April 4, 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 CT0968
303 Boxwood Lane, Danbury, CT 06811 (the "Property")
Latitude: 41.3947220 N Longitude: 73.4866670 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 98' level on the existing 100' self-support tower ("Tower") at 303 Boxwood Lane, Danbury, CT. The Tower and property are owned by the State of Connecticut (Western CT State University). AT&T intends to modify its facility by removing all (9) antennas and adding (3) Air6449 B77 at the 95' level, (3) TPA-65R-BU4DA-K & (3) DMP65R-BU4DA antennas at the 98' level, and (3) Air6419 B77G antennas a the 98'8" level of the tower. The AIR6419 B77G & AIR6449 B77 antennas are stacked one on top of the other. The height of AT&Ts existing antennas is 98' and proposed antennas is 95', 98', 98'8" on the Tower.

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

The CT Siting Council approved the Tower on October 21, 1996, under Docket 176. AT&T received CT Siting Council approval under TS-CING-034-160202 on February 18, 2016. These approvals contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to Hon. Dean Esposito, Mayor, City of Danbury, chief elected official, Ms. Sharon B. Calitro, AICP, Director, Planning & Zoning, City of Danbury and Mr. John Murphy, Director, Western CT State University/State of Connecticut, the property & tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require an extension of the site boundary.

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

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

Enclosures

Cc:
Hon. Dean Esposito, Mayor, City of Danbury, chief elected official
Ms. Sharon B. Calitro, AICP, Director of Planning & Zoning, City of Danbury
Mr. John Murphy, Director, Western CT State University/State of CT, property & tower owner

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

Calculated Radio Frequency Exposure

CT0968

303 Boxwood Lane, Danbury, CT

March 28, 2022

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of the AT&T antenna arrays on an existing tower located at 303 Boxwood Lane in Danbury CT. The coordinates of the existing tower are 41° 23' 41" N, 73° 29' 12" W.

AT&T is proposing the following:

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

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

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

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

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

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

[1] As referenced to AT&T's Radio Frequency Design Sheet dated 2/15/2022.

3. RF Exposure Calculation Methods

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

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

Where:

ERP = Effective Radiated Power

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

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

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
Sprint	89	850	1	438	0.0229	0.5667	0.40%
Sprint	89	850	2	438	0.0457	0.5667	0.81%
Sprint	89	1900	5	623	0.1626	1.0000	1.63%
Sprint	89	1900	2	1566	0.1635	1.0000	1.63%
Sprint	89	2500	8	778	0.3249	1.0000	3.25%
T-Mobile	83	600	2	470	0.0570	0.4000	1.43%
T-Mobile	83	600	1	1253	0.0760	0.4000	1.90%
T-Mobile	83	700	2	515	0.0625	0.4667	1.34%
T-Mobile	83	2100	2	1077	0.1306	1.0000	1.31%
T-Mobile	83	1900	4	1028	0.2494	1.0000	2.49%
T-Mobile	83	1900	2	2057	0.2495	1.0000	2.50%
T-Mobile	82	2100	2	2308	0.2874	1.0000	2.87%
WXCI (WCSU)	65	91.7	1	3000	0.3099	0.2000	15.50%
AT&T	98	700	1	2085	0.0089	0.4667	1.90%
AT&T	98	700	1	1816	0.0077	0.4667	1.65%
AT&T	98	885	1	1946	0.0083	0.5900	1.40%
AT&T	98	1900	3	5002	0.0638	1.0000	6.38%
AT&T	98	2100	2	7677	0.0653	1.0000	6.53%
AT&T	98	2300	1	5118	0.0218	1.0000	2.18%
AT&T	98.67	3500	1	24286	0.1017	1.0000	10.17%
AT&T	95	3500	1	24286	0.1103	1.0000	11.03%
						Total	**78.29%**

Table 1: Carrier Information[2][3]

[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 WXCI-FM, Sprint 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 table shows the correct callsign for the WCSU radio station, WXCI.

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 is **78.29% of the FCC General Population/Uncontrolled limit**.

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

6. Statement of Certification

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

March 28, 2022
Date

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

Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure[4]

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

(B) Limits for General Population/Uncontrolled Exposure[5]

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

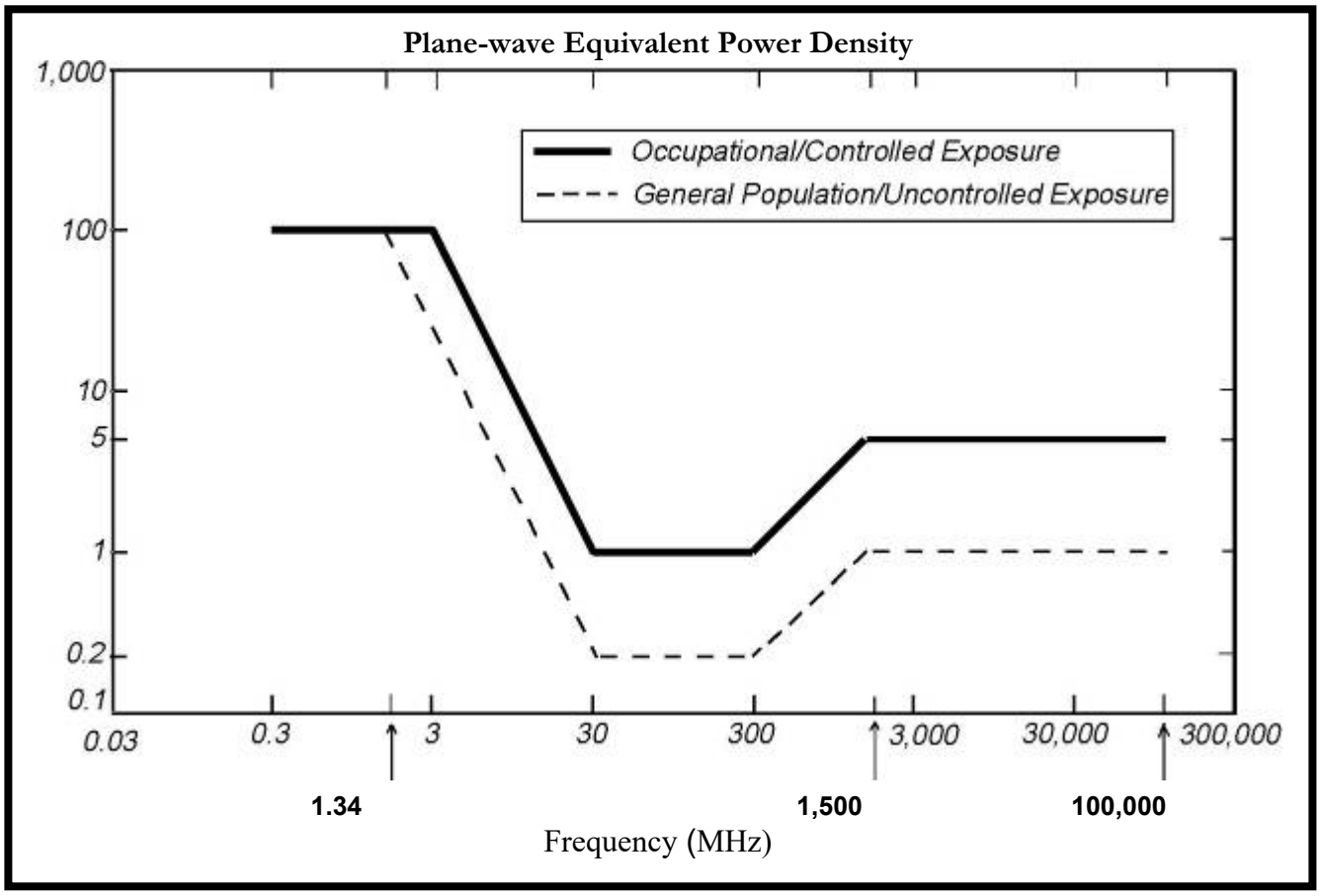
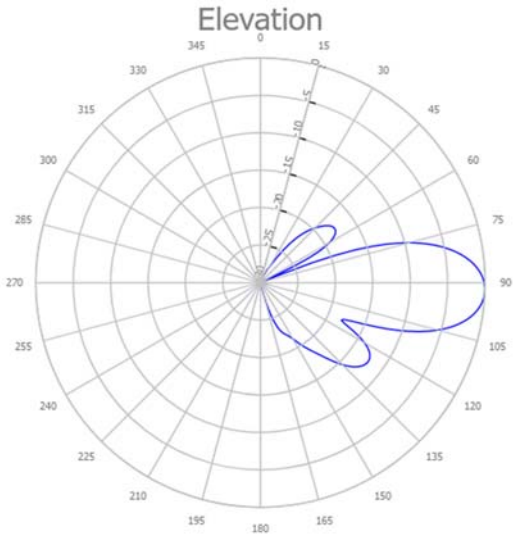
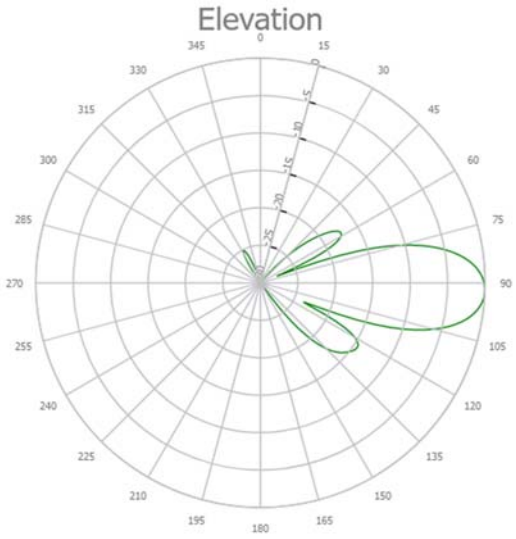
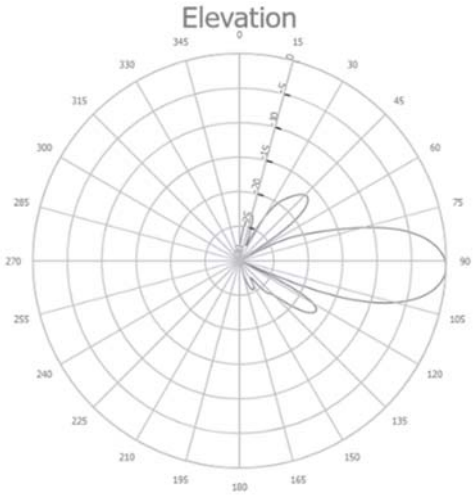


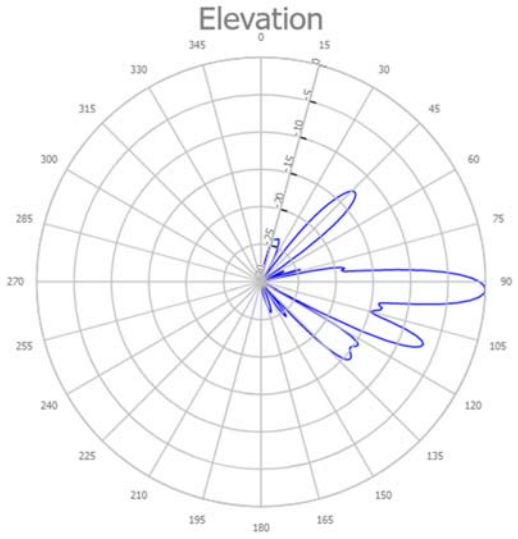
Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

700 MHz Manufacturer: CCI Products Model #: TPA-65R-BU4DA-K Frequency Band: 698-806 MHz Gain: 13.3 dBi Vertical Beamwidth: 20.0° Horizontal Beamwidth: 74° Polarization: Dual Linear 45° Size L x W x D: 48.0” x 20.7” x 7.7”	
700 MHz Manufacturer: CCI Products Model #: DMP65R-BU4DA Frequency Band: 698 - 806MHz Gain: 12.7 dBi Vertical Beamwidth: 19.9° Horizontal Beamwidth: 75° Polarization: Dual Linear 45° Size L x W x D: 48.0” x 20.7” x 7.7”	
885 MHz Manufacturer: CCI Products Model #: DMP65R-BU4DA Frequency Band: 824 - 896 MHz Gain: 13.0 dBi Vertical Beamwidth: 17.9° Horizontal Beamwidth: 67° Polarization: Dual Linear 45° Size L x W x D: 48.0” x 20.7” x 7.7”	

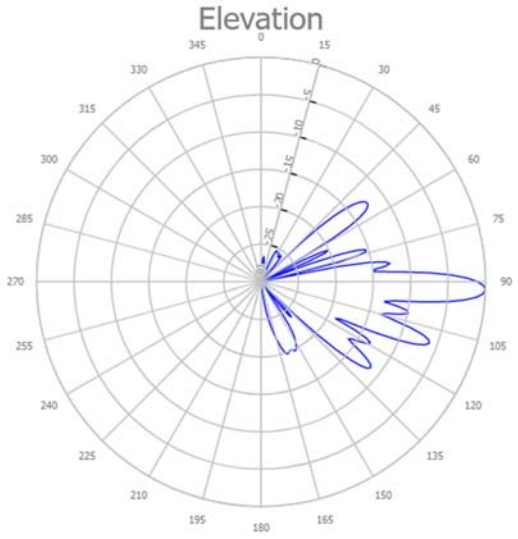
1900 MHz

Manufacturer:	CCI Products
Model #:	TPA-65R-BU4DA-K
Frequency Band:	1920-1990 MHz
Gain:	17.1 dBi
Vertical Beamwidth:	7.4°
Horizontal Beamwidth:	66°
Polarization:	Dual Linear 45°
Size L x W x D:	48.0” x 20.7” x 7.7”



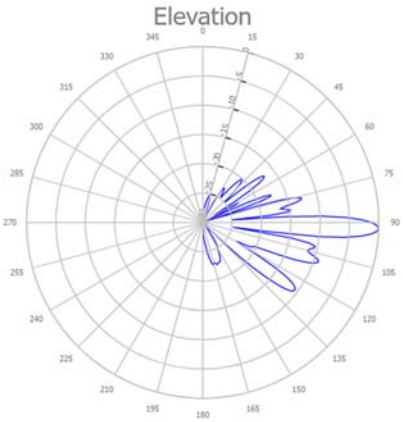
2100 MHz

Manufacturer:	CCI Products
Model #:	TPA-65R-BU4DA-K
Frequency Band:	1920-2180 MHz
Gain:	17.2 dBi
Vertical Beamwidth:	6.9°
Horizontal Beamwidth:	66°
Polarization:	Dual Linear 45°
Size L x W x D:	48.0” x 20.7” x 7.7”



2300 MHz

Manufacturer:	CCI Products
Model #:	DMP65R-BU4DA
Frequency Band:	2300-2400 MHz
Gain:	17.2 dBi
Vertical Beamwidth:	5.9°
Horizontal Beamwidth:	57°
Polarization:	Dual Linear 45°
Size L x W x D:	48.0” x 20.7” x 7.7”



PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING SELF SUPPORT: • 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). • NEW AT&T ANTENNAS: TPA-65R-BU4DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: DMP65R-BU4DA (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T RRUS: 8843 B2/B66A (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 2). • EXISTING AT&T RRUS: 32 B30 (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO BE RELOCATED TO POS. 4). • NEW AT&T DC/FIBER SURGE ARRESTOR: DC6-48-60-18 (TOTAL OF 1). • ADD (1) FIBER LINE. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD (1) 6648 + XCEDE CABLE. • ADD (2) RECTIFIERS. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNAS: OPA-65R-LCUU-H4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNAS: SBNHH-1D65A (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T ANTENNAS: OPA65R-BU4B (TYP. OF 1 PER SECTOR, TOTAL OF 3). • EXISTING AT&T SURGE ARRESTOR: DC6-48-60-08F DC ONLY (TOTAL OF 1). ITEMS TO REMAIN: • (12) RRU'S, (6) COAX CABLES, (6) Y-CABLES, (3) SURGE ARRESTORS, (7) DC POWER & (2) FIBER.
SITE ADDRESS:	303 BOXWOOD LANE DANBURY, CT 06811
LATITUDE:	41.3947220° N, 41° 23' 41" N
LONGITUDE:	73.4866670° W, 73° 29' 12" W
TYPE OF SITE:	SELF SUPPORT / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	100'-0"±
RAD CENTER:	LTE: 98'-0"± / CBand: 98'-8" AND 95'-0"
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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A-3	DETAILS	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1

SITE NUMBER: CT0968

SITE NAME: DANBURY BOXWOOD LANE

FA CODE: 12684103

PACE ID: MRCTB055834, MRCTB055818

PROJECT: 5G NR 1SR CBAND UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO WEST ST. MERGE ONTO I-91 S VIA THE RAMP ON THE LEFT TOWARD NEW HAVEN. MERGE ONTO I-691 W VIA EXIT 18 TOWARD MERIDEN/WATERBURY. MERGE ONTO I-84 W VIA EXIT 1 ON THE LEFT TOWARD WATERBURY/DANBURY. TAKE THE US-6 W/LAKE AVE/US-202 W EXIT, EXIT 4. TURN RIGHT ONTO LAKE AVENUE EXT/US-6 W/US-202 W. TAKE THE 1ST RIGHT ONTO MILL RIDGE RD. TAKE THE 2ND RIGHT ONTO HIGH RIDGE RD. TAKE THE 1ST RIGHT TO STAY ON HIGH RIDGE RD. TURN LEFT ONTO SCUPPO RD. TAKE THE 1ST RIGHT ONTO BOXWOOD LN. DESTINATION IS ON THE RIGHT.

GENERAL NOTES

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

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT0968
SITE NAME: DANBURY BOXWOOD LANE

303 BOXWOOD LANE
DANBURY, CT 06811
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/01/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	04/23/21	ISSUED FOR REVIEW	GA	HC	DPH

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

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

AT&T

TITLE SHEET
5G NR 1SR CBAND UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT0968	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

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

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

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

ABBREVIATIONS

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

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12 INDUSTRIAL WAY
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SITE NUMBER: CT0968
SITE NAME: DANBURY BOXWOOD LANE

303 BOXWOOD LANE
DANBURY, CT 06811
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/01/22	ISSUED FOR CONSTRUCTION	GA	HC	DPH
A	04/23/21	ISSUED FOR REVIEW	GA	HC	DPH

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

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

AT&T

GENERAL NOTES
5G NR 1SR CBAND UPGRADE

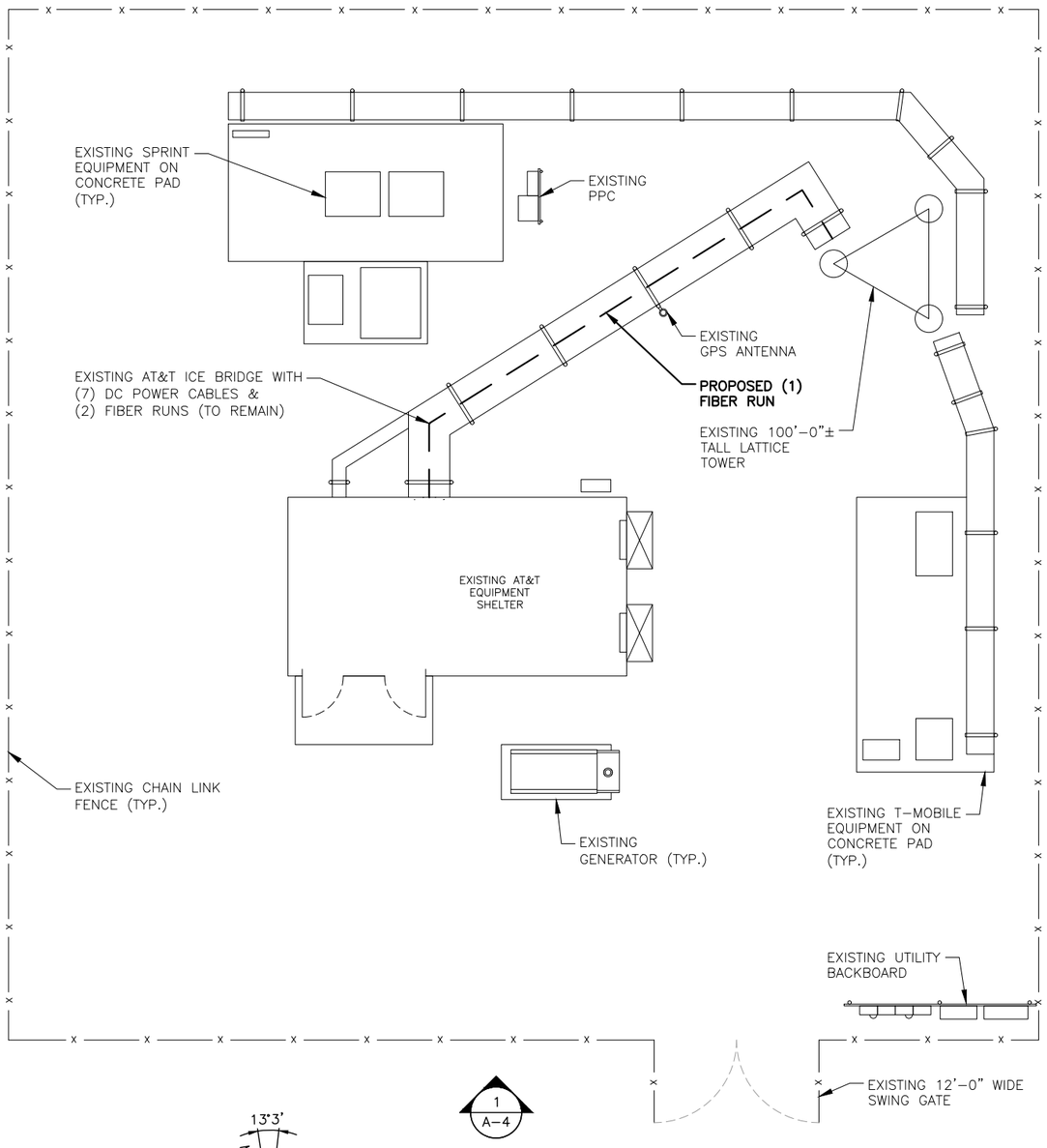
SITE NUMBER	DRAWING NUMBER	REV
CT0968	GN-1	1

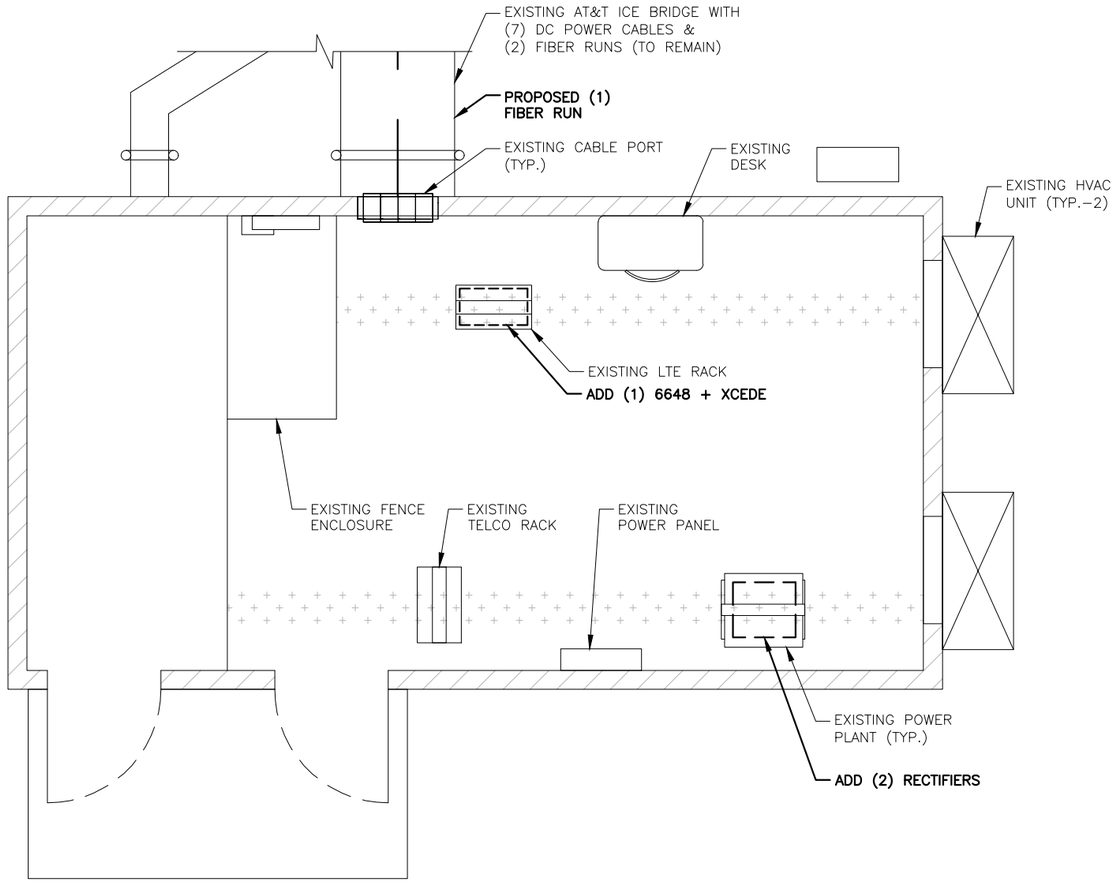
NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
GPD GROUP
DATED: FEBRUARY 18, 2022





13°3'
MAGNETIC NORTH
TRUE NORTH

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

0 2'-8" 5'-4" 10'-8" 16'-0"

13°3'
MAGNETIC NORTH
TRUE NORTH

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

0 1'-4" 2'-8" 4'-0" 6'-0"

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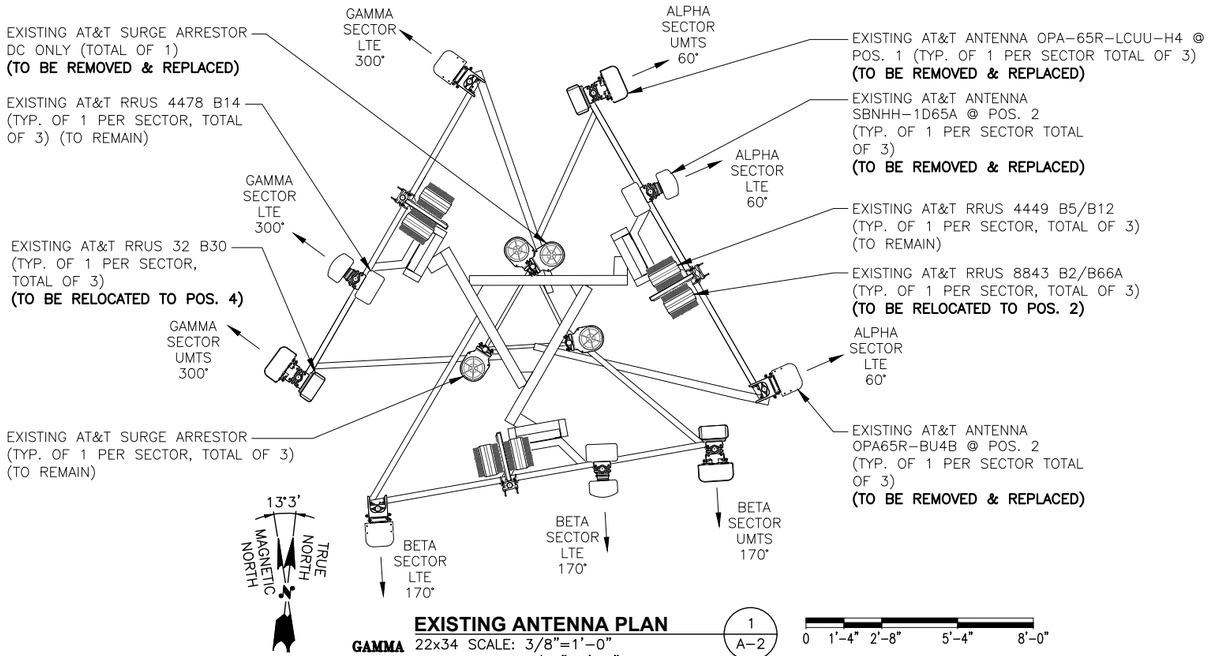
ROOFTOP & EQUIPMENT PLANS
5G NR 1SR CBAND UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT0968	A-1	1

