0000		70.00	No Ice	12.71	0.08
(AT&T - Existing)			5.00				1/2" Ice	13.21	0.15
			0.00				1" Ice	13.71	0.23
DMP65R-BU6DA	C	From Face	2.00	0.0000		70.00	No Ice	12.71	0.08
(AT&T - Existing)			5.00				1/2" Ice	13.21	0.15
			0.00				1" Ice	13.71	0.23
EPBQ-654L8H6-L2	A	From Face	2.00	0.0000		70.00	No Ice	13.24	0.07
(AT&T - Existing)			0.00				1/2" Ice	13.74	0.15
			0.00				1" Ice	14.26	0.22
EPBQ-654L8H6-L2	B	From Face	2.00	0.0000		70.00	No Ice	13.24	0.07
(AT&T - Existing)			0.00				1/2" Ice	13.74	0.15
			0.00				1" Ice	14.26	0.22
EPBQ-654L8H6-L2	C	From Face	2.00	0.0000		70.00	No Ice	13.24	0.07
(AT&T - Existing)			0.00				1/2" Ice	13.74	0.15
			0.00				1" Ice	14.26	0.22
AIR6449	A	From Face	2.00	0.0000		70.00	No Ice	5.65	0.10
(AT&T - Proposed)			-5.00				1/2" Ice	5.96	0.14
			-2.00				1" Ice	6.26	0.18
AIR6449	B	From Face	2.00	0.0000		70.00	No Ice	5.65	0.10
(AT&T - Proposed)			-5.00				1/2" Ice	5.96	0.14
			-2.00				1" Ice	6.26	0.18
AIR6449	C	From Face	2.00	0.0000		70.00	No Ice	5.65	0.10
(AT&T - Proposed)			-5.00				1/2" Ice	5.96	0.14
			-2.00				1" Ice	6.26	0.18
RRUS-32	A	From Face	2.00	0.0000		69.00	No Ice	3.31	0.08
(AT&T - Existing)			0.00				1/2" Ice	3.56	0.10
			0.00				1" Ice	3.81	0.14
RRUS-32	B	From Face	2.00	0.0000		69.00	No Ice	3.31	0.08
(AT&T - Existing)			0.00				1/2" Ice	3.56	0.10
			0.00				1" Ice	3.81	0.14
RRUS-32	C	From Face	2.00	0.0000		69.00	No Ice	3.31	0.08
(AT&T - Existing)			0.00				1/2" Ice	3.56	0.10
			0.00				1" Ice	3.81	0.14
RRUS-32	A	From Face	2.00	0.0000		69.00	No Ice	3.31	0.08
(AT&T - Existing)			2.00				1/2" Ice	3.56	0.10
			0.00				1" Ice	3.81	0.14
RRUS-32	B	From Face	2.00	0.0000		69.00	No Ice	3.31	0.08
(AT&T - Existing)			2.00				1/2" Ice	3.56	0.10
			0.00				1" Ice	3.81	0.14
RRUS-32	C	From Face	2.00	0.0000		69.00	No Ice	3.31	0.08
(AT&T - Existing)			2.00				1/2" Ice	3.56	0.10
			0.00				1" Ice	3.81	0.14

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	Project		65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT		Date		08:42:19 03/04/22	
	Client		AT&T Mobility		Designed by		TJL	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA}		Weight	
			Horz	Vert			Front	Side		
			ft	ft	°	ft	ft ²	ft ²	K	
4426 B66 (AT&T - Existing)	A	From Face	2.00	0.00	0.0000	70.00	No Ice	1.65	0.73	0.05
			0.00	0.00			1/2" Ice	1.81	0.84	0.06
			0.00	0.00			1" Ice	1.98	0.97	0.08
4426 B66 (AT&T - Existing)	B	From Face	2.00	0.00	0.0000	70.00	No Ice	1.65	0.73	0.05
			0.00	0.00			1/2" Ice	1.81	0.84	0.06
			0.00	0.00			1" Ice	1.98	0.97	0.08
4426 B66 (AT&T - Existing)	C	From Face	2.00	0.00	0.0000	70.00	No Ice	1.65	0.73	0.05
			0.00	0.00			1/2" Ice	1.81	0.84	0.06
			0.00	0.00			1" Ice	1.98	0.97	0.08
4449 B5/B12 (AT&T - Existing)	A	From Face	2.00	2.00	0.0000	70.00	No Ice	1.97	1.41	0.07
			2.00	0.00			1/2" Ice	2.14	1.56	0.09
			0.00	0.00			1" Ice	2.33	1.73	0.11
4449 B5/B12 (AT&T - Existing)	B	From Face	2.00	2.00	0.0000	70.00	No Ice	1.97	1.41	0.07
			2.00	0.00			1/2" Ice	2.14	1.56	0.09
			0.00	0.00			1" Ice	2.33	1.73	0.11
4449 B5/B12 (AT&T - Existing)	C	From Face	2.00	2.00	0.0000	70.00	No Ice	1.97	1.41	0.07
			2.00	0.00			1/2" Ice	2.14	1.56	0.09
			0.00	0.00			1" Ice	2.33	1.73	0.11
4478 B14 (AT&T - Existing)	A	From Face	2.00	0.00	0.0000	70.00	No Ice	1.84	1.06	0.06
			0.00	0.00			1/2" Ice	2.01	1.20	0.08
			0.00	0.00			1" Ice	2.19	1.34	0.09
4478 B14 (AT&T - Existing)	B	From Face	2.00	0.00	0.0000	70.00	No Ice	1.84	1.06	0.06
			0.00	0.00			1/2" Ice	2.01	1.20	0.08
			0.00	0.00			1" Ice	2.19	1.34	0.09
4478 B14 (AT&T - Existing)	C	From Face	2.00	0.00	0.0000	70.00	No Ice	1.84	1.06	0.06
			0.00	0.00			1/2" Ice	2.01	1.20	0.08
			0.00	0.00			1" Ice	2.19	1.34	0.09
DC9 (AT&T - Proposed)	A	From Face	0.50	0.50	0.0000	70.00	No Ice	1.91	1.91	0.02
			0.50	0.00			1/2" Ice	2.10	2.10	0.04
			0.00	0.00			1" Ice	2.29	2.29	0.06
DC6-48-60-18-8F Surge Arrestor (AT&T - Existing)	B	From Face	0.50	0.50	0.0000	70.00	No Ice	1.91	1.91	0.02
			0.50	0.00			1/2" Ice	2.10	2.10	0.04
			0.00	0.00			1" Ice	2.29	2.29	0.06
DC6-48-60-18-8F Surge Arrestor (AT&T - Existing)	C	From Face	0.50	0.50	0.0000	70.00	No Ice	1.91	1.91	0.02
			0.50	0.00			1/2" Ice	2.10	2.10	0.04
			0.00	0.00			1" Ice	2.29	2.29	0.06
SitePro VFA12-HD (AT&T - Existing)	A	From Leg	2.25	0.00	0.0000	69.00	No Ice	21.00	21.00	0.75
			0.00	0.00			1/2" Ice	25.00	25.00	0.90
			0.00	0.00			1" Ice	29.00	29.00	1.05
SitePro VFA12-HD (AT&T - Existing)	B	From Leg	2.25	0.00	0.0000	69.00	No Ice	21.00	21.00	0.75
			0.00	0.00			1/2" Ice	25.00	25.00	0.90
			0.00	0.00			1" Ice	29.00	29.00	1.05
SitePro VFA12-HD (AT&T - Existing)	C	From Leg	2.25	0.00	0.0000	69.00	No Ice	21.00	21.00	0.75
			0.00	0.00			1/2" Ice	25.00	25.00	0.90
			0.00	0.00			1" Ice	29.00	29.00	1.05
10' x 2" Dia Omni (Municipal)	B	From Leg	3.00	0.00	0.0000	106.00	No Ice	2.00	2.00	0.02
			0.00	0.00			1/2" Ice	3.02	3.02	0.03
			5.00	0.00			1" Ice	4.07	4.07	0.05
2-ft Stand Off (Municipal)	B	From Leg	1.50	0.00	0.0000	106.00	No Ice	1.07	1.07	0.02
			0.00	0.00			1/2" Ice	1.62	1.62	0.03
			0.00	0.00			1" Ice	2.17	2.17	0.04
20' 4-Bay Dipole (Municipal)	C	From Leg	3.00	0.00	0.0000	106.00	No Ice	4.00	4.00	0.06
			0.00	0.00			1/2" Ice	6.00	6.00	0.10
			6.00	0.00			1" Ice	8.00	8.00	0.14
3' Side arm mount (Municipal)	B	From Leg	1.50	0.00	0.0000	85.00	No Ice	2.00	2.00	0.07
			0.00	0.00			1/2" Ice	2.60	2.60	0.08
			0.00	0.00			1" Ice	3.20	3.20	0.09

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						
			Vert		°	ft	ft ²	ft ²	K	
			ft	ft						
20' 4-Bay Dipole (Municipal)	B	From Leg	3.00		0.0000	85.00	No Ice	4.00	4.00	0.06
			0.00				1/2" Ice	6.00	6.00	0.10
			6.00				1" Ice	8.00	8.00	0.14
1' x 1' Panel	A	From Leg	1.00		0.0000	107.00	No Ice	1.20	0.32	0.02
			0.00				1/2" Ice	1.34	0.40	0.03
			0.00				1" Ice	1.48	0.49	0.04
1' x 1' Panel	B	From Leg	1.00		0.0000	104.00	No Ice	1.20	0.32	0.02
			0.00				1/2" Ice	1.34	0.40	0.03
			0.00				1" Ice	1.48	0.49	0.04
1' x 1' Panel	C	From Leg	1.00		0.0000	107.00	No Ice	1.20	0.32	0.02
			0.00				1/2" Ice	1.34	0.40	0.03
			0.00				1" Ice	1.48	0.49	0.04
1' x 1' Panel	C	From Leg	1.00		0.0000	99.50	No Ice	1.20	0.32	0.02
			0.00				1/2" Ice	1.34	0.40	0.03
			0.00				1" Ice	1.48	0.49	0.04

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				Horz	Lateral							
			Vert		°	°	ft	ft	ft ²	K		
			ft	ft								
2' Dish		Paraboloid w/Radome	None			Worst		108.00	2.00	No Ice	28.27	0.05
										1/2" Ice	29.07	0.10
										1" Ice	29.87	0.12

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation	z	K _Z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In	C _{AA} Out
ft	ft		psf	ft ²	c	ft ²	ft ²	ft ²	%	Face ft ²	Face ft ²
T1 107.00-102.00	104.50	1.001	20	13.125	A	0.781	1.834	1.250	47.79	0.000	0.000
					B	0.781	1.834	47.79	0.000	0.000	
					C	0.781	1.834	47.79	0.000	0.000	
T2 102.00-82.00	92.00	0.965	20	52.500	A	2.083	7.204	5.000	53.84	8.884	0.000
					B	2.083	7.204	53.84	0.000	0.000	
					C	2.083	7.204	53.84	0.000	0.000	
T3 82.00-62.00	72.00	0.9	18	52.500	A	2.083	7.204	5.000	53.84	22.384	0.000
					B	2.083	7.204	53.84	0.480	0.000	
					C	2.083	7.204	53.84	24.552	0.000	
T4 62.00-42.00	52.00	0.82	17	52.500	A	2.083	7.209	5.000	53.81	28.720	0.000
					B	2.083	7.209	53.81	4.799	0.000	
					C	2.083	7.209	53.81	40.920	0.000	

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Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
T1 107.00-102.00	104.50	1.001	5	1.683	14.528	A	0.781	10.678	4.055	35.39	0.000	0.000
						B	0.781	10.678				
						C	0.781	10.678				
T2 102.00-82.00	92.00	0.965	5	1.662	58.040	A	2.083	38.477	16.080	39.64	41.544	0.000
						B	2.083	38.477				
						C	2.083	38.477				
T3 82.00-62.00	72.00	0.9	5	1.622	57.906	A	2.083	37.719	15.811	39.72	81.347	0.000
						B	2.083	37.719				
						C	2.083	37.719				
T4 62.00-42.00	52.00	0.82	4	1.570	57.733	A	2.083	36.780	15.465	39.79	95.038	0.000
						B	2.083	36.780				
						C	2.083	36.780				

Tower Pressure - Service

$G_H = 0.850$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
T1 107.00-102.00	104.50	1.001	8	13.125	A	0.781	1.834	1.250	47.79	0.000	0.000
					B	0.781	1.834				
					C	0.781	1.834				
T2 102.00-82.00	92.00	0.965	8	52.500	A	2.083	7.204	5.000	53.84	8.884	0.000
					B	2.083	7.204				
					C	2.083	7.204				
T3 82.00-62.00	72.00	0.9	7	52.500	A	2.083	7.204	5.000	53.84	22.384	0.000
					B	2.083	7.204				
					C	2.083	7.204				
T4 62.00-42.00	52.00	0.82	6	52.500	A	2.083	7.209	5.000	53.81	28.720	0.000
					B	2.083	7.209				
					C	2.083	7.209				

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C_F	q_z psf	D_F	D_R	A_E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	20	1	1	1.835	0.08	16.61	C
			B	0.199	2.598	1	1	1.835				
			C	0.199	2.598	1	1	1.835				
T2	0.06	0.58	A	0.177	2.675	20	1	1	6.196	0.37	18.39	C

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
102.00-82.00		TA 0.17	B	0.177	2.675		1	1	6.196			
			C	0.177	2.675		1	1	6.196			
T3	0.28	0.58	A	0.177	2.675	18	1	1	6.196	0.70	35.25	C
82.00-62.00			B	0.177	2.675		1	1	6.196			
			C	0.177	2.675		1	1	6.196			
T4	0.47	0.58	A	0.177	2.675	17	1	1	6.199	0.87	43.69	C
62.00-42.00			B	0.177	2.675		1	1	6.199			
			C	0.177	2.675		1	1	6.199			
Sum Weight:	0.80	2.08								2.03		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1	0.00	0.16	A	0.199	2.598	20	0.825	1	1.698	0.08	15.37	C
107.00-102.00			B	0.199	2.598		0.825	1	1.698			
			C	0.199	2.598		0.825	1	1.698			
T2	0.06	0.58	A	0.177	2.675	20	0.825	1	5.831	0.35	17.57	C
102.00-82.00		TA 0.17	B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T3	0.28	0.58	A	0.177	2.675	18	0.825	1	5.831	0.69	34.48	C
82.00-62.00			B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T4	0.47	0.58	A	0.177	2.675	17	0.825	1	5.834	0.86	42.99	C
62.00-42.00			B	0.177	2.675		0.825	1	5.834			
			C	0.177	2.675		0.825	1	5.834			
Sum Weight:	0.80	2.08								1.98		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1	0.00	0.16	A	0.199	2.598	20	0.8	1	1.679	0.08	15.19	C
107.00-102.00			B	0.199	2.598		0.8	1	1.679			
			C	0.199	2.598		0.8	1	1.679			
T2	0.06	0.58	A	0.177	2.675	20	0.8	1	5.779	0.35	17.46	C
102.00-82.00		TA 0.17	B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T3	0.28	0.58	A	0.177	2.675	18	0.8	1	5.779	0.69	34.37	C
82.00-62.00			B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T4	0.47	0.58	A	0.177	2.675	17	0.8	1	5.782	0.86	42.89	C
62.00-42.00			B	0.177	2.675		0.8	1	5.782			
			C	0.177	2.675		0.8	1	5.782			
Sum Weight:	0.80	2.08								1.97		

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Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	20	0.85	1	1.718	0.08	15.55	C
			B	0.199	2.598		0.85	1	1.718			
			C	0.199	2.598		0.85	1	1.718			
T2 102.00-82.00	0.06	TA 0.17	A	0.177	2.675	20	0.85	1	5.883	0.35	17.69	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T3 82.00-62.00	0.28	0.58	A	0.177	2.675	18	0.85	1	5.883	0.69	34.59	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T4 62.00-42.00	0.47	0.58	A	0.177	2.675	17	0.85	1	5.886	0.86	43.09	C
			B	0.177	2.675		0.85	1	5.886			
			C	0.177	2.675		0.85	1	5.886			
Sum Weight:	0.80	2.08								1.99		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	1	1	10.145	0.08	16.98	C
			B	0.789	1.808		1	1	10.145			
			C	0.789	1.808		1	1	10.145			
T2 102.00-82.00	0.43	TA 0.56	A	0.699	1.776	5	1	1	33.259	0.32	15.97	C
			B	0.699	1.776		1	1	33.259			
			C	0.699	1.776		1	1	33.259			
T3 82.00-62.00	1.77	2.02	A	0.687	1.776	5	1	1	32.340	0.42	21.21	C
			B	0.687	1.776		1	1	32.340			
			C	0.687	1.776		1	1	32.340			
T4 62.00-42.00	2.76	1.95	A	0.673	1.777	4	1	1	31.223	0.46*	22.98	C
			B	0.673	1.777		1	1	31.223			
			C	0.673	1.777		1	1	31.223			
Sum Weight:	4.96	7.22			*2.1A _g limit					1.29		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K				psf			ft ²	K	plf	

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	0.825	1	10.008	0.08	16.75	C
			B	0.789	1.808		0.825	1	10.008			
			C	0.789	1.808		0.825	1	10.008			
T2 102.00-82.00	0.43	2.08 TA 0.56	A	0.699	1.776	5	0.825	1	32.894	0.32	15.82	C
			B	0.699	1.776		0.825	1	32.894			
			C	0.699	1.776		0.825	1	32.894			
T3 82.00-62.00	1.77	2.02	A	0.687	1.776	5	0.825	1	31.976	0.42	21.08	C
			B	0.687	1.776		0.825	1	31.976			
			C	0.687	1.776		0.825	1	31.976			
T4 62.00-42.00	2.76	1.95	A	0.673	1.777	4	0.825	1	30.858	0.46*	22.98	C
			B	0.673	1.777		0.825	1	30.858			
			C	0.673	1.777		0.825	1	30.858			
Sum Weight:	4.96	7.22			*2.1A _g limit					1.28		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	0.8	1	9.989	0.08	16.72	C
			B	0.789	1.808		0.8	1	9.989			
			C	0.789	1.808		0.8	1	9.989			
T2 102.00-82.00	0.43	2.08 TA 0.56	A	0.699	1.776	5	0.8	1	32.842	0.32	15.80	C
			B	0.699	1.776		0.8	1	32.842			
			C	0.699	1.776		0.8	1	32.842			
T3 82.00-62.00	1.77	2.02	A	0.687	1.776	5	0.8	1	31.924	0.42	21.06	C
			B	0.687	1.776		0.8	1	31.924			
			C	0.687	1.776		0.8	1	31.924			
T4 62.00-42.00	2.76	1.95	A	0.673	1.777	4	0.8	1	30.806	0.46*	22.98	C
			B	0.673	1.777		0.8	1	30.806			
			C	0.673	1.777		0.8	1	30.806			
Sum Weight:	4.96	7.22			*2.1A _g limit					1.28		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.61	A	0.789	1.808	5	0.85	1	10.028	0.08	16.78	C
			B	0.789	1.808		0.85	1	10.028			
			C	0.789	1.808		0.85	1	10.028			
T2 102.00-82.00	0.43	2.08 TA 0.56	A	0.699	1.776	5	0.85	1	32.947	0.32	15.85	C
			B	0.699	1.776		0.85	1	32.947			
			C	0.699	1.776		0.85	1	32.947			
T3	1.77	2.02	A	0.687	1.776	5	0.85	1	32.028	0.42	21.10	C

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Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
82.00-62.00			B	0.687	1.776		0.85	1	32.028			
			C	0.687	1.776		0.85	1	32.028			
T4 62.00-42.00	2.76	1.95	A	0.673	1.777	4	0.85	1	30.910	0.46*	22.98	C
			B	0.673	1.777		0.85	1	30.910			
			C	0.673	1.777		0.85	1	30.910			
Sum Weight:	4.96	7.22			*2.1A _g limit					1.28		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	8	1	1	1.835	0.03	6.35	C
			B	0.199	2.598		1	1	1.835			
			C	0.199	2.598		1	1	1.835			
T2 102.00-82.00	0.06	0.58	A	0.177	2.675	8	1	1	6.196	0.14	7.04	C
		TA 0.17	B	0.177	2.675		1	1	6.196			
			C	0.177	2.675		1	1	6.196			
T3 82.00-62.00	0.28	0.58	A	0.177	2.675	7	1	1	6.196	0.27	13.49	C
			B	0.177	2.675		1	1	6.196			
			C	0.177	2.675		1	1	6.196			
T4 62.00-42.00	0.47	0.58	A	0.177	2.675	6	1	1	6.199	0.33	16.72	C
			B	0.177	2.675		1	1	6.199			
			C	0.177	2.675		1	1	6.199			
Sum Weight:	0.80	2.08								0.78		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	8	0.825	1	1.698	0.03	5.88	C
			B	0.199	2.598		0.825	1	1.698			
			C	0.199	2.598		0.825	1	1.698			
T2 102.00-82.00	0.06	0.58	A	0.177	2.675	8	0.825	1	5.831	0.13	6.72	C
		TA 0.17	B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T3 82.00-62.00	0.28	0.58	A	0.177	2.675	7	0.825	1	5.831	0.26	13.19	C
			B	0.177	2.675		0.825	1	5.831			
			C	0.177	2.675		0.825	1	5.831			
T4 62.00-42.00	0.47	0.58	A	0.177	2.675	6	0.825	1	5.834	0.33	16.45	C
			B	0.177	2.675		0.825	1	5.834			
			C	0.177	2.675		0.825	1	5.834			
Sum Weight:	0.80	2.08								0.76		

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Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	8	0.8	1	1.679	0.03	5.81	C
			B	0.199	2.598		0.8	1	1.679			
			C	0.199	2.598		0.8	1	1.679			
T2 102.00-82.00	0.06	0.58 TA 0.17	A	0.177	2.675	8	0.8	1	5.779	0.13	6.68	C
			B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T3 82.00-62.00	0.28	0.58	A	0.177	2.675	7	0.8	1	5.779	0.26	13.15	C
			B	0.177	2.675		0.8	1	5.779			
			C	0.177	2.675		0.8	1	5.779			
T4 62.00-42.00	0.47	0.58	A	0.177	2.675	6	0.8	1	5.782	0.33	16.41	C
			B	0.177	2.675		0.8	1	5.782			
			C	0.177	2.675		0.8	1	5.782			
Sum Weight:	0.80	2.08								0.75		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F K	w plf	Ctrl. Face
T1 107.00-102.00	0.00	0.16	A	0.199	2.598	8	0.85	1	1.718	0.03	5.95	C
			B	0.199	2.598		0.85	1	1.718			
			C	0.199	2.598		0.85	1	1.718			
T2 102.00-82.00	0.06	0.58 TA 0.17	A	0.177	2.675	8	0.85	1	5.883	0.14	6.77	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T3 82.00-62.00	0.28	0.58	A	0.177	2.675	7	0.85	1	5.883	0.26	13.24	C
			B	0.177	2.675		0.85	1	5.883			
			C	0.177	2.675		0.85	1	5.883			
T4 62.00-42.00	0.47	0.58	A	0.177	2.675	6	0.85	1	5.886	0.33	16.49	C
			B	0.177	2.675		0.85	1	5.886			
			C	0.177	2.675		0.85	1	5.886			
Sum Weight:	0.80	2.08								0.76		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	1.23			
Bracing Weight	0.85			

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Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Total Member Self-Weight	2.08			
Guy Weight	0.33			
Total Weight	10.43			
Wind 0 deg - No Ice		-0.02	-6.82	-1.13
Wind 30 deg - No Ice		3.37	-5.85	-0.68
Wind 45 deg - No Ice		4.77	-4.77	-0.37
Wind 60 deg - No Ice		5.85	-3.36	-0.04
Wind 90 deg - No Ice		6.78	0.02	0.61
Wind 120 deg - No Ice		5.92	3.42	1.10
Wind 135 deg - No Ice		4.82	4.82	1.24
Wind 150 deg - No Ice		3.40	5.87	1.29
Wind 180 deg - No Ice		0.02	6.76	1.13
Wind 210 deg - No Ice		-3.37	5.85	0.68
Wind 225 deg - No Ice		-4.77	4.77	0.37
Wind 240 deg - No Ice		-5.90	3.39	0.04
Wind 270 deg - No Ice		-6.78	-0.02	-0.61
Wind 300 deg - No Ice		-5.86	-3.40	-1.10
Wind 315 deg - No Ice		-4.80	-4.80	-1.24
Wind 330 deg - No Ice		-3.40	-5.87	-1.29
Member Ice	5.14			
Guy Ice	1.87			
Total Weight Ice	32.55			
Wind 0 deg - Ice		-0.01	-3.14	-0.26
Wind 30 deg - Ice		1.56	-2.71	-0.08
Wind 45 deg - Ice		2.21	-2.21	0.02
Wind 60 deg - Ice		2.71	-1.56	0.12
Wind 90 deg - Ice		3.13	0.01	0.29
Wind 120 deg - Ice		2.72	1.57	0.38
Wind 135 deg - Ice		2.22	2.22	0.39
Wind 150 deg - Ice		1.57	2.71	0.37
Wind 180 deg - Ice		0.01	3.13	0.26
Wind 210 deg - Ice		-1.56	2.71	0.08
Wind 225 deg - Ice		-2.21	2.21	-0.02
Wind 240 deg - Ice		-2.72	1.56	-0.12
Wind 270 deg - Ice		-3.13	-0.01	-0.29
Wind 300 deg - Ice		-2.71	-1.57	-0.38
Wind 315 deg - Ice		-2.22	-2.22	-0.39
Wind 330 deg - Ice		-1.57	-2.71	-0.37
Total Weight	10.43			
Wind 0 deg - Service		-0.01	-2.61	-0.43
Wind 30 deg - Service		1.29	-2.24	-0.26
Wind 45 deg - Service		1.83	-1.82	-0.14
Wind 60 deg - Service		2.24	-1.29	-0.01
Wind 90 deg - Service		2.59	0.01	0.23
Wind 120 deg - Service		2.26	1.31	0.42
Wind 135 deg - Service		1.84	1.84	0.47
Wind 150 deg - Service		1.30	2.25	0.49
Wind 180 deg - Service		0.01	2.59	0.43
Wind 210 deg - Service		-1.29	2.24	0.26
Wind 225 deg - Service		-1.83	1.82	0.14
Wind 240 deg - Service		-2.26	1.30	0.01
Wind 270 deg - Service		-2.59	-0.01	-0.23
Wind 300 deg - Service		-2.24	-1.30	-0.42
Wind 315 deg - Service		-1.84	-1.84	-0.47
Wind 330 deg - Service		-1.30	-2.25	-0.49

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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 45 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 135 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 225 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
14	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
15	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
16	1.2 Dead+1.6 Wind 315 deg - No Ice+1.0 Guy
17	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
18	1.2 Dead+1.0 Ice+1.0 Temp+Guy
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
28	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
29	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp+1.0 Guy
30	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
31	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
32	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
33	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp+1.0 Guy
34	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
35	Dead+ Wind 0 deg - Service+Guy
36	Dead+ Wind 30 deg - Service+Guy
37	Dead+ Wind 45 deg - Service+Guy
38	Dead+ Wind 60 deg - Service+Guy
39	Dead+ Wind 90 deg - Service+Guy
40	Dead+ Wind 120 deg - Service+Guy
41	Dead+ Wind 135 deg - Service+Guy
42	Dead+ Wind 150 deg - Service+Guy
43	Dead+ Wind 180 deg - Service+Guy
44	Dead+ Wind 210 deg - Service+Guy
45	Dead+ Wind 225 deg - Service+Guy
46	Dead+ Wind 240 deg - Service+Guy
47	Dead+ Wind 270 deg - Service+Guy
48	Dead+ Wind 300 deg - Service+Guy
49	Dead+ Wind 315 deg - Service+Guy
50	Dead+ Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T1	107 - 102	Leg	Max Tension	10	2.96	-0.00	0.04	
			Max. Compression	13	-7.95	-0.05	0.01	
			Max. Mx	6	-4.53	0.06	-0.02	
			Max. My	16	-5.89	0.04	-0.06	
			Max. Vy	15	-0.54	0.00	0.01	
			Max. Vx	10	0.54	-0.00	-0.00	
			Diagonal	Max Tension	14	4.52	0.00	0.00
				Max Tension	1	0.00	0.00	0.00
				Max. Compression	12	-5.49	0.00	0.00
				Max. Mx	26	-5.46	-0.01	0.00
		Max. My		2	-5.46	0.00	0.00	
		Max. Vy		26	0.01	0.00	0.00	
		Horizontal	Max. Vx	2	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	5	-2.87	0.00	0.00	
			Max. Mx	26	-2.73	-0.01	0.00	
			Max. My	17	-2.74	0.00	0.00	
			Max. Vy	26	0.01	0.00	0.00	
		Top Girt	Max. Vx	17	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	5	-2.87	0.00	0.00	
			Max. Mx	26	-2.73	-0.01	0.00	
			Max. My	17	-2.74	0.00	0.00	
			Max. Vy	26	0.01	0.00	0.00	
		Bottom Girt	Max. Vx	17	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	13	-2.80	0.00	0.00	
			Max. Mx	31	-2.66	-0.01	0.00	
Max. My	2		-2.64	0.00	0.00			
Max. Vy	31		0.01	0.00	0.00			
T2	102 - 82	Leg	Max. Vx	2	-0.00	0.00	0.00	
			Max Tension	7	4.04	-0.19	-0.06	
			Max. Compression	10	-22.72	0.10	-0.21	
			Max. Mx	15	-22.55	0.20	0.05	
			Max. My	10	-1.27	-0.04	-0.27	
			Max. Vy	7	-0.68	-0.19	-0.06	
			Max. Vx	10	-0.98	-0.04	-0.27	
			Diagonal	Max Tension	11	4.95	0.00	0.00
				Max Tension	1	0.00	0.00	0.00
				Max. Compression	2	-5.69	0.00	0.00
		Max. Mx		29	-4.15	-0.01	0.00	
		Max. My		17	-4.24	0.00	0.00	
		Max. Vy		29	-0.01	0.00	0.00	
		Horizontal	Max. Vx	17	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	5	-2.54	0.00	0.00	
			Max. Mx	31	-2.49	-0.01	0.00	
			Max. My	2	-2.51	0.00	0.00	
			Max. Vy	31	-0.01	0.00	0.00	
		Top Girt	Max. Vx	2	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	5	-2.54	0.00	0.00	
			Max. Mx	31	-2.49	-0.01	0.00	
			Max. My	2	-2.51	0.00	0.00	
			Max. Vy	31	-0.01	0.00	0.00	
		Bottom Girt	Max. Vx	2	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	10	-2.61	0.00	0.00	
Max. Mx	24		-2.17	-0.01	0.00			
Max. My	17		-2.16	0.00	0.00			
Max. Vy	24		-0.01	0.00	0.00			
Guy A	Max. Vx	17	-0.00	0.00	0.00			
	Bottom Tension	10	6.68					
	Top Tension	10	6.71					
	Top Cable Vert	10	6.01					
	Top Cable Norm	10	3.00					
	Top Cable Tan	10	0.00					
	Bot Cable Vert	10	-5.94					
	Bot Cable Norm	10	3.06					
	Bot Cable Tan	10	0.00					
	Guy B	Bottom Tension	15	7.65				
Top Tension		15	7.68					
Top Cable Vert		15	7.27					