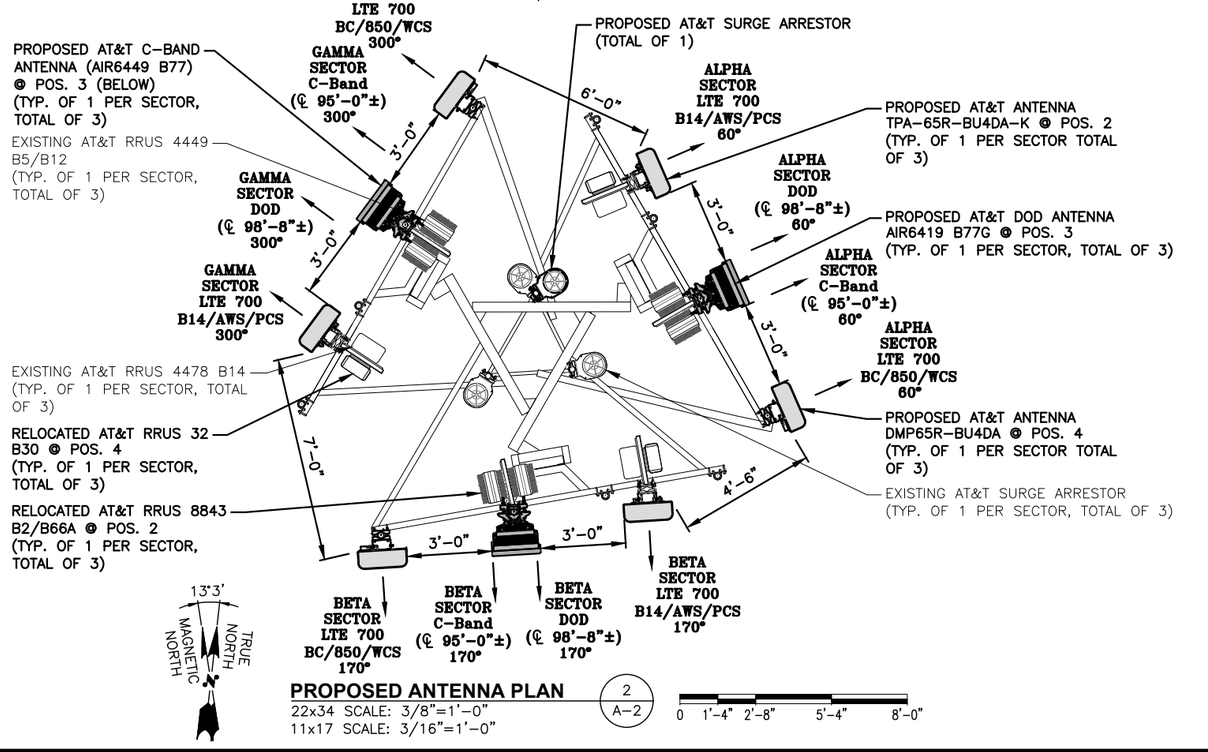


EXISTING ANTENNA PLAN

1 / A-2

GAMMA SECTOR 22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

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



PROPOSED ANTENNA PLAN

2 / A-2

22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

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

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
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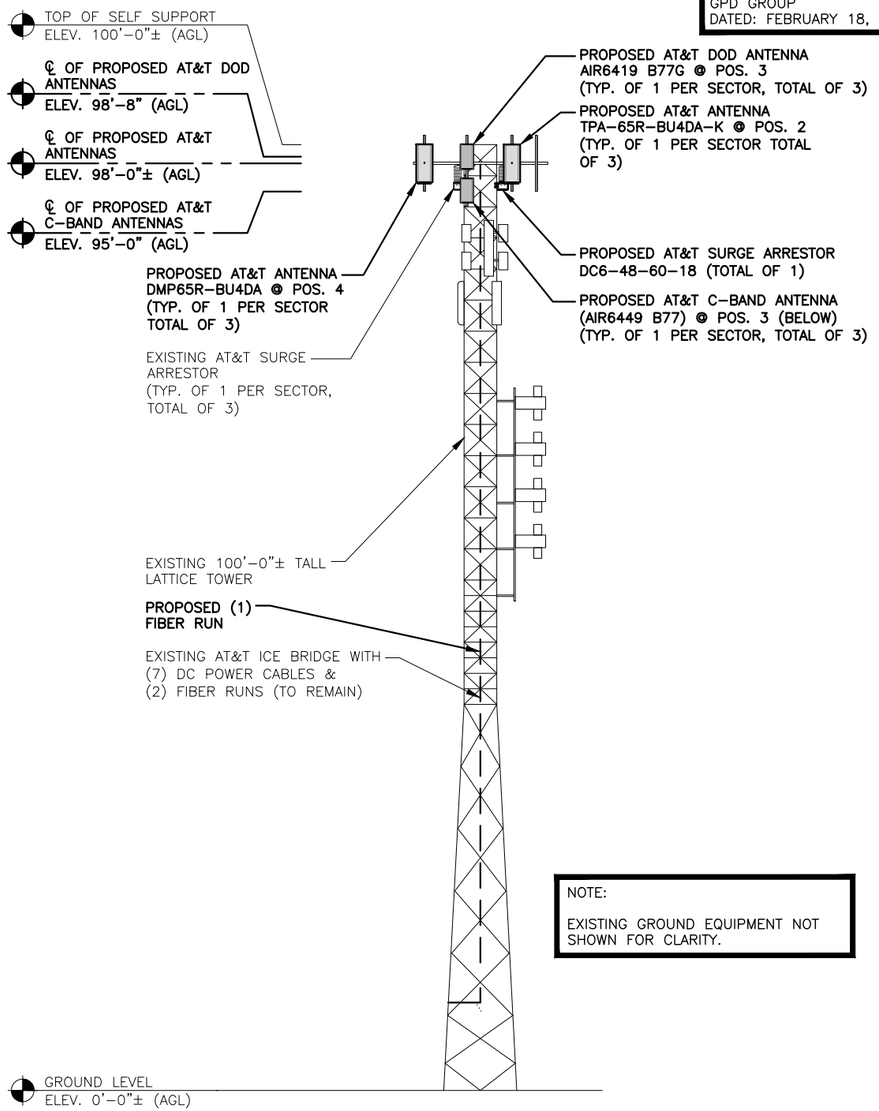
DATED: FEBRUARY 18, 2022



ELEVATION

3 / A-2

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

0 2'-0" 4'-0" 8'-0" 16'-0" 24'-0"

NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

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

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 21178
LICENSED PROFESSIONAL ENGINEER

AT&T

EXISTING ANTENNA PLAN
5G NR 1SR CBAND UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT0968	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–		(E) (1) RAYCAP DC6-48-60-08F **(P) (1) RAYCAP DC6-48-60-18**
A2	**PROPOSED**	**LTE 700 B14/AWS/PCS**	**TPA-65R-BU4DA-K**	**48X20.7X7.7**	**98'-0"±**	**60°**	–	(E)(1) 4478 B14 (700) (E)(1) 8843 B2/B66A (PCS/AWS)	– – –	(E)(2) DC POWER & **(P)(1) FIBER LINE**	
A3	**PROPOSED**	**DOD + C-BAND**	**AIR6419 B77G +AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**98'-8"± 95'-0"±**	**60°**	–	–	– –	–	
A4	**PROPOSED**	**LTE 700 BC/850/WCS**	**DMP65R-BU4DA**	**48.0X20.7X7.7**	**98'-0"±**	**60°**	–	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	– –	–	
B1	–	–	–	–	–	–	–	–	–		(E) (1) RAYCAP DC6-48-60-18-8F
B2	**PROPOSED**	**LTE 700 B14/AWS/PCS**	**TPA-65R-BU4DA-K**	**48X20.7X7.7**	**98'-0"±**	**170°**	–	(E)(1) 4478 B14 (700) (E)(1) 8843 B2/B66A (PCS/AWS)	– – –	(E)(2) DC POWER & (1) FIBER	
B3	**PROPOSED**	**DOD + C-BAND**	**AIR6419 B77G +AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**98'-8"± 95'-0"±**	**170°**	–	–	– –	–	
B4	**PROPOSED**	**LTE 700 BC/850/WCS**	**DMP65R-BU4DA**	**48.0X20.7X7.7**	**98'-0"±**	**170°**	–	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	– –	–	
C1	–	–	–	–	–	–	–	–	–		(E) (1) RAYCAP DC6-48-60-18-8F
C2	**PROPOSED**	**LTE 700 B14/AWS/PCS**	**TPA-65R-BU4DA-K**	**48X20.7X7.7**	**98'-0"±**	300°	–	(E)(1) 4478 B14 (700) (E)(1) 8843 B2/B66A (PCS/AWS)	– – –	(E)(2) DC POWER & (1) FIBER	
C3	**PROPOSED**	**DOD + C-BAND**	**AIR6419 B77G +AIR6449 B77 (STACKED)**	**31.1X16.1X7.3 30.6X15.9X10.6**	**98'-8"± 95'-0"±**	**300°**	–	–	– –	–	
C4	**PROPOSED**	**LTE 700 BC/850/WCS**	**DMP65R-BU4DA**	**48.0X20.7X7.7**	**98'-0"±**	**300°**	–	(E)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS)	– –	–	

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
E(3)	4449 (850/700)	17.9"x13.2"x10.4"
E(3)	8843 (PCS/AWS)	14.9"x13.2"x10.9"
E(3)	4478 B14 (700)	18.1"x13.4"x8.3"
E(3)	RRUS-32 (WCS)	27.2"x12.1"x7.0"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

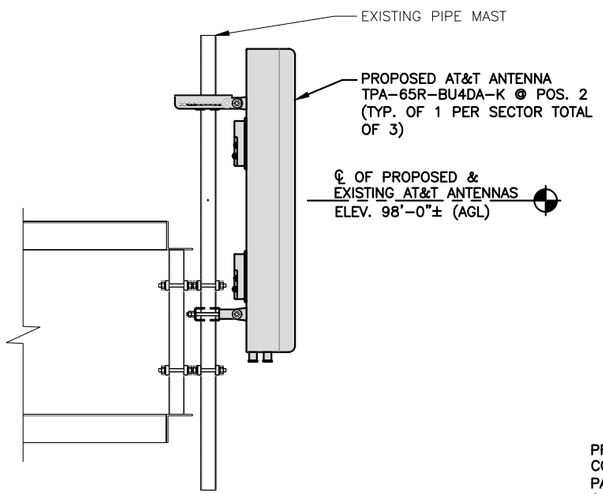
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
GPD GROUP
DATED: FEBRUARY 18, 2022

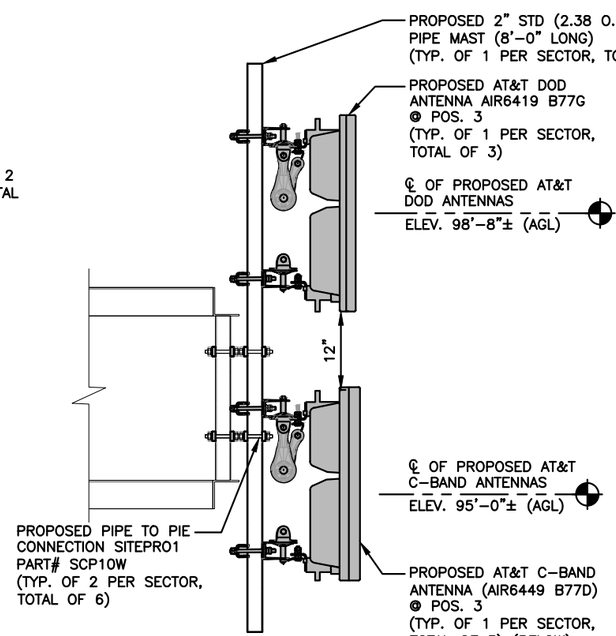
FINAL ANTENNA SCHEDULE (1 / A-3)

SCALE: N.T.S



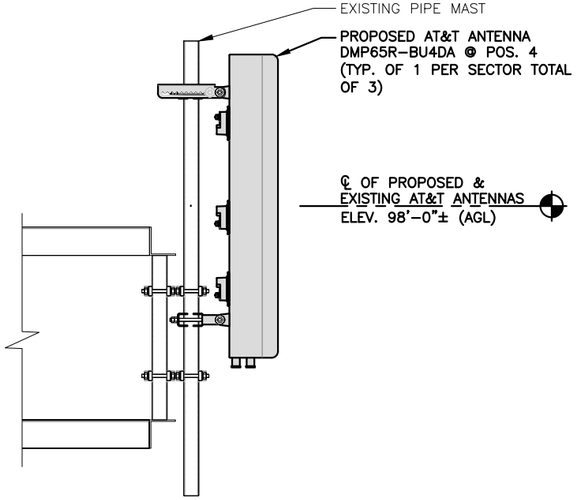
PROPOSED LTE ANTENNA MOUNTING DETAIL @ POS. 2 (2 / A-3)

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0" 0 1'-0" 2'-0" 4'-0" 6'-0"



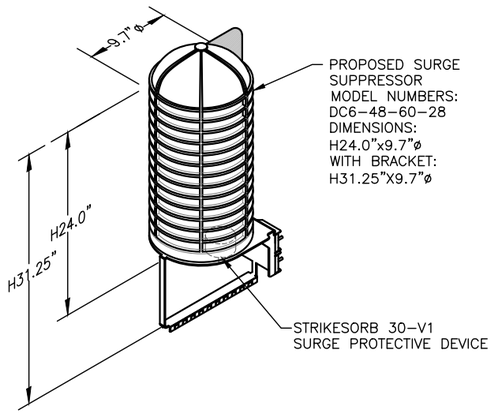
PROPOSED C-BAND ANTENNA MOUNTING DETAIL @ POS. 3 (3 / A-3)

22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0" 0 1'-0" 2'-0" 4'-0" 6'-0"



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

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0" 0 1'-0" 2'-0" 4'-0" 6'-0"



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESOR DETAIL (5 / A-3)

SCALE: N.T.S

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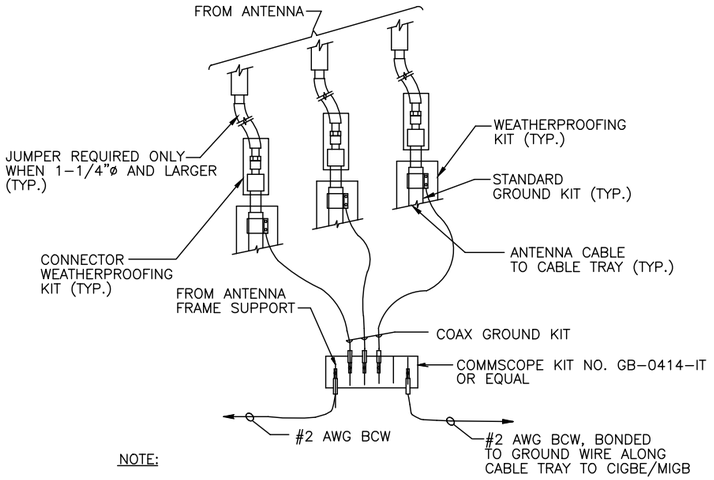
STATE OF CONNECTICUT DANIEL P. HAMM No. 21178 LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
5G NR 1SR CBAND UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT0968	A-3	1



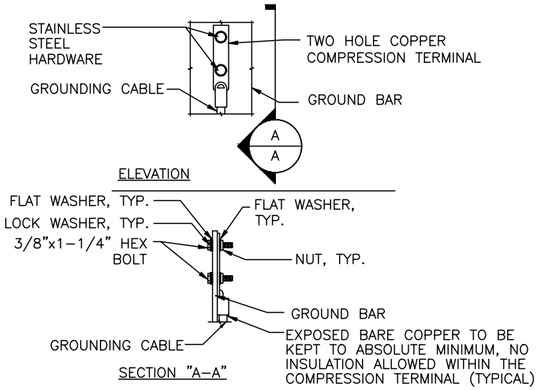
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

1 / G-1



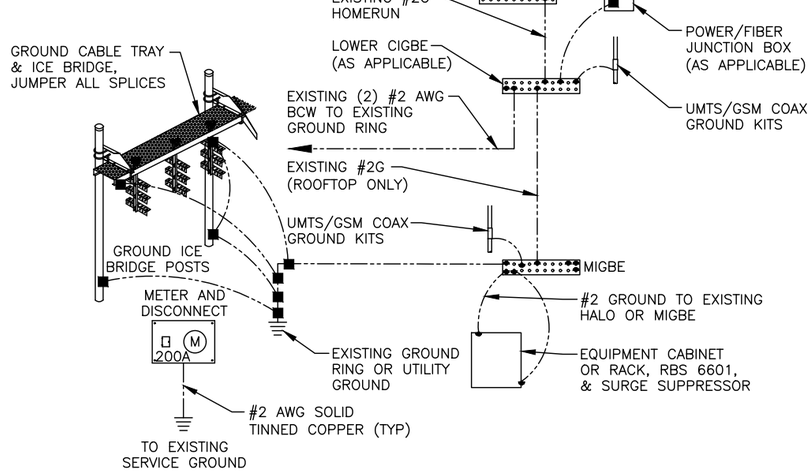
NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1

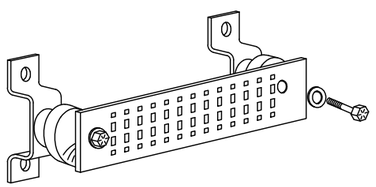
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

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A	04/23/21	ISSUED FOR REVIEW	GA	HC	DPH

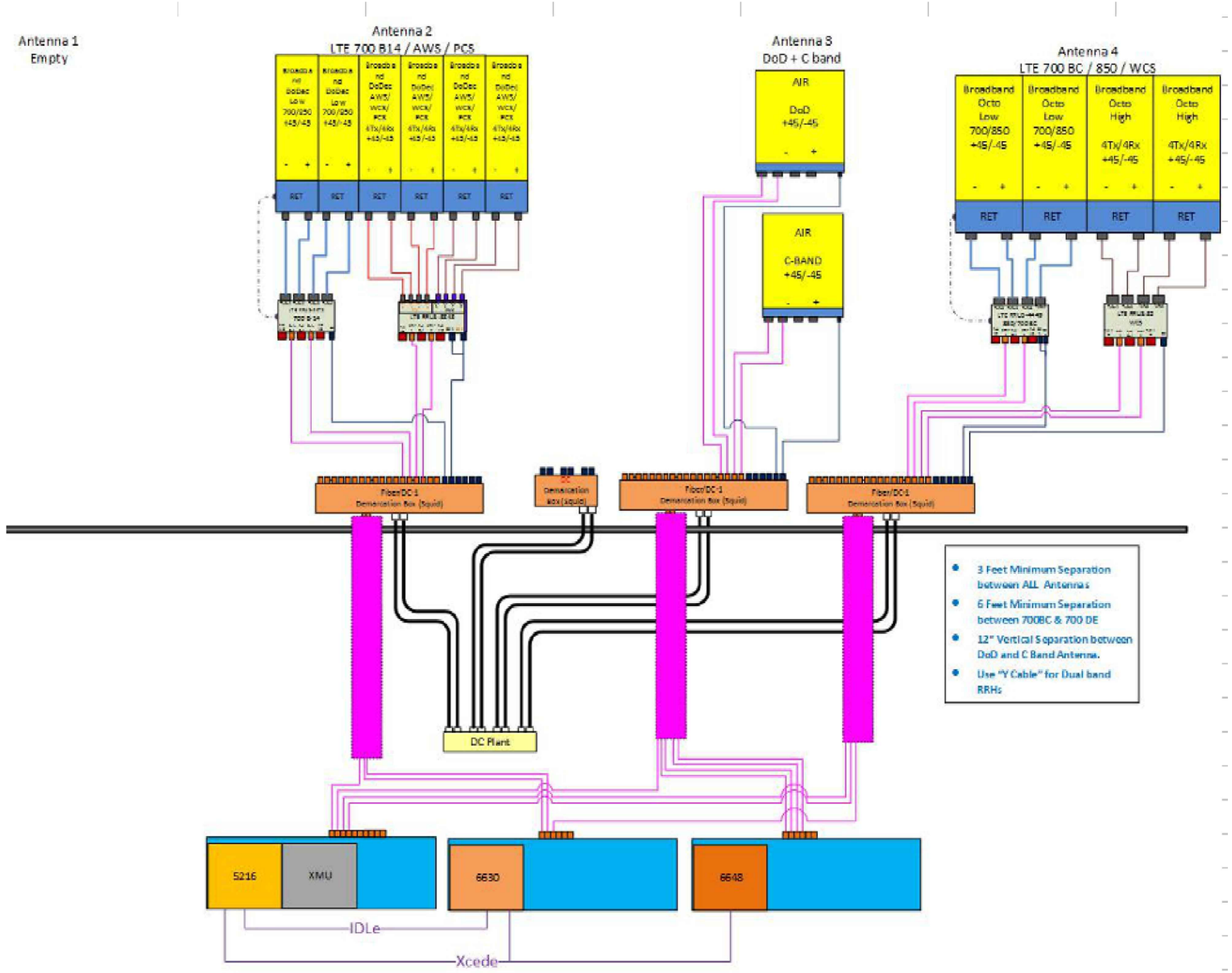
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: GA

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

AT&T

GROUNDING DETAILS
5G NR 1SR CBAND UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT0968	G-1	1



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

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

NOTE:

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

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT0968
SITE NAME: DANBURY BOXWOOD LANE

303 BOXWOOD LANE
DANBURY, CT 06811
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/01/22	ISSUED FOR CONSTRUCTION	JC	HC	DPH
A	04/23/21	ISSUED FOR REVIEW	SG	HC	DPH

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

AT&T

RF PLUMBING DIAGRAM
5G NR 1SR CBAND UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT0968	RF–1	1

SAI
12 Industrial Way
Salem NH, 03079

GPD Engineering and Architecture
Professional Corporation
Chad Burton
520 South Main Street, Suite 2531
Akron, OH 44311
(614) 859-1623
cburton@gpdgroup.com

GPD# 2022723.13.2022701.91
February 18, 2022

COMPREHENSIVE STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION:	**USID #:**	**170551**
	Site FA #:	**12684103**
	Client #:	**CT0968**
	Site Name:	**DANBURY**
ANALYSIS CRITERIA:	**Codes:**	**TIA-222-H & 2018 Connecticut State Building Code** **115 mph (3-second gust) w/ 0" ice** **50 mph (3-second gust) w/ 1" ice**
SITE DATA:		**303 Boxwood Lane, Danbury, CT 6811, Fairfield County** **Latitude 41° 23' 40.99" N, Longitude 73° 29' 12.00" W** **Market: NEW ENGLAND** **100' Self-Support Tower**

To whom it may concern,

GPD is pleased to submit this Comprehensive Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	93.7%	Pass
Foundation Ratio with Proposed Equipment:	76.6%	Pass

We at GPD appreciate the opportunity of providing our continuing professional services to you and SAI. If you have any questions or need further assistance on this or any other projects, please do not hesitate to call.

Respectfully submitted,

Christopher J. Scheks, P.E.
Connecticut #: 0030026

2/18/2022

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by AT&T Mobility and commissioned by SAI.

This analysis has been performed in accordance with the TIA-222-H Standard based upon a 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Appendices A & B.

Seismic loads were determined from spreadsheet calculations. It was concluded from these calculations that the wind loads control the maximum loading on the structure. The seismic loading case will not control.

The proposed feedlines shall be installed as shown in Appendices A & B for the analysis results to be valid.

In order for the analysis results to be valid for the existing, reserved, and proposed loading in Appendix A, the modifications referenced in the design drawings by GPD (Project #: 2020723.23.170551.01, dated 9/16/2020) must be installed.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Legs	88.6%	Pass
Bracing	93.7%	Pass
Bolt Checks	63.2%	Pass
Anchor Rods	67.4%	Pass
Foundation	76.6%	Pass

RECOMMENDATIONS

The tower and its foundation(s) have sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

ANALYSIS METHOD

tnxTower (Version 8.1.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various load cases. Selected output from the analysis is included the report appendices. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
RF Data Sheet	RFDS Name: CT0968 Rev. 2, updated 12/17/2021	AT&T
Tower Design	Fred A. Nudd Drawing #: 96-4992-1, dated 1/21/1997	AT&T
Foundation Design	Fred A. Nudd Drawing #: 96-4992-2, dated 1/21/1997	AT&T
Geotechnical Report	Not Provided	N/A
Previous Tower Analysis	GPD# 2020723.13.170551.01, dated 9/25/2020	GPD
Tower Mapping	ETS Job #: 202609, dated 6/26/2020	AT&T
Modification Design	Centek Job #: 10106, dated 8/13/2010	AT&T
Modification Drawings	GPD Project #: 2020723.23.170551.01, dated 9/16/2020	GPD

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The tower member sizes and shapes are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The appurtenance configuration is as supplied, determined from available photos, and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
3. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed. This analysis is limited to analyzing the tower only.
4. The soil parameters are as per data supplied or as assumed and stated in the calculations.
5. Foundations are properly designed and constructed to resist the original design loads indicated in the documents provided.
6. The tower and structures have been properly maintained in accordance with TIA Standards and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if applicable, are assumed to be as per data supplied/available and to have been properly installed.
9. Loading interpreted from photos is accurate to ±5' AGL, antenna size accurate to ±3.3 sf, and coax equal to the number of existing antennas without reserve.
10. All existing and proposed loading has been taken from the available site photos as well as documents supplied to GPD at the time of generating this report. All such documents are listed in the Documents Provided Table and are assumed to be accurate. GPD is not responsible for loading scenarios outside those conveyed in the supplied documentation.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Comprehensive Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	DANBURY (CT0968)
Site Number	170551
FA Number	12684103
Date of Analysis	2/18/2022
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	SST	
Tower Height (top of steel AGL)	100'	
Tower Manufacturer	n/a	
Tower Model	n/a	
Tower Design	Fred A. Nudd Drawing #: 96-4992-1	1/21/1997
Foundation Design	Fred A. Nudd Drawing #: 96-4992-2	1/21/1997
Geotechnical Report	n/a	
Previous Tower Analysis	GPD# 2020723.13.170551.01	9/25/2020
Tower Mapping	ETS Job #: 202609	6/26/2020
Modification Design	Centek Job #: 10106	8/13/2010
Modification Drawings	GPD Project #: 2020723.23.170551.01	9/16/2020

Design Parameters

Design Code Used	TIA-222-H & 2018 Connecticut State Building Code
Location of Tower (County, State)	Fairfield, CT
Wind Speed (mph)	115 (3-second gust)
Ice Thickness (in)	1
Risk Category (I, II, III)	II
Exposure Category (B, C, D)	B
Topographic Category (1 to 5)	1

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	93.7%
Anchor Rods (%)	67.4%
Foundation (%)	76.6%
Foundation Adequate?	Yes

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
AT&T Mobility	98	98	3*	Panel	Commscope	SBNHH-1D65A	60/190/300	3	Unknown	13' Sector Frames	8	DC Cable	3/4"	Face A
AT&T Mobility	98	98	3*	Panel	CCI	OPA-65R-LCUU-H4	60/190/300			on the same mounts	2	Fiber Cable	3/8"	Face A
AT&T Mobility	98	98	3*	Panel	CCI	OPA-65R-BU4B	60/190/300			on the same mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	RRUS 32 B30				on the same mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	4478 B14				on the same mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	8843 B2/B66A				on the same mounts				
AT&T Mobility	98	98	3	RRU	Ericsson	4449 B5/B12				on the same mounts				
AT&T Mobility	98	98	1	Squid	Raycap	DC6-48-60-08F				on the same mounts				
AT&T Mobility	98	98	2	Squid	Raycap	DC6-48-60-18-8F				on the same mounts				
Unknown	94	94	1	Dish	Kathrein	Grid Dish	90			Direct Mounted	1	Unknown	1/2"	Face A
Sprint	89	89	3	Panel	RFS	APXVSPP18-C-A20	30/150/270	3	Unknown	12.5' Sector Frames	4	Fiber	1-1/4"	Face B
Sprint	89	89	3	Panel	RFS	APXVTM14	30/150/270			on the same mounts				
Sprint	89	89	3	RRU	Alcatel Lucent	800 MHz RRH				on the same mounts				
Sprint	89	89	6	RRU	Alcatel Lucent	RRH 1900-4x45				on the same mounts				
Sprint	89	89	3	RRU	Alcatel Lucent	TD-RRH8x20				on the same mounts				
T-Mobile	81	83	3	Panel	Ericsson	Air 21	30/155/270	3	Unknown	9.5' Sector Frames	12	Unknown	1-5/8"	Face C
T-Mobile	81	83	3	Panel	Ericsson	Air 32	30/155/270			on the same mounts	2	Hybrid	1-5/8"	Face C
T-Mobile	81	81.5	3	Panel	Commscope	LNX-6515DS-A1M	30/155/270			on the same mounts				
T-Mobile	81	81	3	RRU	Ericsson	RRUS 11 B12				on the same mounts				
T-Mobile	81	81	3	TMA	Unknown	9"x10"x3" (TMA)				on the same mounts				
WCSU FM	62	62	1	FM	Shively Labs	6810 FM Antenna (4 Bays)	140	9	Unknown	1' Standoffs	1	Unknown	1-5/8"	Face A

***Indicates equipment/feedlines to be removed.**

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Face/Leg
AT&T Mobility	98	98	3	Panel	CCI	TPA-65R-BU4DA-K	60/170/300			on the existing mounts	1	Fiber Cable	3/8"	Face A
AT&T Mobility	98	98	3	Panel	Ericsson	AIR6449 B77D+AIR6419 B77G STACKED**	60/170/300			on the existing mounts				
AT&T Mobility	98	98	3	Panel	CCI	DMP65R-BU4DA	60/170/300			on the existing mounts				
AT&T Mobility	98	98	1	Surge	Raycap	DC6-48-60-18-8F				on the existing mounts				

Note: The proposed loading shall be in addition to the remaining existing equipment at the same elevation.

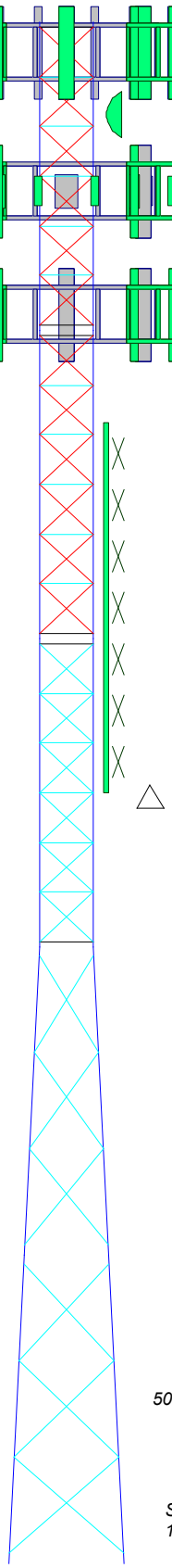
**The AIR antennas will be stacked on the same mounting pipe with 12" vertical separation between them. The 6419 will be on top and 6449 below.

APPENDIX B

Tower Analysis Output File

Section	T1	T2	T3	T4	T5
Legs	P 2-1/2 X-STR	P 2-1/2 X-STR (GR)	P 3 X-STR (GR)	P 5 STD (GR)	
Leg Grade	A500-50		A500M-61	A500-50	
Diagonals	SR 5/8		SR 0.625 w/ SR 0.75 (r Only) (GPD)	L2x2x3/16	L2-1/2x2-1/2x3/16
Diagonal Grade	A36				
Top Girts	L1-1/2x1-1/2x3/16	L1-1/2x1-1/2x3/16 (r-only) (GPD)	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	N.A.	
Bottom Girts	L1-1/2x1-1/2x3/16	L1-1/2x1-1/2x3/16 (r-only) (GPD)	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	N.A.	
Horizontals	L1-1/2x1-1/2x3/16	L1-1/2x1-1/2x3/16 (r-only) (GPD)	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	N.A.	
Face Width (ft)	3.5	18 @ 3.22222		5.5	7.5
# Panels @ (ft)	0.8	1.0	1.3	2.4	2.6
Weight (K)				6 @ 6.25	8.2

100.0 ft
80.0 ft
60.0 ft
40.0 ft
20.0 ft
0.0 ft



DESIGNED APPURTENANCE LOADING

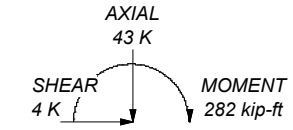
TYPE	ELEVATION	TYPE	ELEVATION
(2) Side Light	100	3' Grid Dish	94
13' Sector Mount	98	Pirod 12' Knockdown T-Frame	89
13' Sector Mount	98	Pirod 12' Knockdown T-Frame	89
13' Sector Mount	98	APXVSPP18-C-A20 w/ Mount Pipe	89
L2.5x2.5x3/16 Mount Mods	98	APXVSPP18-C-A20 w/ Mount Pipe	89
L2.5x2.5x3/16 Mount Mods	98	APXVSPP18-C-A20 w/ Mount Pipe	89
L2.5x2.5x3/16 Mount Mods	98	APXVTM14-C-120 w/ Mount Pipe	89
TPA-65R-BU4DA-K w/ Mount Pipe	98	APXVTM14-C-120 w/ Mount Pipe	89
TPA-65R-BU4DA-K w/ Mount Pipe	98	APXVTM14-C-120 w/ Mount Pipe	89
TPA-65R-BU4DA-K w/ Mount Pipe	98	800 MHz RRH	89
AIR6449 B77D+AIR6419 B77G STACKED w/ Mount Pipe	98	800 MHz RRH	89
		800 MHz RRH	89
AIR6449 B77D+AIR6419 B77G STACKED w/ Mount Pipe	98	(2) 1900MHz RRH	89
		(2) 1900MHz RRH	89
AIR6449 B77D+AIR6419 B77G STACKED w/ Mount Pipe	98	(2) 1900MHz RRH	89
DMP65R-BU4DA w/ Mount Pipe	98	TD-RRH8x20	89
DMP65R-BU4DA w/ Mount Pipe	98	TD-RRH8x20	89
DMP65R-BU4DA w/ Mount Pipe	98	TD-RRH8x20	89
RRUS 32 B30	98	Pirod 12' Knockdown T-Frame	89
RRUS 32 B30	98	Pirod 10' Lt. Wt. T-Frame	81
RRUS 32 B30	98	Pirod 10' Lt. Wt. T-Frame	81
4478 B14	98	AIR 21 w/ Mount Pipe	81
4478 B14	98	AIR 21 w/ Mount Pipe	81
4478 B14	98	AIR 21 w/ Mount Pipe	81
8843 B2/B66A	98	AIR 32 w/ Mount Pipe	81
8843 B2/B66A	98	AIR 32 w/ Mount Pipe	81
8843 B2/B66A	98	AIR 32 w/ Mount Pipe	81
4449 B5/B12	98	LNX-6515DS-A1M w/ Mount Pipe	81
4449 B5/B12	98	LNX-6515DS-A1M w/ Mount Pipe	81
4449 B5/B12	98	LNX-6515DS-A1M w/ Mount Pipe	81
DC6-48-60-0-8F Surge Suppression Unit	98	RRUS 11 B12	81
		RRUS 11 B12	81
DC6-48-60-18-8F Surge Suppression Unit	98	RRUS 11 B12	81
		KRY 112 76/1	81
DC6-48-60-18-8F Surge Suppression Unit	98	KRY 112 76/1	81
		KRY 112 76/1	81
DC6-48-60-18-8F Surge Suppression Unit	98	Pirod 10' Lt. Wt. T-Frame	81
		6810 FM (4 Bay Half Wave)	74 - 50

MATERIAL STRENGTH

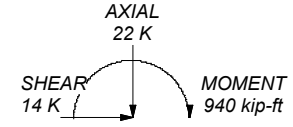
GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A500M-61	61 ksi	75 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 115 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Grouted pipe f'c is 8.000 ksi
9. TOWER RATING: 93.7%



TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE



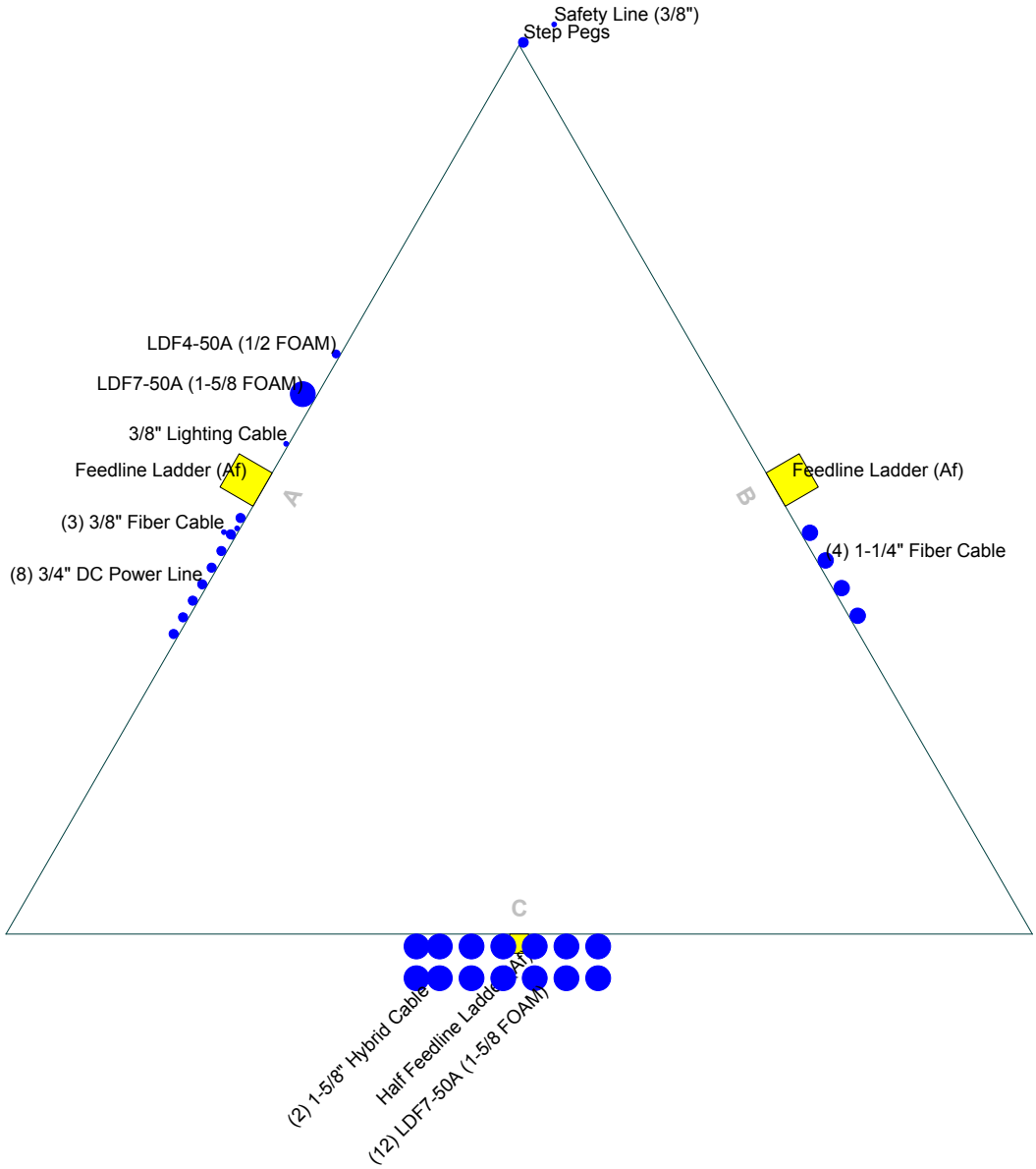
TORQUE 2 kip-ft
REACTIONS - 115 mph WIND

GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: **CT0968 DANBURY**		
Project: **2022723.13.2022701.91**		
Client: SAI	Drawn by: jdross	App'd:
Code: TIA-222-H	Date: 02/18/22	Scale: NTS
Path: T:\ATandT\170551\02 2022701.91 SAI SA\5_Structural\00_Structure\00_Rev 0\03_Modeling\170551.eri		Dwg No. E-1

Feed Line Plan

Round Flat App In Face App Out Face



GPD
520 South Main Street Suite 2531
Akron, Ohio 44311
Phone: (330) 572-2100
FAX: (330) 572-2101

Job: ***CT0968 DANBURY***		
Project: ***2022723.13.2022701.91***		
Client: SAI	Drawn by: jdross	App'd:
Code: TIA-222-H	Date: 02/18/22	Scale: NTS
Path: T:\ATandT\170551\02.2022701.91.SAI.SA\5_Structural\00_Structure\00_Rev 0\03_Modeling\170551.eri		Dwg No. E-7

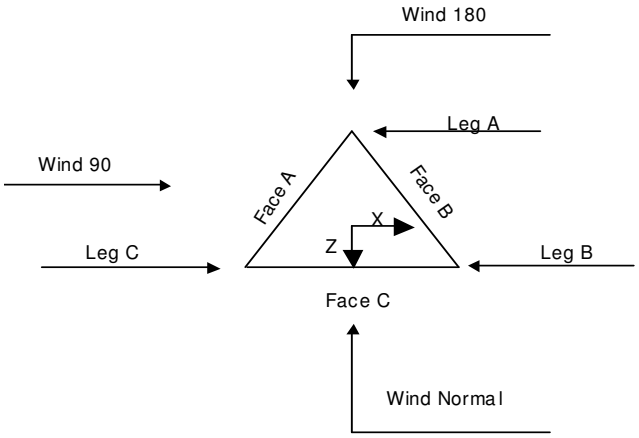
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 100.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.50 ft at the top and 7.50 ft at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Tower base elevation above sea level: 729.00 ft.
Basic wind speed of 115 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Grouted pipe f'_c is 8.000 ksi.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
√	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	100.00-80.00			3.50	1	20.00
T2	80.00-60.00			3.50	1	20.00
T3	60.00-40.00			3.50	1	20.00
T4	40.00-20.00			3.50	1	20.00
T5	20.00-0.00			5.50	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	100.00-80.00	3.22	TX Brace	No	Yes	4.0000	4.0000
T2	80.00-60.00	3.22	TX Brace	No	Yes	4.0000	4.0000
T3	60.00-40.00	3.22	X Brace	No	Yes	4.0000	4.0000
T4	40.00-20.00	6.25	X Brace	No	No	7.5000	7.5000
T5	20.00-0.00	6.25	X Brace	No	No	7.5000	7.5000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 100.00-80.00	Pipe	P 2-1/2 X-STR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T2 80.00-60.00	Grouted Pipe	P 2-1/2 X-STR	A500-50 (50 ksi)	Solid Round	5/8	A36 (36 ksi)
T3 60.00-40.00	Grouted Pipe	P 3 X-STR	A500M-61 (61 ksi)	Arbitrary Shape	SR 0.625 w/ SR 0.75 (r Only) (GPD)	A36 (36 ksi)
T4 40.00-20.00	Grouted Pipe	P 5 STD	A500-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T5 20.00-0.00	Grouted Pipe	P 5 STD	A500-50 (50 ksi)	Equal Angle	L2-1/2x2-1/2x3/16	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 100.00-80.00	Equal Angle	L1-1/2x1-1/2x3/16	A36 (36 ksi)	Equal Angle	L1-1/2x1-1/2x3/16	A36 (36 ksi)
T2 80.00-60.00	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)
T3 60.00-40.00	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	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 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L1-1/2x1-1/2x3/16	A36 (36 ksi)
T2 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)
T3 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Arbitrary Shape	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 40.00-20.00	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 20.00-0.00	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	0.97	0.97	1	1
80.00-60.00				1	1	1	0.97	0.97	1	1
T3	No	Yes	1	0.9361	1	1	0.97	0.97	1	1
60.00-40.00				0.9361	1	1	0.97	0.97	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T5 20.00-0.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	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 100.00-80.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 80.00-60.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 60.00-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

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 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 20.00-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation	Connection Offsets							
	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
ft	in	in	in	in	in	in	in	in
T1 100.00-80.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T2 80.00-60.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T3 60.00-40.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
T4 40.00-20.00	2.0000	5.5000	2.0000	5.5000	0.0000	0.0000	0.0000	0.0000
T5 20.00-0.00	2.0000	5.5000	2.0000	5.5000	0.0000	0.0000	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		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.	Bolt Size in	No.
T1 100.00-80.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 80.00-60.00	Flange	0.7500 A325N	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 60.00-40.00	Flange	1.0000 A325N	6	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 40.00-20.00	Flange	1.0000 A325N	6	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 20.00-0.00	Flange	1.0000 A325N	0	0.6250 A325N	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Grouted Pipe Properties

Size	F_y ksi	A_s in^2	A_c in^2	Wt plf	E_c ksi	E_m ksi	F_{ym} ksi
P 2-1/2 X-STR (GR)	50.000	2.2535	4.2383	16.498	5098.235	36670.663	62.789
P 3 X-STR (GR)	55.000	3.0159	6.6052	24.023	5098.235	37932.533	69.893
P 5 STD (GR)	50.000	4.2995	20.0019	56.301	5098.235	47974.321	81.635

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)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Step Pegs	B	No	No	Ar (CaAa)	40.00 - 8.00	0.0000	-0.5	1	1	0.8000	0.8000		0.003
Safety Line (3/8")	B	No	No	Ar (CaAa)	40.00 - 8.00	3.0000	-0.5	1	1	0.3750	0.3750		0.000
Climbing Rungs	B	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	-0.25	1	1	1.3330	0.1250		0.001
Safety Line (3/8")	B	No	No	Ar (CaAa)	100.00 - 40.00	3.0000	-0.25	1	1	0.3750	0.3750		0.000
Feedline Ladder (Af)	A	No	No	Af (CaAa)	40.00 - 8.00	0.0000	0	1	1	3.0000	3.0000		0.008
Feedline Ladder (Af)	B	No	No	Af (CaAa)	40.00 - 8.00	0.0000	0	1	1	3.0000	3.0000		0.008
Half Feedline Ladder (Af)	C	No	No	Af (CaAa)	40.00 - 8.00	0.0000	0	1	1	1.5000	1.5000		0.004
Coax Bracket 6/20' x 31"	A	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	0	1	1	1.5500	1.5500		0.001
Coax Bracket 6/20' x 31"	B	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	0	1	1	1.5500	1.5500		0.001
Coax Bracket 6/20' x 31"	C	No	No	Ar (CaAa)	100.00 - 40.00	0.0000	0	1	1	1.5500	1.5500		0.001
LDF4-50A (1/2 FOAM)	A	No	No	Ar (CaAa)	94.00 - 8.00	0.0000	0.15	1	1	0.6300	0.6300		0.000
LDF7-50A (1-5/8 FOAM)	A	No	No	Ar (CaAa)	50.00 - 8.00	0.0000	0.1	1	1	1.9800	1.9800		0.001
3/8" Lighting Cable	A	No	No	Ar (CaAa)	100.00 - 8.00	0.0000	0.05	1	1	0.6300	0.3800		0.000
3/4" DC Power Line	A	No	No	Ar (CaAa)	98.00 - 8.00	0.0000	-0.1	8	8	0.7500	0.7500		0.000
3/8" Fiber Cable	A	No	No	Ar (CaAa)	98.00 - 8.00	0.0000	-0.05	3	2	0.3750	0.3750		0.000
1-1/4" Fiber Cable	B	No	No	Ar (CaAa)	89.00 - 8.00	0.0000	0.1	4	4	1.2500	1.2500		0.001
LDF7-50A (1-5/8 FOAM)	C	No	No	Ar (CaAa)	81.00 - 8.00	0.0000	0	12	6	0.5000	1.9800		0.001
1-5/8" Hybrid Cable	C	No	No	Ar (CaAa)	81.00 - 8.00	0.0000	0.1	2	1	0.5000	1.9800		0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	100.00-80.00	A	0.000	0.000	17.567	0.000	0.084
		B	0.000	0.000	8.600	0.000	0.078

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	5.872	0.000	0.038
T2	80.00-60.00	A	0.000	0.000	19.370	0.000	0.091
		B	0.000	0.000	14.100	0.000	0.122
		C	0.000	0.000	58.540	0.000	0.256
T3	60.00-40.00	A	0.000	0.000	21.350	0.000	0.099
		B	0.000	0.000	14.100	0.000	0.122
		C	0.000	0.000	58.540	0.000	0.256
T4	40.00-20.00	A	0.000	0.000	30.230	0.000	0.249
		B	0.000	0.000	22.350	0.000	0.307
		C	0.000	0.000	60.440	0.000	0.314
T5	20.00-0.00	A	0.000	0.000	18.138	0.000	0.150
		B	0.000	0.000	13.410	0.000	0.184
		C	0.000	0.000	36.264	0.000	0.188

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	100.00-80.00	A	1.106	0.000	0.000	58.309	0.000	0.529
		B		0.000	0.000	30.298	0.000	0.329
		C		0.000	0.000	10.742	0.000	0.145
T2	80.00-60.00	A	1.078	0.000	0.000	63.952	0.000	0.569
		B		0.000	0.000	45.602	0.000	0.492
		C		0.000	0.000	71.446	0.000	1.021
T3	60.00-40.00	A	1.042	0.000	0.000	67.125	0.000	0.597
		B		0.000	0.000	44.950	0.000	0.478
		C		0.000	0.000	70.826	0.000	0.999
T4	40.00-20.00	A	0.991	0.000	0.000	76.585	0.000	0.813
		B		0.000	0.000	52.253	0.000	0.719
		C		0.000	0.000	71.824	0.000	1.039
T5	20.00-0.00	A	0.887	0.000	0.000	44.160	0.000	0.447
		B		0.000	0.000	30.226	0.000	0.403
		C		0.000	0.000	42.022	0.000	0.585

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	100.00-80.00	-1.2005	-0.9643	-1.1675	-1.9684
T2	80.00-60.00	-0.5119	1.5954	-0.7455	0.1976
T3	60.00-40.00	-0.6072	1.2713	-0.8079	0.0331
T4	40.00-20.00	-0.8585	0.2429	-1.5181	-1.0884
T5	20.00-0.00	-0.7822	0.1764	-1.4265	-1.0149

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	3	Climbing Rungs	80.00 - 100.00	0.6000	0.5339
T1	4	Safety Line (3/8")	80.00 - 100.00	0.6000	0.5339
T1	9	Coax Bracket 6/20' x 31"	80.00 - 100.00	0.6000	0.5339
T1	10	Coax Bracket 6/20' x 31"	80.00 - 100.00	0.6000	0.5339
T1	11	Coax Bracket 6/20' x 31"	80.00 - 100.00	0.6000	0.5339
T1	13	LDF4-50A (1/2 FOAM)	80.00 - 94.00	0.6000	0.5339
T1	15	3/8" Lighting Cable	80.00 - 100.00	0.6000	0.5339
T1	17	3/4" DC Power Line	80.00 - 98.00	0.6000	0.5339
T1	18	3/8" Fiber Cable	80.00 - 98.00	0.6000	0.5339
T1	21	1-1/4" Fiber Cable	80.00 - 89.00	0.6000	0.5339
T1	23	LDF7-50A (1-5/8 FOAM)	80.00 - 81.00	0.6000	0.5339
T1	24	1-5/8" Hybrid Cable	80.00 - 81.00	0.6000	0.5339
T2	3	Climbing Rungs	60.00 - 80.00	0.6000	0.5211
T2	4	Safety Line (3/8")	60.00 - 80.00	0.6000	0.5211
T2	9	Coax Bracket 6/20' x 31"	60.00 - 80.00	0.6000	0.5211
T2	10	Coax Bracket 6/20' x 31"	60.00 - 80.00	0.6000	0.5211
T2	11	Coax Bracket 6/20' x 31"	60.00 - 80.00	0.6000	0.5211
T2	13	LDF4-50A (1/2 FOAM)	60.00 - 80.00	0.6000	0.5211
T2	15	3/8" Lighting Cable	60.00 - 80.00	0.6000	0.5211
T2	17	3/4" DC Power Line	60.00 - 80.00	0.6000	0.5211
T2	18	3/8" Fiber Cable	60.00 - 80.00	0.6000	0.5211
T2	21	1-1/4" Fiber Cable	60.00 - 80.00	0.6000	0.5211
T2	23	LDF7-50A (1-5/8 FOAM)	60.00 - 80.00	0.6000	0.5211
T2	24	1-5/8" Hybrid Cable	60.00 - 80.00	0.6000	0.5211
T3	3	Climbing Rungs	40.00 - 60.00	0.6000	0.4714
T3	4	Safety Line (3/8")	40.00 - 60.00	0.6000	0.4714
T3	9	Coax Bracket 6/20' x 31"	40.00 - 60.00	0.6000	0.4714
T3	10	Coax Bracket 6/20' x 31"	40.00 - 60.00	0.6000	0.4714
T3	11	Coax Bracket 6/20' x 31"	40.00 - 60.00	0.6000	0.4714
T3	13	LDF4-50A (1/2 FOAM)	40.00 - 60.00	0.6000	0.4714
T3	14	LDF7-50A (1-5/8 FOAM)	40.00 - 50.00	0.6000	0.4714
T3	15	3/8" Lighting Cable	40.00 - 60.00	0.6000	0.4714
T3	17	3/4" DC Power Line	40.00 - 60.00	0.6000	0.4714
T3	18	3/8" Fiber Cable	40.00 - 60.00	0.6000	0.4714
T3	21	1-1/4" Fiber Cable	40.00 - 60.00	0.6000	0.4714
T3	23	LDF7-50A (1-5/8 FOAM)	40.00 - 60.00	0.6000	0.4714
T3	24	1-5/8" Hybrid Cable	40.00 - 60.00	0.6000	0.4714
T4	1	Step Pegs	20.00 - 40.00	0.6000	0.6000
T4	2	Safety Line (3/8")	20.00 - 40.00	0.6000	0.6000
T4	6	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T4	7	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T4	8	Half Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T4	13	LDF4-50A (1/2 FOAM)	20.00 - 40.00	0.6000	0.6000
T4	14	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T4	15	3/8" Lighting Cable	20.00 - 40.00	0.6000	0.6000
T4	17	3/4" DC Power Line	20.00 - 40.00	0.6000	0.6000
T4	18	3/8" Fiber Cable	20.00 - 40.00	0.6000	0.6000
T4	21	1-1/4" Fiber Cable	20.00 - 40.00	0.6000	0.6000
T4	23	LDF7-50A (1-5/8 FOAM)	20.00 - 40.00	0.6000	0.6000
T4	24	1-5/8" Hybrid Cable	20.00 - 40.00	0.6000	0.6000
T5	1	Step Pegs	8.00 - 20.00	0.6000	0.6000
T5	2	Safety Line (3/8")	8.00 - 20.00	0.6000	0.6000
T5	6	Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T5	8	Half Feedline Ladder (Af)	8.00 - 20.00	0.6000	0.6000
T5	13	LDF4-50A (1/2 FOAM)	8.00 - 20.00	0.6000	0.6000
T5	14	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T5	15	3/8" Lighting Cable	8.00 - 20.00	0.6000	0.6000
T5	17	3/4" DC Power Line	8.00 - 20.00	0.6000	0.6000
T5	18	3/8" Fiber Cable	8.00 - 20.00	0.6000	0.6000
T5	21	1-1/4" Fiber Cable	8.00 - 20.00	0.6000	0.6000
T5	23	LDF7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	24	1-5/8" Hybrid Cable	8.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) Side Light	A	From Leg	0.00 0.000 1.000	0.000	100.00	No Ice 1/2" Ice 1" Ice	0.33 0.47 0.60	0.33 0.47 0.60	0.007 0.007 0.007
13' Sector Mount	A	From Centroid-Face	4.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	14.48 18.67 22.86	7.22 9.23 11.24	0.310 0.454 0.598
13' Sector Mount	B	From Centroid-Face	4.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	14.48 18.67 22.86	7.22 9.23 11.24	0.310 0.454 0.598
13' Sector Mount	C	From Centroid-Face	4.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	14.48 18.67 22.86	7.22 9.23 11.24	0.310 0.454 0.598
L2.5x2.5x3/16 Mount Mods	A	From Centroid-Face	4.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	10.83 12.14 13.44	0.10 0.20 0.30	0.080 0.084 0.088
L2.5x2.5x3/16 Mount Mods	B	From Centroid-Face	4.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	10.83 12.14 13.44	0.10 0.20 0.30	0.080 0.084 0.088
L2.5x2.5x3/16 Mount Mods	C	From Centroid-Face	4.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	10.83 12.14 13.44	0.10 0.20 0.30	0.080 0.084 0.088
TPA-65R-BU4DA-K w/ Mount Pipe	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	8.88 9.43 9.95	4.97 5.77 6.45	0.074 0.142 0.218
TPA-65R-BU4DA-K w/ Mount Pipe	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	8.88 9.43 9.95	4.97 5.77 6.45	0.074 0.142 0.218
TPA-65R-BU4DA-K w/ Mount Pipe	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	8.88 9.43 9.95	4.97 5.77 6.45	0.074 0.142 0.218
AIR6449 B77D+AIR6419 B77G STACKED w/ Mount Pipe	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	11.76 12.47 13.14	9.94 11.21 12.34	0.229 0.331 0.442
AIR6449 B77D+AIR6419 B77G STACKED w/ Mount Pipe	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	11.76 12.47 13.14	9.94 11.21 12.34	0.229 0.331 0.442
AIR6449 B77D+AIR6419 B77G STACKED w/ Mount Pipe	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	11.76 12.47 13.14	9.94 11.21 12.34	0.229 0.331 0.442
DMP65R-BU4DA w/ Mount Pipe	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	4.96 5.28 5.61	5.24 5.80 6.38	0.072 0.123 0.180
DMP65R-BU4DA w/ Mount Pipe	B	From Centroid-Fa	5.00 0.000	0.000	98.00	No Ice 1/2" Ice	4.96 5.28	5.24 5.80	0.072 0.123

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
		ce	0.000			1" Ice	5.61	6.38	0.180
DMP65R-BU4DA w/ Mount Pipe	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	4.96 5.28 5.61	5.24 5.80 6.38	0.072 0.123 0.180
RRUS 32 B30	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.060 0.080 0.104
RRUS 32 B30	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.060 0.080 0.104
RRUS 32 B30	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	2.69 2.91 3.14	1.57 1.76 1.95	0.060 0.080 0.104
4478 B14	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.25 1.40 1.55	0.059 0.077 0.097
4478 B14	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.25 1.40 1.55	0.059 0.077 0.097
4478 B14	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.96 2.14 2.32	1.25 1.40 1.55	0.059 0.077 0.097
8843 B2/B66A	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.075 0.096 0.119
8843 B2/B66A	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.075 0.096 0.119
8843 B2/B66A	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.98 2.16 2.34	1.70 1.86 2.04	0.075 0.096 0.119
4449 B5/B12	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.071 0.090 0.111
4449 B5/B12	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.071 0.090 0.111
4449 B5/B12	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.071 0.090 0.111
DC6-48-60-0-8F Surge Suppression Unit	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	0.85 1.36 1.54	0.85 1.36 1.54	0.033 0.050 0.069
DC6-48-60-18-8F Surge Suppression Unit	A	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.019 0.037 0.057
DC6-48-60-18-8F Surge Suppression Unit	B	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.019 0.037 0.057
DC6-48-60-18-8F Surge Suppression Unit	C	From Centroid-Face	5.00 0.000 0.000	0.000	98.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.019 0.037 0.057
Pirod 12' Knockdown T-Frame	A	From Leg	1.50 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	9.76 13.67 17.58	7.05 10.13 13.21	0.284 0.411 0.539
Pirod 12' Knockdown T-Frame	B	From Leg	1.50 0.000	30.000	89.00	No Ice 1/2" Ice	9.76 13.67	7.05 10.13	0.284 0.411

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	17.58	13.21	0.539
Pirod 12' Knockdown T-Frame	C	From Leg	1.50 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	9.76 13.67 17.58	7.05 10.13 13.21	0.284 0.411 0.539
APXVSPP18-C-A20 w/ Mount Pipe	A	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	6.71 7.66 8.49	0.079 0.144 0.217
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	6.71 7.66 8.49	0.079 0.144 0.217
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	6.71 7.66 8.49	0.079 0.144 0.217
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.077 0.131 0.193
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.077 0.131 0.193
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.077 0.131 0.193
800 MHz RRH	A	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03	1.28 1.43 1.58	0.053 0.070 0.090
800 MHz RRH	B	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03	1.28 1.43 1.58	0.053 0.070 0.090
800 MHz RRH	C	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	1.70 1.86 2.03	1.28 1.43 1.58	0.053 0.070 0.090
(2) 1900MHz RRH	A	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.044 0.075 0.110
(2) 1900MHz RRH	B	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.044 0.075 0.110
(2) 1900MHz RRH	C	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.044 0.075 0.110
TD-RRH8x20	A	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	0.066 0.090 0.117
TD-RRH8x20	B	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	0.066 0.090 0.117
TD-RRH8x20	C	From Leg	3.00 0.000 0.000	30.000	89.00	No Ice 1/2" Ice 1" Ice	3.70 3.95 4.20	1.29 1.46 1.64	0.066 0.090 0.117
Pirod 10' Lt. Wt. T-Frame	A	From Leg	1.50 0.000 0.000	30.000	81.00	No Ice 1/2" Ice 1" Ice	8.27 12.24 16.21	8.37 11.93 15.49	0.287 0.421 0.555
Pirod 10' Lt. Wt. T-Frame	B	From Leg	1.50 0.000 0.000	30.000	81.00	No Ice 1/2" Ice 1" Ice	8.27 12.24 16.21	8.37 11.93 15.49	0.287 0.421 0.555
Pirod 10' Lt. Wt. T-Frame	C	From Leg	1.50 0.000	30.000	81.00	No Ice 1/2" Ice	8.27 12.24	8.37 11.93	0.287 0.421