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T3	82 - 62	Guy C	Top Cable Norm	15	2.47			
			Top Cable Tan	15	0.00			
			Bot Cable Vert	15	-7.21			
			Bot Cable Norm	15	2.54			
			Bot Cable Tan	15	0.01			
			Bottom Tension	6	7.33			
			Top Tension	6	7.37			
			Top Cable Vert	6	6.92			
			Top Cable Norm	6	2.53			
			Top Cable Tan	6	0.01			
			Bot Cable Vert	6	-6.86			
			Bot Cable Norm	6	2.59			
			Bot Cable Tan	6	0.02			
			Torque Arm Top	Max Tension	14	7.63	0.00	0.00
				Max. Compression	1	0.00	0.00	0.00
				Max. Mx	32	4.69	-0.02	0.00
				Max. My	2	3.11	0.00	0.00
				Max. Vy	32	0.02	0.00	0.00
		Max. Vx		2	-0.00	0.00	0.00	
		Torque Arm Bottom	Max Tension	12	0.62	0.00	0.00	
			Max. Compression	14	-5.79	0.00	0.00	
			Max. Mx	30	-2.59	-0.01	0.00	
			Max. My	2	-4.87	0.00	0.00	
			Max. Vy	30	0.02	0.00	0.00	
			Max. Vx	2	-0.00	0.00	0.00	
			Leg	Max Tension	15	8.90	-0.20	-0.12
				Max. Compression	2	-29.69	-0.00	-0.11
				Max. Mx	13	-20.10	-0.46	-0.11
				Max. My	10	-7.44	-0.04	0.59
		Max. Vy		14	-3.28	0.07	0.01	
		Max. Vx		10	3.48	0.00	-0.06	
		Diagonal		Max Tension	16	6.35	0.00	0.00
				Max Tension	1	0.00	0.00	0.00
				Max. Compression	10	-5.04	0.00	0.00
				Max. Mx	26	-3.79	-0.01	0.00
				Max. My	17	-4.03	0.00	0.00
				Max. Vy	26	-0.01	0.00	0.00
		Horizontal		Max. Vx	17	-0.00	0.00	0.00
				Top Girt	Max Tension	1	0.00	0.00
			Max. Compression		15	-2.41	0.00	0.00
			Max. Mx		24	-2.16	-0.01	0.00
			Max. My		17	-2.18	0.00	0.00
Bottom Girt	Max. Vy		24	-0.01	0.00	0.00		
	Max. Vx	17	-0.00	0.00	0.00			
	Max Tension	1	0.00	0.00	0.00			
	Max. Compression	14	-1.87	0.00	0.00			
T4	62 - 42	Leg	Max. Mx	28	-1.47	-0.01	0.00	
			Max. My	17	-1.59	0.00	0.00	
			Max. Vy	28	-0.01	0.00	0.00	
			Max. Vx	17	-0.00	0.00	0.00	
			Max Tension	15	8.90	0.06	0.03	
			Max. Compression	2	-32.48	-0.00	-0.04	
			Max. Mx	14	-9.48	0.34	0.12	
			Max. My	10	-9.97	0.01	-0.35	
			Max. Vy	14	-3.28	0.34	0.12	
			Max. Vx	10	3.48	0.01	-0.35	
		Diagonal	Max Tension	15	4.20	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	6	-4.21	0.00	0.00	
			Max. Mx	31	-3.23	-0.01	0.00	
Horizontal	Max. My	17	-3.81	0.00	0.00			

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Top Girt	Max. Vy	31	0.01	0.00	0.00
			Max. Vx	17	-0.00	0.00	0.00
			Max Tension	2	2.00	0.00	0.00
			Max. Compression	15	-1.54	0.00	0.00
			Max. Mx	28	0.75	-0.01	0.00
			Max. My	17	0.17	0.00	0.00
		Bottom Girt	Max. Vy	28	0.01	0.00	0.00
			Max. Vx	17	-0.00	0.00	0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-0.15	0.00	0.00
			Max. Mx	31	-0.13	-0.01	0.00
			Max. My	17	-0.15	0.00	0.00
		Guy A	Max. Vy	31	0.01	0.00	0.00
			Max. Vx	17	-0.00	0.00	0.00
			Bottom Tension	10	11.38		
			Top Tension	10	11.40		
			Top Cable Vert	10	6.60		
			Top Cable Norm	10	9.30		
			Top Cable Tan	10	0.00		
			Bot Cable Vert	10	-6.54		
			Bot Cable Norm	10	9.31		
			Bot Cable Tan	10	0.00		
		Guy B	Bottom Tension	15	14.09		
			Top Tension	15	14.11		
			Top Cable Vert	15	10.21		
			Top Cable Norm	15	9.74		
			Top Cable Tan	15	0.01		
			Bot Cable Vert	15	-10.17		
			Bot Cable Norm	15	9.76		
			Bot Cable Tan	15	0.01		
		Guy C	Bottom Tension	5	13.45		
			Top Tension	5	13.47		
			Top Cable Vert	5	9.39		
			Top Cable Norm	5	9.66		
			Top Cable Tan	5	0.00		
			Bot Cable Vert	5	-9.34		
		Base Beam	Bot Cable Norm	5	9.67		
			Bot Cable Tan	5	0.00		
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-3.56	0.02	-0.00
			Max. Mx	32	-22.15	-31.96	-0.05
			Max. My	14	-15.54	-22.40	0.18
		Max. Vy	32	-22.15	-31.96	-0.05	
		Max. Vx	14	0.13	-22.40	0.18	

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy C @ 20.92 ft Elev 43 ft Azimuth 240 deg	Max. Vert	13	-1.06	-0.28	0.16
	Max. H _x	13	-1.06	-0.28	0.16
	Max. H _z	5	-22.75	-12.73	7.36
	Min. Vert	5	-22.75	-12.73	7.36
	Min. H _x	5	-22.75	-12.73	7.36

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy B @ 19.5 ft Elev 43 ft Azimuth 120 deg	Min. H _z	13	-1.06	-0.28	0.16
	Max. Vert	7	-1.32	0.33	0.20
	Max. H _x	15	-24.11	12.68	7.28
	Max. H _z	15	-24.11	12.68	7.28
	Min. Vert	15	-24.11	12.68	7.28
	Min. H _x	7	-1.32	0.33	0.20
Guy A @ 28.2 ft Elev 43 ft Azimuth 0 deg	Min. H _z	7	-1.32	0.33	0.20
	Max. Vert	2	-0.61	-0.00	-0.30
	Max. H _x	13	-14.13	0.15	-12.06
	Max. H _z	2	-0.61	-0.00	-0.30
	Min. Vert	10	-17.84	0.03	-15.10
	Min. H _x	6	-9.00	-0.13	-7.53
Mast	Min. H _z	10	-17.84	0.03	-15.10
	Max. Vert	32	66.46	-0.29	-0.13
	Max. H _x	6	45.74	0.80	-0.04
	Max. H _z	10	43.18	-0.01	0.50
	Max. M _x	1	0.00	-0.02	-0.04
	Max. M _z	1	0.00	-0.02	-0.04
	Max. Torsion	1	0.00	-0.02	-0.04
	Min. Vert	43	41.36	-0.02	0.08
	Min. H _x	14	46.58	-0.88	-0.07
	Min. H _z	2	52.04	-0.05	-0.85
	Min. M _x	1	0.00	-0.02	-0.04
	Min. M _z	1	0.00	-0.02	-0.04
	Min. Torsion	1	0.00	-0.02	-0.04

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	41.41	0.02	0.04	0.00	0.00	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	52.04	0.05	0.85	0.00	0.00	0.00
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	47.93	-0.36	0.68	0.00	0.00	0.00
1.2 Dead+1.6 Wind 45 deg - No Ice+1.0 Guy	45.13	-0.54	0.53	0.00	0.00	0.00
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	44.15	-0.68	0.34	0.00	0.00	0.00
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	45.74	-0.80	0.04	0.00	0.00	0.00
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	47.40	-0.67	-0.21	0.00	0.00	0.00
1.2 Dead+1.6 Wind 135 deg - No Ice+1.0 Guy	46.26	-0.54	-0.32	0.00	0.00	0.00
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	44.41	-0.40	-0.43	0.00	0.00	0.00
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	43.18	0.01	-0.50	0.00	0.00	0.00
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	44.61	0.42	-0.41	0.00	0.00	0.00
1.2 Dead+1.6 Wind 225 deg - No Ice+1.0 Guy	46.67	0.58	-0.31	0.00	0.00	0.00

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587</p>	<p style="text-align: center;">Job</p> <p style="text-align: center;">22007.03 - CT2040</p>	<p style="text-align: center;">Page</p> <p style="text-align: center;">29 of 38</p>
	<p style="text-align: center;">Project</p> <p style="text-align: center;">65-ft NUDD Guyed Tower - 265 Benham Street - Hamden, CT</p>	<p style="text-align: center;">Date</p> <p style="text-align: center;">08:42:19 03/04/22</p>
	<p style="text-align: center;">Client</p> <p style="text-align: center;">AT&T Mobility</p>	<p style="text-align: center;">Designed by</p> <p style="text-align: center;">TJL</p>

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
No Ice+1.0 Guy						
1.2 Dead+1.6 Wind 240 deg -	48.18	0.73	-0.19	0.00	0.00	0.00
No Ice+1.0 Guy						
1.2 Dead+1.6 Wind 270 deg -	46.58	0.88	0.07	0.00	0.00	0.00
No Ice+1.0 Guy						
1.2 Dead+1.6 Wind 300 deg -	44.44	0.77	0.38	0.00	0.00	0.00
No Ice+1.0 Guy						
1.2 Dead+1.6 Wind 315 deg -	45.59	0.62	0.57	0.00	0.00	0.00
No Ice+1.0 Guy						
1.2 Dead+1.6 Wind 330 deg -	48.53	0.45	0.72	0.00	0.00	0.00
No Ice+1.0 Guy						
1.2 Dead+1.0 Ice+1.0	66.07	0.06	0.03	0.00	0.00	0.00
Temp+Guy						
1.2 Dead+1.0 Wind 0 deg+1.0	66.34	0.07	0.16	0.00	0.00	0.00
Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 30 deg+1.0	66.40	-0.07	0.15	0.00	0.00	0.00
Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 45 deg+1.0	66.44	-0.12	0.14	0.00	0.00	0.00
Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 60 deg+1.0	66.45	-0.16	0.12	0.00	0.00	0.00
Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 90 deg+1.0	66.39	-0.19	0.05	0.00	0.00	0.00
Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 120	66.27	-0.15	-0.04	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 135	66.24	-0.11	-0.08	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 150	66.22	-0.06	-0.10	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 180	66.21	0.05	-0.13	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 210	66.18	0.17	-0.10	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 225	66.18	0.22	-0.06	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 240	66.21	0.26	-0.02	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 270	66.35	0.31	0.06	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 300	66.46	0.29	0.13	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 315	66.45	0.26	0.15	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 330	66.41	0.20	0.16	0.00	0.00	0.00
deg+1.0 Ice+1.0 Temp+1.0 Guy						
Dead+Wind 0 deg -	41.48	0.03	0.16	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 30 deg -	41.48	-0.07	0.15	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 45 deg -	41.48	-0.11	0.13	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 60 deg -	41.47	-0.14	0.10	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 90 deg -	41.44	-0.17	0.04	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 120 deg -	41.41	-0.14	-0.02	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 135 deg -	41.39	-0.11	-0.05	0.00	0.00	0.00
Service+Guy						
Dead+ Wind 150 deg -	41.38	-0.08	-0.07	0.00	0.00	0.00
Service+Guy						

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Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 180 deg - Service+Guy	41.36	0.02	-0.08	0.00	0.00	0.00
Dead+Wind 210 deg - Service+Guy	41.37	0.11	-0.06	0.00	0.00	0.00
Dead+Wind 225 deg - Service+Guy	41.37	0.15	-0.04	0.00	0.00	0.00
Dead+Wind 240 deg - Service+Guy	41.38	0.18	-0.01	0.00	0.00	0.00
Dead+Wind 270 deg - Service+Guy	41.41	0.21	0.05	0.00	0.00	0.00
Dead+Wind 300 deg - Service+Guy	41.45	0.18	0.11	0.00	0.00	0.00
Dead+Wind 315 deg - Service+Guy	41.46	0.16	0.13	0.00	0.00	0.00
Dead+Wind 330 deg - Service+Guy	41.47	0.12	0.15	0.00	0.00	0.00

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-10.43	0.00	-0.00	10.43	-0.00	0.047%
2	-0.03	-12.45	-11.41	0.03	12.45	11.39	0.097%
3	5.66	-12.44	-9.81	-5.66	12.44	9.80	0.054%
4	8.01	-12.44	-7.99	-8.01	12.44	7.98	0.028%
5	9.82	-12.44	-5.63	-9.82	12.44	5.62	0.049%
6	11.38	-12.46	0.03	-11.38	12.46	-0.03	0.046%
7	9.93	-12.47	5.74	-9.93	12.47	-5.73	0.052%
8	8.09	-12.47	8.07	-8.08	12.47	-8.07	0.068%
9	5.72	-12.47	9.84	-5.71	12.47	-9.84	0.044%
10	0.03	-12.46	11.32	-0.03	12.46	-11.32	0.010%
11	-5.66	-12.46	9.81	5.65	12.46	-9.80	0.028%
12	-8.01	-12.47	7.99	8.00	12.47	-7.99	0.050%
13	-9.90	-12.47	5.68	9.89	12.47	-5.68	0.046%
14	-11.38	-12.45	-0.03	11.38	12.45	0.04	0.043%
15	-9.85	-12.43	-5.69	9.85	12.43	5.69	0.024%
16	-8.06	-12.43	-8.04	8.06	12.43	8.03	0.046%
17	-5.72	-12.44	-9.84	5.72	12.44	9.83	0.070%
18	0.00	-34.57	0.00	-0.00	34.57	-0.00	0.011%
19	-0.01	-34.56	-3.68	0.01	34.56	3.68	0.012%
20	1.84	-34.56	-3.18	-1.84	34.56	3.18	0.015%
21	2.62	-34.55	-2.60	-2.61	34.55	2.59	0.018%
22	3.21	-34.55	-1.83	-3.21	34.55	1.83	0.019%
23	3.72	-34.57	0.01	-3.72	34.57	-0.01	0.015%
24	3.22	-34.59	1.85	-3.22	34.59	-1.85	0.009%
25	2.63	-34.59	2.61	-2.63	34.59	-2.62	0.018%
26	1.86	-34.58	3.19	-1.86	34.58	-3.19	0.012%
27	0.01	-34.58	3.67	-0.01	34.58	-3.68	0.022%
28	-1.84	-34.58	3.18	1.84	34.58	-3.19	0.015%
29	-2.62	-34.58	2.60	2.61	34.58	-2.60	0.022%
30	-3.22	-34.58	1.84	3.21	34.58	-1.84	0.011%
31	-3.72	-34.57	-0.01	3.71	34.57	0.00	0.018%
32	-3.22	-34.55	-1.85	3.22	34.55	1.85	0.007%
33	-2.63	-34.55	-2.61	2.62	34.55	2.60	0.021%
34	-1.86	-34.55	-3.19	1.86	34.55	3.18	0.018%
35	-0.01	-10.43	-2.73	0.01	10.43	2.73	0.035%
36	1.35	-10.43	-2.34	-1.35	10.43	2.34	0.031%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
37	1.92	-10.43	-1.91	-1.91	10.43	1.91	0.032%
38	2.35	-10.43	-1.35	-2.35	10.43	1.34	0.034%
39	2.72	-10.43	0.01	-2.72	10.43	-0.01	0.034%
40	2.38	-10.44	1.37	-2.37	10.44	-1.37	0.024%
41	1.94	-10.44	1.93	-1.93	10.44	-1.93	0.017%
42	1.37	-10.44	2.35	-1.37	10.44	-2.35	0.012%
43	0.01	-10.43	2.71	-0.01	10.43	-2.71	0.007%
44	-1.35	-10.44	2.34	1.35	10.44	-2.34	0.017%
45	-1.92	-10.44	1.91	1.91	10.44	-1.91	0.023%
46	-2.37	-10.44	1.36	2.36	10.44	-1.36	0.033%
47	-2.72	-10.43	-0.01	2.72	10.43	0.01	0.045%
48	-2.36	-10.43	-1.36	2.35	10.43	1.36	0.044%
49	-1.93	-10.43	-1.92	1.92	10.43	1.92	0.041%
50	-1.37	-10.43	-2.35	1.36	10.43	2.35	0.037%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00039901
2	Yes	13	0.00092748	0.00062777
3	Yes	12	0.00069566	0.00041113
4	Yes	10	0.00000001	0.00036634
5	Yes	7	0.00096540	0.00082130
6	Yes	10	0.00000001	0.00036601
7	Yes	11	0.00000001	0.00037454
8	Yes	10	0.00088279	0.00049559
9	Yes	9	0.00000001	0.00037305
10	Yes	7	0.00000001	0.00085239
11	Yes	10	0.00000001	0.00023084
12	Yes	11	0.00000001	0.00034933
13	Yes	12	0.00000001	0.00030374
14	Yes	11	0.00000001	0.00033980
15	Yes	8	0.00000001	0.00064447
16	Yes	10	0.00000001	0.00053417
17	Yes	12	0.00082863	0.00054556
18	Yes	7	0.00000001	0.00027606
19	Yes	7	0.00000001	0.00030441
20	Yes	7	0.00000001	0.00038212
21	Yes	7	0.00000001	0.00044983
22	Yes	7	0.00000001	0.00048061
23	Yes	7	0.00000001	0.00040727
24	Yes	7	0.00000001	0.00024646
25	Yes	6	0.00000001	0.00040008
26	Yes	6	0.00000001	0.00027714
27	Yes	5	0.00000001	0.00036705
28	Yes	6	0.00000001	0.00034309
29	Yes	6	0.00000001	0.00048286
30	Yes	7	0.00000001	0.00029801
31	Yes	7	0.00000001	0.00050156
32	Yes	8	0.00000001	0.00023579
33	Yes	7	0.00000001	0.00055443
34	Yes	7	0.00000001	0.00046193
35	Yes	5	0.00000001	0.00048395
36	Yes	5	0.00000001	0.00033360
37	Yes	5	0.00000001	0.00026910

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38	Yes	5	0.00000001	0.00022641
39	Yes	5	0.00000001	0.00025472
40	Yes	5	0.00000001	0.00028055
41	Yes	5	0.00000001	0.00025881
42	Yes	5	0.00000001	0.00023506
43	Yes	5	0.00000001	0.00020207
44	Yes	5	0.00000001	0.00019873
45	Yes	5	0.00000001	0.00018468
46	Yes	5	0.00000001	0.00020715
47	Yes	5	0.00000001	0.00031800
48	Yes	5	0.00000001	0.00045712
49	Yes	5	0.00000001	0.00050183
50	Yes	5	0.00000001	0.00051986

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	107 - 102	0.665	48	0.0365	0.0667
T2	102 - 82	0.625	48	0.0350	0.0635
T3	82 - 62	0.474	49	0.0545	0.1177
T4	62 - 42	0.165	50	0.0565	0.1357

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
108.00	2' Dish	48	0.665	0.0365	0.0667	26442
107.00	1' x 1' Panel	48	0.665	0.0365	0.0667	26442
106.00	10' x 2" Dia Omni	48	0.657	0.0360	0.0656	26442
104.00	1' x 1' Panel	48	0.641	0.0352	0.0640	26442
99.50	1' x 1' Panel	48	0.608	0.0357	0.0656	28433
96.25	Guy	49	0.588	0.0380	0.0721	54667
85.00	3' Side arm mount	49	0.507	0.0516	0.1090	17226
81.00	B5/B15 RRH -BRO4C	49	0.462	0.0552	0.1201	15916
80.00	DB844G65ZAXY	49	0.448	0.0559	0.1223	16915
70.00	AIR6419	50	0.289	0.0574	0.1330	93724
69.00	RRUS-32	50	0.272	0.0573	0.1334	58618
61.92	Guy	50	0.164	0.0565	0.1357	17704

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	107 - 102	2.979	2	0.1752	0.4004
T2	102 - 82	2.788	2	0.1689	0.3873
T3	82 - 62	2.108	2	0.2251	0.6040
T4	62 - 42	0.801	2	0.2606	0.6676

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
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Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
108.00	2' Dish	2	2.979	0.1752	0.4004	7466
107.00	1' x 1' Panel	2	2.979	0.1752	0.4004	7466
106.00	10' x 2" Dia Omni	2	2.939	0.1735	0.3961	7466
104.00	1' x 1' Panel	2	2.861	0.1705	0.3892	7466
99.50	1' x 1' Panel	2	2.706	0.1699	0.3955	8430
96.25	Guy	2	2.610	0.1756	0.4215	21085
85.00	3' Side arm mount	2	2.247	0.2147	0.5695	4440
81.00	B5/B15 RRH -BR04C	2	2.056	0.2281	0.6134	4013
80.00	DB844G65ZAXY	2	2.000	0.2309	0.6218	4209
70.00	AIR6419	2	1.332	0.2502	0.6608	33289
69.00	RRUS-32	2	1.261	0.2515	0.6619	17500
61.92	Guy	2	0.796	0.2607	0.6677	4660

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria	
T1	107	Leg	A325N	0.875	1	2.27	40.59	0.056	✓	1	Bolt Tension
T2	102	Leg	A325N	0.875	1	2.96	40.59	0.073	✓	1	Bolt Tension
T3	82	Leg	A325N	0.875	1	6.47	40.59	0.159	✓	1	Bolt Tension
T4	62	Leg	A325N	0.875	1	9.75	40.59	0.240	✓	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T _u K	Allowable φT _n K	Required S.F.	Actual S.F.
T2	96.25 (A) (244)	9/16 EHS	3.50	35.00	6.06	21.00	1.000	3.464 ✓
	96.25 (A) (245)	9/16 EHS	3.50	35.00	6.71	21.00	1.000	3.128 ✓
	96.25 (B) (238)	9/16 EHS	3.50	35.00	7.68	21.00	1.000	2.733 ✓
	96.25 (B) (239)	9/16 EHS	3.50	35.00	7.17	21.00	1.000	2.929 ✓
	96.25 (C) (232)	9/16 EHS	3.50	35.00	7.32	21.00	1.000	2.868 ✓
	96.25 (C) (233)	9/16 EHS	3.50	35.00	7.37	21.00	1.000	2.850 ✓

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Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T4	61.92 (A) (252)	3/4 EHS	5.83	58.30	11.40	34.98	1.000	3.068 ✓
	61.92 (B) (251)	3/4 EHS	5.83	58.30	14.11	34.98	1.000	2.478 ✓
	61.92 (C) (250)	3/4 EHS	5.83	58.30	13.47	34.98	1.000	2.597 ✓

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	107 - 102	1 1/2	5.00	2.46	78.7 K=1.00	1.767	1.00	-7.95	50.58	0.157 ¹ ✓
T2	102 - 82	1 1/2	20.00	2.83	90.7 K=1.00	1.767	1.00	-22.72	43.60	0.521 ¹ ✓
T3	82 - 62	1 1/2	20.00	2.83	90.7 K=1.00	1.767	1.00	-29.69	43.60	0.681 ¹ ✓
T4	62 - 42	1 1/2	20.00	2.85	91.0 K=1.00	1.767	1.00	-32.48	43.38	0.749 ¹ ✓

¹ $P_u / \phi P_n$ controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	107 - 102	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-5.49	6.71	0.818 ¹ ✓
T2	102 - 82	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-5.69	6.71	0.849 ¹ ✓
T3	82 - 62	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-5.04	6.71	0.752 ¹ ✓
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-4.21	6.71	0.627 ¹ ✓

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Compression)

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.87	6.71	0.428 ¹ ✓
T2	102 - 82	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.54	6.71	0.379 ¹ ✓
T3	82 - 62	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.41	6.71	0.359 ¹ ✓
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-1.54	6.71	0.230 ¹ ✓

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.80	6.71	0.418 ¹ ✓
T2	102 - 82	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-2.61	6.71	0.389 ¹ ✓
T3	82 - 62	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-1.87	6.71	0.279 ¹ ✓
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	118.5 K=1.01	0.434	-0.15	6.71	0.022 ¹ ✓

¹ P_u / φP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	102 - 82 (236)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.51	31.98	0.172 ¹ ✓
T2	102 - 82 (237)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-4.91	31.98	0.153 ¹ ✓
T2	102 - 82 (242)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.79	31.98	0.181 ¹ ✓
T2	102 - 82 (243)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.58	31.98	0.175 ¹ ✓
T2	102 - 82 (248)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-5.33	31.98	0.167 ¹ ✓
T2	102 - 82 (249)	L3x3x1/4	2.50	2.44	84.7 K=1.71	1.440	-4.56	31.98	0.143 ¹ ✓

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¹ $P_u / \phi P_n$ controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	1 1/2	5.00	2.46	78.7	1.767	2.96	79.52	0.037 ¹
T2	102 - 82	1 1/2	20.00	2.83	90.7	1.767	4.04	79.52	0.051 ¹
T3	82 - 62	1 1/2	20.00	2.83	90.7	1.767	8.90	79.52	0.112 ¹
T4	62 - 42	1 1/2	20.00	2.85	91.0	1.767	8.90	79.52	0.112 ¹

¹ $P_u / \phi P_n$ controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	107 - 102	1/2	3.51	3.33	319.8	0.196	4.52	6.36	0.710 ¹
T2	102 - 82	1/2	3.78	3.59	344.6	0.196	4.95	6.36	0.779 ¹
T3	82 - 62	1/2	3.78	3.59	344.6	0.196	6.35	6.36	0.998 ¹
T4	62 - 42	1/2	3.79	3.60	345.4	0.196	4.20	6.36	0.660 ¹

¹ $P_u / \phi P_n$ controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	62 - 42	L1 1/4x1 1/4x3/16	2.50	2.38	75.7	0.434	2.00	14.05	0.143 ¹

¹ $P_u / \phi P_n$ controls

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Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	102 - 82 (234)	L2x2x5/16	3.78	3.68	73.6	1.150	7.43	37.26	0.200 ¹
T2	102 - 82 (235)	L2x2x5/16	3.78	3.68	73.6	1.150	6.04	37.26	0.162 ¹ ✓
T2	102 - 82 (240)	L2x2x5/16	3.78	3.68	73.6	1.150	7.12	37.26	0.191 ¹ ✓
T2	102 - 82 (241)	L2x2x5/16	3.78	3.68	73.6	1.150	7.41	37.26	0.199 ¹ ✓
T2	102 - 82 (246)	L2x2x5/16	3.78	3.68	73.6	1.150	7.63	37.26	0.205 ¹ ✓
T2	102 - 82 (247)	L2x2x5/16	3.78	3.68	73.6	1.150	6.22	37.26	0.167 ¹ ✓

¹ P_u / φP_n controls

Torque-Arm Bottom Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T2	102 - 82 (236)	L3x3x1/4	2.50	2.44	31.5	1.440	0.62	46.66	0.013 ¹ ✓
T2	102 - 82 (237)	L3x3x1/4	2.50	2.44	31.5	1.440	0.29	46.66	0.006 ¹ ✓
T2	102 - 82 (242)	L3x3x1/4	2.50	2.44	31.5	1.440	0.09	46.66	0.002 ¹ ✓
T2	102 - 82 (243)	L3x3x1/4	2.50	2.44	31.5	1.440	0.02	46.66	0.000 ¹ ✓
T2	102 - 82 (248)	L3x3x1/4	2.50	2.44	31.5	1.440	0.38	46.66	0.008 ¹ ✓
T2	102 - 82 (249)	L3x3x1/4	2.50	2.44	31.5	1.440	0.05	46.66	0.001 ¹ ✓

¹ P_u / φP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	107 - 102	Leg	1 1/2	1	-7.95	50.58	15.7	Pass
T2	102 - 82	Leg	1 1/2	27	-22.72	43.60	52.1	Pass
T3	82 - 62	Leg	1 1/2	96	-29.69	43.60	68.1	Pass

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T4	62 - 42	Leg	1 1/2	165	-32.48	43.38	74.9	Pass
T1	107 - 102	Diagonal	1/2	11	4.52	6.36	71.0	Pass
T2	102 - 82	Diagonal	1/2	39	4.95	6.36	77.9	Pass
T3	82 - 62	Diagonal	1/2	105	6.35	6.36	99.8	Pass
T4	62 - 42	Diagonal	1/2	226	4.20	6.36	66.0	Pass
T1	107 - 102	Horizontal	L1 1/4x1 1/4x3/16	17	-5.49	6.71	81.8	Pass
T2	102 - 82	Horizontal	L1 1/4x1 1/4x3/16	85	-5.69	6.71	84.9	Pass
T3	82 - 62	Horizontal	L1 1/4x1 1/4x3/16	154	-5.04	6.71	75.2	Pass
T4	62 - 42	Horizontal	L1 1/4x1 1/4x3/16	225	-4.21	6.71	62.7	Pass
T1	107 - 102	Top Girt	L1 1/4x1 1/4x3/16	5	-2.87	6.71	42.8	Pass
T2	102 - 82	Top Girt	L1 1/4x1 1/4x3/16	29	-2.54	6.71	37.9	Pass
T3	82 - 62	Top Girt	L1 1/4x1 1/4x3/16	99	-2.41	6.71	35.9	Pass
T4	62 - 42	Top Girt	L1 1/4x1 1/4x3/16	168	-1.54	6.71	23.0	Pass
T1	107 - 102	Bottom Girt	L1 1/4x1 1/4x3/16	8	-2.80	6.71	41.8	Pass
T2	102 - 82	Bottom Girt	L1 1/4x1 1/4x3/16	31	-2.61	6.71	38.9	Pass
T3	82 - 62	Bottom Girt	L1 1/4x1 1/4x3/16	101	-1.87	6.71	27.9	Pass
T4	62 - 42	Bottom Girt	L1 1/4x1 1/4x3/16	169	-0.15	6.71	2.2	Pass
T2	102 - 82	Guy A@96.25	9/16	245	6.71	21.00	32.0	Pass
T4	62 - 42	Guy A@61.9167	3/4	252	11.40	34.98	32.6	Pass
T2	102 - 82	Guy B@96.25	9/16	238	7.68	21.00	36.6	Pass
T4	62 - 42	Guy B@61.9167	3/4	251	14.11	34.98	40.4	Pass
T2	102 - 82	Guy C@96.25	9/16	233	7.37	21.00	35.1	Pass
T4	62 - 42	Guy C@61.9167	3/4	250	13.47	34.98	38.5	Pass
T2	102 - 82	Torque Arm Top@96.25	L2x2x5/16	246	7.63	37.26	20.5	Pass
T2	102 - 82	Torque Arm Bottom@96.25	L3x3x1/4	242	-5.79	31.98	18.1	Pass
						Summary		
						Leg (T4)	74.9	Pass
						Diagonal (T3)	99.8	Pass
						Horizontal (T2)	84.9	Pass
						Top Girt (T1)	42.8	Pass
						Bottom Girt (T1)	41.8	Pass
						Guy A (T4)	32.6	Pass
						Guy B (T4)	40.4	Pass
						Guy C (T4)	38.5	Pass
						Torque Arm Top (T2)	20.5	Pass
						Torque Arm Bottom (T2)	18.1	Pass
						Bolt Checks	24.0	Pass
						RATING =	99.8	Pass

Guy Anchor Connection Bolts Capacity Check:

Input Data:

GuyAnchorReactions:

GuyAnchorB @ 19.5ft:

Horz Force (H) =	F _h := 15-kips	(Input From trnTower)
Vertical Force (V)=	F _v := 24-kips	(Input From trnTower)
Resultant Force (R) =	F _r := 28kips	(Input From trnTower)

Guy Anchor B Connection Bolt Data:

Bolt Design Shear Stress:	$\phi F_{nv} := 20.3\text{ksi}$	
Diameter of Bolt =	D := 0.625-in	(User Input)
<u>Calculated Bolt Properties:</u>		
GrossArea of Bolt =	$A_g := \frac{\pi}{4} \cdot D^2 = 0.307 \cdot \text{in}^2$	
Number of Shear Planes =	N _{sp} := 6	(3 Bolts in Double Shear Considered)

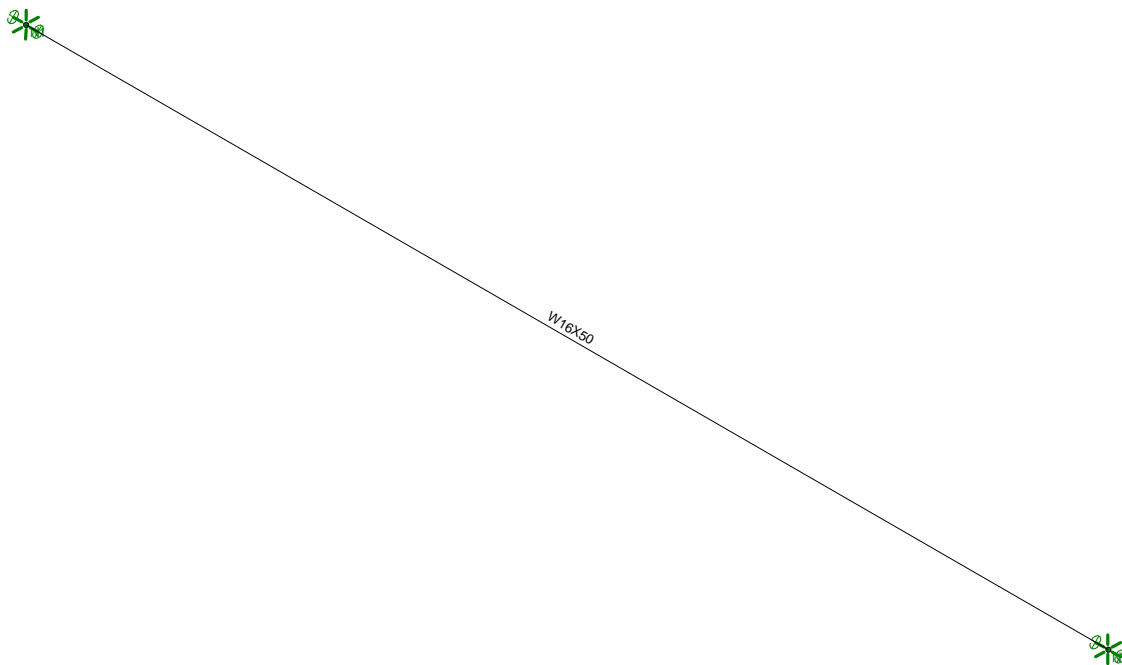
Check Anchor Connection Bolt Shear Force:

Maximum Shear Stress in 1 Bolt = $f_v := \frac{F_r}{(A_g \cdot N_{sp})} \quad f_v = 15.21\text{-ksi}$

Condition1 = $\text{Condition1} := \text{if} \left(\frac{f_v}{\phi F_{nv}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$

$\frac{f_v}{\phi F_{nv}} = 0.75$

Condition1 = "OK"



Envelope Only Solution

Centek	CT2040 - Tower Base Roof Beam Member Framing	
TJL		Mar 4, 2022 at 10:10 AM
22007.03		Guy Anchor - Roof Beam.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\... Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65 .49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65 .49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65 .49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65 .527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65 .527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65 .49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65 .49	50	1.4	65	1.3



Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru... A [in2]	lyy [in4]	lzz [in4]	J [in4]
1	W16x50	W16X50	Beam	None	A36 Gr.36	Typical	14.7	37.2	659 1.52

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...Lcomp bot[...L-torq...	Kyy	Kzz	Cb	Funci...
1	M1	W16x50	27			1				Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			W16x50	Beam	None	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	27	0	0	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction		
2	N2	Reaction	Reaction	Reaction	Reaction		

Member Point Loads (BLC 4 : Guy Anchor Reaction)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M1	Y	24	20

Member Distributed Loads (BLC 2 : Roof Dead Load)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.675	-0.675	0	0
2	M1	Y	-0.225	-0.225	0	0

Member Distributed Loads (BLC 3 : Roof Snow Load)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.27	-0.27	0	0

Basic Load Cases

	BLC Description	Category	X Gra...Y Gra...Z Gra...	Joint	Point	Distrib...Area(... Surfa...
1	Self Weight	DL				
2	Roof Dead Load	DL				2
3	Roof Snow Load	SL				1
4	Guy Anchor Reaction	LL			1	

Load Combinations

	Description	So...P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
4	IBC 16-11 (b)	Yes	Y	DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75		

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	0	4	16.47	3	0	4	0	4	0	4	0	4
2		min	0	1	6.603	2	0	1	0	1	0	1	0	1
3	N2	max	0	4	16.47	3	0	4	0	4	0	4	0	4
4		min	0	1	-4.952	2	0	1	0	1	0	1	0	1
5	Totals:	max	0	4	32.941	3	0	4						
6		min	0	1	1.651	2	0	1						

Envelope Joint Displacements

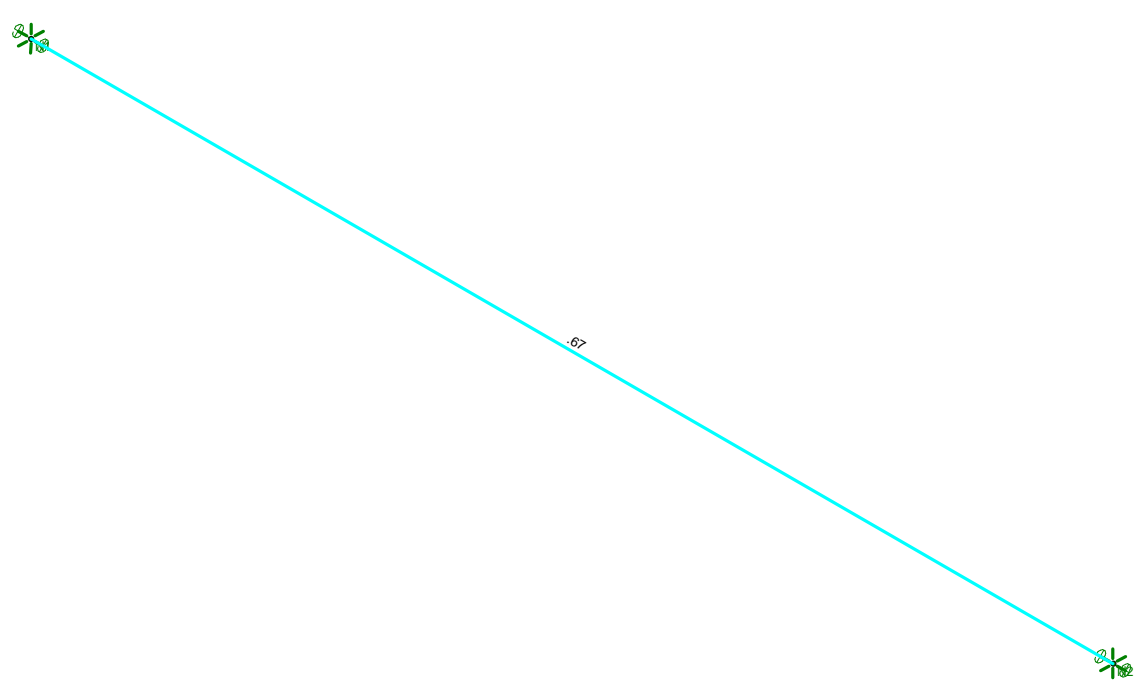
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
1	N1	max	0	4	0	4	0	4	0	4	0	4	-7.312e-04	2
2		min	0	1	0	1	0	1	0	1	0	1	-9.424e-03	3
3	N2	max	0	4	0	4	0	4	0	4	0	4	9.424e-03	3
4		min	0	1	0	1	0	1	0	1	0	1	-1.878e-03	2

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Memb...	Shape	Code Check	L...	LC	Sh...L...	Dir	...Pnc/o...Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	M1	W16X50	.673	1...	3	.185	0 y	3 53.264 316.886	29.281	165...	1	H1..

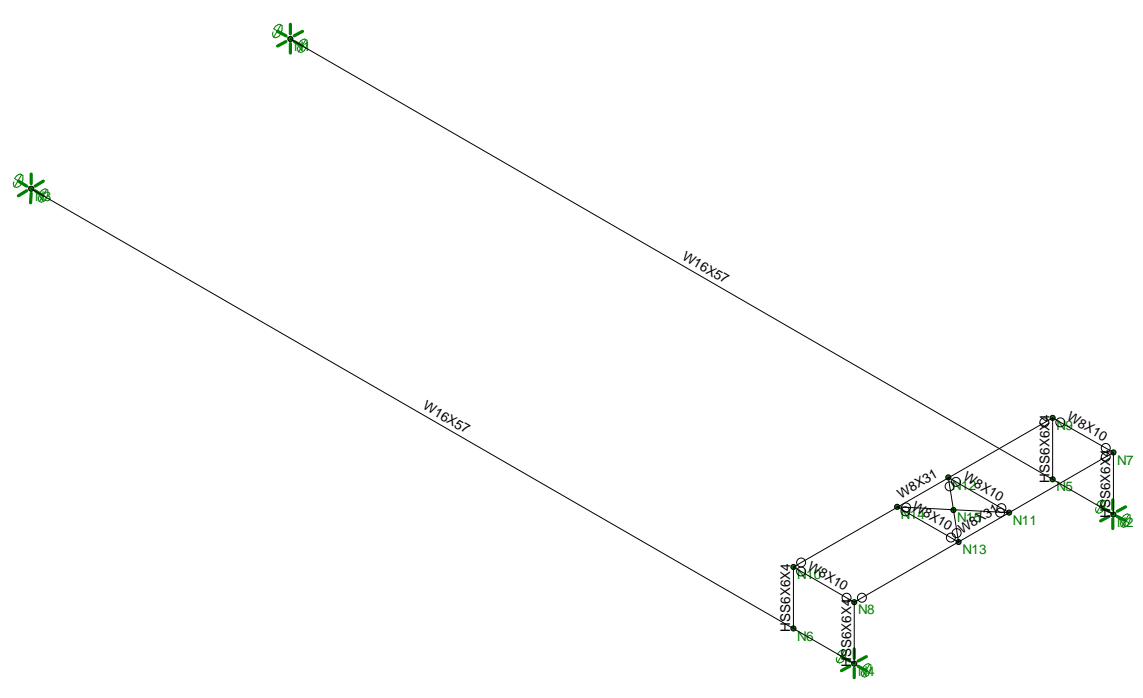


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	CT2040 - Tower Base Roof Beam Unity Check	
TJL		Mar 4, 2022 at 10:10 AM
22007.03		Guy Anchor - Roof Beam.r3d



Envelope Only Solution

Centek	CT2040 - Tower Base Roof Beam Member Framing	
TJL		Mar 4, 2022 at 10:12 AM
21111.00		Tower Base - Roof Beam.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\... Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65 .49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65 .49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65 .49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65 .527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65 .527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65 .49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65 .49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru... A [in2]	Iyy [in4]	Izz [in4]	J [in4]	
1	W16x57	W16X57	Beam	None	A36 Gr.36	Typical	16.8	43.1	758	2.22
2	W8x31	W8X31	Beam	None	A36 Gr.36	Typical	9.13	37.1	110	.536
3	W8x10	W8X10	Beam	None	A36 Gr.36	Typical	2.96	2.09	30.8	.043
4	HSS6x6x1/4	HSS6X6X4	Column	Wide Flange	A500 Gr.B ...	Typical	5.24	28.6	28.6	45.6

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...Lcomp bot[...L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	W16x57	27			1				Lateral
2	M2	W16x57	27			1				Lateral
3	M3	HSS6x6x1/4	1.75			Lbyy				Lateral
4	M4	HSS6x6x1/4	1.75			Lbyy				Lateral
5	M5	HSS6x6x1/4	1.75			Lbyy				Lateral
6	M6	HSS6x6x1/4	1.75			Lbyy				Lateral
7	M7	W8x31	8.5			Segment				Lateral
8	M8	W8x31	8.5			Segment				Lateral
9	M9	W8x10	2			Lbyy				Lateral
10	M10	W8x10	2			Lbyy				Lateral
11	M11	W8x10	2			Lbyy				Lateral
12	M12	W8x10	2			Lbyy				Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design ...
1	M1	N1	N2			W16x57	Beam	None	A36 Gr.36	Typical
2	M2	N3	N4			W16x57	Beam	None	A36 Gr.36	Typical
3	M3	N10	N6			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
4	M4	N8	N4			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
5	M5	N9	N5			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
6	M6	N7	N2			HSS6x6x1/4	Column	Wide Flange...	A500 Gr.B Rect	Typical
7	M7	N10	N9			W8x31	Beam	None	A36 Gr.36	Typical
8	M8	N8	N7			W8x31	Beam	None	A36 Gr.36	Typical
9	M9	N10	N8			W8x10	Beam	None	A36 Gr.36	Typical
10	M10	N9	N7			W8x10	Beam	None	A36 Gr.36	Typical
11	M11	N12	N11			W8x10	Beam	None	A36 Gr.36	Typical
12	M12	N14	N13			W8x10	Beam	None	A36 Gr.36	Typical
13	M13	N14	N11			RIGID	None	None	RIGID	Typical
14	M14	N13	N12			RIGID	None	None	RIGID	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	27	0	0	0	
3	N3	0	0	8.5	0	
4	N4	27	0	8.5	0	
5	N5	25	0	0	0	
6	N6	25	0	8.5	0	
7	N7	27	1.75	0	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
8	N8	27	1.75	8.5	0	
9	N9	25	1.75	0	0	
10	N10	25	1.75	8.5	0	
11	N11	27	1.75	3.415	0	
12	N12	25	1.75	3.415	0	
13	N13	27	1.75	5.085	0	
14	N14	25	1.75	5.085	0	
15	N15	26	1.75	4.25	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction		
2	N2	Reaction	Reaction	Reaction	Reaction		
3	N3	Reaction	Reaction	Reaction	Reaction		
4	N4	Reaction	Reaction	Reaction	Reaction		
5	N5						
6	N6						
7	N7						
8	N8						
9	N9						
10	N10						
11	N11						
12	N12						
13	N13						
14	N14						

Member Point Loads

Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
No Data to Print ...			

Member Distributed Loads (BLC 2 : Roof Dead Load)

	Member Label	Direction	Start Magnitude[k/ft,...]	End Magnitude[k/ft,F...]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.975	-0.975	0	0
2	M2	Y	-0.975	-0.975	0	0
3	M1	Y	-0.225	-0.225	0	0
4	M2	Y	-0.225	-0.225	0	0

Member Distributed Loads (BLC 3 : Roof Snow Load)

	Member Label	Direction	Start Magnitude[k/ft,...]	End Magnitude[k/ft,F...]	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-0.39	-0.39	0	0
2	M2	Y	-0.39	-0.39	0	0

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Gra...	Joint	Point	Distrib...	Area(...	Surfa...
1	Self Weight	DL		-1						
2	Roof Dead Load	DL						4		
3	Roof Snow Load	SL						2		
4	Tower Load	DL				1				

Load Combinations

	Description	So..P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
1	IBC 16-8	Yes	Y	DL	1										
2	IBC 16-9	Yes	Y	DL	1	LL	1	LLS	1						
3	IBC 16-10 (b)	Yes	Y	DL	1	SL	1	SLN	1						
4	IBC 16-11 (b)	Yes	Y	DL	1	LL	.75	LLS	.75	SL	.75	SLN	.75		

Envelope Joint Reactions

Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N1	max	.076	3	23.306	3	0	4	0	4	0	4	0	4
		min	.065	1	18.033	1	0	1	0	1	0	1	0	1
3	N2	max	-.065	2	49.039	3	0	3	0	3	0	4	0	4
		min	-.076	3	43.782	1	0	1	0	1	0	1	0	1
5	N3	max	.076	3	23.306	3	0	4	0	4	0	4	0	4
		min	.065	1	18.033	1	0	1	0	1	0	1	0	1
7	N4	max	-.065	2	49.039	3	0	3	0	3	0	4	0	4
		min	-.076	3	43.782	1	0	1	0	1	0	1	0	1
9	Totals:	max	0	2	144.69	3	0	3						
		min	0	3	123.63	1	0	1						

Envelope Joint Displacements

Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC	
1	N1	max	0	4	0	4	0	4	0	4	0	4	-9.492e-03	2
		min	0	1	0	1	0	1	0	1	0	1	-1.212e-02	3
3	N2	max	0	4	0	4	0	4	0	4	0	4	1.293e-02	3
		min	0	1	0	1	0	1	0	1	0	1	1.03e-02	1
5	N3	max	0	4	0	4	0	4	0	4	0	4	-9.492e-03	2
		min	0	1	0	1	0	1	0	1	0	1	-1.212e-02	3
7	N4	max	0	4	0	4	0	4	0	4	0	4	1.293e-02	3
		min	0	1	0	1	0	1	0	1	0	1	1.03e-02	1
9	N5	max	0	2	-.253	2	0	4	0	4	0	4	1.24e-02	3
		min	0	3	-.317	3	0	1	0	1	0	1	9.846e-03	1
11	N6	max	0	2	-.253	2	0	4	0	4	0	4	1.24e-02	3
		min	0	3	-.317	3	0	1	0	1	0	1	9.846e-03	1
13	N7	max	-.213	2	-.002	3	0	4	0	4	0	4	1.27e-02	3
		min	-.268	3	-.002	1	0	1	0	1	0	1	1.01e-02	1
15	N8	max	-.213	2	-.002	3	0	4	0	4	0	4	1.27e-02	3
		min	-.268	3	-.002	1	0	1	0	1	0	1	1.01e-02	1
17	N9	max	-.213	2	-.256	2	0	4	0	4	0	4	1.282e-02	3
		min	-.267	3	-.32	3	0	1	0	1	0	1	1.02e-02	1
19	N10	max	-.213	2	-.256	2	0	4	0	4	0	4	1.282e-02	3
		min	-.267	3	-.32	3	0	1	0	1	0	1	1.02e-02	1

Envelope Joint Displacements (Continued)

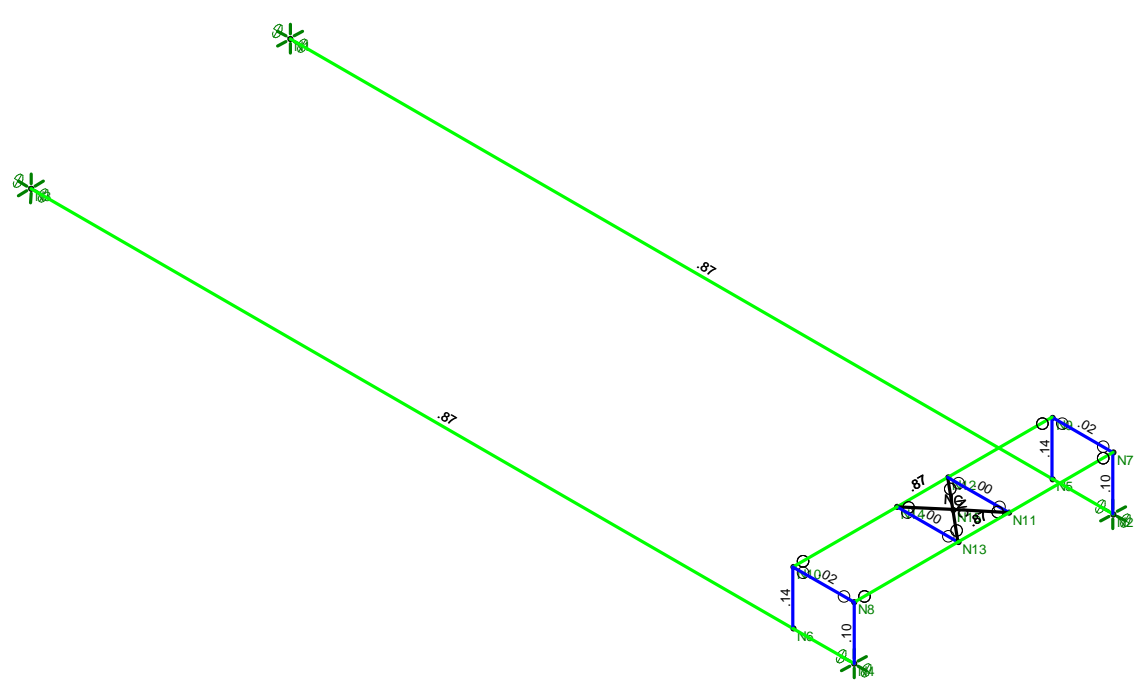
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotation [rad]	LC	Z Rotation [rad]	LC
21	N11	max	-.213	2	-.244	2	0	4	2.226e-03	3	1.817e-06	3	1.587e-02	3
22		min	-.268	3	-.244	3	0	1	2.226e-03	1	1.555e-06	1	1.321e-02	1
23	N12	max	-.213	2	-.497	2	0	4	2.225e-03	2	-1.554e-06	2	1.054e-02	3
24		min	-.268	3	-.561	3	0	1	2.225e-03	3	-1.817e-06	3	7.876e-03	1
25	N13	max	-.213	2	-.244	2	0	4	-2.226e-03	2	-1.555e-06	2	1.587e-02	3
26		min	-.268	3	-.244	3	0	1	-2.226e-03	3	-1.817e-06	3	1.321e-02	1
27	N14	max	-.213	2	-.497	2	0	4	-2.225e-03	3	1.817e-06	3	1.054e-02	3
28		min	-.268	3	-.561	3	0	1	-2.225e-03	1	1.554e-06	1	7.876e-03	1
29	N15	max	-.213	2	-.371	2	0	4	0	4	0	4	1.321e-02	3
30		min	-.268	3	-.403	3	0	1	0	1	0	1	1.054e-02	1

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Memb...	Shape	Code Check	L...	LC	Sh...L...	Dir	...Pnc/o...Pnt/o...	Mnyy/om [k-ft]	Mn...	Cb	Eqn
1	M1	W16X57	.875	1...	3	.346	27 y	3 61.712 362.156	33.952	188...	1	H1..
2	M2	W16X57	.875	1...	3	.346	27 y	3 61.712 362.156	33.952	188...	1	H1..
3	M3	HSS6X6X4	.136	1...	3	.032	0 y	3 143.5...144.335	25.709	25....	1...	H1..
4	M4	HSS6X6X4	.097	1...	3	.018	0 y	3 143.5...144.335	25.709	25....	1...	H1..
5	M5	HSS6X6X4	.136	1...	3	.032	0 y	3 143.5...144.335	25.709	25....	1...	H1..
6	M6	HSS6X6X4	.097	1...	3	.018	0 y	3 143.5...144.335	25.709	25....	1...	H1..
7	M7	W8X31	.865	4...	3	.442	8.5 y	2 171.9...196.814	25.329	54....	1	H1..
8	M8	W8X31	.866	4...	3	.449	8.5 y	3 171.9...196.814	25.329	54....	1	H1..
9	M9	W8X10	.017	0	3	.001	0 y	4 60.669 63.808	2.982	15....	1...	H1..
10	M10	W8X10	.017	0	3	.001	0 y	4 60.669 63.808	2.982	15....	1...	H1..
11	M11	W8X10	.000	1	4	.001	0 y	3 60.669 63.808	2.982	15....	1...	H1..
12	M12	W8X10	.000	1	4	.001	0 y	3 60.669 63.808	2.982	15....	1...	H1..



Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek	CT2040 - Tower Base Roof Beam Unity Check	
TJL		Mar 4, 2022 at 10:11 AM
21111.00		Tower Base - Roof Beam.r3d

Section 1 - RFDS GENERAL INFORMATION			
RFDS NAME: CTL02040	DATE: 3/2/2021	RF DESIGN ENG: Mohammad M Hussain	RF PERF ENG: Folrain Ayo
ISSUE: Bronze Standard	Approved? (Y/N): Yes	RF DESIGN PHONE: 0110-493-3024	RFDS TECHNOLOGY: 5G NR 1SR CBAND
REVISION: Preliminary	RF MANAGER: John Benedetto	RF DESIGN EMAIL: mh705f@att.com	RF PERF EMAIL: f68660@aol.com
4TRXX Antenna Retofit(700 MHz LOWER_B+C (10 MHz) E-UTRA Band 17) 5G NR 1SR CBAND 4 GHz Band n77		ADDITIONAL WORKFLOW NOTIFICATIONS:	RFDS ID: 4392716
		RFDS VERSION: 3.00	Created By: mh705f Updated By: mh705f
		UMTS FREQUENCY: 700,850,1900,AWS,WCS	Created: 3/2/2021 Updated: 12/20/2021
		LTE FREQUENCY: 700,850,1900,AWS,WCS	Estimated SQM: 18.334
		5G FREQUENCY: 850	RER Initiative: Calculation ID: 202111040441102109
		IPLAN JOB # 1: ER_RCTB-21-01925	PRD SUB GRP #1: 5G NR Radio 5G NR 1SR CBand
		IPLAN JOB # 2: ER_RCTB-21-00881	PRD SUB GRP #2: 5G NR Radio 5G NR 1SR CBand
		IPLAN JOB # 3: ER_RCTB-21-01015	PRD SUB GRP #3: Antenna Modifications 4TRXX Antenna Retofit
		IPLAN JOB # 4:	PRD SUB GRP #4:
		IPLAN JOB # 5:	PRD SUB GRP #5:
		IPLAN JOB # 6:	PRD SUB GRP #6:
		IPLAN JOB # 7:	PRD SUB GRP #7:
		IPLAN JOB # 8:	PRD SUB GRP #8:

Section 2 - LOCATION INFORMATION			
USID: 61171	FA LOCATION CODE: 10035317	LOCATION NAME: HAMDEN BENHAM ST	ORACLE PRJT # 1: 2051A101Z
REGION: NORTHEAST	MARKET CLUSTER: NEW ENGLAND	MARKET: CONNECTICUT	ORACLE PRJT # 2: 2051A02BTD
ADDRESS: 205 BENHAM STREET	CITY: HAMDEN	STATE: CT	ORACLE PRJT # 3: 2051A02BSP
ZIP CODE: 06514	COUNTY: NEW HAVEN	LONG (DEC DEG): -72.9314711	ORACLE PRJT # 4:
LATITUDE (D-M-S): 41.9 22m 12.86299s	LONGITUDE (D-M-S): 72.9 55m 53.29599s	LAT (DEC DEG): 41.3701861	ORACLE PRJT # 5:
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:		ORACLE PRJT # 6:	ORACLE PRJT # 7:
2049 SACRED HEART RT15 N0S0 TO RTE 10 (EXIT 60) HMDN END OF EXIT GO SOUTH (RIGHT) 3RD RIGHT ONTO BENHAM ST GO TO 2ND LIGHT (1/2 MI) AND TURN RIGHT AT LIGHT (CHERRY HILL ON LEFT) FOLLOW YELLOW STRIPED ROAD TO END THEN GO LEFT INTO STUDENT PARKING AREA AND GO TO END COME OUT SAME WAY ANTENNA ACCESS NEEDS 24HR NOTICE WSSBTER ANN MARIA 2034648976 CIENNA LOCATED INSIDE SHELTER LTE RADIOS ARE LOCATED ON STRUCTURE OF ROOF		ORACLE PRJT # 8:	BORDER CELL WITH COORDINATE:
		AM STUDY REQ'D (Y/N): No	SEARCH RING NAME:
		RFDS COORD:	SEARCH RING ID:
		RF DISTRICT: TBD	LAQ(UMTS): 05988
		RF ZONE: TBD	RNC(UMTS): BRIDGEPORT RNC07 ERICSSON 3820
		PARENT NAME(UMTS): BRPTCTDNCRR07	MME POOL (XLTE): FF01

Section 3 - LICENSE COVERAGE/FILING INFORMATION			
CGSA - NO FILING TRIGGERED (Yes/No): No	CGSA LOSS:	PCS REDUCED - UFS ZIP:	CGSA CALL SIGNS:
CGSA - MINOR FILING NEEDED (Yes/No): No	CGSA EXT AGMT NEEDED:	PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No): Yes	CGSA SCORECARD UPDATED:		

Section 4 - TOWER/REGULATORY INFORMATION			
STRUCTURE AT ST OWNED?: No	GROUND ELEVATION (ft):	STRUCTURE TYPE: GLYED	MARKET LOCATION 700 MHz Band:
ADDITIONAL REGULATORY?: No	HEIGHT OVERALL (ft): 0.00	FCC ASR NUMBER:	MARKET LOCATION 850 MHz Band:
SUB-LEASE RIGHTS?: No	STRUCTURE HEIGHT (ft): 82.00		MARKET LOCATION 1900 MHz Band:
LIGHTING TYPE: NOT REQUIRED			MARKET LOCATION AWS Band:
			MARKET LOCATION WCS Band:
			MARKET LOCATION Future Band:

Section 5 - E-911 INFORMATION - existing							
SECTOR	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:
SECTOR A	E911			INTRADO	0		
SECTOR B				INTRADO	0		
SECTOR C				INTRADO	0		
SECTOR D							
SECTOR E							
SECTOR F							
OMN							

Section 5 - E-911 INFORMATION - final							
SECTOR	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:
SECTOR A	E911			INTRADO	0		
SECTOR B				INTRADO	0		
SECTOR C				INTRADO	0		
SECTOR D							
SECTOR E							
SECTOR F							
OMN							

Section 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4	BBU 5	BBU 6
BBU ID:	250429	257806	270605	279615	366897	702382
TECHNOLOGY:	LUMTS	LUMTS	LUMTS	LUMTS	LTE	5G
BBU NAME:	CTU02040	CTU06040	CTV20040	CTV60040	CTU02040	CTCN002040
BBU USID:	61171	61171	61171	61171	61171	61171
CELL ID / BCF:	CTV20040	CTV06040	CTV20040	CTV60040	CTU02040	CTCN002040
BT/AT/E:	318V	318V	318U	318W	318L	318N
4-9 DIGIT SITE ID:	2040	6040	2040	6040	2040	2040
COW OR TOY?:	No	No	No	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	OVERLAY	OVERLAY	BASE	OVERLAY	BASE	BASE
EQUIPMENT NAME:	HAMDEN - SACRED HEART	HAMDEN - SACRED HEART	HAMDEN BENHAM ST	HAMDEN 265 BENHAM STREET	HAMDEN BENHAM ST	HAMDEN BENHAM ST
DISASTER PRIORITY:	0	0	0	3	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):					6601 INDOOR MB	BASEBAND 6630
BASEBAND CONFIGURATION:						xxxxx / 1x6x30 / xxxxx
MARKET STATE CODE:					CT	CTC
NODE B NUMBER:	0	0	0	0	2040	2040
SIDEHAIL SWITCH VENDOR:						
SIDEHAIL SWITCH MODEL:						
SIDEHAIL SWITCH NAME:						
CSS - CTS COMMON ID:	CTU02040	CTU06040	CTV20040	CTV60040	CTU02040	CTCN002040
CSS - SECONDARY FUNCTION ID:						

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2
BBU ID:	366897	702382
TECHNOLOGY:	LTE	LTE 5G
BBU NAME:	CTU02040	CTU08408-CTCN002040
BBU USID:	61171	61171
CELL ID / BCF:	CTU02040	CTCN002040
BT/AT/E:	318L	318N
4-9 DIGIT SITE ID:	2040	2040
COW OR TOY?:	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL
BASE STATION TYPE:	BASE	BASE
EQUIPMENT NAME:	HAMDEN BENHAM ST	HAMDEN BENHAM ST
DISASTER PRIORITY:	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	6601 RADIOCODE 5216	BASEBAND 6630
BASEBAND CONFIGURATION:	1x6x01 / 1x5216 / 2x0M003	xxxxx / 1x6x30 / xxxxx + IDle
MARKET STATE CODE:	CT	CT CTC
NODE B NUMBER:	2040	2040,840
SIDEHAIL SWITCH VENDOR:		
SIDEHAIL SWITCH MODEL:		
SIDEHAIL SWITCH NAME:		
CSS - CTS COMMON ID:	CTU02040	CTCN002040
CSS - SECONDARY FUNCTION ID:		

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3	BBU 4	BBU 5	BBU 6
CTS Common ID:	CTU02040	CTU06040	CTV20040	CTV60040	CTU02040	CTCN002040
Soft Sector IDs:	CTU020407	CTU060404	CTV200401	CTV60040A	CTU02040_2A_2	CTCN002040_N005A_1
	CTU060408	CTU060405	CTV200402	CTV60040B	CTU02040_2B_2	CTCN002040_N005B_1
	CTU020409	CTU060406	CTV200403	CTV60040C	CTU02040_2C_2	CTCN002040_N005C_1
		CTU060407			CTU02040_2A_1	
		CTU060408			CTU02040_2B_1	
		CTU060409			CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
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					CTU02040_2C_1	
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					CTU02040_2B_1	
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					CTU02040_2B_1	
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					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A_1	
					CTU02040_2B_1	
					CTU02040_2C_1	
					CTU02040_2A	

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE / MODEL	DMPE5R-BUGDA	EPBO-654L8H6-L2		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	CCI	KMW		KMW			
ANTENNA SIZE (H x W x D)	71.2X20.7X7.7	73X21.9X3		72X11.8X5.9			
ANTENNA WEIGHT	78.4	72.8		48.5			
AZIMUTH	20	20		150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70	70		70			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT				2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)				2	CM1007-DBPBC-003		
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)				1	RS0-10006		
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)				1	DTMBP7819VG 12A		
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)	1	DC6-48-60-08F	2	DC6-48-60-18-8F			
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4448 B5B12 with another band	1	4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)					RRUS-32 B2		
RRH - AWS band (QTY/MODEL)					4426 B66		
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS5sig)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/AMCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE Bcasing	
ANTENNA POSITION 1	PORT 1		61171.A.700.4G.1	CTL02040_7A.1	CTL02040_7A.1		LTE 700	BUGD_725MHz_04DT	13	20	4	TOP	FIBER	0						1475.7065		7		
	PORT 2		61171.A.850.4G.1	CTL02040_8A.1	CTL02040_8A.1		LTE 850	BUGD_850MHz_04DT	13.1	20	4	TOP	FIBER	0							1475.7065		7	
	PORT 3		61171.A.WCS.4.G.1	CTL02040_3A.1	CTL02040_3A.1		LTE WCS	BUGD_2350MHz_03DT	17.2	20	3	TOP	FIBER	0							1285.2866		8	
	PORT 5		61171.A.850.5G.1	CTCN002040.N005A.1	CTCN002040.N005A.1		5G 850	BUGD_850MHz_04DT	13.1	20	4	TOP	FIBER	0							1475.7065		7	
ANTENNA POSITION 2	PORT 1		61171.A.700.4G.5	CTL02040_7A.3.F	CTL02040_7A.3.F		LTE 700	L2_776MHz_04DT	14.9	20	4	TOP	FIBER	0							1000		5	
	PORT 3		61171.A.1900.4.G.1	CTL00840_9A.1	CTL00840_9A.1		LTE 1900	BU4D_1930MHz_02DT	15.6	20	0	TOP	FIBER	0							3664.3757		6	
	PORT 4		61171.A.1900.4.G.4	CTL00840_9A.2	CTL00840_9A.2		LTE 1900	BU4D_1930MHz_02DT	15.6	20	0	TOP	FIBER	0							3664.3757		6	
	PORT 7		61171.A.AWS.4G.4	CTL00840_2A.2	CTL00840_2A.2		LTE AWS	BUGD_2170MHz_02DT	16.2	20	0	TOP	FIBER	0							3837.0724		6	
ANTENNA POSITION 4	PORT 1			CTV20401	CTV20401		UMTS 850	RET_850MHz_0	16.1	150	2	NONE	Andrew 1-58 (850)	154.04							529.66		1	

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE / MODEL	DMPE5R-BUGDA	EPBO-654LBH6-L2		AM-X-CD-16-65-00T-RET			
ANTENNA VENDOR	CCI	KMW		KMW			
ANTENNA SIZE (H x W x D)	73.2X20.7X7.7	73X21.9X3		72X11.8X5.9			
ANTENNA WEIGHT	78.4	72.8		48.5			
AZIMUTH	150	150		260			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70	70		70			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT				2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)				2	CM1007-DBPXC-003		
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)				1	DTMBP7819VG 12A		
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4448 B5B12 with another band	1	4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)					RRUS-32 B2		
RRH - AWS band (QTY/MODEL)					4426 B66		
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS5sig)	USEID (Atol)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AT KIT MODULE	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/AMCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE Bcasing	
ANTENNA POSITION 1	PORT 1		61171.B.700.4G.5	CTL02040_7B_5	CTL02040_7B_1		LTE 700	BUGD_725MHz_05DT	12.9	150	5	TOP	FIBER	0						1475.7065		15		
	PORT 2		61171.B.850.4G.1	CTL02040_8B_1	CTL02040_8B_1		LTE 850	BUGD_850MHz_05DT	13.1	150	5	TOP	FIBER	0							1475.7065		15	
	PORT 3		61171.B.WCS.4 G.1	CTL02040_3B_1	CTL02040_3B_1		LTE WCS	BUGD_2350MHz_03DT	17.2	150	3	TOP	FIBER	0							1285.2866		16	
	PORT 5		61171.B.850.5G.1	CTCN002040_N005B_1	CTCN002040_N005B_1		5G 850	BUGD_850MHz_05DT	13.1	150	5	TOP	FIBER	0							1475.7065		15	
ANTENNA POSITION 2	PORT 1		61171.B.700.4G.5	CTL02040_7B_3 F	CTL02040_7B_3 F		LTE 700	L2_776MHz_05DT	14.95	150	5	TOP	FIBER	0							1000		13	
	PORT 3		61171.B.1900.4 G.1	CTL00840_9B_1	CTL00840_9B_1		LTE 1900	BU4D_1930MHz_02DT	15.6	150	0	TOP	FIBER	0							3664.3757		14	
	PORT 4		61171.B.1900.4 G.4	CTL00840_9B_2	CTL00840_9B_2		LTE 1900	BU4D_1930MHz_02DT	15.6	150	0	TOP	FIBER	0							3664.3757		14	
	PORT 7		61171.B.AWS.4G.4	CTL00840_2B_2	CTL00840_2B_2		LTE AWS	BUGD_2170MHz_02DT	16.2	150	0	TOP	FIBER	0							3837.0724		14	
ANTENNA POSITION 4	PORT 1			CTV20402	CTV20402		UMTS 850	RET_850MHz_0	16.1	260	2	NONE	Andrew 1-58 (850)	154.04						529.66		9		

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	DMPE5R-BUGDA	EPBO-654L8H6-L2		AM-X-CD-16-65-0DT-RET			
ANTENNA VENDOR	CCI	KMW		KMW			
ANTENNA SIZE (H x W x D)	73.2X20.7X7.7	73X21.9X3		72X11.8X5.9			
ANTENNA WEIGHT	78.4	72.8		48.5			
AZIMUTH	280	280		20			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	70	70		70			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0	0		0			
FEEDER AMOUNT				2			
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal	Internal		Internal			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)				2	CM1007-DBPXC-003		
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)				1	DTMBP7819VG 12A		
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4448 B5B12 with another band	1	4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)					RRUS-32 B2		
RRH - AWS band (QTY/MODEL)					4426 B66		
RRH - WCS band (QTY/MODEL)	1	RRUS-32 B30					
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH 7B_1 (QTY/MODEL)							
RRH 7B_2 (QTY/MODEL)							
RRH 7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	1	Y Cable					
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USED (CS5sig)	USED (AtoB)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AT KIT MODULE	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/AMCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE B/Casing	
ANTENNA POSITION 1	PORT 1		61171.C.700.4G.1	CTL02040_7C.1	CTL02040_7C.1		LTE 700	BUGD_725MHz_02DT	13.2	280	2	TOP	FIBER	0						1475.7065		23		
	PORT 2		61171.C.850.4G.1	CTL02040_8C.1	CTL02040_8C.1		LTE 850	BUGD_850MHz_02DT	13.1	280	2	TOP	FIBER	0							1475.7065		23	
	PORT 3		61171.C.WCS.4.G.1	CTL02040_3C.1	CTL02040_3C.1		LTE WCS	BUGD_2350MHz_030DT	17.2	280	3	TOP	FIBER	0							1285.2866		24	
	PORT 5		61171.C.850.5G.1	CTCN002040.N005C.1	CTCN002040.N005C.1		5G 850	BUGD_850MHz_02DT	13.1	280	2	TOP	FIBER	0							1475.7065		23	
ANTENNA POSITION 2	PORT 1		61171.C.700.4G.5	CTL00840_7C.5	CTL00840_7C.5		LTE 700	L2_776MHz_02DT	14.78	280	2	TOP	FIBER	0							1000		21	
	PORT 3		61171.C.1900.4.G.1	CTL00840_9C.1	CTL00840_9C.1		LTE 1900	BU4D_1930MHz_02DT	15.6	280	0	TOP	FIBER	0							3664.3757		22	
	PORT 4		61171.C.1900.4.G.2	CTL00840_9C.2	CTL00840_9C.2		LTE 1900	BU4D_1930MHz_02DT	15.6	280	0	TOP	FIBER	0							3664.3757		22	
	PORT 7		61171.C.AWS.4.G.4	CTL00840_2C.2	CTL00840_2C.2		LTE AWS	BUGD_2170MHz_02DT	16.2	280	0	TOP	FIBER	0							3837.0724		22	
ANTENNA POSITION 4	PORT 1		CTV20403	CTV20403		UMTS 850	RET_850MHz_0	16.1	20	2	NONE	Andrew 1-58 (850)	154.04							529.66		17		

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?	Yes						
ANTENNA MAKE - MODEL			ARR649 B7D+ARR6419 B7G STACKED				
ANTENNA VENDOR			Ericsson				
ANTENNA SIZE (H x W x D)			30.4X15.9X8.1				
ANTENNA WEIGHT			81.6				
AZIMUTH			20				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)			70				
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT			0				
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if 4 or inches)							
Antenna RET Motor (QTY/MODEL)			Built in				
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA'S (QTY/MODEL)							
FILTER (QTY/MODEL)							
SOLID (QTY/MODEL)			1	DC9-48-60-24-8C-EV			
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1	Integrated within: ARR6449 B7D			
Additional RRH #2 - any band (QTY/MODEL)			1	Integrated within: ARR6419 B7G			
RRH 7B_1 (QTY/MODEL)							
RRH 7B_2 (QTY/MODEL)							
RRH 7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Follow Antenna/RRH positions as per PDs. Replace DC Squid with DC-9.						
Local Market Note 2							
Local Market Note 3	1x5216x2x0MU+146E30+DL+6648+Xcable Cable.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS/Sp)	USEID (AolB)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(CS/Sp)	
ANTENNA POSITION 2	PORT 8			CTCN002040_N002A_1	CTCN002040_N002A_1		5G 1900	L2_1930MHz_02 DT	16.04	20	2	TOP	FIBER	0						4842.058		2		
	PORT 11			CTCN002040_N066A_1	CTCN002040_N066A_1		5G AWS	L2_2130MHz_03 DT	16.06	20	3	TOP	FIBER	0							5070.2572		2	
ANTENNA POSITION 3	PORT 3						5G CBAND			20	0	Integrated	FIBER	0									5	

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION IS LEFT TO RIGHT FROM BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?	Yes						
ANTENNA MAKE - MODEL			ARR649 B77D+ARR6419 B77G STACKED				
ANTENNA VENDOR			Ericsson				
ANTENNA SIZE (H x W x D)			30.4X15.9X8.1				
ANTENNA WEIGHT			81.6				
AZIMUTH			150				
MAGNETIC DECLINATION							
RADIATION CENTER (feet)			70				
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT			0				
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if 4 or inches)							
Antenna RET Motor (QTY/MODEL)			Built in				
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMA'S (QTY/MODEL)							
FILTER (QTY/MODEL)							
SOLID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)							
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)							
RRH - AWS band (QTY/MODEL)							
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)			1			Integrated within: ARR649 B77D	
Additional RRH #2 - any band (QTY/MODEL)			1			Integrated within: ARR6419 B77G	
RRH 7B_1 (QTY/MODEL)							
RRH 7B_2 (QTY/MODEL)							
RRH 7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Follow Antenna/RRH positions as per PDs. Replace DC Squid with DC-9.						
Local Market Note 2							
Local Market Note 3	1x5216x2x0MJ+146E30+DL+6648+Xcde Cable.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS/Sp)	USEID (AolB)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CS/Sp)	
ANTENNA POSITION 2	PORT 8			CTCN002040_N 002B_1	CTCN002040_N 002B_1		5G 1900	L2_1930MHz_02 DT	16.04	150	2	TOP	FIBER	0						4842.058		10		
	PORT 11			CTCN002040_N 046B_1	CTCN002040_N 046B_1		5G AWS	L2_2130MHz_02 DT	0	150	2	TOP	FIBER	0							6070.2572		10	
ANTENNA POSITION 3	PORT 3						5G CBAND			150	0	Integrated	FIBER	0									13	

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)						
Existing Antenna?						
Yes						
ANTENNA MAKE - MODEL						
ARR649 B77D+ARR6419 B77G STACKED						
ANTENNA VENDOR						
Ericsson						
ANTENNA SIZE (H x W x D)						
30.4X15.9X8.1						
ANTENNA WEIGHT						
81.6						
AZIMUTH						
280						
MAGNETIC DECLINATION						
RADIATION CENTER (feet)						
70						
ANTENNA TIP HEIGHT						
0						
MECHANICAL DOWNTILT						
FEEDER AMOUNT						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)						
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)						
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)						
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)						
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if of inches)						
Antenna RET Motor (QTY/MODEL)						
Built in						
SURGE ARRESTOR (QTY/MODEL)						
DUPLEXER (QTY/MODEL)						
DUPLEXER (QTY/MODEL)						
Antenna RET CONTROL UNIT (QTY/MODEL)						
DC BLOCK (QTY/MODEL)						
TMA/NA (QTY/MODEL)						
CURRENT INJECTORS FOR TMA (QTY/MODEL)						
POU FOR TMA/S (QTY/MODEL)						
FILTER (QTY/MODEL)						
SOLID (QTY/MODEL)						
FIBER TRUNK (QTY/MODEL)						
DC TRUNK (QTY/MODEL)						
REPEATER (QTY/MODEL)						
RRH - 700 band (QTY/MODEL)						
RRH - 850 band (QTY/MODEL)						
RRH - 1900 band (QTY/MODEL)						
RRH - AWS band (QTY/MODEL)						
RRH - WCS band (QTY/MODEL)						
Additional RRH #1 - any band (QTY/MODEL)						
1 Integrated within: ARR649 B77D						
Additional RRH #2 - any band (QTY/MODEL)						
1 Integrated within: ARR6419 B77G						
RRH 7B_1 (QTY/MODEL)						
RRH 7B_2 (QTY/MODEL)						
RRH 7B_3 (QTY/MODEL)						
Additional Component 1 (QTY/MODEL)						
Additional Component 2 (QTY/MODEL)						
Additional Component 3 (QTY/MODEL)						
Local Market Note 1 Follow Antenna/RRH positions as per PDs. Replace DC Squid with DC-9.						
Local Market Note 2						
Local Market Note 3 1x5216x2x0MJ+146E30+IDL+6648+Xcable Cable.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS/Sig)	USEID (AolB)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(CS/Sig)
ANTENNA POSITION 2	PORT 8			CTCN002040_N002C_1	CTCN002040_N002C_1		5G 1900	L2_1930MHz_02 DT	16.04	280	2	TOP	FIBER	0						4842.058		18	
	PORT 11			CTCN002040_N006C_1	CTCN002040_N006C_1		5G AWS	L2_2130MHz_02 DT	15.99	280	2	TOP	FIBER	0						5070.2572		18	
	PORT 3						5G CBAND			280	0	Integrated	FIBER	0								21	

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE / MODEL						
EPBO-654L8HG-L2	ARR649 B7D+ARR6419 B7TG STACKED		DMP6SR-BU6DA			
ANTENNA VENDOR						
KMM	Ericsson		CCI			
ANTENNA SIZE (H x W x D)						
73X21X6.3	30.4X15.9X8.1		71.2X20.7X7.7			
ANTENNA WEIGHT						
72.8	81.6		79.4			
AZIMUTH						
20	20		20			
MAGNETIC DECLINATION						
RAZMATION CENTER (feet)						
70	70		70			
ANTENNA TIP HEIGHT						
MECHANICAL DOWNTILT						
0	0		0			
FEEDER AMOUNT						
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)						
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)						
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)						
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)						
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # if 4 or inches)						
Antenna RET Motor (QTY/MODEL)						
	Internal		Built in		Internal	
SURGE ARRESTOR (QTY/MODEL)						
DIPLEXER (QTY/MODEL)						
Antenna RET CONTROL UNIT (QTY/MODEL)						
DC BLOCK (QTY/MODEL)						
TMA/LNA (QTY/MODEL)						
CURRENT INJECTORS FOR TMA (QTY/MODEL)						
POU FOR TMA/S (QTY/MODEL)						
FILTER (QTY/MODEL)						
SOLID (QTY/MODEL)						
1	DC6-48-60-18-8F	1	DC9-48-60-24-8C-EV	1	DC6-48-60-18-8F	
FIBER TRUNK (QTY/MODEL)						
DC TRUNK (QTY/MODEL)						
REPEATER (QTY/MODEL)						
RRH - 700 band (QTY/MODEL)						
1	4478 B14			1	4449 B6B12 with another band	
RRH - 850 band (QTY/MODEL)						
RRH - 1900 band (QTY/MODEL)						
1	RRUS-32 B2					
RRH - AWS band (QTY/MODEL)						
1	4426 B66					
RRH - WCS band (QTY/MODEL)						
				1	RRUS-32 B30	
Additional RRH #1 - any band (QTY/MODEL)						
		1	Integrated with: ARR6449 B7D			
Additional RRH #2 - any band (QTY/MODEL)						
		1	Integrated with: ARR6419 B7TG			
RRH 7B 1 (QTY/MODEL)						
RRH 7B 2 (QTY/MODEL)						
RRH 7B 3 (QTY/MODEL)						
				1	V-Cables	
Additional Component 1 (QTY/MODEL)						
Additional Component 2 (QTY/MODEL)						
Additional Component 3 (QTY/MODEL)						
Local Market Note 1						
Follow Antennas/RRHs positions as per PDs. Replace DC Squid with DC-9.						
Local Market Note 2						
Local Market Note 3						
1x5216x2x0MU+14630+IDL+6648+Xcede Cable.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS/SS)	USEID (AoS)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(CS/SS)		
ANTENNA POSITION 2	PORT 1	61171.A.700.4G1		CTL02040_7A_3	CTL02040_7A_3		LTE 700	L2_776MHz_04	14.9	20	4	TOP	FIBER	0						2951.413		1			
	PORT 2	61171.A.1900.4		CTL00840_9A_1	CTL00840_9A_1		LTE 1900	L2_1930MHz_02	16.04	20	2	TOP	FIBER	0						4842.058		2			
	PORT 4	61171.A.1900.4		CTL00840_9A_2	CTL00840_9A_2		LTE 1900	L2_1930MHz_02	16.04	20	2	TOP	FIBER	0						4842.058		2			
	PORT 7	61171.A.AWS.4G		CTL00840_2A_2	CTL00840_2A_2		LTE AWS	L2_2130MHz_03	16.05	20	3	TOP	FIBER	0						5070.2572		2			
	PORT 8	61171.A.1900.5		CTCN002040_N	CTCN002040_N		5G 1900	L2_1930MHz_02	16.04	20	2	TOP	FIBER	0						4842.058		2			
	PORT 11	61171.A.AWS.5G		CTCN002040_N	CTCN002040_N		5G AWS	L2_2130MHz_03	16.05	20	3	TOP	FIBER	0						5070.2572		2			
	ANTENNA POSITION 3	PORT 3						5G CBAND			20	0	Integrated	FIBER	0									6	
ANTENNA POSITION 4	PORT 1	61171.A.700.4G1		CTL02040_7A_1	CTL02040_7A_1		LTE 700	BU6D_725MHz_04DT	13	20	4	TOP	FIBER	0						1475.7965		7			
	PORT 2	61171.A.850.5G		CTCN002040_N	CTCN002040_N		5G 850	BU6D_850MHz_04DT	13.1	20	4	TOP	FIBER	0					1000		7				
	PORT 3	61171.A.WCS.4		CTL02040_3A_1	CTL02040_3A_1		LTE WCS	BU6D_2350MHz_03DT	17.2	20	3	TOP	FIBER	0					1285.2866		8				

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		EPBO-654LH6-L2	ARR449 B77D+ARR6419 B77G STACKED	DMPNJR-BU6DA			
ANTENNA VENDOR		KWM	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		73X21 X6.3	30.4X15.9X8.1	71.2X20.7X7.7			
ANTENNA WEIGHT		72.9	81.6	79.4			
AZIMUTH		150	150	150			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		70	70	70			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built in	External			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
POU FOR TMA (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1	4478 B14		1	4449 B5B12 with another band		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)	1	RRUS-32 Bz					
RRH - AWS band (QTY/MODEL)	1	4426 B66					
RRH - WCS band (QTY/MODEL)				1	RRUS-32 B30		
Additional RRH #1 - any band (QTY/MODEL)			1		Integrated within: ARR6449 B77D		
Additional RRH #2 - any band (QTY/MODEL)			1		Integrated within: ARR6419 B77G		
RRH 7B_1 (QTY/MODEL)							
RRH 7B_2 (QTY/MODEL)							
RRH 7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1	Y Cables		
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Follow Antennas/RRHs positions as per PDs. -Replace DC Squid with DC-B.						
Local Market Note 2							
Local Market Note 3	1x6216x220Mx1+1x6630+DL+e+66-68+Xcable Cable						