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	16.21	15.49	0.555
AIR 21 w/ Mount Pipe	A	From Leg	1.50	30.000	81.00	No Ice	6.37	5.78	0.113
			0.000			1/2" Ice	6.85	6.63	0.171
			2.000			1" Ice	7.30	7.35	0.235
AIR 21 w/ Mount Pipe	B	From Leg	1.50	30.000	81.00	No Ice	6.37	5.78	0.113
			0.000			1/2" Ice	6.85	6.63	0.171
			2.000			1" Ice	7.30	7.35	0.235
AIR 21 w/ Mount Pipe	C	From Leg	1.50	30.000	81.00	No Ice	6.37	5.78	0.113
			0.000			1/2" Ice	6.85	6.63	0.171
			2.000			1" Ice	7.30	7.35	0.235
AIR 32 w/ Mount Pipe	A	From Leg	1.50	30.000	81.00	No Ice	6.63	6.31	0.138
			0.000			1/2" Ice	7.35	7.48	0.201
			2.000			1" Ice	8.01	8.50	0.271
AIR 32 w/ Mount Pipe	B	From Leg	1.50	30.000	81.00	No Ice	6.63	6.31	0.138
			0.000			1/2" Ice	7.35	7.48	0.201
			2.000			1" Ice	8.01	8.50	0.271
AIR 32 w/ Mount Pipe	C	From Leg	1.50	30.000	81.00	No Ice	6.63	6.31	0.138
			0.000			1/2" Ice	7.35	7.48	0.201
			2.000			1" Ice	8.01	8.50	0.271
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	1.50	30.000	81.00	No Ice	11.68	9.84	0.083
			0.000			1/2" Ice	12.40	11.37	0.173
			0.500			1" Ice	13.14	12.91	0.273
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	1.50	30.000	81.00	No Ice	11.68	9.84	0.083
			0.000			1/2" Ice	12.40	11.37	0.173
			0.500			1" Ice	13.14	12.91	0.273
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	1.50	30.000	81.00	No Ice	11.68	9.84	0.083
			0.000			1/2" Ice	12.40	11.37	0.173
			0.500			1" Ice	13.14	12.91	0.273
RRUS 11 B12	A	From Leg	1.50	30.000	81.00	No Ice	2.83	1.18	0.051
			0.000			1/2" Ice	3.04	1.33	0.072
			0.000			1" Ice	3.26	1.48	0.095
RRUS 11 B12	B	From Leg	1.50	30.000	81.00	No Ice	2.83	1.18	0.051
			0.000			1/2" Ice	3.04	1.33	0.072
			0.000			1" Ice	3.26	1.48	0.095
RRUS 11 B12	C	From Leg	1.50	30.000	81.00	No Ice	2.83	1.18	0.051
			0.000			1/2" Ice	3.04	1.33	0.072
			0.000			1" Ice	3.26	1.48	0.095
KRY 112 76/1	A	From Leg	1.50	30.000	81.00	No Ice	0.61	0.26	0.015
			0.000			1/2" Ice	0.71	0.33	0.021
			0.000			1" Ice	0.82	0.41	0.028
KRY 112 76/1	B	From Leg	1.50	30.000	81.00	No Ice	0.61	0.26	0.015
			0.000			1/2" Ice	0.71	0.33	0.021
			0.000			1" Ice	0.82	0.41	0.028
KRY 112 76/1	C	From Leg	1.50	30.000	81.00	No Ice	0.61	0.26	0.015
			0.000			1/2" Ice	0.71	0.33	0.021
			0.000			1" Ice	0.82	0.41	0.028
6810 FM (4 Bay Half Wave)	B	From Leg	1.00	10.000	74.00 - 50.00	No Ice	22.00	21.40	0.433
			0.000			1/2" Ice	25.40	24.20	1.015
			0.000			1" Ice	28.80	27.00	1.597

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter		Aperture Area	Weight
				ft	°	°	ft	ft		ft^2	K
3' Grid Dish	B	Grid	From Leg	1.00 0.000 0.000	-40.000		94.00	3.00	No Ice 1/2" Ice 1" Ice	7.07 7.47 7.86	0.049 0.038 0.000

Load Combinations

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

Comb. No.	Description
48	1.2D+1.0W (pattern 2) 330 deg - No Ice
49	0.9 Dead+1.0 Wind 330 deg - No Ice
50	1.2 Dead+1.0 Ice+1.0 Temp
51	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
52	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
53	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
54	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
55	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
56	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
57	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
58	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
59	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
60	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
61	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
62	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
63	Dead+Wind 0 deg - Service
64	Dead+Wind 30 deg - Service
65	Dead+Wind 60 deg - Service
66	Dead+Wind 90 deg - Service
67	Dead+Wind 120 deg - Service
68	Dead+Wind 150 deg - Service
69	Dead+Wind 180 deg - Service
70	Dead+Wind 210 deg - Service
71	Dead+Wind 240 deg - Service
72	Dead+Wind 270 deg - Service
73	Dead+Wind 300 deg - Service
74	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	5.7936	67	0.476	0.115
T2	80 - 60	3.7529	67	0.451	0.101
T3	60 - 40	1.8941	67	0.338	0.044
T4	40 - 20	0.7333	63	0.166	0.016
T5	20 - 0	0.1565	63	0.071	0.004

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	(2) Side Light	67	5.7936	0.476	0.115	290530
98.00	13' Sector Mount	67	5.5887	0.475	0.115	290530
94.00	3' Grid Dish	67	5.1792	0.473	0.115	242108
89.00	Pirod 12' Knockdown T-Frame	67	4.6681	0.469	0.114	132059
81.00	Pirod 10' Lt. Wt. T-Frame	67	3.8542	0.454	0.103	62053
74.00	6810 FM (4 Bay Half Wave)	67	3.1515	0.428	0.084	15823
68.00	6810 FM (4 Bay Half Wave)	67	2.5774	0.396	0.062	8593
62.00	6810 FM (4 Bay Half Wave)	67	2.0536	0.354	0.048	5979
56.00	6810 FM (4 Bay Half Wave)	67	1.6014	0.304	0.037	5819
50.00	6810 FM (4 Bay Half Wave)	69	1.2248	0.250	0.028	6715

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	100 - 80	21.1612	2	1.740	0.380
T2	80 - 60	13.7296	2	1.649	0.340
T3	60 - 40	6.9653	2	1.236	0.159
T4	40 - 20	2.7033	2	0.610	0.059
T5	20 - 0	0.5767	2	0.260	0.013

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
100.00	(2) Side Light	2	21.1612	1.740	0.380	62365
98.00	13' Sector Mount	2	20.4148	1.738	0.381	62365
94.00	3' Grid Dish	2	18.9228	1.731	0.382	51971
89.00	Pirod 12' Knockdown T-Frame	2	17.0613	1.715	0.378	28347
81.00	Pirod 10' Lt. Wt. T-Frame	2	14.0982	1.660	0.347	14067
74.00	6810 FM (4 Bay Half Wave)	2	11.5422	1.564	0.285	4284
68.00	6810 FM (4 Bay Half Wave)	2	9.4540	1.446	0.216	2369
62.00	6810 FM (4 Bay Half Wave)	2	7.5468	1.293	0.171	1656
56.00	6810 FM (4 Bay Half Wave)	2	5.8964	1.111	0.136	1610
50.00	6810 FM (4 Bay Half Wave)	2	4.5120	0.913	0.103	1850

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	100	Leg	A325N	0.7500	4	5.890	30.101	0.196	1	Bolt Tension
T2	80	Leg	A325N	0.7500	4	19.015	30.101	0.632	1	Bolt Tension
T3	60	Leg	A325N	1.0000	6	23.500	54.517	0.431	1	Bolt Tension
T4	40	Leg	A325N	1.0000	6	22.581	54.517	0.414	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3.903	7.875	0.496	1	Member Block Shear
T5	20	Diagonal	A325N	0.6250	1	1.390	9.914	0.140	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	100 - 80	P 2-1/2 X-STR	20.00	3.22	41.8 K=1.00	2.2535	-29.481	89.223	0.330 [1]
T2	80 - 60	P 2-1/2 X-STR (GR)	20.00	3.22	41.8 K=1.00	2.2535	-84.462	104.352	0.809 [1]
T3	60 - 40	P 3 X-STR (GR)	20.00	3.22	34.0 K=1.00	3.0159	-143.346	161.709	0.886 [1]
T4	40 - 20	P 5 STD (GR)	20.03	6.26	40.0 K=1.00	4.2995	-148.158	258.328	0.574 [1]
T5	20 - 0	P 5 STD (GR)	20.03	6.26	40.0 K=1.00	4.2995	-150.378	258.328	0.582 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T3	60 - 40	SR 0.625 w/ SR 0.75 (r Only) (GPD)	4.76	2.18	89.4 K=0.94	0.3068	-6.115	6.525	0.937 [1]
T4	40 - 20	L2x2x3/16	6.62	3.43	108.4 K=1.04	0.7148	-4.302	16.228	0.265 [1]
T5	20 - 0	L2-1/2x2-1/2x3/16	8.58	4.33	108.8 K=1.04	0.9023	-1.558	20.400	0.076 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-3.948	9.180	0.430 [1]
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	83.1 K=0.97	0.5273	-6.166	11.878	0.519 [1]
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	81.8 K=0.97	0.5273	-2.619	12.016	0.218 [1]

[1] P_u / ϕP_n controls

Top 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	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-0.491	9.180	0.053 [1]
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	83.1 K=0.97	0.5273	-3.003	11.878	0.253 [1]
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	81.8 K=0.97	0.5273	-2.619	12.016	0.218 [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	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	128.2 K=0.96	0.5273	-2.343	9.180	0.255 [1]
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	83.1 K=0.97	0.5273	-2.889	11.878	0.243 [1]
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	81.8 K=0.97	0.5273	-2.619	12.016	0.218 [1]

[1] P_u / ϕP_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	100 - 80	P 2-1/2 X-STR	20.00	0.33	4.3	2.2535	23.560	101.409	0.232 [1]
T2	80 - 60	P 2-1/2 X-STR (GR)	20.00	0.33	4.3	2.2535	76.059	101.409	0.750 [1]
T3	60 - 40	P 3 X-STR (GR)	20.00	0.33	3.5	3.0159	140.998	165.575	0.852 [1]
T4	40 - 20	P 5 STD (GR)	20.03	0.63	4.0	4.2995	141.083	193.476	0.729 [1]
T5	20 - 0	P 5 STD (GR)	20.03	0.63	4.0	4.2995	137.223	193.476	0.709 [1]

[1] P_u / ϕP_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	100 - 80	5/8	4.76	4.43	340.4	0.3068	6.155	9.940	0.619 [1]
T2	80 - 60	5/8	4.76	4.43	340.4	0.3068	8.691	9.940	0.874 [1]
T3	60 - 40	SR 0.625 w/ SR 0.75 (r Only) (GPD)	4.76	2.18	95.5	0.3068	5.687	9.940	0.572 [1]
T4	40 - 20	L2x2x3/16	6.62	3.43	69.5	0.4307	3.903	18.734	0.208 [1]
T5	20 - 0	L2-1/2x2-1/2x3/16	8.58	4.33	69.0	0.5713	1.390	24.851	0.056 [1]

[1] P_u / ϕP_n controls

Horizontal 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	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	85.7	0.5273	0.511	17.086	0.030 [1]
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	85.7	0.5273	1.464	17.086	0.086 [1]
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	84.3	0.5273	2.824	17.086	0.165 [1]

[1] P_u / ϕP_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 $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	85.7	0.5273	0.209	17.086	0.012 [1]
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.26	85.7	0.5273	1.464	17.086	0.086 [1]
T3	60 - 40	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	84.3	0.5273	2.619	17.086	0.153 [1]

[1] P_u / ϕP_n controls

Bottom 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 $\frac{P_u}{\phi P_n}$
T1	100 - 80	L1-1/2x1-1/2x3/16	3.50	3.26	85.7	0.5273	0.705	17.086	0.041 [1]
T2	80 - 60	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only)	3.50	3.26	85.7	0.5273	1.464	17.086	0.086 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	60 - 40	(GPD) L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	3.50	3.21	84.3	0.5273	2.619	17.086	0.153 [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	100 - 80	Leg	P 2-1/2 X-STR	2	-29.481	89.223	33.0	Pass
T2	80 - 60	Leg	P 2-1/2 X-STR (GR)	62	-84.462	104.352	80.9	Pass
T3	60 - 40	Leg	P 3 X-STR (GR)	122	-143.346	161.709	88.6	Pass
T4	40 - 20	Leg	P 5 STD (GR)	183	141.083	193.476	72.9	Pass
T5	20 - 0	Leg	P 5 STD (GR)	204	137.223	193.476	70.9	Pass
T1	100 - 80	Diagonal	5/8	10	6.155	9.940	61.9	Pass
T2	80 - 60	Diagonal	5/8	70	8.691	9.940	87.4	Pass
T3	60 - 40	Diagonal	SR 0.625 w/ SR 0.75 (r Only) (GPD)	130	-6.115	6.525	93.7	Pass
T4	40 - 20	Diagonal	L2x2x3/16	199	-4.302	16.228	26.5	Pass
T5	20 - 0	Diagonal	L2-1/2x2-1/2x3/16	208	-1.558	20.400	7.6	Pass
T1	100 - 80	Horizontal	L1-1/2x1-1/2x3/16	16	-3.948	9.180	43.0	Pass
T2	80 - 60	Horizontal	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	76	-6.166	11.878	51.9	Pass
T3	60 - 40	Horizontal	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	136	-2.619	12.016	21.8	Pass
T1	100 - 80	Top Girt	L1-1/2x1-1/2x3/16	6	-0.491	9.180	5.3	Pass
T2	80 - 60	Top Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	64	-3.003	11.878	25.3	Pass
T3	60 - 40	Top Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	124	-2.619	12.016	21.8	Pass
T1	100 - 80	Bottom Girt	L1-1/2x1-1/2x3/16	7	-2.343	9.180	25.5	Pass
T2	80 - 60	Bottom Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	67	-2.889	11.878	24.3	Pass
T3	60 - 40	Bottom Girt	L1-1/2x1-1/2x3/16 w/ L1-1/2x1-1/2x3/16 (r-only) (GPD)	127	-2.619	12.016	21.8	Pass

Summary	ELC:	E+P
Leg (T3)	88.6	Pass
Diagonal (T3)	93.7	Pass
Horizontal (T2)	51.9	Pass
Top Girt (T2)	25.3	Pass
Bottom Girt (T1)	25.5	Pass
Bolt Checks	63.2	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
						Rating =	93.7	Pass

APPENDIX C

Additional Calculations

BUILT-UP MEMBER ANALYSIS

Danbury / CT0968

2022723.13.2022701.91

Steel Specification	AISC 15th (Teal Book)
Analysis Method	LRFD
ASIF	1
Max Capacity	100%
Number of Sections	1

X-X Axis																																
Existing Member							Modification Member						Built-Up Member													Member Analysis					Modified Member	
Elevation	SR Diameter (in)	F_y (ksi)	Area (in^2)	I_x (in^4)	r_x (in)	a/r_x	SR Diameter (in)	F_y (ksi)	Area (in^2)	I_x (in^4)	r_x (in)	a/r_x	Connectors	K	L_u (in)	a (in)	h (in)	r_x (in)	$(KL/r_x)_o$	r_i (in)	r_{ib} (in)	α	$(KL/r)_{m(x)}$	K_x	$r_{x (r)}$ (in)	$0.75(KL/r)_{o(x)}$	$(a/r_i)_{max}$	$KL/r_{x(r)}$	Design met?	$(KL/r)_x$	K Multiplier	F_y (ksi)
40' - 60'	0.625	36	0.31	0.01	0.156	38.40	0.75	36	0.44	0.02	0.188	32.00	Bolts	0.9	26.16	6	0.69	0.381	61.81	0.156	0.156	2.20	72.77	0.54	0.595	46.36	38.40	39.57	Yes	21.45	0.5420	36

Y-Y Axis																																
Existing Member							Modification Member						Built-Up Member													Member Analysis					Modified Member	
Elevation	SR Diameter (in)	F_y (ksi)	Area (in^2)	I_y (in^4)	r_y (in)	a/r_y	SR Diameter (in)	F_y (ksi)	Area (in^2)	I_y (in^4)	r_y (in)	a/r_y	Connectors	K	L_u (in)	a (in)	h (in)	r_y (in)	$(KL/r_y)_o$	r_i (in)	r_{ib} (in)	α	$(KL/r)_{m(y)}$	K_y	$r_{y (r)}$ (in)	$0.75(KL/r)_{o(y)}$	$(a/r_i)_{max}$	$KL/r_{y(r)}$	Design met?	$(KL/r)_y$	K Multiplier	F_y (ksi)
40' - 60'	0.625	36	0.31	0.01	0.156	38.40	0.75	36	0.44	0.02	0.188	32.00	Bolts	0.9	26.16	6	0	0.175	134.26	0.156	0.156	0.00	139.64	1.04	0.274	100.69	38.40	85.95	Yes	89.39	1.0401	36

Summary				
Elevation	Modified Member	Stiffness Only	K	F_y (ksi)
40' - 60'	SR 0.625 w/ SR 0.75 (r)	Yes	0.9361	36

Reinforcement Termination				
Design Force (k)	Weld Type	Weld Size (1/16)	Weld L_{min} (in)	Unmodified Span (in)
N/A	Flare Bevel	5	0	3

Capacity Summary						
Compression (k)	Tension (k)	ϕPn (k) - Buckling	ϕPn (k) - Crushing	ϕPn (k) - Tension	Controlling	Rating
6.115	5.687	6.53	9.75	9.94	Buckling	93.7%
Apply TIA-222-H Section 15.5?				**No**		

Version 1.5

Self-Support Anchor Rod Analysis - TIA-222-H-1
CT0968 DANBURY
2022723.13.2022701.91

General Info	
Apply TIA-222-H Section 15.5	No
Modified Anchor Rods	No
Leg Eccentricity	No
Overstrength	No
Max Capacity	105%

Tower Reactions		
Compression, P_u =	152.14	kips
Compression Shear, V_u =	10.09	kips
Uplift, P_u =	136.91	kips
Uplift Shear, V_u =	9.06	kips
Number of Tower Legs =	3	
Tower Axial Force =	22.05	kips

Anchor Rods		
Number of Anchor Rods, n =	4	
Anchor Rod Grade =	A36	
Anchor Rod Diameter, d =	1.5	in
Bolt Circle Diameter, BC =	9.5	in
Rod Clear Span, l_{ar} =	1.5	in
Is grout present?	No	
Yield Strength, F_y =	36	ksi
Tensile Strength, F_u =	58	ksi
Rod Compression, P_{uc} =	38.04	kips
Rod Shear, V_u =	2.52	kips
Rod Moment, M_u =	2.46	k-in
Rod Tension, P_{ut} =	34.23	kips
Rod Shear, V_u =	2.27	kips
Rod Moment, M_u =	2.21	k-in

Anchor Rod Results		
$\phi_t R_{nt}$ =	61.34	kips
$\phi_c R_{nc}$ =	57.26	kips
$\phi_c R_{nb}$ =	57.19	kips
$\phi_v R_{nv}$ =	38.44	kips
$\phi_c R_{nvc}$ =	25.76	kips
$\phi_f M_n$ =	18.23	k-in
Tension Interaction	31.5%	OK
Compression Interaction	67.4%	OK

SST Unit Base Foundation

TIA-222 Revision: H

Top & Bot. Pad Rein. Different?:	✓
Tower Centroid Offset?:	
Block Foundation?:	
Rectangular Pad?:	

Superstructure Analysis Reactions		
Global Moment, **M**:	940.463	ft-kips
Global Axial, **P**:	22.052	kips
Global Shear, **V**:	13.695	kips
Leg Compression, $\mathbf{P_{comp}}$:	152.144	kips
Leg Comp. Shear, $\mathbf{V_{u\_comp}}$:	10.092	kips
Leg Uplift, $\mathbf{P_{uplift}}$:	136.908	kips
Leg Uplift. Shear, $\mathbf{V_{u\_uplift}}$:	9.063	kips
Tower Height, **H**:	100	ft
Base Face Width, **BW**:	7.5	ft
BP Dist. Above Fdn, $\mathbf{bp_{dist}}$:	3	in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	2.0	ft
Ext. Above Grade, **E**:	1.00	ft
Pier Rebar Size, **Sc**:	8	
Pier Rebar Quantity, **mc**:	8	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, $\mathbf{cc_{pier}}$:	3	in

Pad Properties		
Depth, **D**:	7.00	ft
Pad Width, $\mathbf{W_1}$:	14.50	ft
Pad Thickness, **T**:	3.00	ft
Pad Rebar Size (Top dir.2), $\mathbf{Sp_{top2}}$:	6	
Pad Rebar Quantity (Top dir. 2), $\mathbf{mp_{top2}}$:	15	
Pad Rebar Size (Bottom dir. 2), $\mathbf{Sp_2}$:	8	
Pad Rebar Quantity (Bottom dir. 2), $\mathbf{mp_2}$:	15	
Pad Clear Cover, $\mathbf{cc_{pad}}$:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	100	pcf
Ultimate Gross Bearing, Qult:	20.000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, $\mathbf{N_{blows}}$:	1	
Base Friction, μ:	0.45	
Neglected Depth, **N**:	3.3	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, **gw**:	N/A	ft

<-- Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	118.15	13.70	**11.6%**	**Pass**
Bearing Pressure (ksf)	15.00	5.35	**35.7%**	**Pass**
*Overturning (kip*ft)*	1375.94	1053.45	**76.6%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	289.73	50.46	**17.4%**	**Pass**
*Pier Flexure (Tension) (kip*ft)*	159.67	45.32	**28.4%**	**Pass**
Pier Compression (kip)	1999.56	154.97	**7.8%**	**Pass**
*Pad Flexure (kip*ft)*	1647.69	406.69	**24.7%**	**Pass**
Pad Shear - 1-way (kips)	519.97	87.10	**16.8%**	**Pass**
Pad Shear - Comp 2-way (ksi)	0.190	0.029	**15.4%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	773.94	30.28	**3.9%**	**Pass**
Pad Shear - Tension 2-way (ksi)	0.190	0.031	**16.3%**	**Pass**
*Flexural 2-way (Tension) (kip*ft)*	773.94	27.19	**3.5%**	**Pass**

Structural Rating:	**28.4%**
Soil Rating:	**76.6%**

January 18, 2022

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT0968
	FA Number:	12684103
	PACE Number:	MRCTB055834
	PT Number:	2051A11KQM
	Site Name:	DANBURY BOXWOOD LANE
	Site Address:	303 Boxwood Lane Danbury, CT 06811

To Whom It May Concern:

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

- (3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) Squid Surge Arrestors (24.0"x9.7" Ø – Wt. = 33 lbs. /each)
- **(3) TPA-65R-BU4DA-K Antennas (48.0"x20.7"x7.7 – 53 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) DMP65R-BU4DA-K Antennas (48.0"x20.7"x7.7" – Wt. = 68 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.)**

  **Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. B+T Group conducted a survey climb and mapping of the existing AT&T antenna mounts on December 13, 2018. HDG conducted a ground audit of the existing AT&T antenna mounts on October 27, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30-degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 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 1.25 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 3; tower is located at the upper half of a hill.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.219 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.067.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst-case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst-case location on the mount.
- The existing mount is secured to the existing self-supporting tower with steel angles and U-bolts tightened around the tower leg. HDG considers the U-bolts as the governing connection members. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	29	LC31	95%	**PASS**

Reference Documents:

- Mount mapping report prepared by B+T Group

This determination was based on the following limitations and assumptions:

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

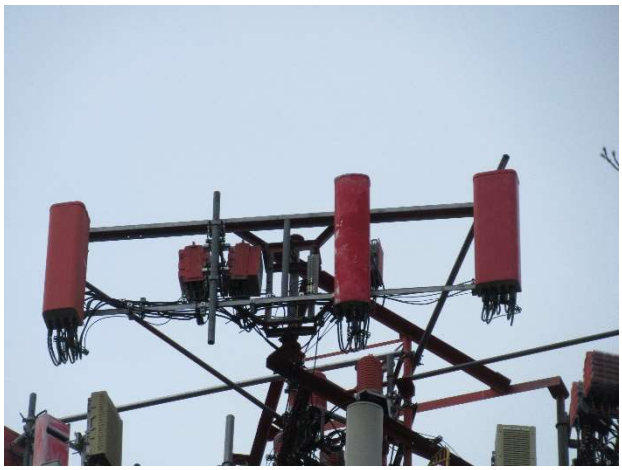
Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:



HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

	z=	98 (ft)
	z_g=	1200 (ft)
K_z= 0.983	α=	7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

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

K_{zt}= 1.390096164

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

Category= **3**

K_h=	2.6644562	
K_c=	0.9	(from Table 2-4)
K_t=	0.53	(from Table 2-5)
f=	2	(from Table 2-5)
z=	98	
z_s=	740	(Mean elevation of base of structure above sea level)
H=	200	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.39	(from 2.6.6.2.1)
K_e=	0.97	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i =	1.00 in
Importance Factor =	I=	1.0 (from Table 2-3)
	K_{iz} =	1.11 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.25 in

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	100	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

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

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

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	0.983	(from 2.6.5.2)
		K_{zt}=	1.4	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**41.67**	K_e=	0.97	(from 2.6.8)
$q_{z\,(ice)}$=	**7.23**	K_d=	0.85	(from Table 2-2)
$q_{z\,(30)}$=	**2.60**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\,(ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
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HUDSON Design Group LLC

Determine Ca:

Table 2-9

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

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

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

Ice Thickness = 1.25 in | **Angle =** 0 (deg) | **Equivalent Angle =** 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.32	1.20	345	71	22
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	169	37	11
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.93	1.20	173	38	11
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.32	1.20	345	71	22
B14 4478 RRH	18.1	8.3	13.4	1.04	2.18	1.20	52	13	3
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	4.36	1.28	28	9	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.20	56	14	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	2.73	1.21	28	8	2
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.90	1.20	58	15	4
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	3.81	1.26	31	9	2
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	3.89	1.26	70	18	4
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	7.77	1.43	39	13	2
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	47	11	3
2" Pipe	2.4	12.0		0.20	0.20	0.70	6		
2-1/2" Pipe	2.9	12.0		0.24	0.24	0.70	7		
3/4" Round Bar	0.8	12.0		0.06	0.06	0.70	2		
2" Round Bar	2.0	12.0		0.17	0.17	0.70	5		
L 2x2 Angle	2.0	12.0		0.17	0.17	1.20	8		
L 2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	1.20	10		
L 4x4 Angle	4.0	12.0		0.33	0.33	1.20	17		
T2L 2x2 Angle	4.0	12.0		0.33	0.33	1.20	17		
LU 3x2 Angle	3.0	12.0		0.25	0.25	1.20	12		
Z 2-1/2x2-1/2 Angle	5.0	12.0		0.42	0.42	1.20	21		
C 3x1-1/2 Channel	3.0	12.0		0.25	0.25	1.20	12		
PL 3x3/8"	0.4	12.0		0.03	0.03	1.20	2		
PL 6x1/2"	0.5	12.0		0.04	0.04	1.20	2		

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	295
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	169	114	155
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	173	84	151
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	295
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	60
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	28	52	34
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	59
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	28	56	35
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	64
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	31	58	38
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	70	114	81
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	39	70	47

WIND LOADS WITH ICE:

TPA65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	61
AIR6449 Antenna	33.1	18.4	13.1	4.23	3.01	1.80	2.53	1.20	1.20	37	26	34
AIR6419 Antenna	33.5	18.6	9.8	4.33	2.28	1.80	3.42	1.20	1.24	38	20	33
DMP65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	61
B14 4478 RRH	20.6	10.8	15.9	1.55	2.28	1.91	1.30	1.20	1.20	13	20	15
B14 4478 RRH (Shielded)	20.6	6.7	10.8	0.95	1.55	3.10	1.91	1.23	1.20	8	13	10
B2/B66A 8843 RRH	17.4	13.4	15.7	1.62	1.90	1.30	1.11	1.20	1.20	14	16	15
B2/B66A 8843 RRH (Shielded)	17.4	8.0	13.4	0.96	1.62	2.19	1.30	1.20	1.20	8	14	10
B5/B12 4449 RRH	20.4	11.9	15.7	1.69	2.22	1.71	1.30	1.20	1.20	15	19	16
B5/B12 4449 RRH (Shielded)	20.4	7.2	11.9	1.02	1.69	2.83	1.71	1.21	1.20	9	15	10
RRUS-32 B30 RRH	29.7	9.5	14.6	1.96	3.01	3.13	2.03	1.23	1.20	17	26	20
RRUS-32 B30 RRH (Shielded)	29.7	6.0	9.5	1.24	1.96	4.95	3.13	1.31	1.23	12	17	13

WIND LOADS AT 30 MPH:

TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	18
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	7	10
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	5	9
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	18
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	4	2
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	4
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	4	2
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	7	5
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	2	4	3

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.25 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	196
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	169	114	128
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	173	84	106
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	196
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	76
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	28	52	46
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	65
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	28	56	49
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	76
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	31	58	51
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	70	114	103
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	39	70	62

WIND LOADS WITH ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	43
AIR6449 Antenna	33.1	18.4	13.1	4.23	3.01	1.80	2.53	1.20	1.20	37	26	29
AIR6419 Antenna	33.5	18.6	9.8	4.33	2.28	1.80	3.42	1.20	1.24	38	20	25
DMP65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	43
B14 4478 RRH	20.6	10.8	15.9	1.55	2.28	1.91	1.30	1.20	1.20	13	20	18
B14 4478 RRH (Shielded)	20.6	6.7	10.8	0.95	1.55	3.10	1.91	1.23	1.20	8	13	12
B2/B66A 8843 RRH	17.4	13.4	15.7	1.62	1.90	1.30	1.11	1.20	1.20	14	16	16
B2/B66A 8843 RRH (Shielded)	17.4	8.0	13.4	0.96	1.62	2.19	1.30	1.20	1.20	8	14	13
B5/B12 4449 RRH	20.4	11.9	15.7	1.69	2.22	1.71	1.30	1.20	1.20	15	19	18
B5/B12 4449 RRH (Shielded)	20.4	7.2	11.9	1.02	1.69	2.83	1.71	1.21	1.20	9	15	13
RRUS-32 B30 RRH	29.7	9.5	14.6	1.96	3.01	3.13	2.03	1.23	1.20	17	26	24
RRUS-32 B30 RRH (Shielded)	29.7	6.0	9.5	1.24	1.96	4.95	3.13	1.31	1.23	12	17	16

WIND LOADS AT 30 MPH:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	12
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	7	8
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	5	7
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	12
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	3
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	4	3
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	5
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	4	3
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	7	6
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	2	4	4

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	146
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	169	114	114
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	173	84	84
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	146
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	84
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	28	52	52
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	68
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	28	56	56
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	82
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	31	58	58
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	70	114	114
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	39	70	70

WIND LOADS WITH ICE:

TPA65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	34
AIR6449 Antenna	33.1	18.4	13.1	4.23	3.01	1.80	2.53	1.20	1.20	37	26	26
AIR6419 Antenna	33.5	18.6	9.8	4.33	2.28	1.80	3.42	1.20	1.24	38	20	20
DMP65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	34
B14 4478 RRH	20.6	10.8	15.9	1.55	2.28	1.91	1.30	1.20	1.20	13	20	20
B14 4478 RRH (Shielded)	20.6	6.7	10.8	0.95	1.55	3.10	1.91	1.23	1.20	8	13	13
B2/B66A 8843 RRH	17.4	13.4	15.7	1.62	1.90	1.30	1.11	1.20	1.20	14	16	16
B2/B66A 8843 RRH (Shielded)	17.4	8.0	13.4	0.96	1.62	2.19	1.30	1.20	1.20	8	14	14
B5/B12 4449 RRH	20.4	11.9	15.7	1.69	2.22	1.71	1.30	1.20	1.20	15	19	19
B5/B12 4449 RRH (Shielded)	20.4	7.2	11.9	1.02	1.69	2.83	1.71	1.21	1.20	9	15	15
RRUS-32 B30 RRH	29.7	9.5	14.6	1.96	3.01	3.13	2.03	1.23	1.20	17	26	26
RRUS-32 B30 RRH (Shielded)	29.7	6.0	9.5	1.24	1.96	4.95	3.13	1.31	1.23	12	17	17

WIND LOADS AT 30 MPH:

TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	9
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	7	7
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	5	5
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	9
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	3
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	4	4
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	5
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	4	4
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	7	7
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	2	4	4

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	196
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	169	114	128
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	173	84	106
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	196
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	76
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	28	52	46
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	65
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	28	56	49
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	76
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	31	58	51
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	70	114	103
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	39	70	62

WIND LOADS WITH ICE:

TPA65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	43
AIR6449 Antenna	33.1	18.4	13.1	4.23	3.01	1.80	2.53	1.20	1.20	37	26	29
AIR6419 Antenna	33.5	18.6	9.8	4.33	2.28	1.80	3.42	1.20	1.24	38	20	25
DMP65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	43
B14 4478 RRH	20.6	10.8	15.9	1.55	2.28	1.91	1.30	1.20	1.20	13	20	18
B14 4478 RRH (Shielded)	20.6	6.7	10.8	0.95	1.55	3.10	1.91	1.23	1.20	8	13	12
B2/B66A 8843 RRH	17.4	13.4	15.7	1.62	1.90	1.30	1.11	1.20	1.20	14	16	16
B2/B66A 8843 RRH (Shielded)	17.4	8.0	13.4	0.96	1.62	2.19	1.30	1.20	1.20	8	14	13
B5/B12 4449 RRH	20.4	11.9	15.7	1.69	2.22	1.71	1.30	1.20	1.20	15	19	18
B5/B12 4449 RRH (Shielded)	20.4	7.2	11.9	1.02	1.69	2.83	1.71	1.21	1.20	9	15	13
RRUS-32 B30 RRH	29.7	9.5	14.6	1.96	3.01	3.13	2.03	1.23	1.20	17	26	24
RRUS-32 B30 RRH (Shielded)	29.7	6.0	9.5	1.24	1.96	4.95	3.13	1.31	1.23	12	17	16

WIND LOADS AT 30 MPH:

TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	12
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	7	8
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	5	7
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	12
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	3
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	4	3
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	5
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	4	3
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	7	6
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	2	4	4

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.25	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	295
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	169	114	155
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	173	84	151
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	345	146	295
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	60
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	28	52	34
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	59
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	28	56	35
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	64
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	31	58	38
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	70	114	81
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	39	70	47

WIND LOADS WITH ICE:

TPA65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	61
AIR6449 Antenna	33.1	18.4	13.1	4.23	3.01	1.80	2.53	1.20	1.20	37	26	34
AIR6419 Antenna	33.5	18.6	9.8	4.33	2.28	1.80	3.42	1.20	1.24	38	20	33
DMP65R-BU4DA-K Antenna	50.5	23.2	10.2	8.14	3.58	2.18	4.95	1.20	1.31	71	34	61
B14 4478 RRH	20.6	10.8	15.9	1.55	2.28	1.91	1.30	1.20	1.20	13	20	15
B14 4478 RRH (Shielded)	20.6	6.7	10.8	0.95	1.55	3.10	1.91	1.23	1.20	8	13	10
B2/B66A 8843 RRH	17.4	13.4	15.7	1.62	1.90	1.30	1.11	1.20	1.20	14	16	15
B2/B66A 8843 RRH (Shielded)	17.4	8.0	13.4	0.96	1.62	2.19	1.30	1.20	1.20	8	14	10
B5/B12 4449 RRH	20.4	11.9	15.7	1.69	2.22	1.71	1.30	1.20	1.20	15	19	16
B5/B12 4449 RRH (Shielded)	20.4	7.2	11.9	1.02	1.69	2.83	1.71	1.21	1.20	9	15	10
RRUS-32 B30 RRH	29.7	9.5	14.6	1.96	3.01	3.13	2.03	1.23	1.20	17	26	20
RRUS-32 B30 RRH (Shielded)	29.7	6.0	9.5	1.24	1.96	4.95	3.13	1.31	1.23	12	17	13

WIND LOADS AT 30 MPH:

TPA65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	18
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	11	7	10
AIR6419 Antenna	31.0	16.1	7.3	3.47	1.57	1.93	4.25	1.20	1.28	11	5	9
DMP65R-BU4DA-K Antenna	48.0	20.7	7.7	6.90	2.57	2.32	6.23	1.20	1.37	22	9	18
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	4	2
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	4	5	4
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	4	2
RRUS-32 B30 RRH	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	7	5
RRUS-32 B30 RRH (Shielded)	27.2	3.5	7.0	0.66	1.32	7.77	3.89	1.43	1.26	2	4	3

Date: 1/18/2022
Project Name: DANBURY BOXWOOD LANE
Project No.: CT0968
Designed By: CL **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.25 in.
Density of ice: 56 pcf

TPA65R-BU4DA-K Antenna
Weight of ice based on total radial SF area:
Height (in): 48.0
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 143 lbs
Weight of object: 53.0 lbs
Combined weight of ice and object: 196 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: 79 lbs
Weight of object: 82.0 lbs
Combined weight of ice and object: 161 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: 75 lbs
Weight of object: 66.0 lbs
Combined weight of ice and object: 141 lbs

DMP65R-BU4DA-K Antenna
Weight of ice based on total radial SF area:
Height (in): 48.0
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 143 lbs
Weight of object: 68.0 lbs
Combined weight of ice and object: 211 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: 39 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 99 lbs

B2/B66A 8843 RRH
Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9
Total weight of ice on object: 35 lbs
Weight of object: 72.0 lbs
Combined weight of ice and object: 107 lbs

B5/B12 4449 RRH
Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4
Total weight of ice on object: 40 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 113 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: 53 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 113 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: 33 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 66 lbs

2" Pipe
Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 6 plf

2-1/2" Pipe
Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 6 plf

3/4" Round Bar
Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 3 plf

2" Round Bar
Per foot weight of ice:
diameter (in): 2
Per foot weight of ice on object: 5 plf

L 2x2 Angle
Weight of ice based on total radial SF area:
Height (in): 2
Width (in): 2
Per foot weight of ice on object: 6 plf

L 2-1/2x2-1/2 Angle
Weight of ice based on total radial SF area:
Height (in): 2.5
Width (in): 2.5
Per foot weight of ice on object: 7 plf

L 4x4 Angle
Weight of ice based on total radial SF area:
Height (in): 4
Width (in): 4
Per foot weight of ice on object: 11 plf

T2L 2x2 Angle
Weight of ice based on total radial SF area:
Height (in): 2
Width (in): 2
Per foot weight of ice on object: 12 plf

LU 3x2 Angle
Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 2
Per foot weight of ice on object: 7 plf

Z 2-1/2x2-1/2 Angle
Weight of ice based on total radial SF area:
Height (in): 2.5
Width (in): 2.5
Per foot weight of ice on object: 7 plf

C 3x1-1/2 Channel
Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 1.5
Per foot weight of ice on object: 7 plf

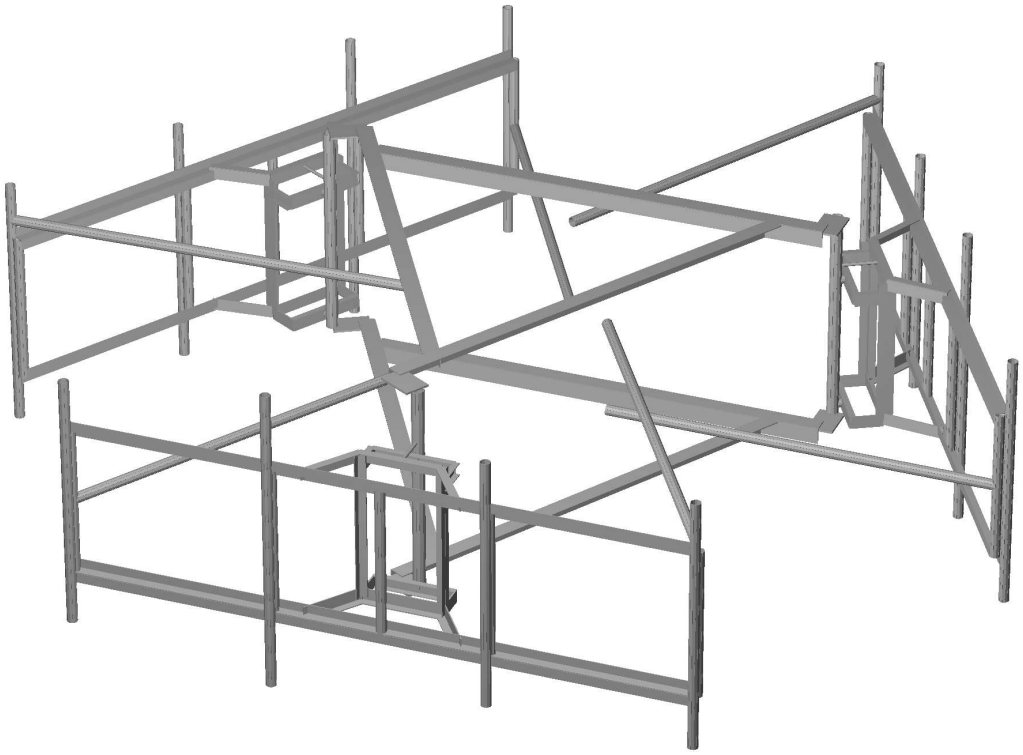
PL 3x3/8"
Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 0.375
Per foot weight of ice on object: 7 plf

PL 6x1/2"
Weight of ice based on total radial SF area:
Height (in): 6
Width (in): 0.5
Per foot weight of ice on object: 11 plf

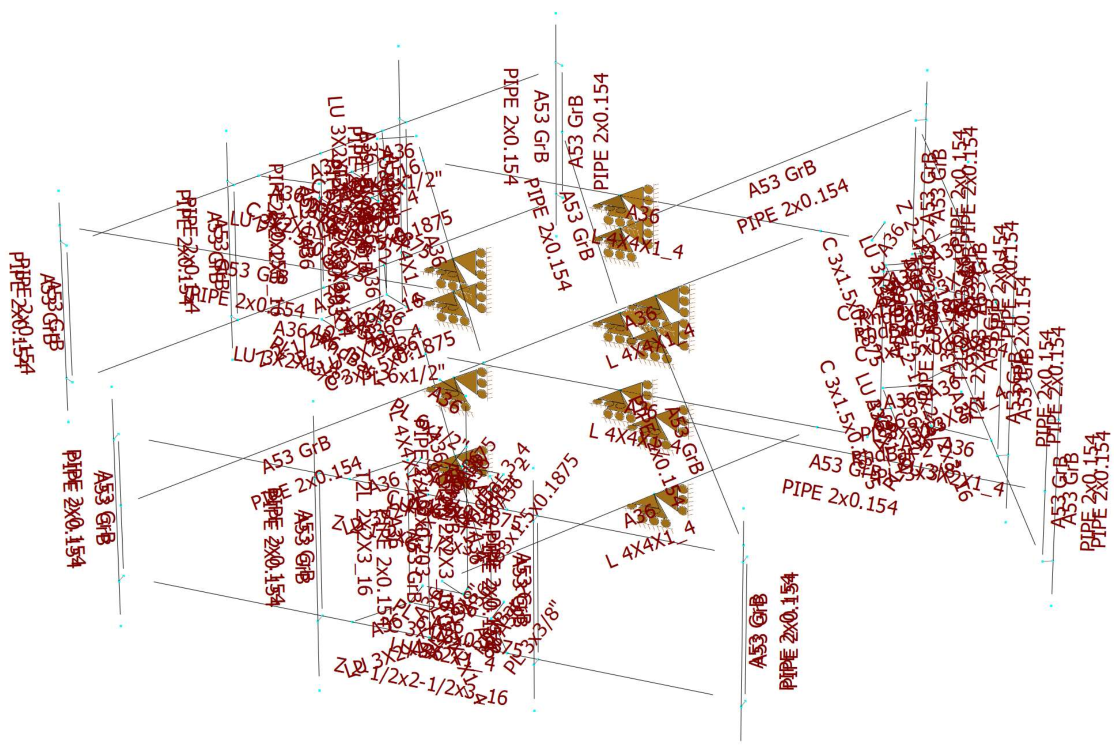
HUDSON
Design Group LLC

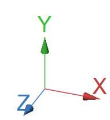
Mount Calculations
(Existing Conditions)

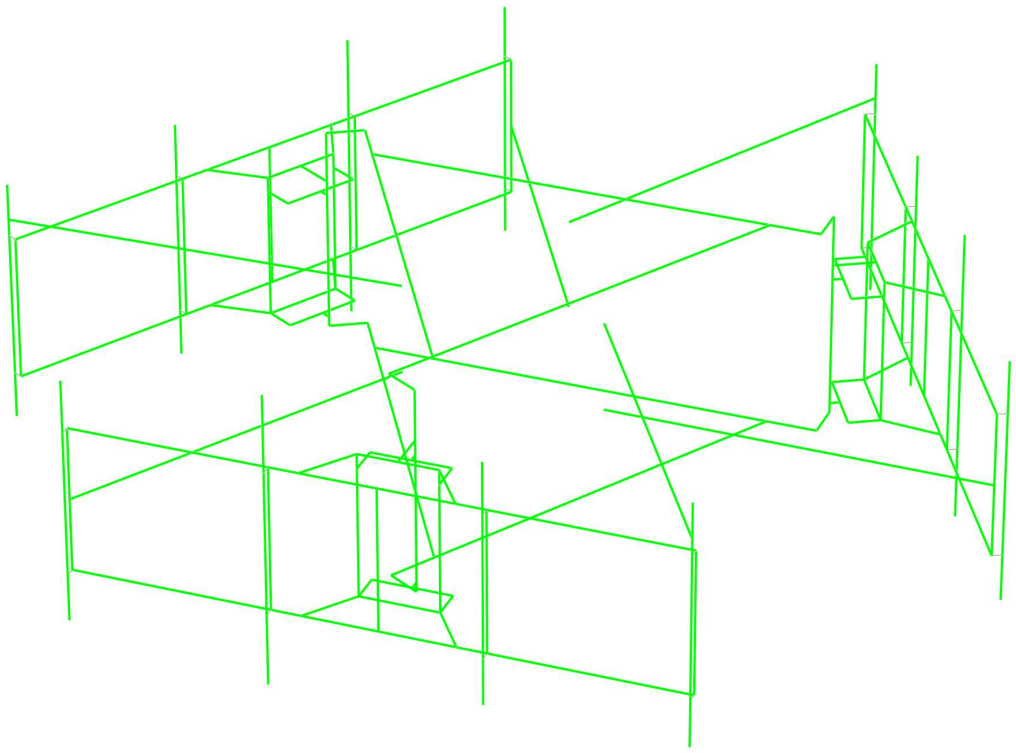
Current Date: 1/18/2022 5:54 PM
Units system: English

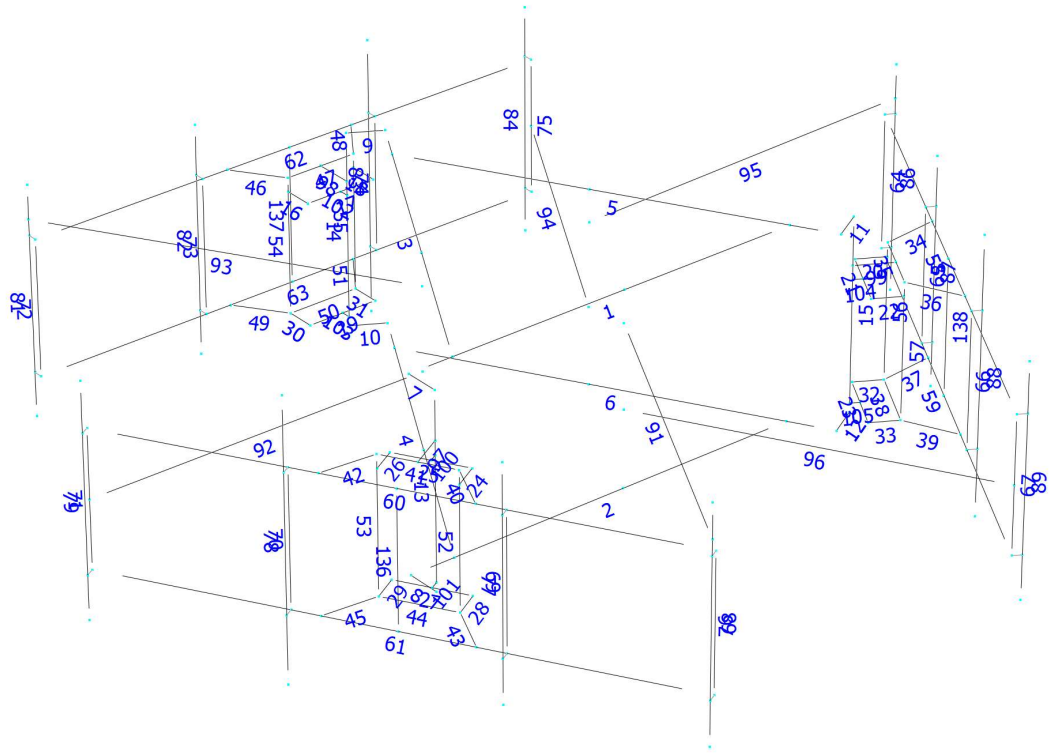


Current Date: 1/18/2022 5:54 PM
Units system: English






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


Y
X
Z

Current Date: 1/18/2022 5:54 PM
Units system: English

Load data

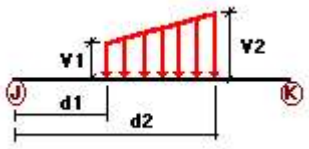
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	1	z	-0.017	-0.017	0.00	No	100.00	Yes
	2	z	-0.017	-0.017	0.00	No	100.00	Yes
	3	z	-0.017	-0.017	0.00	No	100.00	Yes
	4	z	-0.017	-0.017	0.00	No	100.00	Yes
	5	z	-0.017	-0.017	0.00	No	100.00	Yes
	6	z	-0.017	-0.017	0.00	No	100.00	Yes
	7	z	-0.002	-0.002	0.00	No	100.00	Yes
	8	z	-0.002	-0.002	0.00	No	100.00	Yes
	9	z	-0.002	-0.002	0.00	No	100.00	Yes
	10	z	-0.002	-0.002	0.00	No	100.00	Yes
	11	z	-0.002	-0.002	0.00	No	100.00	Yes
	12	z	-0.002	-0.002	0.00	No	100.00	Yes
	13	z	-0.007	-0.007	0.00	No	100.00	Yes
	14	z	-0.007	-0.007	0.00	No	100.00	Yes
	15	z	-0.007	-0.007	0.00	No	100.00	Yes
	16	z	-0.012	-0.012	0.00	No	100.00	Yes

17	z	-0.012	-0.012	0.00	No	100.00	Yes
18	z	-0.012	-0.012	0.00	No	100.00	Yes
19	z	-0.012	-0.012	0.00	No	100.00	Yes
20	z	-0.012	-0.012	0.00	No	100.00	Yes
21	z	-0.012	-0.012	0.00	No	100.00	Yes
22	z	-0.012	-0.012	0.00	No	100.00	Yes
23	z	-0.012	-0.012	0.00	No	100.00	Yes
25	z	-0.012	-0.012	0.00	No	100.00	Yes
27	z	-0.012	-0.012	0.00	No	100.00	Yes
28	z	-0.002	-0.002	0.00	No	100.00	Yes
29	z	-0.002	-0.002	0.00	No	100.00	Yes
30	z	-0.002	-0.002	0.00	No	100.00	Yes
31	z	-0.002	-0.002	0.00	No	100.00	Yes
32	z	-0.002	-0.002	0.00	No	100.00	Yes
33	z	-0.002	-0.002	0.00	No	100.00	Yes
34	z	-0.012	-0.012	0.00	No	100.00	Yes
35	z	-0.012	-0.012	0.00	No	100.00	Yes
36	z	-0.012	-0.012	0.00	No	100.00	Yes
37	z	-0.012	-0.012	0.00	No	100.00	Yes
38	z	-0.012	-0.012	0.00	No	100.00	Yes
39	z	-0.012	-0.012	0.00	No	100.00	Yes
40	z	-0.012	-0.012	0.00	No	100.00	Yes
41	z	-0.012	-0.012	0.00	No	100.00	Yes
42	z	-0.012	-0.012	0.00	No	100.00	Yes
43	z	-0.012	-0.012	0.00	No	100.00	Yes
44	z	-0.012	-0.012	0.00	No	100.00	Yes
45	z	-0.012	-0.012	0.00	No	100.00	Yes
46	z	-0.012	-0.012	0.00	No	100.00	Yes
47	z	-0.012	-0.012	0.00	No	100.00	Yes
48	z	-0.012	-0.012	0.00	No	100.00	Yes
49	z	-0.012	-0.012	0.00	No	100.00	Yes
50	z	-0.012	-0.012	0.00	No	100.00	Yes
51	z	-0.012	-0.012	0.00	No	100.00	Yes
52	z	-0.017	-0.017	0.00	No	100.00	Yes
53	z	-0.017	-0.017	0.00	No	100.00	Yes
54	z	-0.017	-0.017	0.00	No	100.00	Yes
55	z	-0.017	-0.017	0.00	No	100.00	Yes
56	z	-0.017	-0.017	0.00	No	100.00	Yes
57	z	-0.017	-0.017	0.00	No	100.00	Yes
58	z	-0.021	-0.021	0.00	No	100.00	Yes
59	z	-0.021	-0.021	0.00	No	100.00	Yes
60	z	-0.021	-0.021	0.00	No	100.00	Yes
61	z	-0.021	-0.021	0.00	No	100.00	Yes
62	z	-0.021	-0.021	0.00	No	100.00	Yes
63	z	-0.021	-0.021	0.00	No	100.00	Yes
64	z	-0.006	-0.006	0.00	No	100.00	Yes
65	z	-0.006	-0.006	0.00	No	100.00	Yes
66	z	-0.006	-0.006	0.00	No	100.00	Yes
67	z	-0.006	-0.006	0.00	No	100.00	Yes
68	z	-0.006	-0.006	0.00	No	100.00	Yes
70	z	-0.006	-0.006	0.00	No	100.00	Yes
72	z	-0.006	-0.006	0.00	No	100.00	Yes
73	z	-0.006	-0.006	0.00	No	100.00	Yes
74	z	-0.006	-0.006	0.00	No	100.00	Yes
75	z	-0.006	-0.006	0.00	No	100.00	Yes
76	z	-0.006	-0.006	0.00	No	100.00	Yes
81	z	-0.006	-0.006	0.00	No	100.00	Yes
82	z	-0.006	-0.006	0.00	No	100.00	Yes
83	z	-0.006	-0.006	0.00	No	100.00	Yes
84	z	-0.006	-0.006	0.00	No	100.00	Yes

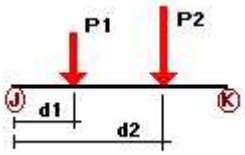
	86	z	-0.006	-0.006	0.00	No	100.00	Yes
	87	z	-0.006	-0.006	0.00	No	100.00	Yes
	88	z	-0.006	-0.006	0.00	No	100.00	Yes
	89	z	-0.006	-0.006	0.00	No	100.00	Yes
	91	z	-0.006	-0.006	0.00	No	100.00	Yes
	92	z	-0.006	-0.006	0.00	No	100.00	Yes
	93	z	-0.006	-0.006	0.00	No	100.00	Yes
	94	z	-0.006	-0.006	0.00	No	100.00	Yes
	95	z	-0.006	-0.006	0.00	No	100.00	Yes
	96	z	-0.006	-0.006	0.00	No	100.00	Yes
	97	z	-0.002	-0.002	0.00	No	100.00	Yes
	98	z	-0.002	-0.002	0.00	No	100.00	Yes
	99	z	-0.002	-0.002	0.00	No	100.00	Yes
	100	z	-0.005	-0.005	0.00	No	100.00	Yes
	101	z	-0.005	-0.005	0.00	No	100.00	Yes
	102	z	-0.005	-0.005	0.00	No	100.00	Yes
	103	z	-0.005	-0.005	0.00	No	100.00	Yes
	104	z	-0.005	-0.005	0.00	No	100.00	Yes
	105	z	-0.005	-0.005	0.00	No	100.00	Yes
	136	z	-0.006	-0.006	0.00	No	100.00	Yes
	137	z	-0.006	-0.006	0.00	No	100.00	Yes
	138	z	-0.006	-0.006	0.00	No	100.00	Yes
W30	1	x	-0.017	-0.017	0.00	No	100.00	Yes
	2	x	-0.017	-0.017	0.00	No	100.00	Yes
	3	x	-0.017	-0.017	0.00	No	100.00	Yes
	4	x	-0.017	-0.017	0.00	No	100.00	Yes
	7	x	-0.002	-0.002	0.00	No	100.00	Yes
	8	x	-0.002	-0.002	0.00	No	100.00	Yes
	9	x	-0.002	-0.002	0.00	No	100.00	Yes
	10	x	-0.002	-0.002	0.00	No	100.00	Yes
	11	x	-0.002	-0.002	0.00	No	100.00	Yes
	12	x	-0.002	-0.002	0.00	No	100.00	Yes
	13	x	-0.007	-0.007	0.00	No	100.00	Yes
	14	x	-0.007	-0.007	0.00	No	100.00	Yes
	15	x	-0.007	-0.007	0.00	No	100.00	Yes
	16	x	-0.012	-0.012	0.00	No	100.00	Yes
	17	x	-0.012	-0.012	0.00	No	100.00	Yes
	18	x	-0.012	-0.012	0.00	No	100.00	Yes
	19	x	-0.012	-0.012	0.00	No	100.00	Yes
	20	x	-0.012	-0.012	0.00	No	100.00	Yes
	21	x	-0.012	-0.012	0.00	No	100.00	Yes
	22	x	-0.012	-0.012	0.00	No	100.00	Yes
	23	x	-0.012	-0.012	0.00	No	100.00	Yes
	24	x	-0.012	-0.012	0.00	No	100.00	Yes
	26	x	-0.012	-0.012	0.00	No	100.00	Yes
	28	x	-0.002	-0.002	0.00	No	100.00	Yes
	29	x	-0.002	-0.002	0.00	No	100.00	Yes
	30	x	-0.002	-0.002	0.00	No	100.00	Yes
	31	x	-0.002	-0.002	0.00	No	100.00	Yes
	32	x	-0.002	-0.002	0.00	No	100.00	Yes
	33	x	-0.002	-0.002	0.00	No	100.00	Yes
	34	x	-0.012	-0.012	0.00	No	100.00	Yes
	35	x	-0.012	-0.012	0.00	No	100.00	Yes
	36	x	-0.012	-0.012	0.00	No	100.00	Yes
	37	x	-0.012	-0.012	0.00	No	100.00	Yes
	38	x	-0.012	-0.012	0.00	No	100.00	Yes
	39	x	-0.012	-0.012	0.00	No	100.00	Yes
	40	x	-0.012	-0.012	0.00	No	100.00	Yes
	42	x	-0.012	-0.012	0.00	No	100.00	Yes
	43	x	-0.012	-0.012	0.00	No	100.00	Yes