PORT SPECIFIC FIELDS	PORT NUMBER	USED (CS/sg)	USED (Atol)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCP/A MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE (C/c/s/sg)		
ANTENNA POSITION 2	PORT 1	61171.B.700.4G 1mp2		CTL02040_7B_3	CTL02040_7B_3	F	LTE 700	L2_776MHz_05 DT	14.95	150	5	TOP	FIBER	0						2951.413		9			
	PORT 2	61171.B.1900.4 3mp1		CTL00840_9B_1	CTL00840_9B_1		LTE 1900	L2_1930MHz_02 DT	16.04	150	2	TOP	FIBER	0							4842.058		10		
	PORT 4	61171.B.1900.4 3mp4		CTL00840_9B_2	CTL00840_9B_2		LTE 1900	L2_1930MHz_02 DT	16.04	150	2	TOP	FIBER	0							4842.058		10		
	PORT 7	61171.B.AWS.4G 1mp4		CTL00840_9B_2	CTL00840_9B_2		LTE AWS	L2_2130MHz_02 DT	0	150	2	TOP	FIBER	0							5070.2572		10		
	PORT 8	61171.B.1900.5 3mp1		CTCN002040_N 002B_1	CTCN002040_N 002B_1		5G 1900	L2_1930MHz_02 DT	16.04	150	2	TOP	FIBER	0							4842.058		10		
	PORT 11	61171.B.AWS.5G 1mp1		CTCN002040_N 006B_1	CTCN002040_N 006B_1		5G AWS	L2_2130MHz_02 DT	0	150	2	TOP	FIBER	0							5070.2572		10		
	ANTENNA POSITION 3	PORT 3					5G CBAND			150	0	Integrated	FIBER	0									13		
	ANTENNA POSITION 4	PORT 1	61171.B.700.4G 1mp1		CTL02040_7B_1	CTL02040_7B_1		LTE 700	BU6D_725MHz_06DT	12.9	150	5	TOP	FIBER	0							1475.7065		15	
		PORT 2	61171.B.850.5G 1mp1		CTCN002040_N 002B_1	CTCN002040_N 002B_1		5G 850	BU6D_850MHz_06DT	13.1	150	5	TOP	FIBER	0							1000		15	
		PORT 3	61171.B.WCS.4 3mp1		CTL02040_9B_1	CTL02040_9B_1		LTE WCS	BU6D_2355MHz_02DT	16.8	150	2	TOP	FIBER	0							1285.2866		16	

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		EPBO-654LH6-L2	ARR649 B7D+ARR6419 B77G STACKED	DMPNJR-BU6DA			
ANTENNA VENDOR		KWM	Ericsson	CCI			
ANTENNA SIZE (H x W x D)		73X21 X6.3	30.4X15.9X8.1	71.2X20.7X7.7			
ANTENNA WEIGHT		72.8	81.6	79.4			
AZIMUTH		260	260	260			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		70	70	70			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0	0	0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)		Internal	Built in	External			
SURGE ARRESTOR (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMALNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
POU FOR TMAs (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1	4478 B14	1	4449 B5B12 with another band		
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1	RRUS-32 Bz				
RRH - AWS band (QTY/MODEL)		1	4426 B66				
RRH - WCS band (QTY/MODEL)				1	RRUS-32 B30		
Additional RRH #1 - any band (QTY/MODEL)			1	Integrated within: ARR6449 B77D			
Additional RRH #2 - any band (QTY/MODEL)			1	Integrated within: ARR6419 B77G			
RRH 7B_1 (QTY/MODEL)							
RRH 7B_2 (QTY/MODEL)							
RRH 7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)				1	Y Cables		
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	Follow Antennas/RRHs positions as per PDs. -Replace DC Squid with DC-B.						
Local Market Note 2							
Local Market Note 3	1x6216+2x20M+1x#632+DL+e+66-68+Xcable Cable						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CS/Sp)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TXRX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/IT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCP/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE Bc(=cng)	
ANTENNA POSITION 2	PORT 1	61171.C.700.4G		CTL02040_7C_3.F	CTL02040_7C_3.F		LTE 700	L2_776MHz_02 DT	14.78	260	2	TOP	FIBER	0						2951.413		17		
		61171.C.1900.4		CTL00840_9C_1	CTL00840_9C_1		LTE 1900	L2_1930MHz_02 DT	16.04	260	2	TOP	FIBER	0							4842.058		18	
	PORT 4	61171.C.1900.4		CTL00840_9C_2	CTL00840_9C_2		LTE 1900	L2_1930MHz_02 DT	16.04	260	2	TOP	FIBER	0							4842.058		18	
		61171.C.AWS.4		CTL00840_2C_2	CTL00840_2C_2		LTE AWS	L2_2130MHz_02 DT	15.99	260	2	TOP	FIBER	0							5070.2572		18	
	PORT 7	61171.C.1900.5		CTCN002040.N 002C_1	CTCN002040.N 002C_1		5G 1900	L2_1930MHz_02 DT	16.04	260	2	TOP	FIBER	0							4842.058		18	
		61171.C.AWS.5		CTCN002040.N 002C_1	CTCN002040.N 002C_1		5G AWS	L2_2130MHz_02 DT	15.99	260	2	TOP	FIBER	0							5070.2572		18	
	PORT 11	61171.C.700.4G		CTL02040_7C_1	CTL02040_7C_1		LTE 700	BU6D_725MHz_02DT	13.2	260	2	TOP	FIBER	0							1475.7065		23	
		61171.C.850.5G		CTCN002040.N 002C_1	CTCN002040.N 002C_1		5G 850	BU6D_850MHz_02DT	13.1	260	2	TOP	FIBER	0							1000		23	
	ANTENNA POSITION 4	PORT 3	61171.C.WCS.4		CTL02040_3C_1	CTL02040_3C_1		LTE WCS	BU6D_2355MHz_02DT	16.8	260	2	TOP	FIBER	0						1285.2866		24	
			61171.C.700.4G		CTL02040_7C_1	CTL02040_7C_1		LTE 700	BU6D_725MHz_02DT	13.2	260	2	TOP	FIBER	0						1475.7065		23	

January 14, 2022



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT2040
 FA Number: 10035317
 PACE Number: MRCTB051771
 PT Number: 2051A0ZBTQ
 Site Name: HAMDEN BENHAM ST
 Site Address: 265 Benham Street
 Hamden, CT 06514

To Whom It May Concern:

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

- (3) EPBQ-654L8H6-L2 Antennas (73.0"x21.0"x6.3" – Wt. = 73 lbs. /each)
- (3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)
- (3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (2) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs.) (Tower Mounted)
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(1) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs.) (Tower Mounted)**

*Proposed equipment shown in bold.

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

THIS PAGE CONTAINS CONFIDENTIAL, PROPRIETARY OR TRADE SECRET INFORMATION EXEMPT FROM DISCLOSURE UNDER APPLICABLE LAW.

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 125 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 1.08 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 0.185 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.063.
- 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 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mount is secured to the existing guyed tower with threaded rods and clamps tightened around the tower leg. HDG considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the (3) Proposed SitePro1 VFA12-WLL-30120 mounts **ARE CAPABLE** of supporting the proposed installation with the following modification.

- **HDG is under the assumption that proposed and relocated antennas are to be centered on the horizontal face members of the new mounts. (typ. of 4 per sector, total of 12).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	10	LC45	56%	PASS

Reference Documents:

- Fabrication drawings prepared by SitePro1 VFA12-WLL-30120, dated May 3, 2018

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

*Note: Existing mounts to be removed and replaced.



FIELD PHOTOS (CONT.):





HUDSON
Design Group LLC

Wind & Ice Calculations

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$K_z =$ **0.892** $z =$ 70 (ft)
 $z_g =$ 1200 (ft)
 $\alpha =$ 7.0

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

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

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

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

$K_{zt} =$ **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)

$z =$ 70

$z_s =$ 255 (Mean elevation of base of structure above sea level)

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

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

$K_e =$ 0.99 (from 2.6.8)

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

Category = **1**

2.6.10 Design Ice Thickness

Max Ice Thickness =

$t_i =$ 1.00 in

Importance Factor =

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

$K_{iz} =$ 1.08 (from Sec. 2.6.10)

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

$t_{iz} =$ 1.08 in

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

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

$h =$ 106 $G_h =$ 0.85

2.6.9.2 Guyed Masts $G_h =$ 0.85

2.6.9.3 Pole Structures $G_h =$ 1.1

2.6.9 Appurtenances $G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

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

$G_h =$ 1.35 $G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z =$	30.07
$q_{z(ice)} =$	4.81
$q_{z(30)} =$	1.73

$K_z =$	0.892 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	0.99 (from 2.6.8)
$K_d =$	0.85 (from Table 2-2)
$V_{max} =$	125 mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

Table 2-2

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

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



Determine Ca:

Table 2-9

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

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.08 in** Angle = **0 (deg)** Equivalent Angle = **180 (deg)**

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area</u>	<u>Aspect Ratio</u>	<u>Ca</u>	<u>Force (lbs)</u>	<u>Force (lbs) (w/ Ice)</u>	<u>Force (lbs) (30 mph)</u>
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.48	1.24	398	72	23
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	125	24	7
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	122	24	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	382	70	22
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	50	11	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	38	8	2
4426 B66 RRH	14.9	13.2	5.8	1.37	1.13	1.20	49	10	3
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	50	11	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	42	9	2
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	34	7	2
PL 11-1/4x5/8	0.6	12.0		0.05	0.05	2.00	3		
PL 3-1/2x5/8	0.6	12.0		0.05	0.05	2.00	3		
2" Pipe	2.4	12.0		0.20	0.20	1.20	7		
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	9		
5/8" Round Bar	0.6	12.0		0.05	0.05	1.20	2		
3/4" Round Bar	0.8	12.0		0.06	0.06	1.20	2		

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **30** (deg) Ice Thickness = **1.08** 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)
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	398	149	336
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	125	60	109
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	122	82	112
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	382	169	329
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	58
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	38	61	43
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	42
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	58
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	46

WIND LOADS WITH ICE:

EPBQ-654L8H6-L2 Antenna	75.2	23.2	8.5	12.09	4.41	3.25	8.89	1.23	1.46	72	31	62
AIR6419 Antenna	33.2	18.3	9.5	4.20	2.18	1.82	3.51	1.20	1.24	24	13	21
AIR6449 Antenna	32.8	18.1	12.8	4.11	2.90	1.81	2.57	1.20	1.20	24	17	22
DMP65R-BU6DA Antenna	73.4	22.9	9.9	11.64	5.02	3.21	7.44	1.23	1.41	69	34	60
RRUS-32 B2 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	12
B14 4478 RRH (Side)	20.3	10.5	15.6	1.47	2.19	1.94	1.30	1.20	1.20	8	13	10
4426 B66 RRH	17.1	15.4	8.0	1.82	0.94	1.11	2.14	1.20	1.20	10	5	9
RRUS-32 B30 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	12
4449 B5/B12 RRH (Side)	20.1	11.6	15.4	1.61	2.14	1.74	1.31	1.20	1.20	9	12	10

WIND LOADS AT 30 MPH:

EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	23	9	19
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	7	3	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	7	5	6
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	22	10	19
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	2
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	2	3	3

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **60** (deg) Ice Thickness = **1.08** 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)
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	398	149	211
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	125	60	77
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	122	82	92
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	382	169	222
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	74
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	38	61	55
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	29
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	74
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	55

WIND LOADS WITH ICE:

EPBQ-654L8H6-L2 Antenna	75.2	23.2	8.5	12.09	4.41	3.25	8.89	1.23	1.46	72	31	41
AIR6419 Antenna	33.2	18.3	9.5	4.20	2.18	1.82	3.51	1.20	1.24	24	13	16
AIR6449 Antenna	32.8	18.1	12.8	4.11	2.90	1.81	2.57	1.20	1.20	24	17	19
DMP65R-BU6DA Antenna	73.4	22.9	9.9	11.64	5.02	3.21	7.44	1.23	1.41	69	34	43
RRUS-32 B2 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	15
B14 4478 RRH (Side)	20.3	10.5	15.6	1.47	2.19	1.94	1.30	1.20	1.20	8	13	12
4426 B66 RRH	17.1	15.4	8.0	1.82	0.94	1.11	2.14	1.20	1.20	10	5	7
RRUS-32 B30 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	15
4449 B5/B12 RRH (Side)	20.1	11.6	15.4	1.61	2.14	1.74	1.31	1.20	1.20	9	12	12

WIND LOADS AT 30 MPH:

EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	23	9	12
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	7	3	4
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	7	5	5
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	22	10	13
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	4
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	2
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	2	3	3

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **90** (deg) Ice Thickness = **1.08** in. Equivalent Angle = **270** (deg)

WIND LOADS WITH NO ICE:

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area (normal)</u>	<u>Flat Area (side)</u>	<u>Ratio (normal)</u>	<u>Ratio (side)</u>	<u>Ca (normal)</u>	<u>Ca (side)</u>	<u>Force (lbs)</u>	<u>Force (lbs)</u>	<u>Force (lbs)</u>
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	398	149	149
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	125	60	60
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	122	82	82
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	382	169	169
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	82
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	38	61	61
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	22
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	82
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	59

WIND LOADS WITH ICE:

EPBQ-654L8H6-L2 Antenna	75.2	23.2	8.5	12.09	4.41	3.25	8.89	1.23	1.46	72	31	31
AIR6419 Antenna	33.2	18.3	9.5	4.20	2.18	1.82	3.51	1.20	1.24	24	13	13
AIR6449 Antenna	32.8	18.1	12.8	4.11	2.90	1.81	2.57	1.20	1.20	24	17	17
DMP65R-BU6DA Antenna	73.4	22.9	9.9	11.64	5.02	3.21	7.44	1.23	1.41	69	34	34
RRUS-32 B2 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	17
B14 4478 RRH (Side)	20.3	10.5	15.6	1.47	2.19	1.94	1.30	1.20	1.20	8	13	13
4426 B66 RRH	17.1	15.4	8.0	1.82	0.94	1.11	2.14	1.20	1.20	10	5	5
RRUS-32 B30 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	17
4449 B5/B12 RRH (Side)	20.1	11.6	15.4	1.61	2.14	1.74	1.31	1.20	1.20	9	12	12

WIND LOADS AT 30 MPH:

EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	23	9	9
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	7	3	3
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	7	5	5
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	22	10	10
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	5
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	4
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	1
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	5
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	2	3	3

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **120** (deg) Ice Thickness = **1.08** 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)
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	398	149	211
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	125	60	77
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	122	82	92
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	382	169	222
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	74
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	38	61	55
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	29
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	74
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	55

WIND LOADS WITH ICE:

EPBQ-654L8H6-L2 Antenna	75.2	23.2	8.5	12.09	4.41	3.25	8.89	1.23	1.46	72	31	41
AIR6419 Antenna	33.2	18.3	9.5	4.20	2.18	1.82	3.51	1.20	1.24	24	13	16
AIR6449 Antenna	32.8	18.1	12.8	4.11	2.90	1.81	2.57	1.20	1.20	24	17	19
DMP65R-BU6DA Antenna	73.4	22.9	9.9	11.64	5.02	3.21	7.44	1.23	1.41	69	34	43
RRUS-32 B2 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	15
B14 4478 RRH (Side)	20.3	10.5	15.6	1.47	2.19	1.94	1.30	1.20	1.20	8	13	12
4426 B66 RRH	17.1	15.4	8.0	1.82	0.94	1.11	2.14	1.20	1.20	10	5	7
RRUS-32 B30 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	15
4449 B5/B12 RRH (Side)	20.1	11.6	15.4	1.61	2.14	1.74	1.31	1.20	1.20	9	12	12

WIND LOADS AT 30 MPH:

EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	23	9	12
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	7	3	4
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	7	5	5
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	22	10	13
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	4
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	2
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	2	3	3

Date: 1/12/2022
 Project Name: HAMDEN BENHAM ST
 Project No.: CT2040
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.08 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)
EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	398	149	336
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	125	60	109
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	122	82	112
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	382	169	329
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	58
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	38	61	43
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	49	22	42
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	50	82	58
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	42	59	46

WIND LOADS WITH ICE:

EPBQ-654L8H6-L2 Antenna	75.2	23.2	8.5	12.09	4.41	3.25	8.89	1.23	1.46	72	31	62
AIR6419 Antenna	33.2	18.3	9.5	4.20	2.18	1.82	3.51	1.20	1.24	24	13	21
AIR6449 Antenna	32.8	18.1	12.8	4.11	2.90	1.81	2.57	1.20	1.20	24	17	22
DMP65R-BU6DA Antenna	73.4	22.9	9.9	11.64	5.02	3.21	7.44	1.23	1.41	69	34	60
RRUS-32 B2 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	12
B14 4478 RRH (Side)	20.3	10.5	15.6	1.47	2.19	1.94	1.30	1.20	1.20	8	13	10
4426 B66 RRH	17.1	15.4	8.0	1.82	0.94	1.11	2.14	1.20	1.20	10	5	9
RRUS-32 B30 RRH (Side)	29.4	9.2	14.3	1.87	2.91	3.21	2.06	1.23	1.20	11	17	12
4449 B5/B12 RRH (Side)	20.1	11.6	15.4	1.61	2.14	1.74	1.31	1.20	1.20	9	12	10

WIND LOADS AT 30 MPH:

EPBQ-654L8H6-L2 Antenna	73.0	21.0	6.3	10.65	3.19	3.48	11.59	1.24	1.55	23	9	19
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	7	3	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	7	5	6
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	22	10	19
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	2	4	3
4426 B66 RRH	14.9	13.2	5.8	1.37	0.60	1.13	2.57	1.20	1.20	3	1	2
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	3	5	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	2	3	3

Date: 1/12/2022

Project Name: HAMDEN BENHAM ST

Project No.: CT2040

Designed By: KSBM Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.08 in.
Density of ice: 56 pcf

EPBQ-654L8H6-L2 Antenna

Weight of ice based on total radial SF area:
Height (in): 73.0
Width (in): 21.0
Depth (in): 6.3
Total weight of ice on object: 185 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 258 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:
Height (in): 31.0
Width (in): 16.1
Depth (in): 7.3
Total weight of ice on object: 64 lbs
Weight of object: 66.0 lbs
Combined weight of ice and object: 130 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: 68 lbs
Weight of object: 82.0 lbs
Combined weight of ice and object: 150 lbs

DMP65R-BU6DA 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: 181 lbs
Weight of object: 80.0 lbs
Combined weight of ice and object: 261 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 45 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 105 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:
Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3
Total weight of ice on object: 34 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 94 lbs

4426 B66 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 5.8
Total weight of ice on object: 25 lbs
Weight of object: 49.0 lbs
Combined weight of ice and object: 74 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 45 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 105 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: 34 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 107 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 24.0
Diameter(in): 9.7
Total weight of ice on object: 28 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 61 lbs

2" pipe

Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 5 plf

2-1/2" pipe

Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 5 plf

3/4" Round Bar

Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 2 plf

5/8" Round Bar

Per foot weight of ice:
diameter (in): 0.63
Per foot weight of ice on object: 2 plf

PL 11-1/4x5/8

Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.63
Per foot weight of ice on object: 16 plf

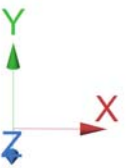
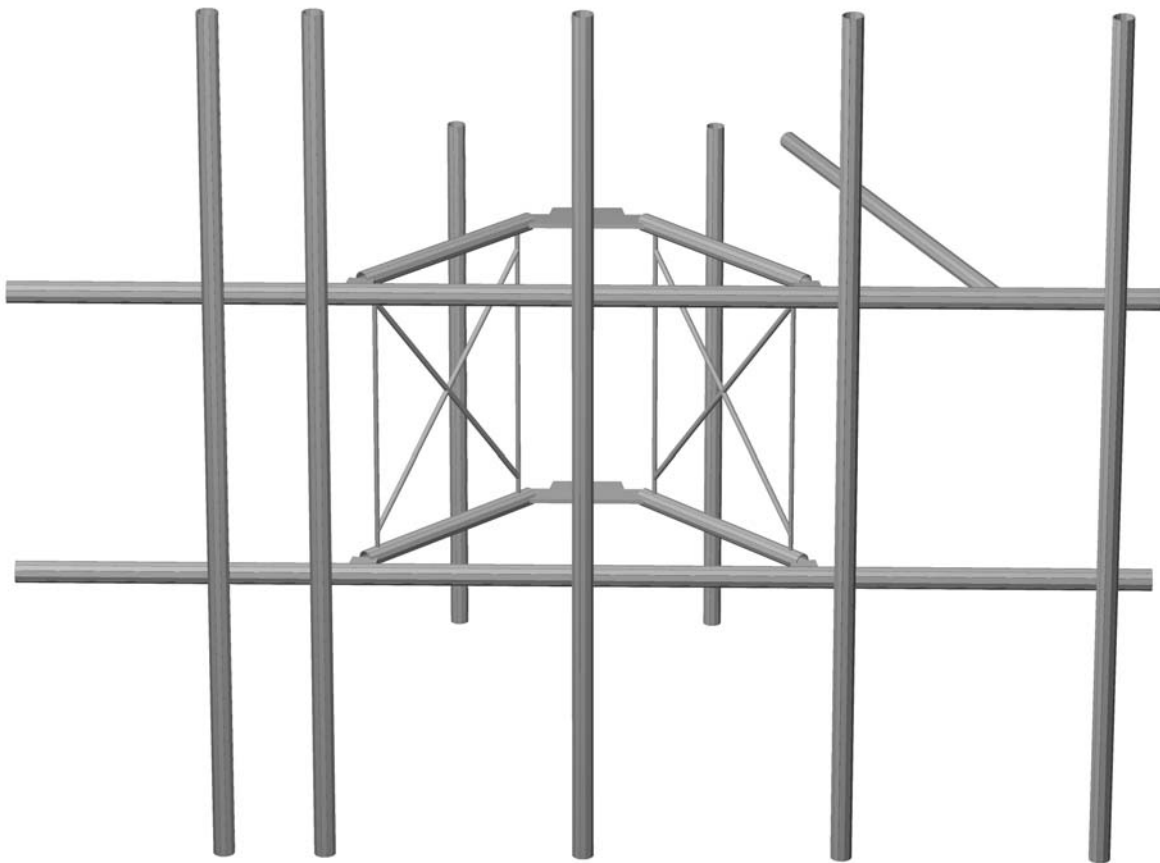
PL 3-1/2x5/8

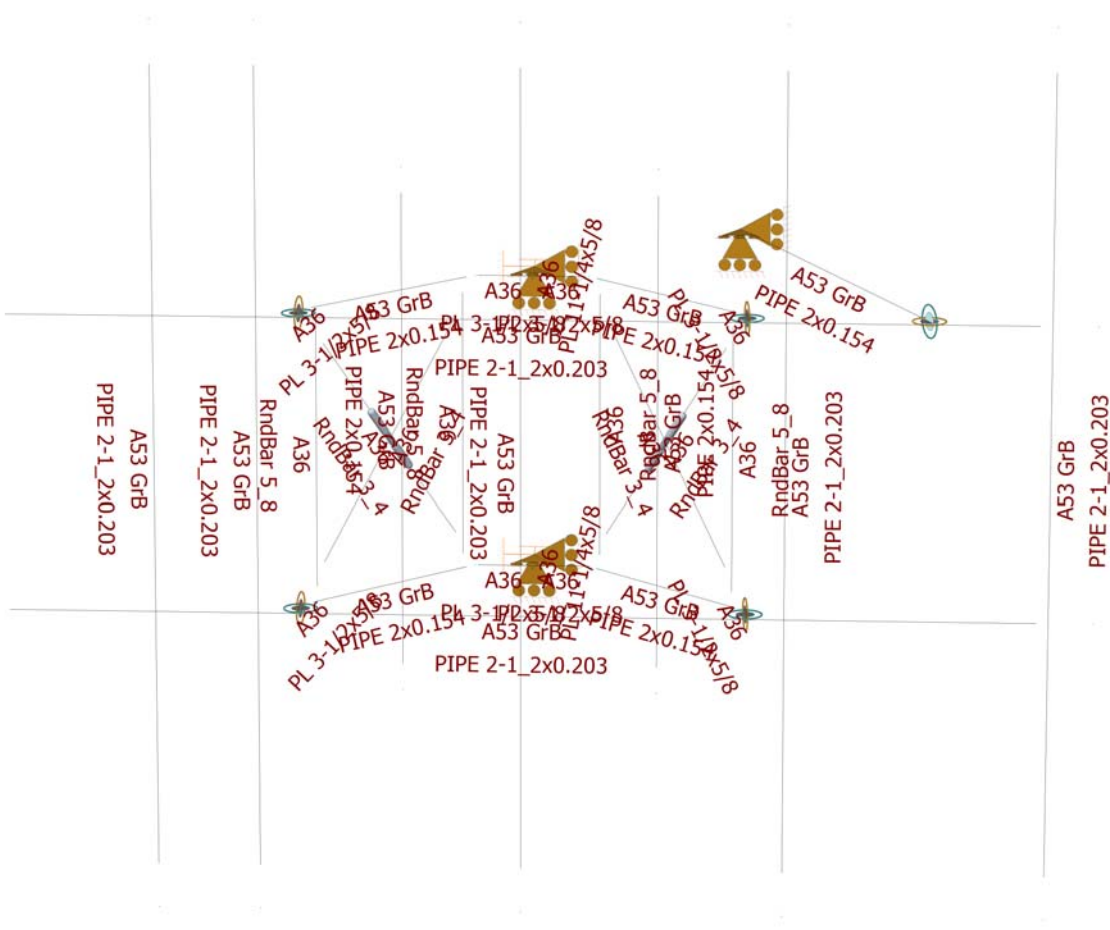
Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.63
Per foot weight of ice on object: 6 plf

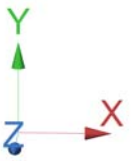
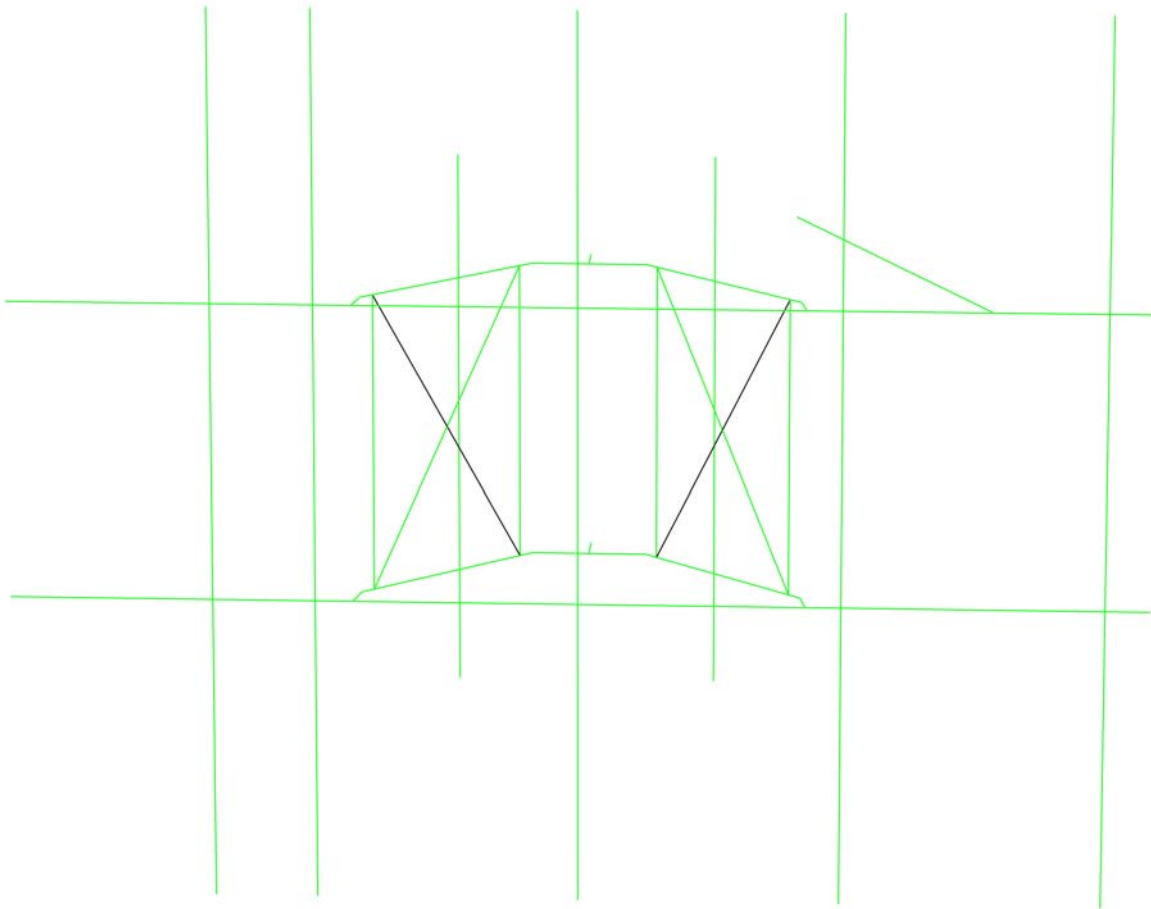


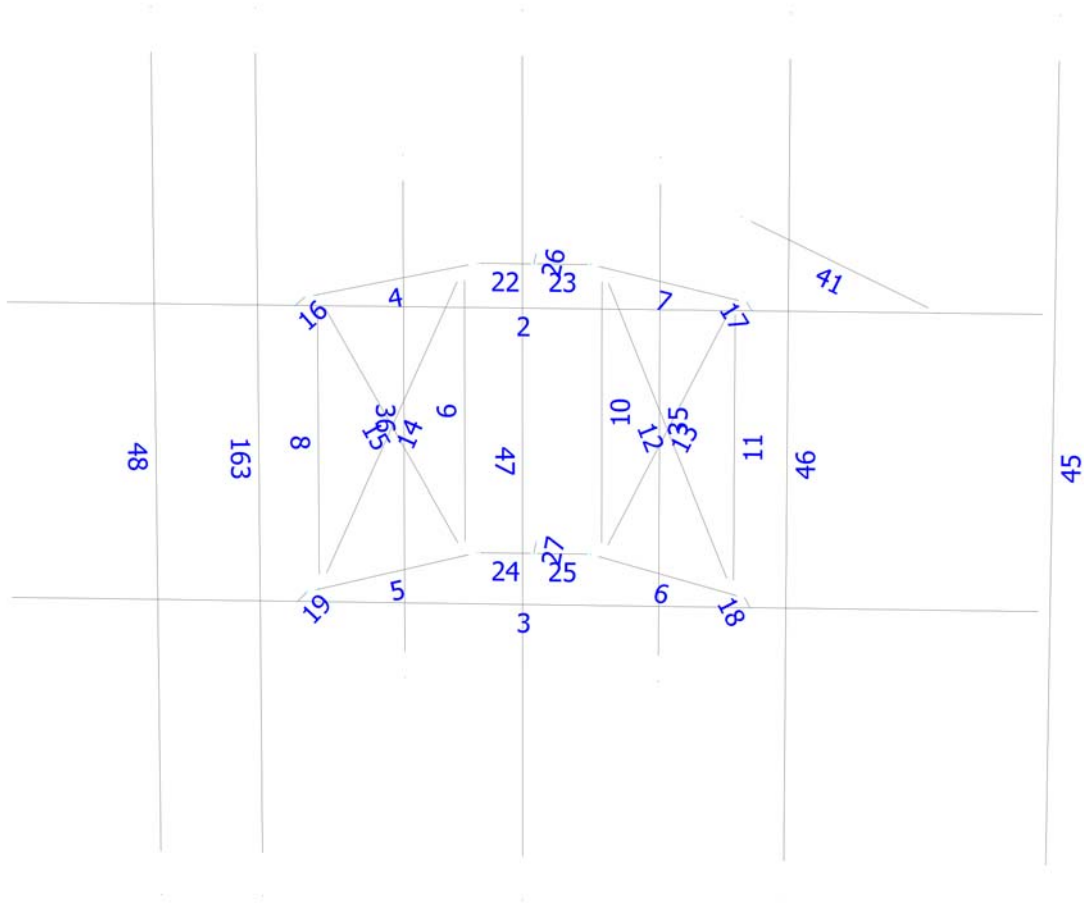
HUDSON
Design Group LLC

**Mount Calculations
(Proposed Conditions)**









Load data

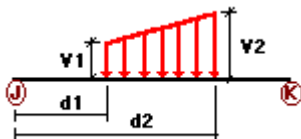
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

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

Distributed force on members



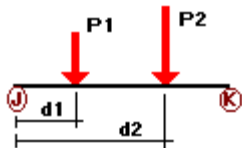
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	2	z	-0.009	0.00	0.00	No	0.00	No
	3	z	-0.009	0.00	0.00	No	0.00	No
	4	z	-0.007	0.00	0.00	No	0.00	No
	5	z	-0.007	0.00	0.00	No	0.00	No
	6	z	-0.007	0.00	0.00	No	0.00	No
	7	z	-0.007	0.00	0.00	No	0.00	No
	8	z	-0.002	0.00	0.00	No	0.00	No
	9	z	-0.002	0.00	0.00	No	0.00	No
	10	z	-0.002	0.00	0.00	No	0.00	No
	11	z	-0.002	0.00	0.00	No	0.00	No
	12	z	-0.002	0.00	0.00	No	0.00	No
	13	z	-0.002	0.00	0.00	No	0.00	No
	14	z	-0.002	0.00	0.00	No	0.00	No
	15	z	-0.002	0.00	0.00	No	0.00	No
	16	z	-0.003	0.00	0.00	No	0.00	No
	17	z	-0.003	0.00	0.00	No	0.00	No
	18	z	-0.003	0.00	0.00	No	0.00	No
	19	z	-0.003	0.00	0.00	No	0.00	No
	22	z	-0.003	0.00	0.00	No	0.00	No
	23	z	-0.003	0.00	0.00	No	0.00	No
	24	z	-0.003	0.00	0.00	No	0.00	No
	25	z	-0.003	0.00	0.00	No	0.00	No
	26	z	-0.003	0.00	0.00	No	0.00	No
	27	z	-0.003	0.00	0.00	No	0.00	No
	36	z	-0.007	0.00	0.00	No	0.00	No
	35	z	-0.007	0.00	0.00	No	0.00	No
	41	z	-0.007	0.00	0.00	No	0.00	No
	45	z	-0.009	-0.009	0.00	No	2.00	No
		z	-0.009	-0.009	8.00	No	10.00	No
	48	z	-0.009	-0.009	0.00	No	2.00	No
		z	-0.009	-0.009	8.00	No	10.00	No
	47	z	-0.009	-0.009	0.00	No	1.75	No
		z	-0.009	-0.009	8.25	No	10.00	No
	46	z	-0.009	0.00	0.00	No	0.00	No
	163	z	-0.009	0.00	0.00	No	0.00	No
W30	2	z	-0.009	0.00	0.00	No	0.00	No
	3	z	-0.009	0.00	0.00	No	0.00	No
	4	z	-0.007	0.00	0.00	No	0.00	No
	5	z	-0.007	0.00	0.00	No	0.00	No
	6	z	-0.007	0.00	0.00	No	0.00	No
	7	z	-0.007	0.00	0.00	No	0.00	No
	8	z	-0.002	0.00	0.00	No	0.00	No
	9	z	-0.002	0.00	0.00	No	0.00	No
	10	z	-0.002	0.00	0.00	No	0.00	No
	11	z	-0.002	0.00	0.00	No	0.00	No
	12	z	-0.002	0.00	0.00	No	0.00	No
	13	z	-0.002	0.00	0.00	No	0.00	No
	14	z	-0.002	0.00	0.00	No	0.00	No
	15	z	-0.002	0.00	0.00	No	0.00	No
	16	z	-0.003	0.00	0.00	No	0.00	No
	17	z	-0.003	0.00	0.00	No	0.00	No
	18	z	-0.003	0.00	0.00	No	0.00	No
	19	z	-0.003	0.00	0.00	No	0.00	No
	22	z	-0.003	0.00	0.00	No	0.00	No
	23	z	-0.003	0.00	0.00	No	0.00	No
	24	z	-0.003	0.00	0.00	No	0.00	No
	25	z	-0.003	0.00	0.00	No	0.00	No
	26	z	-0.003	0.00	0.00	No	0.00	No
	27	z	-0.003	0.00	0.00	No	0.00	No
	36	z	-0.007	0.00	0.00	No	0.00	No

		35	z	-0.007	0.00	0.00	No	0.00	No
		41	z	-0.007	0.00	0.00	No	0.00	No
		45	z	-0.009	-0.009	0.00	No	2.00	No
			z	-0.009	-0.009	8.00	No	10.00	No
		48	z	-0.009	-0.009	0.00	No	2.00	No
			z	-0.009	-0.009	8.00	No	10.00	No
		47	z	-0.009	-0.009	0.00	No	1.75	No
			z	-0.009	-0.009	8.25	No	10.00	No
		46	z	-0.009	0.00	0.00	No	0.00	No
		163	z	-0.009	0.00	0.00	No	0.00	No
W60		2	x	-0.009	0.00	0.00	No	0.00	No
		3	x	-0.009	0.00	0.00	No	0.00	No
		4	x	-0.007	0.00	0.00	No	0.00	No
		5	x	-0.007	0.00	0.00	No	0.00	No
		6	x	-0.007	0.00	0.00	No	0.00	No
		7	x	-0.007	0.00	0.00	No	0.00	No
		8	x	-0.002	0.00	0.00	No	0.00	No
		9	x	-0.002	0.00	0.00	No	0.00	No
		10	x	-0.002	0.00	0.00	No	0.00	No
		11	x	-0.002	0.00	0.00	No	0.00	No
		12	x	-0.002	0.00	0.00	No	0.00	No
		13	x	-0.002	0.00	0.00	No	0.00	No
		14	x	-0.002	0.00	0.00	No	0.00	No
		15	x	-0.002	0.00	0.00	No	0.00	No
		16	x	-0.003	0.00	0.00	No	0.00	No
		17	x	-0.003	0.00	0.00	No	0.00	No
		18	x	-0.003	0.00	0.00	No	0.00	No
		19	x	-0.003	0.00	0.00	No	0.00	No
		22	x	-0.003	0.00	0.00	No	0.00	No
		23	x	-0.003	0.00	0.00	No	0.00	No
		24	x	-0.003	0.00	0.00	No	0.00	No
		25	x	-0.003	0.00	0.00	No	0.00	No
		26	x	-0.003	0.00	0.00	No	0.00	No
		27	x	-0.003	0.00	0.00	No	0.00	No
		36	x	-0.007	0.00	0.00	No	0.00	No
		35	x	-0.007	0.00	0.00	No	0.00	No
		41	x	-0.007	0.00	0.00	No	0.00	No
		45	x	-0.009	0.00	0.00	No	0.00	No
		48	x	-0.009	0.00	0.00	No	0.00	No
		47	x	-0.009	0.00	0.00	No	0.00	No
		46	x	-0.009	0.00	0.00	No	0.00	No
		163	x	-0.009	0.00	0.00	No	0.00	No
W90		4	x	-0.007	0.00	0.00	No	0.00	No
		5	x	-0.007	0.00	0.00	No	0.00	No
		6	x	-0.007	0.00	0.00	No	0.00	No
		7	x	-0.007	0.00	0.00	No	0.00	No
		8	x	-0.002	0.00	0.00	No	0.00	No
		9	x	-0.002	0.00	0.00	No	0.00	No
		10	x	-0.002	0.00	0.00	No	0.00	No
		11	x	-0.002	0.00	0.00	No	0.00	No
		12	x	-0.002	0.00	0.00	No	0.00	No
		13	x	-0.002	0.00	0.00	No	0.00	No
		14	x	-0.002	0.00	0.00	No	0.00	No
		15	x	-0.002	0.00	0.00	No	0.00	No
		16	x	-0.003	0.00	0.00	No	0.00	No
		17	x	-0.003	0.00	0.00	No	0.00	No
		18	x	-0.003	0.00	0.00	No	0.00	No
		19	x	-0.003	0.00	0.00	No	0.00	No
		22	x	-0.003	0.00	0.00	No	0.00	No
		23	x	-0.003	0.00	0.00	No	0.00	No

	24	x	-0.003	0.00	0.00	No	0.00	No
	25	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.003	0.00	0.00	No	0.00	No
	27	x	-0.003	0.00	0.00	No	0.00	No
	36	x	-0.007	0.00	0.00	No	0.00	No
	35	x	-0.007	0.00	0.00	No	0.00	No
	41	x	-0.007	0.00	0.00	No	0.00	No
	45	x	-0.009	0.00	0.00	No	0.00	No
	48	x	-0.009	0.00	0.00	No	0.00	No
	47	x	-0.009	0.00	0.00	No	0.00	No
	46	x	-0.009	0.00	0.00	No	0.00	No
	163	x	-0.009	0.00	0.00	No	0.00	No
W120	2	x	-0.009	0.00	0.00	No	0.00	No
	3	x	-0.009	0.00	0.00	No	0.00	No
	4	x	-0.007	0.00	0.00	No	0.00	No
	5	x	-0.007	0.00	0.00	No	0.00	No
	6	x	-0.007	0.00	0.00	No	0.00	No
	7	x	-0.007	0.00	0.00	No	0.00	No
	8	x	-0.002	0.00	0.00	No	0.00	No
	9	x	-0.002	0.00	0.00	No	0.00	No
	10	x	-0.002	0.00	0.00	No	0.00	No
	11	x	-0.002	0.00	0.00	No	0.00	No
	12	x	-0.002	0.00	0.00	No	0.00	No
	13	x	-0.002	0.00	0.00	No	0.00	No
	14	x	-0.002	0.00	0.00	No	0.00	No
	15	x	-0.002	0.00	0.00	No	0.00	No
	16	x	-0.003	0.00	0.00	No	0.00	No
	17	x	-0.003	0.00	0.00	No	0.00	No
	18	x	-0.003	0.00	0.00	No	0.00	No
	19	x	-0.003	0.00	0.00	No	0.00	No
	22	x	-0.003	0.00	0.00	No	0.00	No
	23	x	-0.003	0.00	0.00	No	0.00	No
	24	x	-0.003	0.00	0.00	No	0.00	No
	25	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.003	0.00	0.00	No	0.00	No
	27	x	-0.003	0.00	0.00	No	0.00	No
	36	x	-0.007	0.00	0.00	No	0.00	No
	35	x	-0.007	0.00	0.00	No	0.00	No
	41	x	-0.007	0.00	0.00	No	0.00	No
	45	x	-0.009	0.00	0.00	No	0.00	No
	48	x	-0.009	0.00	0.00	No	0.00	No
	47	x	-0.009	0.00	0.00	No	0.00	No
	46	x	-0.009	0.00	0.00	No	0.00	No
	163	x	-0.009	0.00	0.00	No	0.00	No
W150	2	z	0.009	0.00	0.00	No	0.00	No
	3	z	0.009	0.00	0.00	No	0.00	No
	4	z	0.007	0.00	0.00	No	0.00	No
	5	z	0.007	0.00	0.00	No	0.00	No
	6	z	0.007	0.00	0.00	No	0.00	No
	7	z	0.007	0.00	0.00	No	0.00	No
	8	z	0.002	0.00	0.00	No	0.00	No
	9	z	0.002	0.00	0.00	No	0.00	No
	10	z	0.002	0.00	0.00	No	0.00	No
	11	z	0.002	0.00	0.00	No	0.00	No
	12	z	0.002	0.00	0.00	No	0.00	No
	13	z	0.002	0.00	0.00	No	0.00	No
	14	z	0.002	0.00	0.00	No	0.00	No
	15	z	0.002	0.00	0.00	No	0.00	No
	16	z	0.003	0.00	0.00	No	0.00	No
	17	z	0.003	0.00	0.00	No	0.00	No

	18	z	0.003	0.00	0.00	No	0.00	No
	19	z	0.003	0.00	0.00	No	0.00	No
	22	z	0.003	0.00	0.00	No	0.00	No
	23	z	0.003	0.00	0.00	No	0.00	No
	24	z	0.003	0.00	0.00	No	0.00	No
	25	z	0.003	0.00	0.00	No	0.00	No
	26	z	0.003	0.00	0.00	No	0.00	No
	27	z	0.003	0.00	0.00	No	0.00	No
	36	z	0.007	0.00	0.00	No	0.00	No
	35	z	0.007	0.00	0.00	No	0.00	No
	41	z	0.007	0.00	0.00	No	0.00	No
	45	z	0.009	0.00	0.00	No	0.00	No
	48	z	0.009	0.00	0.00	No	0.00	No
	47	z	0.009	0.00	0.00	No	0.00	No
	46	z	0.009	0.00	0.00	No	0.00	No
	163	z	0.009	0.00	0.00	No	0.00	No
Di	2	y	-0.005	0.00	0.00	No	0.00	No
	3	y	-0.005	0.00	0.00	No	0.00	No
	4	y	-0.005	0.00	0.00	No	0.00	No
	5	y	-0.005	0.00	0.00	No	0.00	No
	6	y	-0.005	0.00	0.00	No	0.00	No
	7	y	-0.005	0.00	0.00	No	0.00	No
	8	y	-0.002	0.00	0.00	No	0.00	No
	9	y	-0.002	0.00	0.00	No	0.00	No
	10	y	-0.002	0.00	0.00	No	0.00	No
	11	y	-0.002	0.00	0.00	No	0.00	No
	12	y	-0.002	0.00	0.00	No	0.00	No
	13	y	-0.002	0.00	0.00	No	0.00	No
	14	y	-0.002	0.00	0.00	No	0.00	No
	15	y	-0.002	0.00	0.00	No	0.00	No
	16	y	-0.006	0.00	0.00	No	0.00	No
	17	y	-0.006	0.00	0.00	No	0.00	No
	18	y	-0.006	0.00	0.00	No	0.00	No
	19	y	-0.006	0.00	0.00	No	0.00	No
	22	y	-0.006	0.00	0.00	No	0.00	No
	23	y	-0.006	0.00	0.00	No	0.00	No
	24	y	-0.006	0.00	0.00	No	0.00	No
	25	y	-0.006	0.00	0.00	No	0.00	No
	26	y	-0.016	0.00	0.00	No	0.00	No
	27	y	-0.016	0.00	0.00	No	0.00	No
	36	y	-0.005	0.00	0.00	No	0.00	No
	35	y	-0.005	0.00	0.00	No	0.00	No
	41	y	-0.005	0.00	0.00	No	0.00	No
	45	y	-0.005	0.00	0.00	No	0.00	No
	48	y	-0.005	0.00	0.00	No	0.00	No
	47	y	-0.005	0.00	0.00	No	0.00	No
	46	y	-0.005	0.00	0.00	No	0.00	No
	163	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	36	y	-0.06	3.00	No
		y	-0.073	3.00	No
	35	y	-0.06	3.00	No
		y	-0.06	3.00	No
	45	y	-0.037	2.50	No
		y	-0.037	7.50	No
	48	y	-0.04	2.50	No
		y	-0.04	7.50	No
	47	y	-0.033	2.25	No
		y	-0.033	4.00	No
		y	-0.041	6.00	No
		y	-0.041	7.75	No
	46	y	-0.049	5.00	No
	Wo	36	z	-0.05	3.00
z			-0.042	3.00	No
35		z	-0.05	3.00	No
		z	-0.038	3.00	No
45		z	-0.199	2.50	No
		z	-0.199	7.50	No
48		z	-0.192	2.50	No
		z	-0.192	7.50	No
47		z	-0.063	2.25	No
		z	-0.063	4.00	No
		z	-0.061	6.00	No
		z	-0.061	7.75	No
46		z	-0.049	5.00	No
W30		36	3	-0.058	3.00
	3		-0.046	3.00	No
	35	3	-0.058	3.00	No
		3	-0.043	3.00	No
	45	3	-0.168	2.50	No
		3	-0.168	7.50	No
	48	3	-0.165	2.50	No
		3	-0.165	7.50	No
	47	3	-0.055	2.25	No
		3	-0.055	4.00	No
		3	-0.057	6.00	No
		3	-0.057	7.75	No
	46	3	-0.042	5.00	No
	W60	36	3	-0.074	3.00
3			-0.055	3.00	No
35		3	-0.074	3.00	No
		3	-0.055	3.00	No
45		3	-0.106	2.50	No
		3	-0.106	7.50	No
48		3	-0.112	2.50	No
		3	-0.112	7.50	No
47		3	-0.039	2.25	No
		3	-0.039	4.00	No
		3	-0.047	6.00	No
		3	-0.047	7.75	No
46		3	-0.029	5.00	No
W90		36	x	-0.082	3.00
	x		-0.059	3.00	No
	35	x	-0.082	3.00	No
		x	-0.061	3.00	No
	45	x	-0.075	2.50	No
		x	-0.075	7.50	No
	48	x	-0.085	2.50	No
		x	-0.085	7.50	No

	47	x	-0.031	2.25	No
		x	-0.031	4.00	No
		x	-0.042	6.00	No
		x	-0.042	7.75	No
	46	x	-0.022	5.00	No
W120	36	2	-0.074	3.00	No
		2	-0.055	3.00	No
	35	2	-0.074	3.00	No
		2	-0.055	3.00	No
	45	2	-0.106	2.50	No
		2	-0.106	7.50	No
	48	2	-0.112	2.50	No
		2	-0.112	7.50	No
	47	2	-0.039	2.25	No
		2	-0.039	4.00	No
		2	-0.047	6.00	No
		2	-0.047	7.75	No
	46	2	-0.029	5.00	No
W150	36	2	-0.058	3.00	No
		2	-0.046	3.00	No
	35	2	-0.058	3.00	No
		2	-0.043	3.00	No
	45	2	-0.168	2.50	No
		2	-0.168	7.50	No
	48	2	-0.165	2.50	No
		2	-0.165	7.50	No
	47	2	-0.055	2.25	No
		2	-0.055	4.00	No
		2	-0.057	6.00	No
		2	-0.057	7.75	No
	46	2	-0.042	5.00	No
Di	36	y	-0.045	3.00	No
		y	-0.034	3.00	No
	35	y	-0.045	3.00	No
		y	-0.034	3.00	No
	45	y	-0.093	2.50	No
		y	-0.093	7.50	No
	48	y	-0.091	2.50	No
		y	-0.091	7.50	No
	47	y	-0.032	2.25	No
		y	-0.032	4.00	No
		y	-0.034	6.00	No
		y	-0.034	7.75	No
	46	y	-0.025	5.00	No
W10	36	z	-0.011	3.00	No
		z	-0.009	3.00	No
	35	z	-0.011	3.00	No
		z	-0.008	3.00	No
	45	z	-0.037	2.50	No
		z	-0.037	7.50	No
	48	z	-0.035	2.50	No
		z	-0.035	7.50	No
	47	z	-0.013	2.25	No
		z	-0.013	4.00	No
		z	-0.012	6.00	No
		z	-0.012	7.75	No
	46	z	-0.01	5.00	No
W130	36	3	-0.012	3.00	No
		3	-0.01	3.00	No
	35	3	-0.012	3.00	No

		3	-0.01	3.00	No
	45	3	-0.031	2.50	No
		3	-0.031	7.50	No
	48	3	-0.031	2.50	No
		3	-0.031	7.50	No
	47	3	-0.011	2.25	No
		3	-0.011	4.00	No
		3	-0.011	6.00	No
		3	-0.011	7.75	No
WI60	46	3	-0.009	5.00	No
	36	3	-0.015	3.00	No
		3	-0.012	3.00	No
	35	3	-0.015	3.00	No
		3	-0.012	3.00	No
	45	3	-0.021	2.50	No
		3	-0.021	7.50	No
	48	3	-0.022	2.50	No
		3	-0.022	7.50	No
	47	3	-0.008	2.25	No
		3	-0.008	4.00	No
		3	-0.01	6.00	No
		3	-0.01	7.75	No
WI90	46	3	-0.007	5.00	No
	36	x	-0.017	3.00	No
		x	-0.012	3.00	No
	35	x	-0.017	3.00	No
		x	-0.013	3.00	No
	45	x	-0.016	2.50	No
		x	-0.016	7.50	No
	48	x	-0.018	2.50	No
		x	-0.018	7.50	No
	47	x	-0.007	2.25	No
		x	-0.007	4.00	No
		x	-0.009	6.00	No
		x	-0.009	7.75	No
WI120	46	x	-0.005	5.00	No
	36	2	-0.015	3.00	No
		2	-0.012	3.00	No
	35	2	-0.015	3.00	No
		2	-0.012	3.00	No
	45	2	-0.021	2.50	No
		2	-0.021	7.50	No
	48	2	-0.022	2.50	No
		2	-0.022	7.50	No
	47	2	-0.008	2.25	No
		2	-0.008	4.00	No
		2	-0.01	6.00	No
		2	-0.01	7.75	No
WI150	46	2	-0.007	5.00	No
	36	2	-0.012	3.00	No
		2	-0.01	3.00	No
	35	2	-0.012	3.00	No
		2	-0.01	3.00	No
	45	2	-0.031	2.50	No
		2	-0.031	7.50	No
	48	2	-0.031	2.50	No
		2	-0.031	7.50	No
	47	2	-0.011	2.25	No
		2	-0.011	4.00	No
		2	-0.011	6.00	No

		2	-0.011	7.75	No
	46	2	-0.009	5.00	No
WL0	36	z	-0.003	3.00	No
		z	-0.002	3.00	No
	35	z	-0.003	3.00	No
		z	-0.002	3.00	No
	45	z	-0.012	2.50	No
		z	-0.012	7.50	No
	48	z	-0.012	2.50	No
		z	-0.012	7.50	No
	47	z	-0.004	2.25	No
		z	-0.004	4.00	No
		z	-0.004	6.00	No
		z	-0.004	7.75	No
	46	z	-0.003	5.00	No
WL30	36	3	-0.003	3.00	No
		3	-0.003	3.00	No
	35	3	-0.003	3.00	No
		3	-0.003	3.00	No
	45	3	-0.01	2.50	No
		3	-0.01	7.50	No
	48	3	-0.01	2.50	No
		3	-0.01	7.50	No
	47	3	-0.004	2.25	No
		3	-0.004	4.00	No
		3	-0.004	6.00	No
		3	-0.004	7.75	No
	46	3	-0.002	5.00	No
WL60	36	3	-0.004	3.00	No
		3	-0.003	3.00	No
	35	3	-0.004	3.00	No
		3	-0.003	3.00	No
	45	3	-0.007	2.50	No
		3	-0.007	7.50	No
	48	3	-0.007	2.50	No
		3	-0.007	7.50	No
	47	3	-0.003	2.25	No
		3	-0.003	4.00	No
		3	-0.003	6.00	No
		3	-0.003	7.75	No
	46	3	-0.002	5.00	No
WL90	36	x	-0.005	3.00	No
		x	-0.003	3.00	No
	35	x	-0.005	3.00	No
		x	-0.004	3.00	No
	45	x	-0.005	2.50	No
		x	-0.005	7.50	No
	48	x	-0.005	2.50	No
		x	-0.005	7.50	No
	47	x	-0.002	2.25	No
		x	-0.002	4.00	No
		x	-0.003	6.00	No
		x	-0.003	7.75	No
	46	x	-0.001	5.00	No
WL120	36	2	-0.004	3.00	No
		2	-0.003	3.00	No
	35	2	-0.004	3.00	No
		2	-0.003	3.00	No
	45	2	-0.007	2.50	No
		2	-0.007	7.50	No

	48	2	-0.007	2.50	No
		2	-0.007	7.50	No
	47	2	-0.003	2.25	No
		2	-0.003	4.00	No
		2	-0.003	6.00	No
		2	-0.003	7.75	No
	46	2	-0.002	5.00	No
WL150	36	2	-0.003	3.00	No
		2	-0.003	3.00	No
	35	2	-0.003	3.00	No
		2	-0.003	3.00	No
	45	2	-0.01	2.50	No
		2	-0.01	7.50	No
	48	2	-0.01	2.50	No
		2	-0.01	7.50	No
	47	2	-0.004	2.25	No
		2	-0.004	4.00	No
		2	-0.004	6.00	No
		2	-0.004	7.75	No
	46	2	-0.002	5.00	No
LL1	2	y	-0.25	50.00	Yes
LL2	2	y	-0.25	100.00	Yes
LL3	2	y	-0.25	0.00	Yes
LLa1	45	y	-0.50	50.00	Yes
LLa2	47	y	-0.50	50.00	Yes
LLa3	48	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00

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

Earthquake (Dynamic analysis only)