	45	x	-0.012	-0.012	0.00	No	100.00	Yes
	46	x	-0.012	-0.012	0.00	No	100.00	Yes
	47	x	-0.012	-0.012	0.00	No	100.00	Yes
	48	x	-0.012	-0.012	0.00	No	100.00	Yes
	49	x	-0.012	-0.012	0.00	No	100.00	Yes
	50	x	-0.012	-0.012	0.00	No	100.00	Yes
	51	x	-0.012	-0.012	0.00	No	100.00	Yes
	52	x	-0.017	-0.017	0.00	No	100.00	Yes
	53	x	-0.017	-0.017	0.00	No	100.00	Yes
	54	x	-0.017	-0.017	0.00	No	100.00	Yes
	55	x	-0.017	-0.017	0.00	No	100.00	Yes
	56	x	-0.017	-0.017	0.00	No	100.00	Yes
	57	x	-0.017	-0.017	0.00	No	100.00	Yes
	58	x	-0.021	-0.021	0.00	No	100.00	Yes
	59	x	-0.021	-0.021	0.00	No	100.00	Yes
	62	x	-0.021	-0.021	0.00	No	100.00	Yes
	63	x	-0.021	-0.021	0.00	No	100.00	Yes
	64	x	-0.006	-0.006	0.00	No	100.00	Yes
	66	x	-0.006	-0.006	0.00	No	100.00	Yes
	68	x	-0.006	-0.006	0.00	No	100.00	Yes
	69	x	-0.006	-0.006	0.00	No	100.00	Yes
	70	x	-0.006	-0.006	0.00	No	100.00	Yes
	71	x	-0.006	-0.006	0.00	No	100.00	Yes
	72	x	-0.006	-0.006	0.00	No	100.00	Yes
	73	x	-0.006	-0.006	0.00	No	100.00	Yes
	74	x	-0.006	-0.006	0.00	No	100.00	Yes
	75	x	-0.006	-0.006	0.00	No	100.00	Yes
	76	x	-0.006	-0.006	0.00	No	100.00	Yes
	77	x	-0.006	-0.006	0.00	No	100.00	Yes
	78	x	-0.006	-0.006	0.00	No	100.00	Yes
	79	x	-0.006	-0.006	0.00	No	100.00	Yes
	81	x	-0.006	-0.006	0.00	No	100.00	Yes
	82	x	-0.006	-0.006	0.00	No	100.00	Yes
	83	x	-0.006	-0.006	0.00	No	100.00	Yes
	84	x	-0.006	-0.006	0.00	No	100.00	Yes
	86	x	-0.006	-0.006	0.00	No	100.00	Yes
	91	x	-0.006	-0.006	0.00	No	100.00	Yes
	92	x	-0.006	-0.006	0.00	No	100.00	Yes
	94	x	-0.006	-0.006	0.00	No	100.00	Yes
	95	x	-0.006	-0.006	0.00	No	100.00	Yes
	97	x	-0.002	-0.002	0.00	No	100.00	Yes
	98	x	-0.002	-0.002	0.00	No	100.00	Yes
	99	x	-0.002	-0.002	0.00	No	100.00	Yes
	100	x	-0.005	-0.005	0.00	No	100.00	Yes
	101	x	-0.005	-0.005	0.00	No	100.00	Yes
	102	x	-0.005	-0.005	0.00	No	100.00	Yes
	103	x	-0.005	-0.005	0.00	No	100.00	Yes
	104	x	-0.005	-0.005	0.00	No	100.00	Yes
	105	x	-0.005	-0.005	0.00	No	100.00	Yes
	136	x	-0.006	-0.006	0.00	No	100.00	Yes
	137	x	-0.006	-0.006	0.00	No	100.00	Yes
	138	x	-0.006	-0.006	0.00	No	100.00	Yes
Di	1	y	-0.011	-0.011	0.00	No	100.00	Yes
	2	y	-0.011	-0.011	0.00	No	100.00	Yes
	3	y	-0.011	-0.011	0.00	No	100.00	Yes
	4	y	-0.011	-0.011	0.00	No	100.00	Yes
	5	y	-0.011	-0.011	0.00	No	100.00	Yes
	6	y	-0.011	-0.011	0.00	No	100.00	Yes
	7	y	-0.011	-0.011	0.00	No	100.00	Yes
	8	y	-0.011	-0.011	0.00	No	100.00	Yes

9	y	-0.011	-0.011	0.00	No	100.00	Yes
10	y	-0.011	-0.011	0.00	No	100.00	Yes
11	y	-0.011	-0.011	0.00	No	100.00	Yes
12	y	-0.011	-0.011	0.00	No	100.00	Yes
13	y	-0.006	-0.006	0.00	No	100.00	Yes
14	y	-0.006	-0.006	0.00	No	100.00	Yes
15	y	-0.006	-0.006	0.00	No	100.00	Yes
16	y	-0.007	-0.007	0.00	No	100.00	Yes
17	y	-0.007	-0.007	0.00	No	100.00	Yes
18	y	-0.007	-0.007	0.00	No	100.00	Yes
19	y	-0.007	-0.007	0.00	No	100.00	Yes
20	y	-0.007	-0.007	0.00	No	100.00	Yes
21	y	-0.007	-0.007	0.00	No	100.00	Yes
22	y	-0.007	-0.007	0.00	No	100.00	Yes
23	y	-0.007	-0.007	0.00	No	100.00	Yes
24	y	-0.007	-0.007	0.00	No	100.00	Yes
25	y	-0.007	-0.007	0.00	No	100.00	Yes
26	y	-0.007	-0.007	0.00	No	100.00	Yes
27	y	-0.007	-0.007	0.00	No	100.00	Yes
28	y	-0.007	-0.007	0.00	No	100.00	Yes
29	y	-0.007	-0.007	0.00	No	100.00	Yes
30	y	-0.007	-0.007	0.00	No	100.00	Yes
31	y	-0.007	-0.007	0.00	No	100.00	Yes
32	y	-0.007	-0.007	0.00	No	100.00	Yes
33	y	-0.007	-0.007	0.00	No	100.00	Yes
34	y	-0.007	-0.007	0.00	No	100.00	Yes
35	y	-0.007	-0.007	0.00	No	100.00	Yes
36	y	-0.007	-0.007	0.00	No	100.00	Yes
37	y	-0.007	-0.007	0.00	No	100.00	Yes
38	y	-0.007	-0.007	0.00	No	100.00	Yes
39	y	-0.007	-0.007	0.00	No	100.00	Yes
40	y	-0.007	-0.007	0.00	No	100.00	Yes
41	y	-0.007	-0.007	0.00	No	100.00	Yes
42	y	-0.007	-0.007	0.00	No	100.00	Yes
43	y	-0.007	-0.007	0.00	No	100.00	Yes
44	y	-0.007	-0.007	0.00	No	100.00	Yes
45	y	-0.007	-0.007	0.00	No	100.00	Yes
46	y	-0.007	-0.007	0.00	No	100.00	Yes
47	y	-0.007	-0.007	0.00	No	100.00	Yes
48	y	-0.007	-0.007	0.00	No	100.00	Yes
49	y	-0.007	-0.007	0.00	No	100.00	Yes
50	y	-0.007	-0.007	0.00	No	100.00	Yes
51	y	-0.007	-0.007	0.00	No	100.00	Yes
52	y	-0.012	-0.012	0.00	No	100.00	Yes
53	y	-0.012	-0.012	0.00	No	100.00	Yes
54	y	-0.012	-0.012	0.00	No	100.00	Yes
55	y	-0.012	-0.012	0.00	No	100.00	Yes
56	y	-0.012	-0.012	0.00	No	100.00	Yes
57	y	-0.012	-0.012	0.00	No	100.00	Yes
58	y	-0.007	-0.007	0.00	No	100.00	Yes
59	y	-0.007	-0.007	0.00	No	100.00	Yes
60	y	-0.007	-0.007	0.00	No	100.00	Yes
61	y	-0.007	-0.007	0.00	No	100.00	Yes
62	y	-0.007	-0.007	0.00	No	100.00	Yes
63	y	-0.007	-0.007	0.00	No	100.00	Yes
64	y	-0.006	-0.006	0.00	No	100.00	Yes
65	y	-0.006	-0.006	0.00	No	100.00	Yes
66	y	-0.006	-0.006	0.00	No	100.00	Yes
67	y	-0.006	-0.006	0.00	No	100.00	Yes
68	y	-0.006	-0.006	0.00	No	100.00	Yes

69	y	-0.006	-0.006	0.00	No	100.00	Yes
70	y	-0.006	-0.006	0.00	No	100.00	Yes
71	y	-0.006	-0.006	0.00	No	100.00	Yes
72	y	-0.006	-0.006	0.00	No	100.00	Yes
73	y	-0.006	-0.006	0.00	No	100.00	Yes
74	y	-0.006	-0.006	0.00	No	100.00	Yes
75	y	-0.006	-0.006	0.00	No	100.00	Yes
76	y	-0.006	-0.006	0.00	No	100.00	Yes
77	y	-0.006	-0.006	0.00	No	100.00	Yes
78	y	-0.006	-0.006	0.00	No	100.00	Yes
79	y	-0.006	-0.006	0.00	No	100.00	Yes
81	y	-0.006	-0.006	0.00	No	100.00	Yes
82	y	-0.006	-0.006	0.00	No	100.00	Yes
83	y	-0.006	-0.006	0.00	No	100.00	Yes
84	y	-0.006	-0.006	0.00	No	100.00	Yes
86	y	-0.006	-0.006	0.00	No	100.00	Yes
87	y	-0.006	-0.006	0.00	No	100.00	Yes
88	y	-0.006	-0.006	0.00	No	100.00	Yes
89	y	-0.006	-0.006	0.00	No	100.00	Yes
91	y	-0.006	-0.006	0.00	No	100.00	Yes
92	y	-0.006	-0.006	0.00	No	100.00	Yes
93	y	-0.006	-0.006	0.00	No	100.00	Yes
94	y	-0.006	-0.006	0.00	No	100.00	Yes
95	y	-0.006	-0.006	0.00	No	100.00	Yes
96	y	-0.006	-0.006	0.00	No	100.00	Yes
97	y	-0.003	-0.003	0.00	No	100.00	Yes
98	y	-0.003	-0.003	0.00	No	100.00	Yes
99	y	-0.003	-0.003	0.00	No	100.00	Yes
100	y	-0.005	-0.005	0.00	No	100.00	Yes
101	y	-0.005	-0.005	0.00	No	100.00	Yes
102	y	-0.005	-0.005	0.00	No	100.00	Yes
103	y	-0.005	-0.005	0.00	No	100.00	Yes
104	y	-0.005	-0.005	0.00	No	100.00	Yes
105	y	-0.005	-0.005	0.00	No	100.00	Yes
136	y	-0.006	-0.006	0.00	No	100.00	Yes
137	y	-0.006	-0.006	0.00	No	100.00	Yes
138	y	-0.006	-0.006	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	65	y	-0.06	1.50	No
		y	-0.072	1.50	No
	67	y	-0.06	1.50	No
		y	-0.073	1.50	No
	69	y	-0.06	1.50	No
		y	-0.072	1.50	No
	71	y	-0.06	1.50	No
		y	-0.073	1.50	No

	73	y	-0.06	1.50	No
		y	-0.072	1.50	No
	75	y	-0.06	1.50	No
		y	-0.073	1.50	No
	77	y	-0.027	0.50	No
		y	-0.027	4.50	No
	78	y	-0.041	0.50	No
		y	-0.041	2.50	No
		y	-0.033	3.50	No
		y	-0.033	5.50	No
	79	y	-0.034	0.50	No
		y	-0.034	4.50	No
	82	y	-0.027	0.50	No
		y	-0.027	4.50	No
	83	y	-0.041	0.50	No
		y	-0.041	2.50	No
		y	-0.033	3.50	No
		y	-0.033	5.50	No
	84	y	-0.034	0.50	No
		y	-0.034	4.50	No
	87	y	-0.027	0.50	No
		y	-0.027	4.50	No
	88	y	-0.041	0.50	No
		y	-0.041	2.50	No
		y	-0.033	3.50	No
		y	-0.033	5.50	No
	89	y	-0.034	0.50	No
		y	-0.034	4.50	No
W0	65	z	-0.076	1.50	No
	67	z	-0.103	1.50	No
	69	z	-0.028	1.50	No
		z	-0.028	1.50	No
	71	z	-0.039	1.50	No
		z	-0.031	1.50	No
	73	z	-0.076	1.50	No
	75	z	-0.103	1.50	No
	77	z	-0.173	0.50	No
		z	-0.173	4.50	No
	78	z	-0.085	0.50	No
		z	-0.085	2.50	No
		z	-0.087	3.50	No
		z	-0.087	5.50	No
	79	z	-0.173	0.50	No
		z	-0.173	4.50	No
	82	z	-0.098	0.50	No
		z	-0.098	4.50	No
	83	z	-0.064	0.50	No
		z	-0.064	2.50	No
		z	-0.053	3.50	No
		z	-0.053	5.50	No
	84	z	-0.098	0.50	No
		z	-0.098	4.50	No
	87	z	-0.098	0.50	No
		z	-0.098	4.50	No
	88	z	-0.064	0.50	No
		z	-0.064	2.50	No
		z	-0.053	3.50	No
		z	-0.053	5.50	No
	89	z	-0.098	0.50	No
		z	-0.098	4.50	No

W30	65	x	-0.06	1.50	No
		x	-0.059	1.50	No
	67	x	-0.081	1.50	No
		x	-0.064	1.50	No
	69	x	-0.084	1.50	No
	71	x	-0.114	1.50	No
	73	x	-0.06	1.50	No
		x	-0.059	1.50	No
	75	x	-0.081	1.50	No
		x	-0.064	1.50	No
	77	x	-0.073	0.50	No
		x	-0.073	4.50	No
	78	x	-0.057	0.50	No
		x	-0.057	2.50	No
		x	-0.042	3.50	No
		x	-0.042	5.50	No
	79	x	-0.073	0.50	No
		x	-0.073	4.50	No
	82	x	-0.148	0.50	No
		x	-0.148	4.50	No
	83	x	-0.078	0.50	No
		x	-0.078	2.50	No
		x	-0.076	3.50	No
		x	-0.076	5.50	No
	84	x	-0.148	0.50	No
		x	-0.148	4.50	No
	87	x	-0.148	0.50	No
		x	-0.148	4.50	No
	88	x	-0.078	0.50	No
		x	-0.078	2.50	No
		x	-0.076	3.50	No
		x	-0.076	5.50	No
	89	x	-0.148	0.50	No
		x	-0.148	4.50	No
Di	65	y	-0.039	1.50	No
		y	-0.035	1.50	No
	67	y	-0.053	1.50	No
		y	-0.04	1.50	No
	69	y	-0.039	1.50	No
		y	-0.035	1.50	No
	71	y	-0.053	1.50	No
		y	-0.04	1.50	No
	73	y	-0.039	1.50	No
		y	-0.035	1.50	No
	75	y	-0.053	1.50	No
		y	-0.04	1.50	No
	77	y	-0.072	0.50	No
		y	-0.072	4.50	No
	78	y	-0.04	0.50	No
		y	-0.04	2.50	No
		y	-0.038	3.50	No
		y	-0.038	5.50	No
	79	y	-0.072	0.50	No
		y	-0.072	4.50	No
	82	y	-0.072	0.50	No
		y	-0.072	4.50	No
	83	y	-0.04	0.50	No
		y	-0.04	2.50	No
		y	-0.038	3.50	No
		y	-0.038	5.50	No

	84	y	-0.072	0.50	No
		y	-0.072	4.50	No
	87	y	-0.072	0.50	No
		y	-0.072	4.50	No
	88	y	-0.04	0.50	No
		y	-0.04	2.50	No
		y	-0.038	3.50	No
		y	-0.038	5.50	No
	89	y	-0.072	0.50	No
		y	-0.072	4.50	No
Wi0	65	z	-0.018	1.50	No
	67	z	-0.024	1.50	No
	69	z	-0.009	1.50	No
		z	-0.008	1.50	No
	71	z	-0.013	1.50	No
		z	-0.009	1.50	No
	73	z	-0.018	1.50	No
	75	z	-0.024	1.50	No
	77	z	-0.036	0.50	No
		z	-0.036	4.50	No
	78	z	-0.019	0.50	No
		z	-0.019	2.50	No
		z	-0.019	3.50	No
		z	-0.019	5.50	No
	79	z	-0.036	0.50	No
		z	-0.036	4.50	No
	82	z	-0.022	0.50	No
		z	-0.022	4.50	No
	83	z	-0.015	0.50	No
		z	-0.015	2.50	No
		z	-0.013	3.50	No
		z	-0.013	5.50	No
	84	z	-0.022	0.50	No
		z	-0.022	4.50	No
	87	z	-0.022	0.50	No
		z	-0.022	4.50	No
	88	z	-0.015	0.50	No
		z	-0.015	2.50	No
		z	-0.013	3.50	No
		z	-0.013	5.50	No
	89	z	-0.022	0.50	No
		z	-0.022	4.50	No
Wi30	65	x	-0.015	1.50	No
		x	-0.015	1.50	No
	67	x	-0.02	1.50	No
		x	-0.016	1.50	No
	69	x	-0.02	1.50	No
	71	x	-0.026	1.50	No
	73	x	-0.015	1.50	No
		x	-0.015	1.50	No
	75	x	-0.02	1.50	No
		x	-0.016	1.50	No
	77	x	-0.017	0.50	No
		x	-0.017	4.50	No
	78	x	-0.013	0.50	No
		x	-0.013	2.50	No
		x	-0.01	3.50	No
		x	-0.01	5.50	No
	79	x	-0.017	0.50	No
		x	-0.017	4.50	No

	82	x	-0.031	0.50	No
		x	-0.031	4.50	No
	83	x	-0.017	0.50	No
		x	-0.017	2.50	No
		x	-0.017	3.50	No
		x	-0.017	5.50	No
	84	x	-0.031	0.50	No
		x	-0.031	4.50	No
	87	x	-0.031	0.50	No
		x	-0.031	4.50	No
	88	x	-0.017	0.50	No
		x	-0.017	2.50	No
		x	-0.017	3.50	No
		x	-0.017	5.50	No
	89	x	-0.031	0.50	No
		x	-0.031	4.50	No
WL0	65	z	-0.005	1.50	No
	67	z	-0.006	1.50	No
	69	z	-0.002	1.50	No
		z	-0.002	1.50	No
	71	z	-0.002	1.50	No
		z	-0.002	1.50	No
	73	z	-0.005	1.50	No
	75	z	-0.006	1.50	No
	77	z	-0.011	0.50	No
		z	-0.011	4.50	No
	78	z	-0.006	0.50	No
		z	-0.006	2.50	No
		z	-0.006	3.50	No
		z	-0.006	5.50	No
	79	z	-0.011	0.50	No
		z	-0.011	4.50	No
	82	z	-0.006	0.50	No
		z	-0.006	4.50	No
	83	z	-0.004	0.50	No
		z	-0.004	2.50	No
		z	-0.004	3.50	No
		z	-0.004	5.50	No
	84	z	-0.006	0.50	No
		z	-0.006	4.50	No
	87	z	-0.006	0.50	No
		z	-0.006	4.50	No
	88	z	-0.004	0.50	No
		z	-0.004	2.50	No
		z	-0.004	3.50	No
		z	-0.004	5.50	No
	89	z	-0.006	0.50	No
		z	-0.006	4.50	No
WL30	65	x	-0.004	1.50	No
		x	-0.004	1.50	No
	67	x	-0.005	1.50	No
		x	-0.004	1.50	No
	69	x	-0.005	1.50	No
	71	x	-0.007	1.50	No
	73	x	-0.004	1.50	No
		x	-0.004	1.50	No
	75	x	-0.005	1.50	No
		x	-0.004	1.50	No
	77	x	-0.005	0.50	No
		x	-0.005	4.50	No

	78	x	-0.004	0.50	No
		x	-0.004	2.50	No
		x	-0.003	3.50	No
		x	-0.003	5.50	No
	79	x	-0.005	0.50	No
		x	-0.005	4.50	No
	82	x	-0.009	0.50	No
		x	-0.009	4.50	No
	83	x	-0.005	0.50	No
		x	-0.005	2.50	No
		x	-0.005	3.50	No
		x	-0.005	5.50	No
	84	x	-0.009	0.50	No
		x	-0.009	4.50	No
	87	x	-0.009	0.50	No
		x	-0.009	4.50	No
	88	x	-0.005	0.50	No
		x	-0.005	2.50	No
		x	-0.005	3.50	No
		x	-0.005	5.50	No
	89	x	-0.009	0.50	No
		x	-0.009	4.50	No
LL1	60	y	-0.25	50.00	Yes
LL2	60	y	-0.25	100.00	Yes
LLa1	76	y	-0.50	50.00	Yes
LLa2	77	y	-0.50	50.00	Yes
LLa3	78	y	-0.50	50.00	Yes
LLa4	79	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

Current Date: 1/18/2022 5:55 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

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

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3x1.5x0.1875	**16**	LC1 at 100.00%	0.35	OK	
		17	LC12 at 50.00%	0.37	OK	
		18	LC1 at 0.00%	0.29	OK	
		19	LC11 at 50.00%	0.73	OK	
		20	LC3 at 100.00%	0.37	OK	
		21	LC3 at 0.00%	0.37	OK	
		22	LC3 at 0.00%	0.30	OK	
		23	LC10 at 50.00%	0.74	OK	
		24	LC29 at 100.00%	0.37	OK	
		25	LC29 at 50.00%	0.51	OK	
		26	LC29 at 100.00%	0.42	OK	
		27	LC28 at 50.00%	**0.88**	**OK**	
	L 4X4X1_4	**1**	LC9 at 43.75%	0.92	OK	
		2	LC10 at 43.75%	0.91	OK	
		3	LC12 at 43.75%	0.92	OK	
		4	LC9 at 43.75%	0.91	OK	
		5	LC10 at 43.75%	**0.92**	**OK**	
		6	LC12 at 43.75%	0.91	OK	

LU 3X2X1_4	**34**	LC3 at 100.00%	0.27	OK
	35	LC12 at 100.00%	0.50	OK
	36	LC12 at 0.00%	0.45	OK
	37	LC9 at 0.00%	0.25	OK
	38	LC9 at 0.00%	0.36	OK
	39	LC11 at 100.00%	0.54	OK
	40	LC18 at 100.00%	0.44	OK
	41	LC30 at 100.00%	0.68	OK
	42	LC30 at 0.00%	0.61	OK
	43	LC19 at 0.00%	0.58	OK
	44	LC31 at 0.00%	0.62	OK
	45	LC29 at 100.00%	**0.73**	**OK**
	46	LC4 at 100.00%	0.29	OK
	47	LC9 at 100.00%	0.50	OK
	48	LC9 at 0.00%	0.44	OK
	49	LC10 at 0.00%	0.25	OK
	50	LC10 at 0.00%	0.36	OK
	51	LC12 at 100.00%	0.54	OK
PIPE 2-1_2x0.203	**13**	LC29 at 31.25%	**0.69**	**OK**
	14	LC4 at 31.25%	0.51	OK
	15	LC3 at 31.25%	0.54	OK
PIPE 2x0.154	**64**	LC9 at 100.00%	0.05	OK
	65	LC10 at 0.00%	0.15	OK
	66	LC10 at 100.00%	0.32	OK
	67	LC9 at 100.00%	0.32	OK
	68	LC19 at 0.00%	0.33	OK
	69	LC16 at 100.00%	0.34	OK
	70	LC31 at 100.00%	0.42	OK
	71	LC30 at 100.00%	**0.44**	**OK**
	72	LC10 at 100.00%	0.05	OK
	73	LC10 at 0.00%	0.15	OK
	74	LC11 at 100.00%	0.31	OK
	75	LC10 at 100.00%	0.31	OK
	76	LC19 at 79.69%	0.15	OK
	77	LC16 at 79.17%	0.14	OK
	78	LC28 at 75.00%	0.19	OK
	79	LC30 at 22.92%	0.21	OK
	81	LC3 at 21.88%	0.06	OK
	82	LC3 at 22.92%	0.08	OK
	83	LC10 at 75.00%	0.14	OK
	84	LC10 at 22.92%	0.13	OK
	86	LC2 at 21.88%	0.05	OK
	87	LC2 at 22.92%	0.07	OK
	88	LC10 at 75.00%	0.15	OK
	89	LC12 at 22.92%	0.14	OK
	91	LC10 at 50.00%	0.04	OK
	92	LC11 at 50.00%	0.04	OK
	93	LC3 at 50.00%	0.05	OK
	94	LC4 at 50.00%	0.06	OK
	95	LC2 at 50.00%	0.04	OK
	96	LC3 at 50.00%	0.06	OK
	136	LC31 at 0.00%	0.13	OK
	137	LC11 at 0.00%	0.09	OK
	138	LC10 at 0.00%	0.08	OK
PL 3x3/8"	**28**	LC31 at 0.00%	0.73	OK
	29	LC31 at 0.00%	**0.95**	**OK**
	30	LC2 at 0.00%	0.58	OK
	31	LC3 at 0.00%	0.62	OK
	32	LC1 at 0.00%	0.56	OK
	33	LC1 at 0.00%	0.64	OK

PL 6x1/2"	**7**	LC12 at 0.00%	0.74	OK
	8	LC9 at 0.00%	0.73	OK
	9	LC10 at 0.00%	0.74	OK
	10	LC12 at 100.00%	0.74	OK
	11	LC9 at 0.00%	**0.74**	**OK**
	12	LC11 at 0.00%	0.74	OK
RndBar 2	**100**	LC18 at 100.00%	**0.13**	**OK**
	101	LC28 at 0.00%	0.11	OK
	102	LC12 at 100.00%	0.10	OK
	103	LC4 at 100.00%	0.09	OK
	104	LC11 at 100.00%	0.10	OK
	105	LC3 at 100.00%	0.09	OK
RndBar 3_4	**97**	LC29 at 0.00%	**0.83**	**OK**
	98	LC1 at 100.00%	0.64	OK
	99	LC3 at 100.00%	0.59	OK
T2L 2X2X3_16	**52**	LC18 at 100.00%	0.64	OK
	53	LC28 at 100.00%	**0.82**	**OK**
	54	LC12 at 0.00%	0.25	OK
	55	LC12 at 100.00%	0.57	OK
	56	LC11 at 0.00%	0.26	OK
	57	LC10 at 100.00%	0.57	OK
Z 2-1/2x2-1/2x3_16	**58**	LC1 at 67.71%	0.53	OK
	59	LC1 at 33.33%	0.49	OK
	60	LC31 at 67.71%	**0.65**	**OK**
	61	LC30 at 0.00%	0.61	OK
	62	LC3 at 67.71%	0.50	OK
	63	LC3 at 36.46%	0.47	OK

Current Date: 1/18/2022 5:56 PM
Units system: English

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	-2.0009	4.00	1.1552	0
2	0.00	4.00	-2.3073	0
3	1.9991	4.00	1.1552	0
4	0.00	-0.20	-2.3073	0
5	1.9991	-0.20	1.1552	0
6	-2.0009	-0.20	1.1552	0
7	1.9991	1.48	1.1552	0
8	0.00	3.30	-2.3073	0
9	0.00	1.48	-2.3073	0
10	-2.0009	3.30	1.1552	0
11	-2.0009	1.48	1.1552	0
12	1.9991	3.30	1.1552	0
13	3.5797	0.00	-9.1673	0
14	9.5797	0.00	1.225	0
15	7.3297	0.00	-2.6721	0
16	5.8297	0.00	-5.2702	0
17	6.1096	0.00	-2.7855	0
18	5.3179	0.00	-4.1567	0
19	7.6222	0.00	-2.1655	0
20	5.5372	0.00	-5.7768	0
21	3.7529	0.00	-9.2673	0
22	9.7529	0.00	1.125	0
23	3.5797	2.96	-9.1673	0

24	9.5797	2.96	1.225	0
25	7.3297	2.96	-2.6721	0
26	5.8297	2.96	-5.2702	0
27	6.1096	2.96	-2.7855	0
28	5.3179	2.96	-4.1567	0
29	7.6222	2.96	-2.1655	0
30	5.5372	2.96	-5.7768	0
31	3.7529	2.96	-9.2673	0
32	9.7529	2.96	1.125	0
33	7.7954	4.54	-2.2655	0
34	3.7529	4.04	-9.2673	0
35	7.7954	-1.46	-2.2655	0
36	3.7529	-0.96	-9.2673	0
37	9.5797	1.48	1.225	0
38	5.7104	0.00	-5.8768	0
39	5.7104	2.96	-5.8768	0
40	5.3179	2.66	-4.1567	0
41	6.1096	2.66	-2.7855	0
44	4.7766	0.00	-3.8442	0
45	5.5683	0.00	-2.473	0
46	4.7766	2.66	-3.8442	0
47	5.5683	2.66	-2.473	0
48	5.1724	2.66	-3.1586	0
49	5.1724	0.00	-3.1586	0
50	4.9992	4.00	-3.0586	0
51	4.9992	-0.20	-3.0586	0
52	6.5797	2.96	-3.9711	0
53	6.5797	0.00	-3.9711	0
54	5.7104	4.04	-5.8768	0
55	5.7104	-0.96	-5.8768	0
56	9.7529	-0.96	1.125	0
57	9.7529	4.04	1.125	0
58	3.7529	3.30	-9.2673	0
63	7.7954	2.96	-2.2655	0
64	7.7954	0.00	-2.2655	0
67	-4.00	4.00	-2.3073	0
68	-4.00	-0.20	-2.3073	0
69	-0.0018	4.00	4.6178	0
70	-0.0018	-0.20	4.6178	0
72	5.7137	2.96	-3.4711	0
73	4.9992	2.96	-3.0586	0
74	5.00	4.00	-2.3073	0
75	5.00	-0.20	-2.3073	0
78	4.9992	2.66	-3.0586	0
79	4.9992	0.00	-3.0586	0
80	4.00	4.00	-2.3073	0
81	4.00	-0.20	-2.3073	0
82	-9.7289	0.00	1.4835	0
83	-3.729	0.00	-8.9088	0
84	-5.979	0.00	-5.0117	0
85	-7.479	0.00	-2.4136	0
86	-5.4671	0.00	-3.8983	0
87	-6.2588	0.00	-2.527	0
88	-5.6865	0.00	-5.5183	0
89	-7.7715	0.00	-1.907	0
90	-9.9022	0.00	1.3835	0
91	-3.9022	0.00	-9.0088	0
92	-9.7289	2.96	1.4835	0
93	-3.729	2.96	-8.9088	0
94	-5.979	2.96	-5.0117	0

95	-7.479	2.96	-2.4136	0
96	-5.4671	2.96	-3.8983	0
97	-6.2588	2.96	-2.527	0
98	-5.6865	2.96	-5.5183	0
99	-7.7715	2.96	-1.907	0
100	-9.9022	2.96	1.3835	0
101	-3.9022	2.96	-9.0088	0
102	-5.8597	4.54	-5.6183	0
103	-9.9022	4.04	1.3835	0
104	-5.8597	-1.46	-5.6183	0
105	-9.9022	-0.96	1.3835	0
106	-3.729	1.48	-8.9088	0
107	-7.9447	0.00	-2.007	0
108	-7.9447	2.96	-2.007	0
109	-6.2588	2.66	-2.527	0
110	-5.4671	2.66	-3.8983	0
113	-5.7175	0.00	-2.2145	0
114	-4.9258	0.00	-3.5858	0
115	-5.7175	2.66	-2.2145	0
116	-4.9258	2.66	-3.5858	0
117	-5.3217	2.66	-2.9002	0
118	-5.3217	0.00	-2.9002	0
119	-5.1485	4.00	-2.8002	0
120	-5.1485	-0.20	-2.8002	0
121	-6.729	2.96	-3.7127	0
122	-6.729	0.00	-3.7127	0
123	-7.9447	4.04	-2.007	0
124	-7.9447	-0.96	-2.007	0
125	-3.9022	-0.96	-9.0088	0
126	-3.9022	4.04	-9.0088	0
127	-9.9022	3.30	1.3835	0
132	-5.8597	2.96	-5.6183	0
133	-5.8597	0.00	-5.6183	0
136	-5.8629	2.96	-3.2127	0
137	-5.1485	2.96	-2.8002	0
138	-4.4982	4.00	-3.1765	0
139	-4.4982	-0.20	-3.1765	0
140	-5.1485	2.66	-2.8002	0
141	-5.1485	0.00	-2.8002	0
142	6.1492	0.00	7.6838	0
143	-5.8508	0.00	7.6838	0
144	-1.3508	0.00	7.6838	0
145	1.6492	0.00	7.6838	0
146	-0.6425	0.00	6.6838	0
147	0.9409	0.00	6.6838	0
148	-1.9358	0.00	7.6838	0
149	2.2342	0.00	7.6838	0
150	6.1492	0.00	7.8838	0
151	-5.8508	0.00	7.8838	0
152	6.1492	2.96	7.6838	0
153	-5.8508	2.96	7.6838	0
154	-1.3508	2.96	7.6838	0
155	1.6492	2.96	7.6838	0
156	-0.6425	2.96	6.6838	0
157	0.9409	2.96	6.6838	0
158	-1.9358	2.96	7.6838	0
159	2.2342	2.96	7.6838	0
160	6.1492	2.96	7.8838	0
161	-5.8508	2.96	7.8838	0
162	-1.9358	4.54	7.8838	0