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

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+Wl0
LC26=1.2D+Di+Wl30
LC27=1.2D+Di+Wl60
LC28=1.2D+Di+Wl90
LC29=1.2D+Di+Wl120
LC30=1.2D+Di+Wl150
LC31=1.2D+Di-Wl0
LC32=1.2D+Di-Wl30
LC33=1.2D+Di-Wl60
LC34=1.2D+Di-Wl90
LC35=1.2D+Di-Wl120
LC36=1.2D+Di-Wl150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+Wl0+1.6LLa1
LC41=1.2D+Wl30+1.6LLa1
LC42=1.2D+Wl60+1.6LLa1
LC43=1.2D+Wl90+1.6LLa1
LC44=1.2D+Wl120+1.6LLa1
LC45=1.2D+Wl150+1.6LLa1
LC46=1.2D-Wl0+1.6LLa1
LC47=1.2D-Wl30+1.6LLa1
LC48=1.2D-Wl60+1.6LLa1
LC49=1.2D-Wl90+1.6LLa1
LC50=1.2D-Wl120+1.6LLa1
LC51=1.2D-Wl150+1.6LLa1
LC52=1.2D+Wl0+1.6LLa2
LC53=1.2D+Wl30+1.6LLa2
LC54=1.2D+Wl60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
 LC56=1.2D+WL120+1.6LLa2
 LC57=1.2D+WL150+1.6LLa2
 LC58=1.2D-WL0+1.6LLa2
 LC59=1.2D-WL30+1.6LLa2
 LC60=1.2D-WL60+1.6LLa2
 LC61=1.2D-WL90+1.6LLa2
 LC62=1.2D-WL120+1.6LLa2
 LC63=1.2D-WL150+1.6LLa2
 LC64=1.2D+WL0+1.6LLa3
 LC65=1.2D+WL30+1.6LLa3
 LC66=1.2D+WL60+1.6LLa3
 LC67=1.2D+WL90+1.6LLa3
 LC68=1.2D+WL120+1.6LLa3
 LC69=1.2D+WL150+1.6LLa3
 LC70=1.2D-WL0+1.6LLa3
 LC71=1.2D-WL30+1.6LLa3
 LC72=1.2D-WL60+1.6LLa3
 LC73=1.2D-WL90+1.6LLa3
 LC74=1.2D-WL120+1.6LLa3
 LC75=1.2D-WL150+1.6LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	PIPE 2-1_2x0.203	2	LC3 at 70.14%	0.44	OK	
		3	LC3 at 70.31%	0.30	OK	
		45	LC51 at 33.33%	0.24	OK	
		48	LC39 at 33.33%	0.18	OK	
		47	LC4 at 33.33%	0.07	OK	
		46	LC51 at 33.33%	0.17	OK	
		163	LC69 at 33.33%	0.10	OK	
	PIPE 2x0.154	4	LC71 at 93.75%	0.25	OK	
		5	LC64 at 93.75%	0.20	OK	
		6	LC41 at 93.75%	0.25	OK	
		7	LC47 at 93.75%	0.31	OK	
		36	LC67 at 22.92%	0.11	OK	
		35	LC49 at 22.92%	0.13	OK	
		41	LC11 at 100.00%	0.05	OK	
	PL 11-1/4x5/8	26	LC32 at 100.00%	0.22	OK	
		27	LC31 at 100.00%	0.17	OK	
	PL 3-1/2x5/8	16	LC75 at 100.00%	0.26	OK	
		17	LC47 at 100.00%	0.33	OK	
		18	LC41 at 100.00%	0.41	OK	
		19	LC75 at 100.00%	0.33	OK	
		22	LC71 at 100.00%	0.43	OK	
		23	LC47 at 0.00%	0.51	OK	
		24	LC75 at 100.00%	0.42	OK	
		25	LC41 at 0.00%	0.51	OK	
	RndBar 3_4	12	LC47 at 0.00%	0.17	OK	
		13	LC41 at 0.00%	0.18	With warnings	
		14	LC71 at 100.00%	0.14	OK	
		15	LC75 at 100.00%	0.15	With warnings	
	RndBar 5_8	8	LC64 at 87.50%	0.41	OK	
		9	LC75 at 87.50%	0.45	OK	
		10	LC45 at 87.50%	0.56	OK	
		11	LC41 at 87.50%	0.50	OK	

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
1	0.00	0.00	2.94E-06	0
2	-0.6362	0.00	0.4783	0
3	0.00	-3.3333	2.94E-06	0
4	-0.6362	-3.3333	0.4783	0
5	0.6362	-3.3333	0.4783	0
6	0.6362	0.00	0.4783	0
11	-6.25	-3.3333	2.63	0
13	-2.4126	0.00	2.2374	0
14	-2.4126	-3.3333	2.2374	0
15	2.4126	-3.3333	2.2374	0
16	2.4126	0.00	2.2374	0
17	-2.2835	0.00	2.1096	0
18	-2.2835	-3.3333	2.1096	0
19	-0.7653	0.00	0.6062	0
20	-0.7653	-3.3333	0.6062	0
21	0.7653	0.00	0.6062	0
22	0.7653	-3.3333	0.6062	0
23	2.2835	0.00	2.1096	0
24	2.2835	-3.3333	2.1096	0
25	-2.4792	0.00	2.63	0
26	2.4792	0.00	2.63	0
27	2.4792	-3.3333	2.63	0
28	-2.4792	-3.3333	2.63	0

31	0.00	0.00	0.4783	0
32	0.00	-3.3333	0.4783	0
45	-1.4213	-4.6667	0.9573	0
46	1.4213	-4.6667	0.9573	0
47	-1.4213	1.3333	0.9573	0
48	1.4213	1.3333	0.9573	0
57	4.50	0.00	2.63	0
194	5.75	-6.6667	2.83	0
195	5.75	3.3333	2.83	0
196	6.25	0.00	2.63	0
197	6.25	-3.3333	2.63	0
200	-6.25	0.00	2.63	0
356	-4.00	-6.6667	2.83	0
357	-4.00	3.3333	2.83	0
469	2.25	0.00	-2.04	0
471	0.00	3.3333	2.83	0
472	0.00	-6.6667	2.83	0
478	2.875	3.3333	2.83	0
479	2.875	-6.6667	2.83	0
484	-2.875	3.3333	2.83	0
485	-2.875	-6.6667	2.83	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	0	1
3	1	1	1	1	0	1
469	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
2	200	196		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
3	11	197		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
4	13	2		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	14	4		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	15	5		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	16	6		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	17	18		RndBar 5_8	A36	0.00	0.00	0.00
9	19	20		RndBar 5_8	A36	0.00	0.00	0.00
10	21	22		RndBar 5_8	A36	0.00	0.00	0.00
11	23	24		RndBar 5_8	A36	0.00	0.00	0.00
12	21	24		RndBar 3_4	A36	0.00	0.00	0.00
13	22	23		RndBar 3_4	A36	0.00	0.00	0.00
14	18	19		RndBar 3_4	A36	0.00	0.00	0.00
15	17	20		RndBar 3_4	A36	0.00	0.00	0.00
16	13	25		PL 3-1/2x5/8	A36	0.00	0.00	0.00
17	16	26		PL 3-1/2x5/8	A36	0.00	0.00	0.00
18	15	27		PL 3-1/2x5/8	A36	0.00	0.00	0.00
19	14	28		PL 3-1/2x5/8	A36	0.00	0.00	0.00

22	2	31	PL 3-1/2x5/8	A36	0.00	0.00	0.00
23	31	6	PL 3-1/2x5/8	A36	0.00	0.00	0.00
24	4	32	PL 3-1/2x5/8	A36	0.00	0.00	0.00
25	32	5	PL 3-1/2x5/8	A36	0.00	0.00	0.00
26	31	1	PL 11-1/4x5/8	A36	11.25	9.25	0.00
27	32	3	PL 11-1/4x5/8	A36	11.25	9.25	0.00
36	47	45	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
35	48	46	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
41	469	57	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
45	195	194	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
48	357	356	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
47	471	472	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
46	478	479	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
163	484	485	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

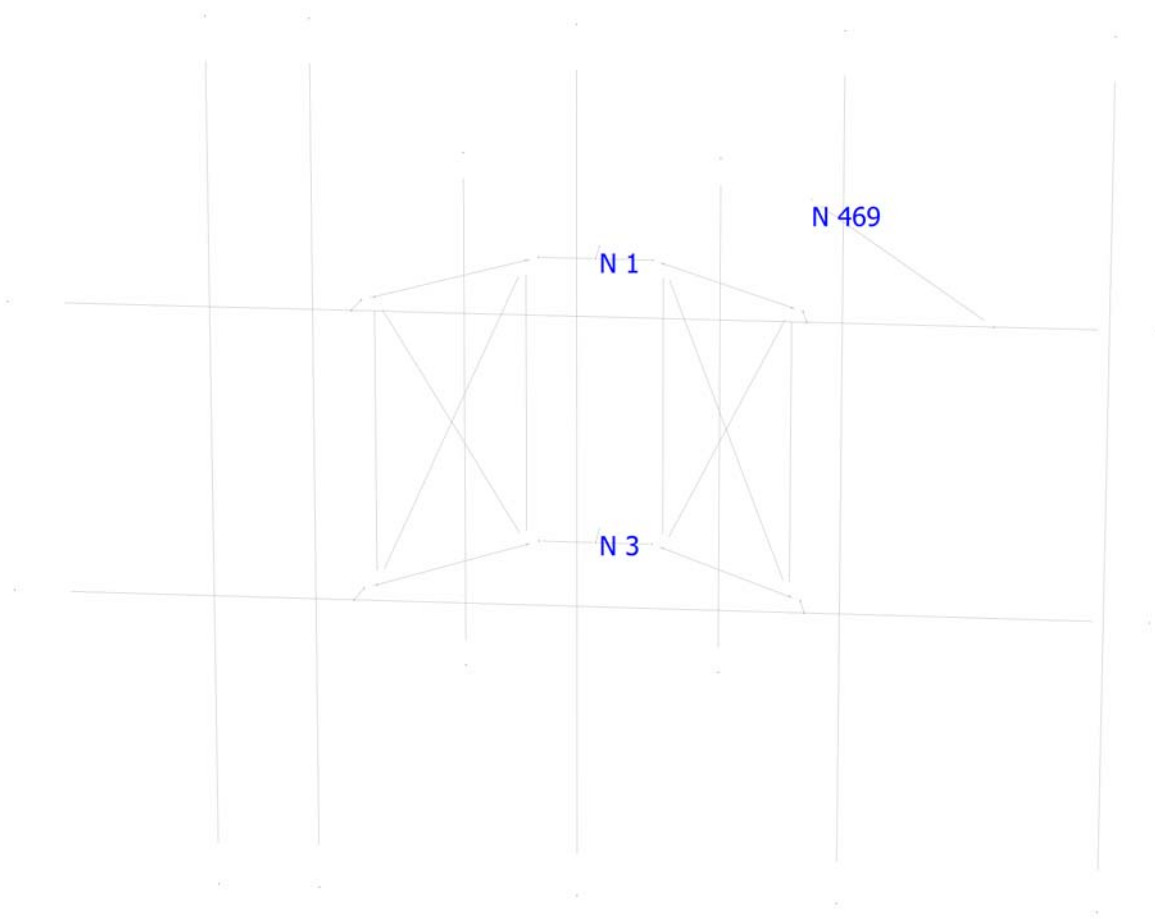
Member	Rotation [Deg]	Axes23	NX	NY	NZ
8	0.00	2	0.00	0.00	1.00
9	0.00	2	0.00	0.00	1.00
10	0.00	2	0.00	0.00	1.00
11	0.00	2	0.00	0.00	1.00
16	90.00	0	0.00	0.00	0.00
17	90.00	0	0.00	0.00	0.00
18	90.00	0	0.00	0.00	0.00
19	90.00	0	0.00	0.00	0.00
22	90.00	0	0.00	0.00	0.00
23	90.00	0	0.00	0.00	0.00
24	90.00	0	0.00	0.00	0.00
25	90.00	0	0.00	0.00	0.00
26	90.00	0	0.00	0.00	0.00
27	90.00	0	0.00	0.00	0.00
36	315.00	0	0.7071	0.00	-0.7071
35	315.00	0	0.7071	0.00	-0.7071
45	315.00	0	0.7071	0.00	-0.7071
48	315.00	0	0.7071	0.00	-0.7071
47	315.00	0	0.7071	0.00	-0.7071
46	315.00	0	0.7071	0.00	-0.7071
163	315.00	0	0.7071	0.00	-0.7071

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
12	0.00	-3.50	0.00	0.00	3.50	0.00
13	0.00	3.50	0.00	0.00	-3.50	0.00
14	0.00	3.50	0.00	0.00	-3.50	0.00
15	0.00	-3.50	0.00	0.00	3.50	0.00
26	0.00	-0.625	0.00	0.00	-0.625	0.00
27	0.00	-0.625	0.00	0.00	-0.625	0.00

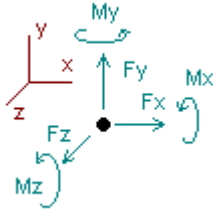
Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
13	0	0	0	0	0	0	0	0	0	0	Tension only
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	1	1	0	0	0	0	0	0	0	0	Full
17	1	1	0	0	0	0	0	0	0	0	Full
18	1	1	0	0	0	0	0	0	0	0	Full
19	1	1	0	0	0	0	0	0	0	0	Full
41	0	0	0	0	1	1	0	0	0	0	Full



Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition LC1=1.2D+W0						
1	-0.27469	0.76295	-0.06891	-0.28994	0.00000	-0.00091
3	0.12888	0.67033	1.73498	-0.29551	0.00000	0.00819
469	0.14581	0.01022	0.31115	0.00000	0.00000	0.00000
SUM	0.00000	1.44351	1.97722	-0.58546	0.00000	0.00729
Condition LC2=1.2D+W30						
1	0.50799	0.77785	0.43888	-0.30318	0.00000	0.05115
3	0.50437	0.65465	1.51047	-0.28548	0.00000	0.04487
469	-0.20838	0.01101	-0.42716	0.00000	0.00000	0.00000
SUM	0.80398	1.44351	1.52220	-0.58866	0.00000	0.09602
Condition LC3=1.2D+W60						
1	0.96431	0.78516	0.39302	-0.30382	0.00000	0.07842
3	0.73008	0.64683	1.08151	-0.27422	0.00000	0.06457
469	-0.38626	0.01152	-0.84167	0.00000	0.00000	0.00000
SUM	1.30813	1.44351	0.63286	-0.57805	0.00000	0.14299
Condition LC4=1.2D+W90						
1	1.10546	0.78957	0.23032	-0.29748	0.00000	0.08916
3	0.79994	0.64220	0.76130	-0.27094	0.00000	0.07285
469	-0.45814	0.01173	-0.99163	0.00000	0.00000	0.00000
SUM	1.44727	1.44351	0.00000	-0.56842	0.00000	0.16201
Condition LC5=1.2D+W120						
1	1.05331	0.79156	-0.05885	-0.28814	0.00000	0.08935
3	0.72500	0.64019	0.44156	-0.26863	0.00000	0.07171
469	-0.47019	0.01176	-1.01557	0.00000	0.00000	0.00000
SUM	1.30813	1.44351	-0.63286	-0.55677	0.00000	0.16106

Condition **LC6=1.2D+W150**

1	0.71319	0.78763	-0.77547	-0.27285	0.00000	0.07511
3	0.49343	0.64438	-0.06771	-0.26067	0.00000	0.06025
469	-0.40264	0.01151	-0.84552	0.00000	0.00000	0.00000
SUM	0.80398	1.44351	-1.68870	-0.53353	0.00000	0.13535

Condition **LC7=1.2D-Wo**

1	0.03676	0.77756	-1.45747	-0.25616	0.00000	0.03639
3	0.11167	0.65511	-0.20457	-0.26323	0.00000	0.03235
469	-0.14843	0.01084	-0.31518	0.00000	0.00000	0.00000
SUM	0.00000	1.44351	-1.97722	-0.51938	0.00000	0.06874

Condition **LC8=1.2D-W30**

1	-0.74633	0.76270	-1.96019	-0.24285	0.00000	-0.01534
3	-0.26395	0.67067	0.02028	-0.27326	0.00000	-0.00401
469	0.20630	0.01013	0.41770	0.00000	0.00000	0.00000
SUM	-0.80398	1.44351	-1.52220	-0.51611	0.00000	-0.01934

Condition **LC9=1.2D-W60**

1	-1.20744	0.75509	-1.91737	-0.24198	0.00000	-0.04305
3	-0.48957	0.67861	0.44969	-0.28465	0.00000	-0.02395
469	0.38888	0.00982	0.83482	0.00000	0.00000	0.00000
SUM	-1.30813	1.44351	-0.63286	-0.52663	0.00000	-0.06701

Condition **LC10=1.2D-W90**

1	-1.35143	0.75046	-1.75880	-0.24816	0.00000	-0.05419
3	-0.55932	0.68333	0.77002	-0.28800	0.00000	-0.03250
469	0.46349	0.00972	0.98878	0.00000	0.00000	0.00000
SUM	-1.44727	1.44351	0.00000	-0.53616	0.00000	-0.08670

Condition **LC11=1.2D-W120**

1	-1.30033	0.74836	-1.47354	-0.25746	0.00000	-0.05466
3	-0.48426	0.68544	1.08968	-0.29034	0.00000	-0.03159
469	0.47646	0.00970	1.01672	0.00000	0.00000	0.00000
SUM	-1.30813	1.44351	0.63286	-0.54780	0.00000	-0.08625

Condition **LC12=1.2D-W150**

1	-0.95780	0.75242	-0.75895	-0.27291	0.00000	-0.04041
3	-0.25260	0.68129	1.59852	-0.29822	0.00000	-0.02021
469	0.40642	0.00981	0.84913	0.00000	0.00000	0.00000
SUM	-0.80398	1.44351	1.68870	-0.57113	0.00000	-0.06062

Condition **LC13=0.9D+Wo**

1	-0.24475	0.57009	0.12267	-0.22156	0.00000	-0.00536
3	0.09897	0.50487	1.54343	-0.22561	0.00000	0.00310
469	0.14578	0.00767	0.31112	0.00000	0.00000	0.00000
SUM	0.00000	1.08263	1.97722	-0.44717	0.00000	-0.00226

Condition LC14=0.9D+W30						
1	0.53740	0.58524	0.63034	-0.23484	0.00000	0.04657
3	0.47490	0.48913	1.31892	-0.21557	0.00000	0.03968
469	-0.20833	0.00827	-0.42706	0.00000	0.00000	0.00000

SUM	0.80398	1.08263	1.52220	-0.45041	0.00000	0.08625
Condition LC15=0.9D+W60						
1	0.99348	0.59268	0.58435	-0.23553	0.00000	0.07379
3	0.70081	0.48128	0.89002	-0.20434	0.00000	0.05933
469	-0.38616	0.00868	-0.84151	0.00000	0.00000	0.00000

SUM	1.30813	1.08263	0.63286	-0.43987	0.00000	0.13312
Condition LC16=0.9D+W90						
1	1.13462	0.59713	0.42154	-0.22922	0.00000	0.08452
3	0.77067	0.47665	0.56989	-0.20108	0.00000	0.06760
469	-0.45802	0.00885	-0.99143	0.00000	0.00000	0.00000

SUM	1.44727	1.08263	0.00000	-0.43030	0.00000	0.15213
Condition LC17=0.9D+W120						
1	1.08258	0.59911	0.13228	-0.21990	0.00000	0.08475
3	0.69562	0.47465	0.25022	-0.19880	0.00000	0.06649
469	-0.47007	0.00887	-1.01537	0.00000	0.00000	0.00000

SUM	1.30813	1.08263	-0.63286	-0.41870	0.00000	0.15124
Condition LC18=0.9D+W150						
1	0.74283	0.59509	-0.58449	-0.20466	0.00000	0.07060
3	0.46369	0.47887	-0.25888	-0.19090	0.00000	0.05511
469	-0.40254	0.00866	-0.84534	0.00000	0.00000	0.00000

SUM	0.80398	1.08263	-1.68870	-0.39556	0.00000	0.12570
Condition LC19=0.9D-W0						
1	0.06697	0.58483	-1.26652	-0.18796	0.00000	0.03202
3	0.08140	0.48967	-0.39562	-0.19349	0.00000	0.02732
469	-0.14838	0.00813	-0.31508	0.00000	0.00000	0.00000

SUM	0.00000	1.08263	-1.97722	-0.38144	0.00000	0.05935
Condition LC20=0.9D-W30						
1	-0.71560	0.56972	-1.76912	-0.17461	0.00000	-0.01959
3	-0.29466	0.50530	-0.17077	-0.20352	0.00000	-0.00893
469	0.20628	0.00761	0.41768	0.00000	0.00000	0.00000

SUM	-0.80398	1.08263	-1.52220	-0.37813	0.00000	-0.02852
Condition LC21=0.9D-W60						
1	-1.17646	0.56198	-1.72616	-0.17369	0.00000	-0.04725
3	-0.52048	0.51325	0.25858	-0.21488	0.00000	-0.02883
469	0.38882	0.00740	0.83472	0.00000	0.00000	0.00000

SUM	-1.30813	1.08263	-0.63286	-0.38857	0.00000	-0.07608

Condition LC22=0.9D-W90						
1	-1.32044	0.55731	-1.56749	-0.17984	0.00000	-0.05838
3	-0.59023	0.51798	0.57884	-0.21822	0.00000	-0.03738
469	0.46340	0.00735	0.98866	0.00000	0.00000	0.00000

SUM	-1.44727	1.08263	0.00000	-0.39805	0.00000	-0.09576
Condition LC23=0.9D-W120						
1	-1.26945	0.55521	-1.28214	-0.18911	0.00000	-0.05888
3	-0.51505	0.52009	0.89842	-0.22053	0.00000	-0.03649
469	0.47637	0.00733	1.01658	0.00000	0.00000	0.00000

SUM	-1.30813	1.08263	0.63286	-0.40963	0.00000	-0.09537
Condition LC24=0.9D-W150						
1	-0.92728	0.55936	-0.56740	-0.20452	0.00000	-0.04472
3	-0.28304	0.51589	1.40710	-0.22835	0.00000	-0.02518
469	0.40634	0.00739	0.84901	0.00000	0.00000	0.00000

SUM	-0.80398	1.08263	1.68870	-0.43287	0.00000	-0.06991
Condition LC25=1.2D+Di+W10						
1	-0.27618	1.27115	-1.22563	-0.45067	0.00000	0.03444
3	0.25055	1.09013	1.41543	-0.46141	0.00000	0.04109
469	0.02563	0.02338	0.05320	0.00000	0.00000	0.00000

SUM	0.00000	2.38465	0.24300	-0.91208	0.00000	0.07552
Condition LC26=1.2D+Di+W130						
1	-0.12345	1.27388	-1.12682	-0.45319	0.00000	0.04455
3	0.32300	1.08713	1.37299	-0.45953	0.00000	0.04821
469	-0.04328	0.02365	-0.08990	0.00000	0.00000	0.00000

SUM	0.15627	2.38465	0.15627	-0.91272	0.00000	0.09276
Condition LC27=1.2D+Di+W160						
1	-0.14733	1.27349	-1.15902	-0.45265	0.00000	0.04343
3	0.31184	1.08754	1.36131	-0.45927	0.00000	0.04756
469	-0.03511	0.02362	-0.07289	0.00000	0.00000	0.00000

SUM	0.12940	2.38465	0.12940	-0.91192	0.00000	0.09099
Condition LC28=1.2D+Di+W190						
1	-0.11150	1.27451	-1.18561	-0.45147	0.00000	0.04602
3	0.32841	1.08646	1.29548	-0.45856	0.00000	0.04949
469	-0.05291	0.02369	-0.10986	0.00000	0.00000	0.00000

SUM	0.16400	2.38465	0.00000	-0.91003	0.00000	0.09550
Condition LC29=1.2D+Di+W120						
1	-0.12823	1.27485	-1.24886	-0.44943	0.00000	0.04578
3	0.31078	1.08611	1.22979	-0.45812	0.00000	0.04910
469	-0.05315	0.02369	-0.11033	0.00000	0.00000	0.00000

SUM	0.12940	2.38465	-0.12940	-0.90754	0.00000	0.09488

Condition LC30=1.2D+Di+WI150						
1	-0.09346	1.27549	-1.22551	-0.45025	0.00000	0.04824
3	0.32133	1.08539	1.21789	-0.45739	0.00000	0.05062
469	-0.07160	0.02377	-0.14865	0.00000	0.00000	0.00000

SUM	0.15627	2.38465	-0.15627	-0.90764	0.00000	0.09886
Condition LC31=1.2D+Di-WI0						
1	-0.22145	1.27379	-1.36552	-0.44689	0.00000	0.04119
3	0.24743	1.08728	1.17641	-0.45754	0.00000	0.04549
469	-0.02598	0.02358	-0.05389	0.00000	0.00000	0.00000

SUM	0.00000	2.38465	-0.24300	-0.90443	0.00000	0.08668
Condition LC32=1.2D+Di-WI30						
1	-0.37423	1.27106	-1.46422	-0.44437	0.00000	0.03108
3	0.17497	1.09028	1.21886	-0.45942	0.00000	0.03838
469	0.04298	0.02331	0.08908	0.00000	0.00000	0.00000

SUM	-0.15627	2.38465	-0.15627	-0.90379	0.00000	0.06946
Condition LC33=1.2D+Di-WI60						
1	-0.35034	1.27145	-1.43208	-0.44491	0.00000	0.03220
3	0.18614	1.08987	1.23053	-0.45968	0.00000	0.03902
469	0.03480	0.02334	0.07215	0.00000	0.00000	0.00000

SUM	-0.12940	2.38465	-0.12940	-0.90459	0.00000	0.07122
Condition LC34=1.2D+Di-WI90						
1	-0.38624	1.27043	-1.40558	-0.44609	0.00000	0.02960
3	0.16957	1.09096	1.29637	-0.46039	0.00000	0.03709
469	0.05267	0.02327	0.10920	0.00000	0.00000	0.00000

SUM	-0.16400	2.38465	0.00000	-0.90648	0.00000	0.06669
Condition LC35=1.2D+Di-WI120						
1	-0.36952	1.27008	-1.34240	-0.44813	0.00000	0.02983
3	0.18720	1.09130	1.36206	-0.46084	0.00000	0.03747
469	0.05292	0.02327	0.10974	0.00000	0.00000	0.00000

SUM	-0.12940	2.38465	0.12940	-0.90897	0.00000	0.06730
Condition LC36=1.2D+Di-WI150						
1	-0.40434	1.26943	-1.36577	-0.44730	0.00000	0.02737
3	0.17665	1.09202	1.37396	-0.46157	0.00000	0.03595
469	0.07142	0.02320	0.14808	0.00000	0.00000	0.00000

SUM	-0.15627	2.38465	0.15627	-0.90887	0.00000	0.06331
Condition LC37=1.2D+1.6LL1						
1	-0.12040	0.98876	-1.03339	-0.35071	0.00000	0.01757
3	0.12043	0.84423	1.03347	-0.35971	0.00000	0.02019
469	-0.00004	0.01052	-0.00008	0.00000	0.00000	0.00000

SUM	0.00000	1.84351	0.00000	-0.71041	0.00000	0.03776

Condition **LC38=1.2D+1.6LL2**

1	-0.79767	0.99161	-1.03465	-0.34730	0.00000	0.13152
3	0.79820	0.84138	1.03574	-0.35460	0.00000	0.14782
469	-0.00053	0.01052	-0.00109	0.00000	0.00000	0.00000
SUM	0.00000	1.84351	0.00000	-0.70190	0.00000	0.27934

Condition **LC39=1.2D+1.6LL3**

1	0.55717	0.99126	-1.03662	-0.34722	0.00000	-0.09600
3	-0.55757	0.84173	1.03580	-0.35460	0.00000	-0.10719
469	0.00039	0.01052	0.00082	0.00000	0.00000	0.00000
SUM	0.00000	1.84351	0.00000	-0.70182	0.00000	-0.20318

Condition **LC40=1.2D+WL0+1.6LLa1**

1	-1.37728	1.21130	-1.32908	-0.42119	0.00000	0.22121
3	1.37074	1.02175	1.39252	-0.43237	0.00000	0.24996
469	0.00654	0.01046	0.01356	0.00000	0.00000	0.00000
SUM	0.00000	2.24351	0.07700	-0.85356	0.00000	0.47117

Condition **LC41=1.2D+WL30+1.6LLa1**

1	-1.32887	1.21211	-1.29755	-0.42198	0.00000	0.22443
3	1.39366	1.02076	1.37876	-0.43173	0.00000	0.25221
469	-0.01529	0.01065	-0.03172	0.00000	0.00000	0.00000
SUM	0.04950	2.24351	0.04950	-0.85371	0.00000	0.47664

Condition **LC42=1.2D+WL60+1.6LLa1**

1	-1.33764	1.21199	-1.30974	-0.42176	0.00000	0.22388
3	1.38905	1.02090	1.37385	-0.43165	0.00000	0.25184
469	-0.01181	0.01062	-0.02450	0.00000	0.00000	0.00000
SUM	0.03960	2.24351	0.03960	-0.85340	0.00000	0.47572

Condition **LC43=1.2D+WL90+1.6LLa1**

1	-1.32936	1.21224	-1.31979	-0.42137	0.00000	0.22466
3	1.39394	1.02062	1.35417	-0.43143	0.00000	0.25248
469	-0.01658	0.01066	-0.03438	0.00000	0.00000	0.00000
SUM	0.04800	2.24351	0.00000	-0.85280	0.00000	0.47715

Condition **LC44=1.2D+WL120+1.6LLa1**

1	-1.33087	1.21237	-1.33635	-0.42087	0.00000	0.22469
3	1.38867	1.02047	1.33450	-0.43122	0.00000	0.25237
469	-0.01820	0.01067	-0.03775	0.00000	0.00000	0.00000
SUM	0.03960	2.24351	-0.03960	-0.85209	0.00000	0.47706

Condition **LC45=1.2D+WL150+1.6LLa1**

1	-1.31978	1.21258	-1.32949	-0.42110	0.00000	0.22552
3	1.39317	1.02021	1.32955	-0.43098	0.00000	0.25292
469	-0.02390	0.01072	-0.04956	0.00000	0.00000	0.00000
SUM	0.04950	2.24351	-0.04950	-0.85207	0.00000	0.47844