163	6.1492	4.04	7.8838	0
164	-1.9358	-1.46	7.8838	0
165	6.1492	-0.96	7.8838	0
166	-5.8508	1.48	7.6838	0
167	2.2342	0.00	7.8838	0
168	2.2342	2.96	7.8838	0
169	0.9409	2.66	6.6838	0
170	-0.6425	2.66	6.6838	0
173	0.9409	0.00	6.0588	0
174	-0.6425	0.00	6.0588	0
175	0.9409	2.66	6.0588	0
176	-0.6425	2.66	6.0588	0
177	0.1492	2.66	6.0588	0
178	0.1492	0.00	6.0588	0
179	0.1492	4.00	5.8588	0
180	0.1492	-0.20	5.8588	0
181	0.1492	2.96	7.6838	0
182	0.1492	0.00	7.6838	0
183	2.2342	4.04	7.8838	0
184	2.2342	-0.96	7.8838	0
185	-5.8508	-0.96	7.8838	0
186	-5.8508	4.04	7.8838	0
187	6.1492	3.30	7.8838	0
192	-1.9358	2.96	7.8838	0
193	-1.9358	0.00	7.8838	0
196	0.1492	2.96	6.6838	0
197	0.1492	2.96	5.8588	0
198	-0.5018	4.00	5.4838	0
199	-0.5018	-0.20	5.4838	0
200	0.1492	2.66	5.8588	0
201	0.1492	0.00	5.8588	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	0	0	0
2	1	1	1	0	0	0
3	1	1	1	0	0	0
4	1	1	1	0	0	0
5	1	1	1	0	0	0
6	1	1	1	0	0	0
7	1	1	1	0	0	0
8	1	1	1	0	0	0
9	1	1	1	0	0	0
10	1	1	1	0	0	0
11	1	1	1	0	0	0
12	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	80	198		L 4X4X1_4	A36	0.00	0.00	0.00
2	81	199		L 4X4X1_4	A36	0.00	0.00	0.00
3	69	138		L 4X4X1_4	A36	0.00	0.00	0.00
4	70	139		L 4X4X1_4	A36	0.00	0.00	0.00
5	67	74		L 4X4X1_4	A36	0.00	0.00	0.00
6	68	75		L 4X4X1_4	A36	0.00	0.00	0.00
7	179	198		PL 6x1/2"	A36	0.00	0.00	0.00
8	180	199		PL 6x1/2"	A36	0.00	0.00	0.00
9	119	138		PL 6x1/2"	A36	0.00	0.00	0.00
10	139	120		PL 6x1/2"	A36	0.00	0.00	0.00
11	50	74		PL 6x1/2"	A36	0.00	0.00	0.00
12	51	75		PL 6x1/2"	A36	0.00	0.00	0.00
13	179	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
14	119	120		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
15	50	51		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
16	109	115		C 3x1.5x0.1875	A36	0.00	0.00	0.00
17	115	116		C 3x1.5x0.1875	A36	0.00	0.00	0.00
18	116	110		C 3x1.5x0.1875	A36	0.00	0.00	0.00
19	113	114		C 3x1.5x0.1875	A36	0.00	0.00	0.00
20	40	46		C 3x1.5x0.1875	A36	0.00	0.00	0.00
21	46	47		C 3x1.5x0.1875	A36	0.00	0.00	0.00
22	47	41		C 3x1.5x0.1875	A36	0.00	0.00	0.00
23	44	45		C 3x1.5x0.1875	A36	0.00	0.00	0.00
24	169	175		C 3x1.5x0.1875	A36	0.00	0.00	0.00
25	175	176		C 3x1.5x0.1875	A36	0.00	0.00	0.00
26	176	170		C 3x1.5x0.1875	A36	0.00	0.00	0.00
27	173	174		C 3x1.5x0.1875	A36	0.00	0.00	0.00
28	147	173		PL 3x3/8"	A36	0.00	0.00	0.00
29	146	174		PL 3x3/8"	A36	0.00	0.00	0.00
30	87	113		PL 3x3/8"	A36	0.00	0.00	0.00
31	86	114		PL 3x3/8"	A36	0.00	0.00	0.00
32	18	44		PL 3x3/8"	A36	0.00	0.00	0.00
33	17	45		PL 3x3/8"	A36	0.00	0.00	0.00
34	26	28		LU 3X2X1_4	A36	0.00	0.00	0.00
35	28	27		LU 3X2X1_4	A36	0.00	0.00	0.00
36	27	25		LU 3X2X1_4	A36	0.00	0.00	0.00
37	18	16		LU 3X2X1_4	A36	0.00	0.00	0.00
38	17	18		LU 3X2X1_4	A36	0.00	0.00	0.00
39	15	17		LU 3X2X1_4	A36	0.00	0.00	0.00
40	155	157		LU 3X2X1_4	A36	0.00	0.00	0.00
41	157	156		LU 3X2X1_4	A36	0.00	0.00	0.00
42	156	154		LU 3X2X1_4	A36	0.00	0.00	0.00
43	147	145		LU 3X2X1_4	A36	0.00	0.00	0.00
44	146	147		LU 3X2X1_4	A36	0.00	0.00	0.00
45	144	146		LU 3X2X1_4	A36	0.00	0.00	0.00
46	95	97		LU 3X2X1_4	A36	0.00	0.00	0.00
47	97	96		LU 3X2X1_4	A36	0.00	0.00	0.00
48	96	94		LU 3X2X1_4	A36	0.00	0.00	0.00
49	87	85		LU 3X2X1_4	A36	0.00	0.00	0.00
50	86	87		LU 3X2X1_4	A36	0.00	0.00	0.00
51	84	86		LU 3X2X1_4	A36	0.00	0.00	0.00
52	157	147		T2L 2X2X3_16	A36	0.00	0.00	0.00
53	156	146		T2L 2X2X3_16	A36	0.00	0.00	0.00
54	97	87		T2L 2X2X3_16	A36	0.00	0.00	0.00
55	96	86		T2L 2X2X3_16	A36	0.00	0.00	0.00
56	28	18		T2L 2X2X3_16	A36	0.00	0.00	0.00
57	27	17		T2L 2X2X3_16	A36	0.00	0.00	0.00
58	23	24		Z 2-1/2x2-1/2x3_16	A36	0.00	0.00	0.00
59	14	13		Z 2-1/2x2-1/2x3_16	A36	0.00	0.00	0.00
60	152	153		Z 2-1/2x2-1/2x3_16	A36	0.00	0.00	0.00

61	143	142	Z 2-1/2x2-1/2x3_16	A36	0.00	0.00	0.00
62	92	93	Z 2-1/2x2-1/2x3_16	A36	0.00	0.00	0.00
63	83	82	Z 2-1/2x2-1/2x3_16	A36	0.00	0.00	0.00
64	23	13	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
65	30	20	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	29	19	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	24	14	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	152	142	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	159	149	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
70	158	148	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
71	153	143	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
72	92	82	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
73	99	89	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
74	98	88	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
75	93	83	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
76	163	165	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
77	183	184	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
78	162	164	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
79	186	185	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
81	103	105	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
82	123	124	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
83	102	104	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
84	126	125	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
86	34	36	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
87	54	55	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	33	35	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
89	57	56	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	187	12	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	166	11	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	127	10	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	106	9	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
95	58	8	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
96	37	7	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
97	197	196	RndBar 3_4	A36	0.00	0.00	0.00
98	136	137	RndBar 3_4	A36	0.00	0.00	0.00
99	72	73	RndBar 3_4	A36	0.00	0.00	0.00
100	177	200	RndBar 2	A36	0.00	0.00	0.00
101	178	201	RndBar 2	A36	0.00	0.00	0.00
102	117	140	RndBar 2	A36	0.00	0.00	0.00
103	118	141	RndBar 2	A36	0.00	0.00	0.00
104	48	78	RndBar 2	A36	0.00	0.00	0.00
105	49	79	RndBar 2	A36	0.00	0.00	0.00
136	182	181	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
137	122	121	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
138	53	52	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

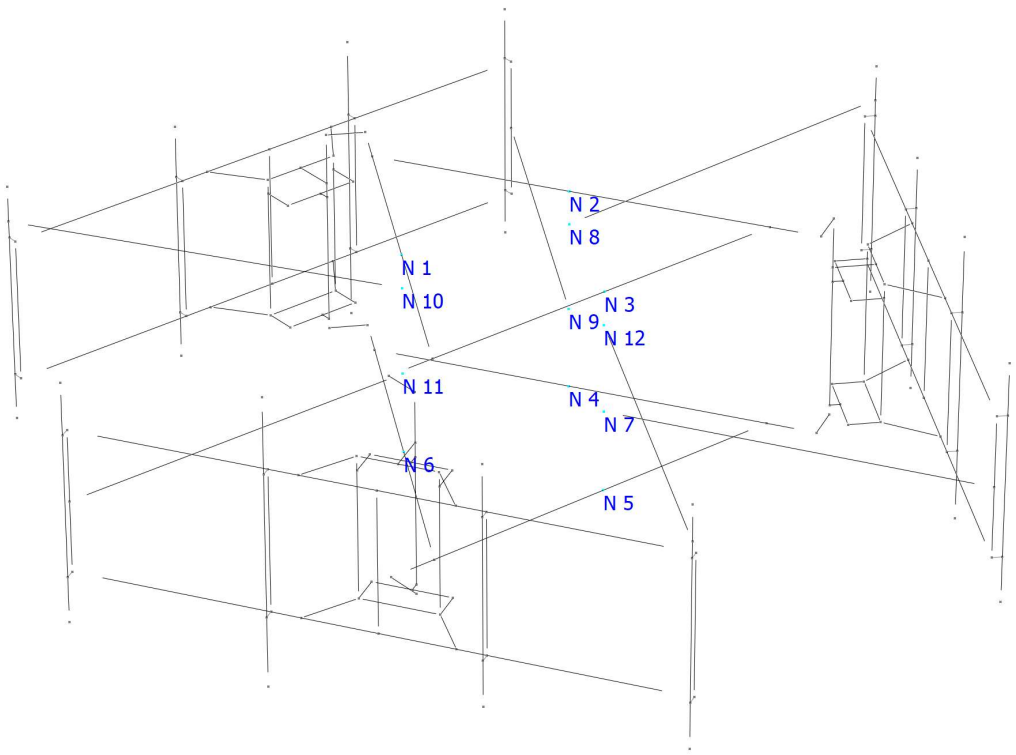
Orientation of local axes

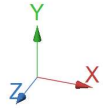
Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	180.00	0	0.00	0.00	0.00
2	180.00	0	0.00	0.00	0.00
3	180.00	0	0.00	0.00	0.00
4	180.00	0	0.00	0.00	0.00
5	180.00	0	0.00	0.00	0.00
6	180.00	0	0.00	0.00	0.00

7	90.00	0	0.00	0.00	0.00
8	90.00	0	0.00	0.00	0.00
9	90.00	0	0.00	0.00	0.00
10	90.00	0	0.00	0.00	0.00
11	90.00	0	0.00	0.00	0.00
12	90.00	0	0.00	0.00	0.00
17	180.00	0	0.00	0.00	0.00
19	180.00	0	0.00	0.00	0.00
21	180.00	0	0.00	0.00	0.00
23	180.00	0	0.00	0.00	0.00
25	180.00	0	0.00	0.00	0.00
27	180.00	0	0.00	0.00	0.00
34	180.00	0	0.00	0.00	0.00
35	180.00	0	0.00	0.00	0.00
36	180.00	0	0.00	0.00	0.00
40	180.00	0	0.00	0.00	0.00
41	180.00	0	0.00	0.00	0.00
42	180.00	0	0.00	0.00	0.00
46	180.00	0	0.00	0.00	0.00
47	180.00	0	0.00	0.00	0.00
48	180.00	0	0.00	0.00	0.00
53	180.00	0	0.00	0.00	0.00
54	120.00	0	0.00	0.00	0.00
55	300.00	0	0.00	0.00	0.00
56	240.00	0	0.00	0.00	0.00
57	60.00	0	0.00	0.00	0.00
58	90.00	0	0.00	0.00	0.00
59	90.00	0	0.00	0.00	0.00
60	90.00	0	0.00	0.00	0.00
61	90.00	0	0.00	0.00	0.00
62	90.00	0	0.00	0.00	0.00
63	90.00	0	0.00	0.00	0.00

Hinges

	Node-J				Node-K						
Member	**M33**	**M22**	**V3**	**V2**	**M33**	**M22**	**V3**	**V2**	**TOR**	**AXL**	**Axial rigidity**
91	1	1	0	0	0	0	0	0	0	0	Full
92	1	1	0	0	0	0	0	0	0	0	Full
93	1	1	0	0	0	0	0	0	0	0	Full
94	1	1	0	0	0	0	0	0	0	0	Full
95	1	1	0	0	0	0	0	0	0	0	Full
96	1	1	0	0	0	0	0	0	0	0	Full
97	0	0	0	0	0	0	0	0	0	0	Tension only
98	0	0	0	0	0	0	0	0	0	0	Tension only
99	0	0	0	0	0	0	0	0	0	0	Tension only

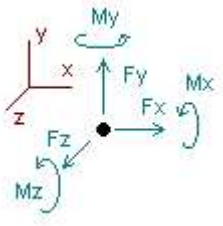

N 2
N 8
N 1
N 10
N 3
N 9
N 12
N 11
N 4
N 7
N 6
N 5


Y
X
Z

Current Date: 1/18/2022 5:56 PM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.2DL+W0**						
1	0.86927	0.64927	1.89965	0.00000	0.00000	0.00000
2	-0.46687	0.65431	-0.68711	0.00000	0.00000	0.00000
3	-0.37317	0.66128	1.01134	0.00000	0.00000	0.00000
4	0.85555	0.62275	-0.75927	0.00000	0.00000	0.00000
5	-1.09541	0.61605	2.09285	0.00000	0.00000	0.00000
6	0.73712	0.68000	1.68494	0.00000	0.00000	0.00000
7	-0.59096	0.01958	0.01902	0.00000	0.00000	0.00000
8	0.06068	0.01565	-0.10185	0.00000	0.00000	0.00000
9	-0.01747	0.01513	-0.01991	0.00000	0.00000	0.00000
10	0.25207	0.01648	0.01716	0.00000	0.00000	0.00000
11	-0.29694	0.01114	0.51513	0.00000	0.00000	0.00000
12	0.06612	0.01568	0.11977	0.00000	0.00000	0.00000
SUM	0.00000	3.97732	5.79170	0.00000	0.00000	0.00000
Condition **LC2=1.2DL+W30**						
1	-0.08733	0.65978	1.14655	0.00000	0.00000	0.00000
2	1.61534	0.66943	-0.35086	0.00000	0.00000	0.00000
3	0.63123	0.65955	-0.86268	0.00000	0.00000	0.00000
4	3.33318	0.59552	-0.28481	0.00000	0.00000	0.00000
5	0.34320	0.66762	-0.44399	0.00000	0.00000	0.00000
6	-0.72060	0.62910	0.19177	0.00000	0.00000	0.00000
7	0.26337	0.01347	0.00189	0.00000	0.00000	0.00000
8	0.14125	0.01522	-0.22398	0.00000	0.00000	0.00000
9	0.45612	0.02166	0.76796	0.00000	0.00000	0.00000
10	-0.03967	0.01593	0.00121	0.00000	0.00000	0.00000
11	-0.09892	0.01369	0.20003	0.00000	0.00000	0.00000
12	-0.06755	0.01636	-0.14308	0.00000	0.00000	0.00000
SUM	5.76960	3.97732	0.00000	0.00000	0.00000	0.00000
Condition **LC3=1.2DL-W0**						
1	-1.02250	0.66354	-0.68887	0.00000	0.00000	0.00000
2	-0.50726	0.65965	-0.04568	0.00000	0.00000	0.00000
3	1.50170	0.65245	-1.49135	0.00000	0.00000	0.00000
4	0.10001	0.65399	0.03421	0.00000	0.00000	0.00000
5	1.25029	0.65803	-0.90390	0.00000	0.00000	0.00000
6	-1.84930	0.59413	-2.15393	0.00000	0.00000	0.00000
7	0.53202	0.01154	-0.01650	0.00000	0.00000	0.00000

8	-0.07071	0.01634	0.11895	0.00000	0.00000	0.00000
9	0.04875	0.01609	0.07457	0.00000	0.00000	0.00000
10	-0.23418	0.01527	-0.01646	0.00000	0.00000	0.00000
11	0.32723	0.01994	-0.56692	0.00000	0.00000	0.00000
12	-0.07603	0.01636	-0.13582	0.00000	0.00000	0.00000
SUM	0.00000	3.97732	-5.79170	0.00000	0.00000	0.00000

Condition **LC4=1.2DL-W30**

1	-0.05876	0.65232	0.06943	0.00000	0.00000	0.00000
2	-2.59256	0.64492	-0.38769	0.00000	0.00000	0.00000
3	0.49044	0.65453	0.39036	0.00000	0.00000	0.00000
4	-2.37604	0.67883	-0.44796	0.00000	0.00000	0.00000
5	-0.19665	0.60810	1.64027	0.00000	0.00000	0.00000
6	-0.38135	0.64578	-0.65099	0.00000	0.00000	0.00000
7	-0.32711	0.01769	-0.00354	0.00000	0.00000	0.00000
8	-0.15026	0.01653	0.23864	0.00000	0.00000	0.00000
9	-0.42482	0.00943	-0.72056	0.00000	0.00000	0.00000
10	0.06040	0.01617	-0.00159	0.00000	0.00000	0.00000
11	0.12883	0.01744	-0.25308	0.00000	0.00000	0.00000
12	0.05827	0.01558	0.12671	0.00000	0.00000	0.00000
SUM	-5.76960	3.97732	0.00000	0.00000	0.00000	0.00000

Condition **LC5=0.9DL+W0**

1	0.88988	0.48215	1.74877	0.00000	0.00000	0.00000
2	-0.34627	0.49390	-0.59679	0.00000	0.00000	0.00000
3	-0.51603	0.49427	1.07339	0.00000	0.00000	0.00000
4	0.73672	0.46877	-0.66937	0.00000	0.00000	0.00000
5	-1.11413	0.45514	1.94238	0.00000	0.00000	0.00000
6	0.87621	0.51873	1.74345	0.00000	0.00000	0.00000
7	-0.58338	0.01464	0.01903	0.00000	0.00000	0.00000
8	0.06179	0.01172	-0.10395	0.00000	0.00000	0.00000
9	-0.02107	0.01130	-0.02633	0.00000	0.00000	0.00000
10	0.24979	0.01231	0.01719	0.00000	0.00000	0.00000
11	-0.30100	0.00832	0.52197	0.00000	0.00000	0.00000
12	0.06748	0.01175	0.12196	0.00000	0.00000	0.00000
SUM	0.00000	2.98299	5.79170	0.00000	0.00000	0.00000

Condition **LC6=0.9DL+W30**

1	-0.06823	0.49902	0.99813	0.00000	0.00000	0.00000
2	1.74026	0.50478	-0.25934	0.00000	0.00000	0.00000
3	0.48924	0.49077	-0.80418	0.00000	0.00000	0.00000
4	3.21316	0.43705	-0.19386	0.00000	0.00000	0.00000
5	0.32417	0.50461	-0.59438	0.00000	0.00000	0.00000
6	-0.58368	0.47471	0.24968	0.00000	0.00000	0.00000
7	0.27112	0.01006	0.00196	0.00000	0.00000	0.00000
8	0.14233	0.01136	-0.22605	0.00000	0.00000	0.00000
9	0.45238	0.01622	0.76147	0.00000	0.00000	0.00000
10	-0.04205	0.01194	0.00129	0.00000	0.00000	0.00000
11	-0.10271	0.01022	0.20641	0.00000	0.00000	0.00000
12	-0.06638	0.01224	-0.14113	0.00000	0.00000	0.00000
SUM	5.76960	2.98299	0.00000	0.00000	0.00000	0.00000

Condition **LC7=0.9DL-W0**

1	-1.00546	0.50132	-0.84134	0.00000	0.00000	0.00000
2	-0.38413	0.49043	0.04773	0.00000	0.00000	0.00000
3	1.36309	0.48983	-1.43425	0.00000	0.00000	0.00000
4	-0.02075	0.49032	0.12602	0.00000	0.00000	0.00000
5	1.23163	0.50146	-1.05192	0.00000	0.00000	0.00000
6	-1.71135	0.43819	-2.09566	0.00000	0.00000	0.00000
7	0.53948	0.00861	-0.01639	0.00000	0.00000	0.00000
8	-0.06962	0.01223	0.11697	0.00000	0.00000	0.00000
9	0.04493	0.01202	0.06786	0.00000	0.00000	0.00000
10	-0.23654	0.01140	-0.01636	0.00000	0.00000	0.00000
11	0.32352	0.01492	-0.56056	0.00000	0.00000	0.00000
12	-0.07481	0.01226	-0.13382	0.00000	0.00000	0.00000
SUM	0.00000	2.98299	-5.79170	0.00000	0.00000	0.00000

Condition **LC8=0.9DL-W30**

1	-0.04023	0.48374	-0.08540	0.00000	0.00000	0.00000
2	-2.47372	0.47993	-0.29535	0.00000	0.00000	0.00000
3	0.35106	0.49377	0.45100	0.00000	0.00000	0.00000
4	-2.49569	0.51971	-0.35710	0.00000	0.00000	0.00000
5	-0.21504	0.45356	1.49235	0.00000	0.00000	0.00000
6	-0.24120	0.48285	-0.59213	0.00000	0.00000	0.00000
7	-0.31981	0.01323	-0.00348	0.00000	0.00000	0.00000
8	-0.14914	0.01235	0.23663	0.00000	0.00000	0.00000
9	-0.42849	0.00705	-0.72718	0.00000	0.00000	0.00000
10	0.05815	0.01212	-0.00154	0.00000	0.00000	0.00000
11	0.12498	0.01303	-0.24650	0.00000	0.00000	0.00000
12	0.05953	0.01166	0.12871	0.00000	0.00000	0.00000
SUM	-5.76960	2.98299	0.00000	0.00000	0.00000	0.00000

Condition **LC9=1.2DL+Di+Wi0**

1	0.01484	1.23887	1.35909	0.00000	0.00000	0.00000
2	-0.96635	1.23792	-0.73054	0.00000	0.00000	0.00000
3	0.97901	1.24143	-0.39452	0.00000	0.00000	0.00000
4	1.03718	1.19027	-0.73291	0.00000	0.00000	0.00000
5	-0.03386	1.19336	1.31980	0.00000	0.00000	0.00000
6	-0.91953	1.20102	-0.27530	0.00000	0.00000	0.00000
7	-0.14201	0.04003	-0.00120	0.00000	0.00000	0.00000
8	0.00443	0.03972	-0.00820	0.00000	0.00000	0.00000
9	0.02816	0.03890	0.04984	0.00000	0.00000	0.00000
10	0.04012	0.03992	-0.00111	0.00000	0.00000	0.00000
11	-0.03441	0.03720	0.05838	0.00000	0.00000	0.00000
12	-0.00758	0.03982	-0.01232	0.00000	0.00000	0.00000
SUM	0.00000	7.53845	0.63100	0.00000	0.00000	0.00000

Condition **LC10=1.2DL+Di+Wi30**

1	-0.12146	1.23712	1.25400	0.00000	0.00000	0.00000
2	-0.73295	1.24193	-0.67276	0.00000	0.00000	0.00000
3	1.09687	1.24181	-0.61095	0.00000	0.00000	0.00000
4	1.31517	1.18914	-0.65700	0.00000	0.00000	0.00000
5	0.13164	1.20144	1.03060	0.00000	0.00000	0.00000
6	-1.11584	1.19068	-0.46491	0.00000	0.00000	0.00000
7	0.01941	0.03786	0.00017	0.00000	0.00000	0.00000
8	0.00299	0.03974	-0.00553	0.00000	0.00000	0.00000
9	0.09707	0.04077	0.17156	0.00000	0.00000	0.00000
10	-0.00278	0.03974	0.00008	0.00000	0.00000	0.00000
11	0.00671	0.03829	-0.01139	0.00000	0.00000	0.00000

12	-0.02083	0.03993	-0.03386	0.00000	0.00000	0.00000
SUM	0.67600	7.53845	0.00000	0.00000	0.00000	0.00000

Condition **LC11=1.2DL+Di-Wi0**

1	-0.21028	1.23902	1.03598	0.00000	0.00000	0.00000
2	-1.01035	1.24257	-0.63303	0.00000	0.00000	0.00000
3	1.19310	1.23814	-0.63549	0.00000	0.00000	0.00000
4	0.90884	1.19984	-0.61548	0.00000	0.00000	0.00000
5	0.22767	1.19606	1.03889	0.00000	0.00000	0.00000
6	-1.22031	1.18634	-0.73678	0.00000	0.00000	0.00000
7	0.03243	0.03769	0.00030	0.00000	0.00000	0.00000
8	-0.01905	0.03994	0.03522	0.00000	0.00000	0.00000
9	0.02589	0.03884	0.04576	0.00000	0.00000	0.00000
10	-0.00942	0.03971	0.00027	0.00000	0.00000	0.00000
11	0.09001	0.04049	-0.15280	0.00000	0.00000	0.00000
12	-0.00852	0.03983	-0.01384	0.00000	0.00000	0.00000
SUM	0.00000	7.53845	-0.63100	0.00000	0.00000	0.00000

Condition **LC12=1.2DL+Di-Wi30**

1	-0.07385	1.24076	1.14112	0.00000	0.00000	0.00000
2	-1.24385	1.23856	-0.69091	0.00000	0.00000	0.00000
3	1.07513	1.23775	-0.41889	0.00000	0.00000	0.00000
4	0.63083	1.20092	-0.69152	0.00000	0.00000	0.00000
5	0.06201	1.18799	1.32827	0.00000	0.00000	0.00000
6	-1.02381	1.19671	-0.54702	0.00000	0.00000	0.00000
7	-0.12907	0.03985	-0.00117	0.00000	0.00000	0.00000
8	-0.01758	0.03992	0.03253	0.00000	0.00000	0.00000
9	-0.04300	0.03695	-0.07612	0.00000	0.00000	0.00000
10	0.03353	0.03990	-0.00093	0.00000	0.00000	0.00000
11	0.04891	0.03941	-0.08307	0.00000	0.00000	0.00000
12	0.00475	0.03972	0.00770	0.00000	0.00000	0.00000
SUM	-0.67600	7.53845	0.00000	0.00000	0.00000	0.00000

Condition **LC13=1.4DL**

1	-0.08786	0.76644	0.70786	0.00000	0.00000	0.00000
2	-0.56915	0.76726	-0.42902	0.00000	0.00000	0.00000
3	0.65700	0.76699	-0.27836	0.00000	0.00000	0.00000
4	0.55882	0.74321	-0.42454	0.00000	0.00000	0.00000
5	0.08795	0.74301	0.69602	0.00000	0.00000	0.00000
6	-0.64678	0.74235	-0.27202	0.00000	0.00000	0.00000
7	-0.03513	0.01824	-0.00032	0.00000	0.00000	0.00000
8	-0.00523	0.01875	0.00968	0.00000	0.00000	0.00000
9	0.01731	0.01824	0.03063	0.00000	0.00000	0.00000
10	0.01101	0.01874	-0.00031	0.00000	0.00000	0.00000
11	0.01783	0.01823	-0.03026	0.00000	0.00000	0.00000
12	-0.00577	0.01875	-0.00937	0.00000	0.00000	0.00000
SUM	0.00000	4.64021	0.00000	0.00000	0.00000	0.00000

Condition **LC14=1.2DL+1.6LL1**

1	-0.34550	0.87809	0.37183	0.00000	0.00000	0.00000
2	-0.48249	0.43158	-0.23680	0.00000	0.00000	0.00000
3	0.80064	0.86705	-0.38076	0.00000	0.00000	0.00000
4	0.46183	0.41448	-0.23134	0.00000	0.00000	0.00000
5	0.20738	0.83753	0.61791	0.00000	0.00000	0.00000
6	-0.64276	0.85349	-0.13555	0.00000	0.00000	0.00000
7	-0.03115	0.01558	-0.00028	0.00000	0.00000	0.00000
8	-0.00421	0.01606	0.00779	0.00000	0.00000	0.00000
9	0.01512	0.01558	0.02675	0.00000	0.00000	0.00000
10	0.00921	0.01606	-0.00026	0.00000	0.00000	0.00000
11	0.01767	0.01572	-0.02998	0.00000	0.00000	0.00000
12	-0.00574	0.01609	-0.00931	0.00000	0.00000	0.00000
SUM	0.00000	4.37732	0.00000	0.00000	0.00000	0.00000

Condition **LC15=1.2DL+1.6LL2**

1	-0.08511	0.87246	1.04495	0.00000	0.00000	0.00000
2	-0.43452	0.43001	-0.23598	0.00000	0.00000	0.00000
3	1.05731	0.87123	-1.04879	0.00000	0.00000	0.00000
4	0.41572	0.41096	-0.22918	0.00000	0.00000	0.00000
5	-0.05395	0.83215	1.28222	0.00000	0.00000	0.00000
6	-0.90774	0.86510	-0.79960	0.00000	0.00000	0.00000
7	-0.03132	0.01559	-0.00028	0.00000	0.00000	0.00000
8	-0.00411	0.01606	0.00761	0.00000	0.00000	0.00000
9	0.01522	0.01559	0.02693	0.00000	0.00000	0.00000
10	0.00903	0.01605	-0.00026	0.00000	0.00000	0.00000
11	0.02385	0.01606	-0.04046	0.00000	0.00000	0.00000
12	-0.00439	0.01606	-0.00715	0.00000	0.00000	0.00000
SUM	0.00000	4.37732	0.00000	0.00000	0.00000	0.00000

Condition **LC16=1.2DL+WL0+1.6LLa1**

1	-1.06002	1.11349	-1.10572	0.00000	0.00000	0.00000
2	-0.57070	0.21062	-0.12212	0.00000	0.00000	0.00000
3	0.49411	1.06189	0.86007	0.00000	0.00000	0.00000
4	0.54355	0.19842	-0.12014	0.00000	0.00000	0.00000
5	0.79735	1.05289	-0.54868	0.00000	0.00000	0.00000
6	-0.13224	1.04263	1.34901	0.00000	0.00000	0.00000
7	-0.05563	0.01571	-0.00049	0.00000	0.00000	0.00000
8	-0.00085	0.01605	0.00157	0.00000	0.00000	0.00000
9	0.01541	0.01557	0.02727	0.00000	0.00000	0.00000
10	0.01598	0.01606	-0.00045	0.00000	0.00000	0.00000
11	0.02613	0.01570	-0.04438	0.00000	0.00000	0.00000
12	-0.07311	0.01831	-0.11793	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	0.17800	0.00000	0.00000	0.00000

Condition **LC17=1.2DL+WL30+1.6LLa1**

1	-1.09751	1.11373	-1.13310	0.00000	0.00000	0.00000
2	-0.50300	0.21124	-0.10637	0.00000	0.00000	0.00000
3	0.52672	1.06182	0.79832	0.00000	0.00000	0.00000
4	0.62307	0.19754	-0.09903	0.00000	0.00000	0.00000
5	0.84384	1.05480	-0.63117	0.00000	0.00000	0.00000
6	-0.18767	1.04060	1.29565	0.00000	0.00000	0.00000
7	-0.01165	0.01545	-0.00010	0.00000	0.00000	0.00000
8	-0.00116	0.01605	0.00215	0.00000	0.00000	0.00000
9	0.03478	0.01580	0.06153	0.00000	0.00000	0.00000
10	0.00402	0.01604	-0.00011	0.00000	0.00000	0.00000
11	0.03749	0.01584	-0.06365	0.00000	0.00000	0.00000

12	-0.07693	0.01842	-0.12411	0.00000	0.00000	0.00000
SUM	0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC18=1.2DL-WL0+1.6LLa1**

1	-1.12286	1.11417	-1.19635	0.00000	0.00000	0.00000
2	-0.58194	0.21086	-0.09539	0.00000	0.00000	0.00000
3	0.55322	1.06156	0.79315	0.00000	0.00000	0.00000
4	0.50821	0.19986	-0.08756	0.00000	0.00000	0.00000
5	0.87080	1.05390	-0.62816	0.00000	0.00000	0.00000
6	-0.21695	1.03944	1.21818	0.00000	0.00000	0.00000
7	-0.00841	0.01543	-0.00008	0.00000	0.00000	0.00000
8	-0.00728	0.01606	0.01348	0.00000	0.00000	0.00000
9	0.01512	0.01556	0.02674	0.00000	0.00000	0.00000
10	0.00238	0.01604	-0.00007	0.00000	0.00000	0.00000
11	0.06104	0.01612	-0.10367	0.00000	0.00000	0.00000
12	-0.07334	0.01831	-0.11829	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	-0.17800	0.00000	0.00000	0.00000

Condition **LC19=1.2DL-WL30+1.6LLa1**

1	-1.08536	1.11393	-1.16897	0.00000	0.00000	0.00000
2	-0.64964	0.21024	-0.11114	0.00000	0.00000	0.00000
3	0.52060	1.06164	0.85492	0.00000	0.00000	0.00000
4	0.42869	0.20073	-0.10868	0.00000	0.00000	0.00000
5	0.82430	1.05199	-0.54566	0.00000	0.00000	0.00000
6	-0.16150	1.04147	1.27155	0.00000	0.00000	0.00000
7	-0.05239	0.01569	-0.00047	0.00000	0.00000	0.00000
8	-0.00696	0.01606	0.01290	0.00000	0.00000	0.00000
9	-0.00425	0.01533	-0.00753	0.00000	0.00000	0.00000
10	0.01435	0.01606	-0.00041	0.00000	0.00000	0.00000
11	0.04969	0.01598	-0.08440	0.00000	0.00000	0.00000
12	-0.06952	0.01820	-0.11211	0.00000	0.00000	0.00000
SUM	-0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC20=1.2DL+WL0+1.6LLa2**

1	-0.77417	1.10748	-0.29348	0.00000	0.00000	0.00000
2	-0.50322	0.20648	-0.11970	0.00000	0.00000	0.00000
3	0.84010	1.07421	-0.04923	0.00000	0.00000	0.00000
4	0.49097	0.19335	-0.11690	0.00000	0.00000	0.00000
5	0.47377	1.04083	0.24979	0.00000	0.00000	0.00000
6	-0.48978	1.05998	0.49696	0.00000	0.00000	0.00000
7	-0.05570	0.01571	-0.00050	0.00000	0.00000	0.00000
8	-0.00075	0.01605	0.00139	0.00000	0.00000	0.00000
9	0.01548	0.01557	0.02740	0.00000	0.00000	0.00000
10	0.01582	0.01606	-0.00045	0.00000	0.00000	0.00000
11	-0.00091	0.01536	0.00154	0.00000	0.00000	0.00000
12	-0.01161	0.01625	-0.01882	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	0.17800	0.00000	0.00000	0.00000

Condition **LC21=1.2DL+WL30+1.6LLa2**

1	-0.81171	1.10769	-0.32112	0.00000	0.00000	0.00000
2	-0.43555	0.20713	-0.10397	0.00000	0.00000	0.00000
3	0.87256	1.07409	-0.11066	0.00000	0.00000	0.00000
4	0.57051	0.19250	-0.09581	0.00000	0.00000	0.00000
5	0.52033	1.04275	0.16713	0.00000	0.00000	0.00000
6	-0.54514	1.05791	0.44377	0.00000	0.00000	0.00000
7	-0.01172	0.01545	-0.00010	0.00000	0.00000	0.00000
8	-0.00106	0.01605	0.00197	0.00000	0.00000	0.00000
9	0.03485	0.01580	0.06165	0.00000	0.00000	0.00000
10	0.00386	0.01604	-0.00011	0.00000	0.00000	0.00000
11	0.01048	0.01559	-0.01777	0.00000	0.00000	0.00000
12	-0.01541	0.01632	-0.02497	0.00000	0.00000	0.00000
SUM	0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC22=1.2DL-WL0+1.6LLa2**

1	-0.83691	1.10802	-0.38420	0.00000	0.00000	0.00000
2	-0.51449	0.20688	-0.09306	0.00000	0.00000	0.00000
3	0.89898	1.07373	-0.11580	0.00000	0.00000	0.00000
4	0.45567	0.19496	-0.08443	0.00000	0.00000	0.00000
5	0.54715	1.04173	0.17013	0.00000	0.00000	0.00000
6	-0.57436	1.05658	0.36625	0.00000	0.00000	0.00000
7	-0.00848	0.01543	-0.00008	0.00000	0.00000	0.00000
8	-0.00718	0.01606	0.01330	0.00000	0.00000	0.00000
9	0.01518	0.01557	0.02686	0.00000	0.00000	0.00000
10	0.00222	0.01604	-0.00006	0.00000	0.00000	0.00000
11	0.03403	0.01608	-0.05775	0.00000	0.00000	0.00000
12	-0.01182	0.01625	-0.01915	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	-0.17800	0.00000	0.00000	0.00000

Condition **LC23=1.2DL-WL30+1.6LLa2**

1	-0.79936	1.10781	-0.35656	0.00000	0.00000	0.00000
2	-0.58217	0.20623	-0.10880	0.00000	0.00000	0.00000
3	0.86651	1.07385	-0.05436	0.00000	0.00000	0.00000
4	0.37613	0.19581	-0.10554	0.00000	0.00000	0.00000
5	0.50057	1.03981	0.25281	0.00000	0.00000	0.00000
6	-0.51899	1.05864	0.41945	0.00000	0.00000	0.00000
7	-0.05246	0.01569	-0.00047	0.00000	0.00000	0.00000
8	-0.00687	0.01606	0.01272	0.00000	0.00000	0.00000
9	-0.00418	0.01533	-0.00740	0.00000	0.00000	0.00000
10	0.01419	0.01606	-0.00040	0.00000	0.00000	0.00000
11	0.02265	0.01584	-0.03844	0.00000	0.00000	0.00000
12	-0.00803	0.01618	-0.01300	0.00000	0.00000	0.00000
SUM	-0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC24=1.2DL+WL0+1.6LLa3**

1	-0.41546	1.09489	0.62105	0.00000	0.00000	0.00000
2	-0.43970	0.20485	-0.11888	0.00000	0.00000	0.00000
3	1.19783	1.08329	-0.96552	0.00000	0.00000	0.00000
4	0.43355	0.18818	-0.11370	0.00000	0.00000	0.00000
5	0.10805	1.03071	1.14799	0.00000	0.00000	0.00000
6	-0.86334	1.08034	-0.40341	0.00000	0.00000	0.00000
7	-0.05588	0.01571	-0.00050	0.00000	0.00000	0.00000
8	-0.00063	0.01605	0.00117	0.00000	0.00000	0.00000
9	0.01560	0.01557	0.02761	0.00000	0.00000	0.00000
10	0.01563	0.01606	-0.00044	0.00000	0.00000	0.00000
11	0.00736	0.01559	-0.01248	0.00000	0.00000	0.00000

12	-0.00301	0.01607	-0.00490	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	0.17800	0.00000	0.00000	0.00000

Condition **LC25=1.2DL+WL30+1.6LLa3**

1	-0.45299	1.09507	0.59326	0.00000	0.00000	0.00000
2	-0.37207	0.20555	-0.10318	0.00000	0.00000	0.00000
3	1.23014	1.08309	-1.02666	0.00000	0.00000	0.00000
4	0.51313	0.18737	-0.09263	0.00000	0.00000	0.00000
5	0.15470	1.03263	1.06506	0.00000	0.00000	0.00000
6	-0.91864	1.07824	-0.45643	0.00000	0.00000	0.00000
7	-0.01190	0.01545	-0.00011	0.00000	0.00000	0.00000
8	-0.00095	0.01605	0.00175	0.00000	0.00000	0.00000
9	0.03497	0.01580	0.06187	0.00000	0.00000	0.00000
10	0.00367	0.01604	-0.00010	0.00000	0.00000	0.00000
11	0.01874	0.01592	-0.03179	0.00000	0.00000	0.00000
12	-0.00680	0.01611	-0.01105	0.00000	0.00000	0.00000
SUM	0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC26=1.2DL-WL0+1.6LLa3**

1	-0.47807	1.09530	0.53030	0.00000	0.00000	0.00000
2	-0.45102	0.20541	-0.09233	0.00000	0.00000	0.00000
3	1.25652	1.08264	-1.03181	0.00000	0.00000	0.00000
4	0.39830	0.18997	-0.08133	0.00000	0.00000	0.00000
5	0.18136	1.03150	1.06813	0.00000	0.00000	0.00000
6	-0.94777	1.07673	-0.53399	0.00000	0.00000	0.00000
7	-0.00866	0.01543	-0.00008	0.00000	0.00000	0.00000
8	-0.00707	0.01606	0.01309	0.00000	0.00000	0.00000
9	0.01531	0.01557	0.02708	0.00000	0.00000	0.00000
10	0.00203	0.01604	-0.00006	0.00000	0.00000	0.00000
11	0.04229	0.01659	-0.07177	0.00000	0.00000	0.00000
12	-0.00322	0.01607	-0.00524	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	-0.17800	0.00000	0.00000	0.00000

Condition **LC27=1.2DL-WL30+1.6LLa3**

1	-0.44053	1.09512	0.55810	0.00000	0.00000	0.00000
2	-0.51866	0.20472	-0.10804	0.00000	0.00000	0.00000
3	1.22420	1.08284	-0.97065	0.00000	0.00000	0.00000
4	0.31873	0.19078	-0.10242	0.00000	0.00000	0.00000
5	0.13470	1.02958	1.15107	0.00000	0.00000	0.00000
6	-0.89246	1.07884	-0.48096	0.00000	0.00000	0.00000
7	-0.05265	0.01569	-0.00048	0.00000	0.00000	0.00000
8	-0.00675	0.01606	0.01250	0.00000	0.00000	0.00000
9	-0.00406	0.01533	-0.00719	0.00000	0.00000	0.00000
10	0.01400	0.01606	-0.00040	0.00000	0.00000	0.00000
11	0.03091	0.01627	-0.05247	0.00000	0.00000	0.00000
12	0.00056	0.01603	0.00092	0.00000	0.00000	0.00000
SUM	-0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC28=1.2DL+WL0+1.6LLa4**

1	-0.07592	1.08476	1.50277	0.00000	0.00000	0.00000
2	-0.37626	0.20249	-0.11769	0.00000	0.00000	0.00000
3	1.53267	1.09214	-1.84056	0.00000	0.00000	0.00000
4	0.37123	0.18336	-0.11078	0.00000	0.00000	0.00000
5	-0.23023	1.02032	2.01909	0.00000	0.00000	0.00000
6	-1.20738	1.09886	-1.27635	0.00000	0.00000	0.00000
7	-0.05613	0.01571	-0.00050	0.00000	0.00000	0.00000
8	-0.00049	0.01604	0.00091	0.00000	0.00000	0.00000
9	0.01574	0.01557	0.02786	0.00000	0.00000	0.00000
10	0.01539	0.01606	-0.00044	0.00000	0.00000	0.00000
11	0.01348	0.01596	-0.02287	0.00000	0.00000	0.00000
12	-0.00211	0.01605	-0.00344	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	0.17800	0.00000	0.00000	0.00000

Condition **LC29=1.2DL+WL30+1.6LLa4**

1	-0.11348	1.08485	1.47466	0.00000	0.00000	0.00000
2	-0.30867	0.20328	-0.10204	0.00000	0.00000	0.00000
3	1.56473	1.09184	-1.90125	0.00000	0.00000	0.00000
4	0.45085	0.18262	-0.08975	0.00000	0.00000	0.00000
5	-0.18346	1.02219	1.93572	0.00000	0.00000	0.00000
6	-1.26252	1.09667	-1.32899	0.00000	0.00000	0.00000
7	-0.01214	0.01545	-0.00011	0.00000	0.00000	0.00000
8	-0.00081	0.01605	0.00150	0.00000	0.00000	0.00000
9	0.03512	0.01581	0.06212	0.00000	0.00000	0.00000
10	0.00343	0.01604	-0.00010	0.00000	0.00000	0.00000
11	0.02484	0.01646	-0.04215	0.00000	0.00000	0.00000
12	-0.00589	0.01606	-0.00960	0.00000	0.00000	0.00000
SUM	0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Condition **LC30=1.2DL-WL0+1.6LLa4**

1	-0.13830	1.08491	1.41200	0.00000	0.00000	0.00000
2	-0.38762	0.20334	-0.09131	0.00000	0.00000	0.00000
3	1.59096	1.09121	-1.90633	0.00000	0.00000	0.00000
4	0.33604	0.18544	-0.07859	0.00000	0.00000	0.00000
5	-0.15699	1.02088	1.93884	0.00000	0.00000	0.00000
6	-1.29156	1.09490	-1.40670	0.00000	0.00000	0.00000
7	-0.00890	0.01543	-0.00008	0.00000	0.00000	0.00000
8	-0.00693	0.01606	0.01283	0.00000	0.00000	0.00000
9	0.01545	0.01557	0.02733	0.00000	0.00000	0.00000
10	0.00179	0.01604	-0.00005	0.00000	0.00000	0.00000
11	0.04839	0.01748	-0.08213	0.00000	0.00000	0.00000
12	-0.00233	0.01605	-0.00380	0.00000	0.00000	0.00000
SUM	0.00000	4.77732	-0.17800	0.00000	0.00000	0.00000

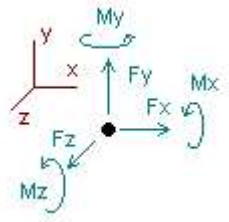
Condition **LC31=1.2DL-WL30+1.6LLa4**

1	-0.10072	1.08481	1.44011	0.00000	0.00000	0.00000
2	-0.45523	0.20256	-0.10697	0.00000	0.00000	0.00000
3	1.55889	1.09151	-1.84563	0.00000	0.00000	0.00000
4	0.25642	0.18618	-0.09963	0.00000	0.00000	0.00000
5	-0.20378	1.01900	2.02223	0.00000	0.00000	0.00000
6	-1.23640	1.09709	-1.35405	0.00000	0.00000	0.00000
7	-0.05289	0.01570	-0.00048	0.00000	0.00000	0.00000
8	-0.00661	0.01606	0.01224	0.00000	0.00000	0.00000
9	-0.00392	0.01534	-0.00694	0.00000	0.00000	0.00000
10	0.01376	0.01606	-0.00039	0.00000	0.00000	0.00000
11	0.03703	0.01699	-0.06286	0.00000	0.00000	0.00000

12	0.00145	0.01603	0.00236	0.00000	0.00000	0.00000
SUM	-0.19200	4.77732	0.00000	0.00000	0.00000	0.00000

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

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

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	0.890	LC5	1.241	LC12	1.900	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.123	LC18	0.482	LC5	-1.196	LC18	0.00000	LC1	0.00000	LC1	0.00000	LC1
2	Max	1.740	LC6	1.243	LC11	0.048	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-2.593	LC4	0.202	LC28	-0.731	LC9	0.00000	LC1	0.00000	LC1	0.00000	LC1
3	Max	1.591	LC30	1.242	LC10	1.073	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.516	LC5	0.490	LC7	-1.906	LC30	0.00000	LC1	0.00000	LC1	0.00000	LC1
4	Max	3.333	LC2	1.201	LC12	0.126	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-2.496	LC8	0.183	LC29	-0.759	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
5	Max	1.250	LC3	1.201	LC10	2.093	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.114	LC5	0.454	LC8	-1.052	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
6	Max	0.876	LC5	1.201	LC9	1.743	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-1.849	LC3	0.438	LC7	-2.154	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
7	Max	0.539	LC7	0.040	LC9	0.019	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.591	LC1	0.009	LC7	-0.017	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
8	Max	0.142	LC6	0.040	LC11	0.239	LC4	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.150	LC4	0.011	LC6	-0.226	LC6	0.00000	LC1	0.00000	LC1	0.00000	LC1
9	Max	0.456	LC2	0.041	LC10	0.768	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.428	LC8	0.007	LC8	-0.727	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
10	Max	0.252	LC1	0.040	LC9	0.017	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.237	LC7	0.011	LC7	-0.016	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
11	Max	0.327	LC3	0.040	LC11	0.522	LC5	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.301	LC5	0.008	LC5	-0.567	LC3	0.00000	LC1	0.00000	LC1	0.00000	LC1
12	Max	0.067	LC5	0.040	LC10	0.129	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.077	LC17	0.012	LC8	-0.143	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1

303 BOXWOOD LN

Location	303 BOXWOOD LN	**Mblu**	F14/ / 96/ /
Acct#		**Owner**	STATE OF CONNECTICUT
Assessment	$69,100	**Appraisal**	$98,700
PID	24557	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$0	$98,700	$98,700
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$0	$69,100	$69,100

Owner of Record

Owner	STATE OF CONNECTICUT	**Sale Price**	$0
Co-Owner	WATER STORAGE&PUMPING STATION	**Book & Page**	0482/0104
Address	210 CAPITOL AVE STE 1 HARTFROD, CT 06106	**Sale Date**	01/02/1970

Ownership History

Ownership History			
Owner	**Sale Price**	**Book & Page**	**Sale Date**
STATE OF CONNECTICUT	$0	0482/0104	01/02/1970

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	

Building Photo

(http://images.vgsi.com/photos2/DanburyCTPhotos//default.jpg)

Building Layout

(http://images.vgsi.com/photos2/DanburyCTPhotos//Sketches/24557_2455

Building Sub-Areas (sq ft)	Legend

Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Whirlpool	
Addn'l Kitchen	
Bsm Gar	
Fin Bsm Area	
Fin Bsm Qual	
Nhbd	
MH Park	

No Data for Building Sub-Areas

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	946V
Description	Rec. Vacant
Zone	RA40
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.86
Frontage	0
Depth	0
Assessed Value	$69,100
Appraised Value	$98,700

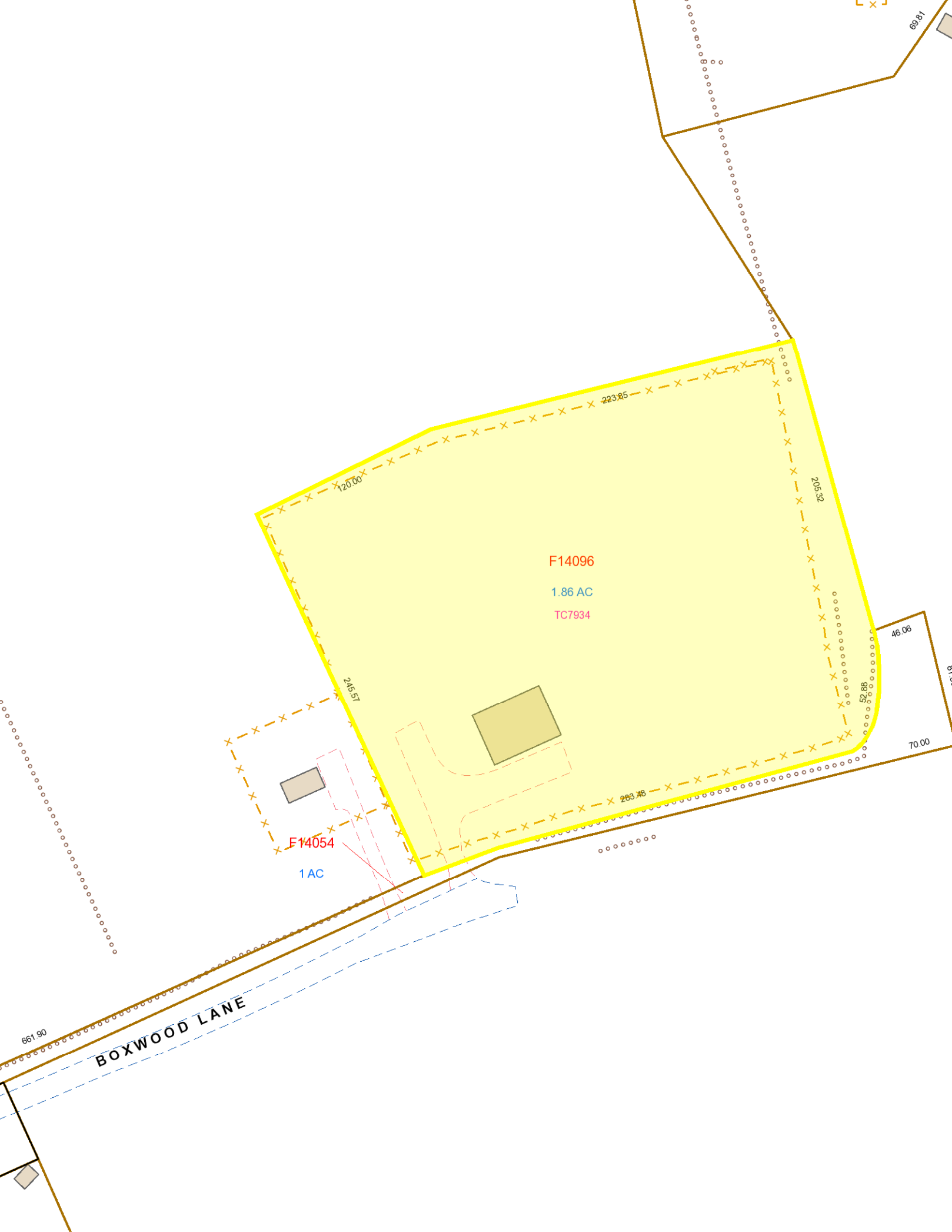
Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$0	$98,700	$98,700
2018	$0	$98,700	$98,700
2017	$0	$98,700	$98,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$0	$69,100	$69,100
2018	$0	$69,100	$69,100
2017	$0	$69,100	$69,100


F14096
1.86 AC
TC7934
F14054
1 AC
BOXWOOD LANE
223.85
120.00
205.32
245.57
283.48
52.88
46.06
70.00
661.90
69.81

Filing Guides
Meetings & Minutes
Public Participation
Audio Link to New Britain Hearing Rooms
Programs & Services
Telecommunications Database
Publications
Other Resources
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Electric Transmission Upgrade Projects
Frequently Asked Questions

Robert Stein,
Chairman

Melanie Bachman,
Executive Director

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DOCKET NO. 176 - An application of Western Connecticut State University for a Certificate of Environmental Compatibility and Public Need for the construction, operation, and maintenance of a telecommunications facility to be located at Western Connecticut State University Westside Campus in Danbury, Connecticut.

Connecticut Siting Council

October 21, 1996

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed site in Danbury, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reasons to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need as provided by General Statutes § 16-50k be issued to Western Connecticut State University for the construction, operation, and maintenance of a telecommunications facility at the proposed site, off Boxwood Lane Extension, Danbury, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The Certificate Holder shall construct the lattice tower not to exceed 100 feet above ground level.

2. The Certificate Holder shall submit to the Council scaled plans and specifications including cross-sectional drawings for the tower's foundation prior to the construction of the tower foundation.

3. The Certificate Holder shall submit plans to the Council for the construction of the alternate driveway from Boxwood Lane Extension prior to construction if this route becomes available and is proposed for use as the primary accessway to the tower site.

4. The Certificate Holder shall seek alternative obstruction marking using directional lighting. The tower shall not be obstruction painted unless recommended by the Federal Aviation Administration (FAA), ordered by the Federal Communications Commission, or requested by the Airport Administrator of the Danbury Municipal Airport.

5. Consistent with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council notification of:

   a. commencement of construction;

   b. completion of construction;

   c. completion of site rehabilitation;

   d. commencement of operation;

   e. final construction cost; and

   f. compliance with FAA recommendations for tower marking and lighting.

6. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

7. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

8. If the facility does not initially provide, or permanently ceases to provide telecommunications services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Danbury News-Times.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The party to this proceeding is:

APPLICANT	**ITS REPRESENTATIVES**
Western Connecticut State University	Mr. Thomas P. Carlone Associate Director of Planning & Engineering Western Connecticut State University 181 White Street, Room 203 Danbury, CT 06810 (203) 837-8681 Andrew A. Glickson, Esq. Counsel to Smart SMR of New York, Inc. 4 Berkeley Street Norwalk, CT 06850 (203) 853-8001

Content Last Modified on 8/9/2002 11:54:02 AM

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

February 19, 2016

Alex Murshteyn, Site Acquisition
c/o New Cingular Wireless PCS, LLC
Centerline Communications
95 Ryan Drive, Suite 1
Raynham, MA 02767

RE: **TS-CING-034-160202** – New Cingular Wireless PCS, LLC (AT&T) request for an order to approve the shared used of an existing telecommunications facility located at 303 Boxwood Lane, Danbury, Connecticut.

Dear Mr. Murshteyn:

At a public meeting held on February 18, 2016, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

1. Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
2. Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;
3. Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;
4. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by New Cingular Wireless PCS, LLC (AT&T) shall be removed within 60 days of the date the antenna ceased to function.
5. The validity of this action shall expire one year from the date of this letter; and
6. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council and applies only to this request for tower sharing dated January 29, 2016. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from the approved tower sharing request is enforceable under the provisions of Connecticut General Statutes § 16-50u.

The proposed shared use is to be implemented as specified in your letter dated January 29, 2016, including the placement of all necessary equipment and shelters within the tower compound.

Please be advised that the validity of this action shall expire one year from the date of this letter.

Thank you for your attention and cooperation.

Very truly yours,

Robert Stein

Robert Stein
Chairman

RS/CH/cm

c: The Honorable Mark D. Boughton, Mayor, City of Danbury
Sharon Calitro, Director of Planning & Zoning, City of Danbury
Western Connecticut State University

March 29, 2022 **SENT VIA EMAIL**

Western CT State University
Attn: Mr. John Murphy, Director
Events & Conference Management
181 White Street
Danbury, CT 06811

RE: AT&T Wireless Equipment at: 303 Boxwood Lane, Danbury, CT 06811
Site Name: Danbury Boxwood Lane, Site Number: CT0968 FA Code: 10035264

Dear Mr. Murphy:

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

Pursuant to the License Agreement, dated April 4, 2016, Western Connecticut State University's consent is required for these modifications. AT&T will be modifying their existing antenna configuration which may include, but is not limited to, adding antennas and ancillary equipment within AT&T's leased premises. The improvements are described in the enclosed construction drawings by Hudson Design Group LLC, Revision 1, dated March 1, 2022.

As the Landlord, I hereby consent to this work and authorize AT&T Wireless, its agents or representatives, to apply for any and all permits that may be required for this project.

If you have any questions, please don't hesitate to contact me directly at (860) 834-6964. Please indicate your consent by signing below and returning the letter to me either by email or the address listed below. Thank you for your attention to this matter. I appreciate your time.

Sincerely,

Hollis M. Redding

Hollis M. Redding
Site Acquisition Specialist

Enclosures

Landlord/Authorized Agent's Consent

Name: John A Murphy

Signature: John A Murphy

Date: March 31, 2022

Telephone: 203.837.8395

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Ref#: CT0968
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WESTERN CONNECTICUT STATE UNIVERSITY
181 WHITE ST
O'NEILL CENTER 205
DANBURY CT 06810-6826

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0006

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

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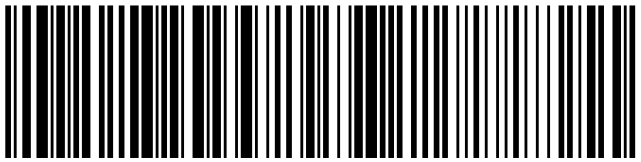

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