Condition **LC46=1.2D-WL0+1.6LLa1**

1	-1.36130	1.21207	-1.37512	-0.42006	0.00000	0.22314
3	1.36989	1.02085	1.31593	-0.43101	0.00000	0.25121
469	-0.00859	0.01059	-0.01781	0.00000	0.00000	0.00000

SUM	0.00000	2.24351	-0.07700	-0.85107	0.00000	0.47435

Condition **LC47=1.2D-WL30+1.6LLa1**

1	-1.40972	1.21126	-1.40664	-0.41927	0.00000	0.21993
3	1.34697	1.02184	1.32969	-0.43165	0.00000	0.24895
469	0.01325	0.01041	0.02745	0.00000	0.00000	0.00000

SUM	-0.04950	2.24351	-0.04950	-0.85092	0.00000	0.46889

Condition **LC48=1.2D-WL60+1.6LLa1**

1	-1.40095	1.21138	-1.39445	-0.41950	0.00000	0.22048
3	1.35158	1.02169	1.33460	-0.43173	0.00000	0.24933
469	0.00977	0.01044	0.02025	0.00000	0.00000	0.00000

SUM	-0.03960	2.24351	-0.03960	-0.85123	0.00000	0.46981

Condition **LC49=1.2D-WL90+1.6LLa1**

1	-1.40923	1.21113	-1.38442	-0.41988	0.00000	0.21969
3	1.34669	1.02198	1.35428	-0.43195	0.00000	0.24868
469	0.01454	0.01040	0.03013	0.00000	0.00000	0.00000

SUM	-0.04800	2.24351	0.00000	-0.85183	0.00000	0.46838

Condition **LC50=1.2D-WL120+1.6LLa1**

1	-1.40772	1.21100	-1.36786	-0.42038	0.00000	0.21966
3	1.35196	1.02213	1.37395	-0.43216	0.00000	0.24880
469	0.01616	0.01038	0.03351	0.00000	0.00000	0.00000

SUM	-0.03960	2.24351	0.03960	-0.85254	0.00000	0.46846

Condition **LC51=1.2D-WL150+1.6LLa1**

1	-1.41882	1.21079	-1.37472	-0.42015	0.00000	0.21883
3	1.34746	1.02238	1.37890	-0.43240	0.00000	0.24824
469	0.02186	0.01033	0.04532	0.00000	0.00000	0.00000

SUM	-0.04950	2.24351	0.04950	-0.85256	0.00000	0.46708

Condition **LC52=1.2D+WL0+1.6LLa2**

1	-0.12843	1.20513	-1.32629	-0.42761	0.00000	0.01649
3	0.12092	1.02788	1.38771	-0.44244	0.00000	0.01949
469	0.00750	0.01050	0.01557	0.00000	0.00000	0.00000

SUM	0.00000	2.24351	0.07700	-0.87005	0.00000	0.03599

Condition **LC53=1.2D+WL30+1.6LLa2**

1	-0.08012	1.20603	-1.29479	-0.42845	0.00000	0.01968
3	0.14389	1.02693	1.37391	-0.44181	0.00000	0.02173
469	-0.01427	0.01055	-0.02962	0.00000	0.00000	0.00000

SUM	0.04950	2.24351	0.04950	-0.87026	0.00000	0.04141

Condition **LC54=1.2D+WL60+1.6LLa2**

1	-0.08886	1.20589	-1.30700	-0.42821	0.00000	0.01915
3	0.13927	1.02708	1.36903	-0.44173	0.00000	0.02137
469	-0.01081	0.01054	-0.02243	0.00000	0.00000	0.00000
SUM	0.03960	2.24351	0.03960	-0.86994	0.00000	0.04052

Condition **LC55=1.2D+WL90+1.6LLa2**

1	-0.08061	1.20615	-1.31708	-0.42783	0.00000	0.01994
3	0.14417	1.02680	1.34937	-0.44152	0.00000	0.02202
469	-0.01556	0.01055	-0.03229	0.00000	0.00000	0.00000
SUM	0.04800	2.24351	0.00000	-0.86934	0.00000	0.04196

Condition **LC56=1.2D+WL120+1.6LLa2**

1	-0.08210	1.20629	-1.33368	-0.42733	0.00000	0.01999
3	0.13889	1.02666	1.32975	-0.44131	0.00000	0.02192
469	-0.01719	0.01056	-0.03567	0.00000	0.00000	0.00000
SUM	0.03960	2.24351	-0.03960	-0.86864	0.00000	0.04190

Condition **LC57=1.2D+WL150+1.6LLa2**

1	-0.07103	1.20652	-1.32684	-0.42757	0.00000	0.02081
3	0.14339	1.02642	1.32479	-0.44107	0.00000	0.02247
469	-0.02287	0.01057	-0.04745	0.00000	0.00000	0.00000
SUM	0.04950	2.24351	-0.04950	-0.86864	0.00000	0.04328

Condition **LC58=1.2D-WL0+1.6LLa2**

1	-0.11244	1.20594	-1.37251	-0.42649	0.00000	0.01847
3	0.12005	1.02703	1.31129	-0.44109	0.00000	0.02079
469	-0.00761	0.01054	-0.01578	0.00000	0.00000	0.00000
SUM	0.00000	2.24351	-0.07700	-0.86758	0.00000	0.03927

Condition **LC59=1.2D-WL30+1.6LLa2**

1	-0.16075	1.20505	-1.40400	-0.42565	0.00000	0.01529
3	0.09708	1.02798	1.32510	-0.44172	0.00000	0.01856
469	0.01418	0.01048	0.02941	0.00000	0.00000	0.00000
SUM	-0.04950	2.24351	-0.04950	-0.86737	0.00000	0.03384

Condition **LC60=1.2D-WL60+1.6LLa2**

1	-0.15201	1.20518	-1.39179	-0.42589	0.00000	0.01582
3	0.10170	1.02784	1.32997	-0.44180	0.00000	0.01892
469	0.01071	0.01049	0.02222	0.00000	0.00000	0.00000
SUM	-0.03960	2.24351	-0.03960	-0.86768	0.00000	0.03474

Condition **LC61=1.2D-WL90+1.6LLa2**

1	-0.16027	1.20492	-1.38172	-0.42627	0.00000	0.01502
3	0.09680	1.02811	1.34963	-0.44201	0.00000	0.01826
469	0.01547	0.01048	0.03209	0.00000	0.00000	0.00000
SUM	-0.04800	2.24351	0.00000	-0.86828	0.00000	0.03329

Condition **LC62=1.2D-WL120+1.6LLa2**

1	-0.15878	1.20478	-1.36513	-0.42676	0.00000	0.01498
3	0.10208	1.02825	1.36926	-0.44222	0.00000	0.01837
469	0.01710	0.01048	0.03547	0.00000	0.00000	0.00000
SUM	-0.03960	2.24351	0.03960	-0.86898	0.00000	0.03335

Condition **LC63=1.2D-WL150+1.6LLa2**

1	-0.16986	1.20455	-1.37197	-0.42653	0.00000	0.01416
3	0.09758	1.02849	1.37421	-0.44246	0.00000	0.01782
469	0.02278	0.01046	0.04726	0.00000	0.00000	0.00000
SUM	-0.04950	2.24351	0.04950	-0.86899	0.00000	0.03197

Condition **LC64=1.2D+WL0+1.6LLa3**

1	0.73754	1.20860	-1.33053	-0.42273	0.00000	-0.13181
3	-0.74543	1.02440	1.39116	-0.43561	0.00000	-0.14513
469	0.00789	0.01051	0.01637	0.00000	0.00000	0.00000
SUM	0.00000	2.24351	0.07700	-0.85834	0.00000	-0.27695

Condition **LC65=1.2D+WL30+1.6LLa3**

1	0.78583	1.20953	-1.29892	-0.42359	0.00000	-0.12861
3	-0.72244	1.02345	1.37726	-0.43498	0.00000	-0.14288
469	-0.01389	0.01054	-0.02885	0.00000	0.00000	0.00000
SUM	0.04950	2.24351	0.04950	-0.85857	0.00000	-0.27150

Condition **LC66=1.2D+WL60+1.6LLa3**

1	0.77710	1.20938	-1.31117	-0.42335	0.00000	-0.12915
3	-0.72707	1.02359	1.37242	-0.43490	0.00000	-0.14325
469	-0.01043	0.01053	-0.02165	0.00000	0.00000	0.00000
SUM	0.03960	2.24351	0.03960	-0.85825	0.00000	-0.27240

Condition **LC67=1.2D+WL90+1.6LLa3**

1	0.78536	1.20965	-1.32124	-0.42297	0.00000	-0.12835
3	-0.72218	1.02332	1.35277	-0.43469	0.00000	-0.14259
469	-0.01519	0.01054	-0.03153	0.00000	0.00000	0.00000
SUM	0.04800	2.24351	0.00000	-0.85766	0.00000	-0.27094

Condition **LC68=1.2D+WL120+1.6LLa3**

1	0.78387	1.20979	-1.33785	-0.42247	0.00000	-0.12830
3	-0.72746	1.02318	1.33316	-0.43448	0.00000	-0.14269
469	-0.01682	0.01054	-0.03491	0.00000	0.00000	0.00000
SUM	0.03960	2.24351	-0.03960	-0.85695	0.00000	-0.27100

Condition **LC69=1.2D+WL150+1.6LLa3**

1	0.79495	1.21002	-1.33098	-0.42271	0.00000	-0.12748
3	-0.72295	1.02294	1.32819	-0.43424	0.00000	-0.14214
469	-0.02250	0.01055	-0.04671	0.00000	0.00000	0.00000
SUM	0.04950	2.24351	-0.04950	-0.85695	0.00000	-0.26962

Condition **LC70=1.2D-WL0+1.6LLa3**

1	0.75357	1.20942	-1.37679	-0.42161	0.00000	-0.12982
3	-0.74633	1.02356	1.31480	-0.43427	0.00000	-0.14382
469	-0.00724	0.01053	-0.01502	0.00000	0.00000	0.00000
SUM	0.00000	2.24351	-0.07700	-0.85587	0.00000	-0.27364

Condition **LC71=1.2D-WL30+1.6LLa3**

1	0.70527	1.20850	-1.40839	-0.42075	0.00000	-0.13302
3	-0.76932	1.02452	1.32870	-0.43490	0.00000	-0.14607
469	0.01455	0.01050	0.03019	0.00000	0.00000	0.00000
SUM	-0.04950	2.24351	-0.04950	-0.85565	0.00000	-0.27909

Condition **LC72=1.2D-WL60+1.6LLa3**

1	0.71400	1.20864	-1.39615	-0.42099	0.00000	-0.13248
3	-0.76469	1.02437	1.33354	-0.43498	0.00000	-0.14571
469	0.01109	0.01050	0.02300	0.00000	0.00000	0.00000
SUM	-0.03960	2.24351	-0.03960	-0.85597	0.00000	-0.27819

Condition **LC73=1.2D-WL90+1.6LLa3**

1	0.70573	1.20838	-1.38608	-0.42137	0.00000	-0.13328
3	-0.76958	1.02464	1.35319	-0.43519	0.00000	-0.14637
469	0.01585	0.01049	0.03289	0.00000	0.00000	0.00000
SUM	-0.04800	2.24351	0.00000	-0.85656	0.00000	-0.27965

Condition **LC74=1.2D-WL120+1.6LLa3**

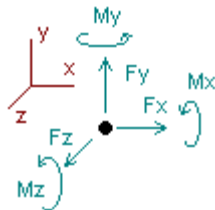
1	0.70722	1.20824	-1.36948	-0.42187	0.00000	-0.13333
3	-0.76430	1.02478	1.37280	-0.43540	0.00000	-0.14626
469	0.01748	0.01049	0.03628	0.00000	0.00000	0.00000
SUM	-0.03960	2.24351	0.03960	-0.85727	0.00000	-0.27960

Condition **LC75=1.2D-WL150+1.6LLa3**

1	0.69614	1.20800	-1.37635	-0.42163	0.00000	-0.13416
3	-0.76880	1.02503	1.37777	-0.43564	0.00000	-0.14682
469	0.02317	0.01048	0.04808	0.00000	0.00000	0.00000
SUM	-0.04950	2.24351	0.04950	-0.85727	0.00000	-0.28098

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W30
LC27=1.2D+Di+W60
LC28=1.2D+Di+W90
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W30
LC33=1.2D+Di-W60
LC34=1.2D+Di-W90
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

LC64=1.2D+WL0+1.6LLa3
 LC65=1.2D+WL30+1.6LLa3
 LC66=1.2D+WL60+1.6LLa3
 LC67=1.2D+WL90+1.6LLa3
 LC68=1.2D+WL120+1.6LLa3
 LC69=1.2D+WL150+1.6LLa3
 LC70=1.2D-WL0+1.6LLa3
 LC71=1.2D-WL30+1.6LLa3
 LC72=1.2D-WL60+1.6LLa3
 LC73=1.2D-WL90+1.6LLa3
 LC74=1.2D-WL120+1.6LLa3
 LC75=1.2D-WL150+1.6LLa3

Node		Forces						Moments					
		Fx [Kip]	lc	Fy [Kip]	lc	Fz [Kip]	lc	Mx [Kip*ft]	lc	My [Kip*ft]	lc	Mz [Kip*ft]	lc
1	Max	1.135	LC16	1.275	LC30	0.630	LC14	-0.17369	LC21	0.00000	LC1	0.22552	LC45
	Min	-1.419	LC51	0.555	LC23	-1.960	LC8	-0.45319	LC26	0.00000	LC1	-0.13416	LC75
3	Max	1.394	LC43	1.092	LC36	1.735	LC1	-0.19090	LC18	0.00000	LC1	0.25292	LC45
	Min	-0.770	LC73	0.475	LC17	-0.396	LC19	-0.46157	LC36	0.00000	LC1	-0.14682	LC75
469	Max	0.476	LC11	0.024	LC30	1.017	LC11	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.470	LC5	0.007	LC23	-1.016	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1



HUDSON
Design Group LLC

Connection Check

Date: 1/13/2022
Project Name: HAMDEN BENHAM ST
Project No.: CT2040
Designed By: KSBM Checked By: MSC



CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A325 5/8" (Threaded Rod)

Allowable Tensile Load =

$F_{Tall} = 13806$ lbs.

Allowable Shear Load =

$F_{Vall} = 8283$ lbs.

TENSILE FORCES

Reaction $F = 1960$ lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 1419 lbs. (See Bentley Output)

Reactions in Y direction: 1275 lbs. (See Bentley Output)

Resultant: 1908 lbs.

No. of Supports = 1

No. of Bolts / Support = 4

Tension Design Load /Bolts =

$f_t = 490.00$ lbs. < 13806 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

$f_v = 476.92$ lbs. < 8283 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

$f_t / F_T + f_v / F_V \leq 1.0$
0.035 + 0.058 = 0.093 < 1.0 **Therefore, OK !**



Town of Hamden, CT

Property Listing Report

Map Block Lot

2526-011-01-0000

Building # 1

PID 123442

Account

Property Information

Property Location	191 BENHAM ST
Owner	APOSTLES OF THE SACRED HEART OF JFSIIS
Co-Owner	INC THE
Mailing Address	295 BENHAM ST HAMDEN CT 06514
Land Use	431V CELL SITE M00
Land Class	I
Zoning Code	R3
Census Tract	

Neighborhood	100
Acreage	0
Utilities	Public Water,Public
Lot Setting/Desc	Suburban Above Street
Book / Page	0726/0301
Additional Info	

Primary Construction Details

Year Built	0
Building Desc.	CELL SITE M00
Building Style	UNKNOWN
Building Grade	
Stories	
Occupancy	
Exterior Walls	
Exterior Walls 2	NA
Roof Style	
Roof Cover	
Interior Walls	
Interior Walls 2	NA
Interior Floors 1	
Interior Floors 2	NA

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Vacant
Building Condition	
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	
First Floor Use	NA
Foundation	NA

Photo



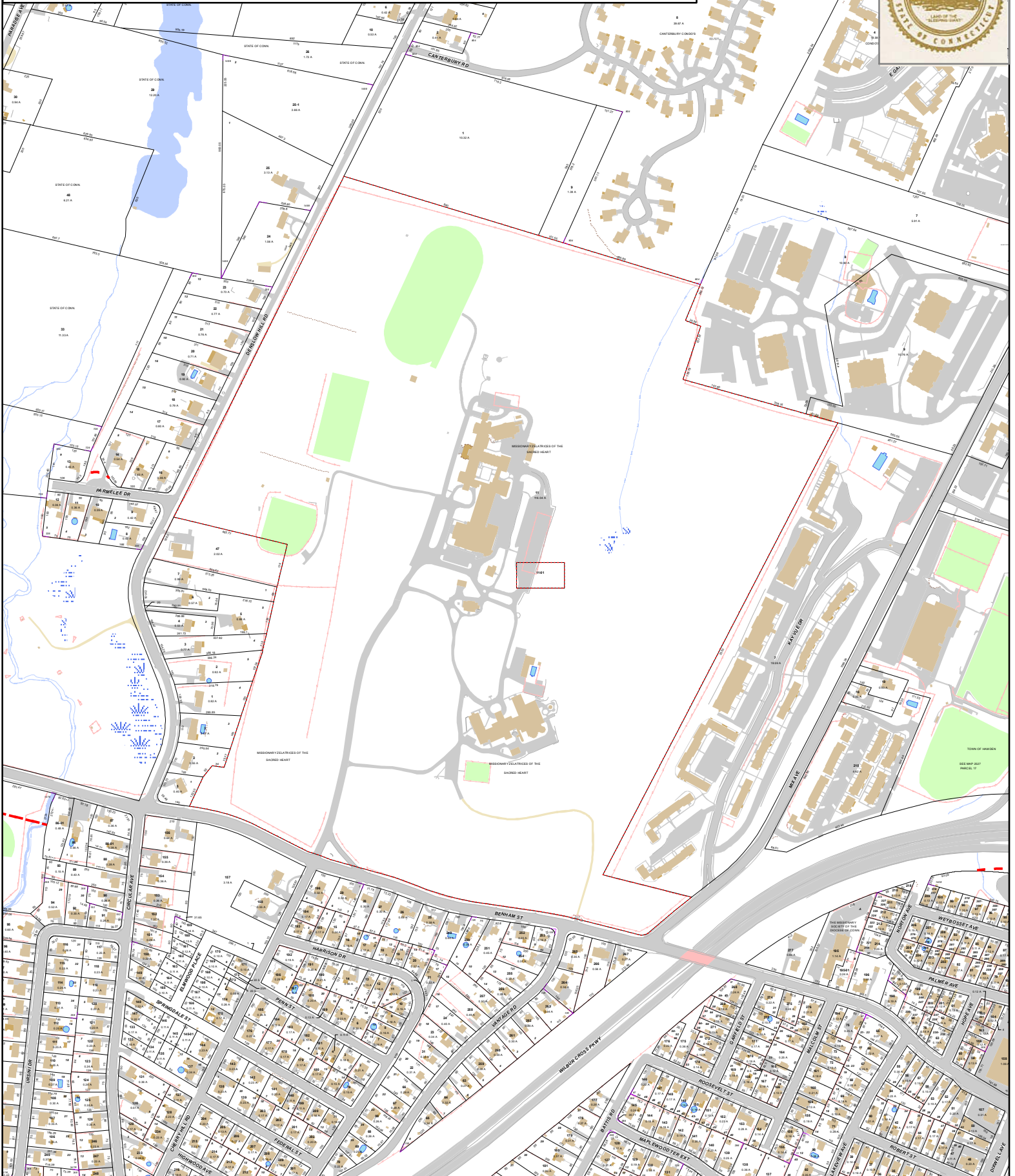
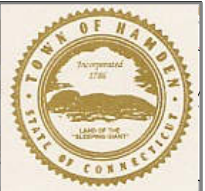
Sketch



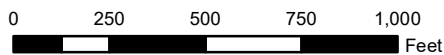
Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 2526-011-00-0000

Address: 191 BENHAM ST



Approximate Scale: 1 inch = 500 feet



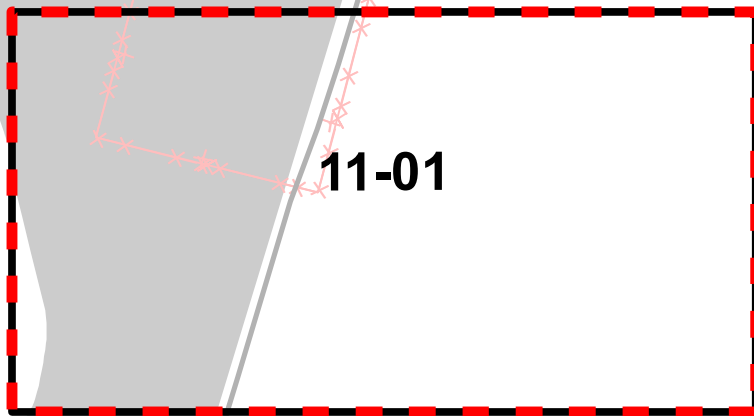
Map Produced: March 2022

Disclaimer: This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Hamden and its mapping contractors assume
no legal responsibility for the information contained herein.

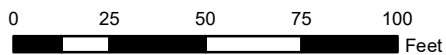
Town of Hamden, Connecticut - Assessment Parcel Map

Parcel: 2526-011-01-0000

Address: 191 BENHAM ST



Approximate Scale: 1 inch = 50 feet



Map Produced: March 2022

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TOWN CLERK
AUG 24 2000

AUG 24 P 2 13

TOWN OF HAMDEN

CONNECTICUT

August 24, 2000

New Haven Register
40 Sargent Drive
New Haven, CT. 06511
Attn: Judy

FAX# 865-8360
Bill: 287-2592

**RE: LEGAL NOTICE TO APPEAR IN THE NEW HAVEN REGISTER ON TUESDAY,
AUGUST 29, 2000.**

DP71964 – Special Meetings and Public Hearings were held on Tuesday, August 22, 2000 starting at 7:30 p.m. of the Zoning Section, and the Planning Section, and the Planning & Zoning Commission. All meetings were held in the Council Chambers, Memorial Town Hall and the following actions were taken:

1. Site Plan/WS 00-1267. 2582 Whitney Ave. B-1. Restaurant expansion from 61 to 108 seats. Whitney & Hawthorne LLC., Property Owner. ZaRus Grille, Applicant. **APPROVED WITH CONDITIONS.**
2. Site Plan/WS 00-1272. 720 Sherman Ave. M-1. Expansion of existing manufacturing/office. Amphenol Corporation, Property Owner. Paul Pizzo, Applicant. **APPROVED WITH CONDITIONS.**
3. Site Plan 00-1276. 2039 Dixwell Ave. CDD-1. Laundromat/Dry Cleaners. Rosalie Lambert Family Trust, Owner. **APPROVED WITH CONDITIONS.**
4. Site Plan 00-1257. 265 Benham St. R-3. Telecommunication Antenna. Sandy Carter, Applicant. **APPROVED WITH CONDITIONS.**
5. Resubdivision 00-1201. High Ridge Rd. R-2. 2 lots. Leslie Corey, Property Owner. Leslie Corey, Applicant. **APPROVED WITH CONDITIONS.**
6. Resubdivision/WS/FP 00-1202. Chatterton Way. Lot #1. R-2. Natalie Wheatley, Property Owner and Applicant. **APPROVED WITH CONDITIONS.**

MINUTES: THE ZONING SECTION, Planning & Zoning Commission, Town of Hamden, held a Special Meeting on Tuesday, August 22, 2000 in the Council Chambers, Memorial Town Hall, immediately following the Planning and Zoning Commission meeting. The following issues were discussed:

Connolly Parkway frontage. Mr. Thompson said he has not seen that letter. Mr. O'Brien said the bond is \$3,350. The RWA submitted a letter today asking that their inspectors continue to be granted access to the site. Mr. Ingengro said he believes the items the Town Engineer is asking for were completed a year ago, and he feels the sidewalk was revisited with the prior Town Planner and they were not required to replace the sidewalk, but to repair it. The previous applicant posted the bond. Mr. O'Brien asked the property owner if he would be willing to replace 100' of sidewalk. Mr. Lambert, the property owner, said they did 100' of sidewalk when Auto Tune filed their application. If the engineering detail is not on file Mr. Lambert is willing to submit it.

Mr. Crocco said Mr. Savarese's conditions should be made part of the motion. Mr. Crocco said the applicant will provide the information requested by Mr. Savarese. The sidewalk must be inspected and there is already a bond.

Mr. McDonagh made a motion to approve Site Plan 00-1276 subject to the following conditions:

Prior to the issuance of a Zoning Permit, the applicant must:

1. **Submit an easement from 27 Connolly Parkway for the common driveway;**
2. **Submit landscaping details for approval of the Town Planner;**
3. **Post a bond in an amount estimated by the applicant and approved by the Town Planner;**
4. **Submit drainage information from previous application.**
5. **The sidewalk must be inspected and repaired or replaced as necessary.**

Mr. Sims seconded the motion. The vote was unanimous, in favor.

Mr. Thompson said they are making no substantial changes to the site and the landscaping is existing.

4. Site Plan 00-1257
265 Benham Street, R-3 Zone
Telecommunication Antenna
Sandy Carter, Agent
Verizon Cellular, Applicant

Mr. O'Brien said the Town Police and Fire Departments entered into agreement between Verizon Telecommunications and the Sisters at Sacred Heart Academy, and if the Town Police and Fire antennas are going to be on the tower, the tower is not subject to zoning. This Commission approved an 8-24, which went to the Council and was approved and then signed by the Mayor.



Apostles of the Sacred Heart of Jesus

UNITED STATES PROVINCE

August 11, 2022

AT&T Site ID: CT2040

Site Address: 265 Benham Street, Hamden, CT

RE: Application for Permitting in the Town of Hamden, County of New Haven CT.

To Whom It May Concern:

This letter authorizes SAI Group LLC, its employees, or agents, to file for all necessary administrative approvals, zoning approvals and building permit applications (local, state, and federal) for the purposes of upgrading, installing, operating, and maintaining a telecommunications facility at the site/property referenced above on behalf of the Apostles of the Sacred Heart of Jesus, inc.

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

Signature: Sr. Mary Lee

Print Name: Sister Mary Lee

Title: Treasurer

Date: 9/9/22



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Ref#: CT2040

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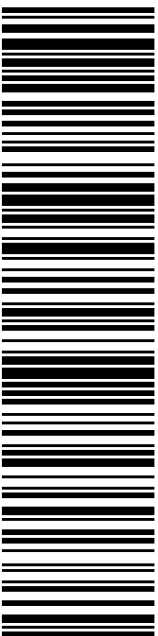
SALEM NH 03079-2837

C003



SISTER MARY LEE, ASCJ
APOSTLES OF THE SACRED HEART OF JESUS
295 BENHAM ST
HAMDEN CT 06514-2801

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12 INDUSTRIAL WAY

SALEM NH 03079-2837

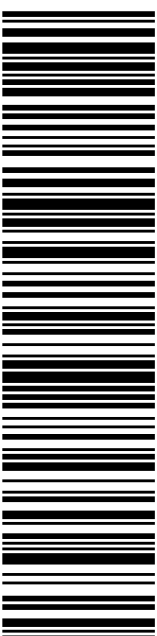
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C052



HON. LAUREN GARRETT MAYOR EUGENE
TOWN OF HAMDEN
2750 DIXWELL AVE
HAMDEN CT 06518-3320

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Expected Delivery Date: 09/12/22

SAI GROUP

Ref#: CT2040

12 INDUSTRIAL WAY

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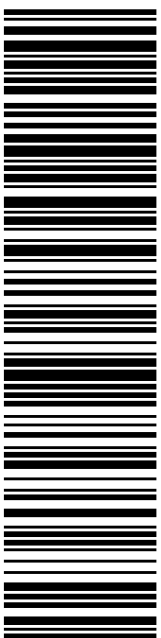
SALEM NH 03079-2837

C006



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

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Electronic Rate Approved #038555749



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USPS® Expected Delivery by Saturday, September 10, 2022 arriving by 9:00pm
9405503699300342345592

From: auto-reply@usps.com (auto-reply@usps.com)

To: [REDACTED]

Date: Friday, September 9, 2022 at 03:52 PM EDT

Mayor & Town Planner Copies



Hello HOLLIS M REDDING,

USPS is now in possession of your item as of 3:33 pm on September 9, 2022 in MERIDEN, CT 06450.

Tracking Number:

9405503699300342345592

Expected Delivery By

Sat
10
Sept

By 9:00pm



Tracking & Delivery Options

[My Account](#)

From: auto-reply@usps.com
To: [Hollis Redding](#)
Subject: USPS® Expected Delivery by Saturday, September 10, 2022 arriving by 9:00pm 9405503699300342345561
Date: Friday, September 9, 2022 3:51:52 PM

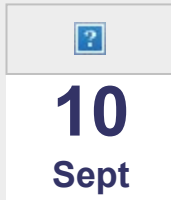


Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 3:33 pm on September 9, 2022 in MERIDEN, CT 06450.

Tracking Number:
[9405503699300342345561](#)

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By 9:00pm

