



October 21, 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 CT2046
Chestnut Hill Road, Colchester, CT 06415 (the "Property")
Latitude: 41.568936 N Longitude: 72.303661 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 183'+- level on the existing 180' monopole tower ("Tower") off Chestnut Hill Road, Colchester, CT. The property is owned by Colchester Realty, LLC and the Tower is operated by American Tower Corp. AT&T intends to modify its facility by removing (3) antennas and adding (1) OPA65R-BU4DA, & (2) OPA65R-BU8DA antennas at the 183' level of the tower. AT&T also intends on removing (3) RRUs and adding (3) 4449 B5/B12, & (3) 4426 B66 RRUs at the 183' level of the Tower. The height of AT&Ts existing & proposed antennas and RRUs is 183' on the Tower. (6) TMAs & (6) Diplexers are also being removed and not replaced.

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

The AT&T Facility received CT Siting Council approval under Docket 112 on September 8, 1989. There were no conditions that could be feasibility be violated by this modification, including total facility height and mounting restrictions. The AT&T modification complies with the above-mentioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent the Hon. Andreas Bisbikos, First Selectman, Town of Colchester, Ariel Lago, Zoning Enforcement Officer, Town of Colchester, Colchester Realty LLC, the property owner and American Tower Corp, the tower operator.

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 tower 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. Andreas Bisbikos, First Selectman, Town of Colchester
Ariel Lago, Zoning Enforcement Officer, Town of Colchester
Colchester Realty LLC, the property owner
American Tower Corp, the tower operator



C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
(603) 644-2800

support@csquaredsystems.com

Calculated Radio Frequency Emissions Report



CT2046

Chestnut Hill Road, Colchester, CT 06415

October 18, 2022

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of AT&T antenna arrays to be mounted at 183' AGL on an existing monopole tower located at Chestnut Hill Road in Colchester, CT. The coordinates of the tower are 41° 34' 08.16" N, 72° 18' 13.19" W.

AT&T is proposing the following:

- 1) Install nine (9) multi-band antennas (three per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T¹ to derive the resulting % MPE of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

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

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm²). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment C 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 C 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 updated 10/06/2022.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

Ground reflection factor of 2.0

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. 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 take into account 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. Antenna Inventory

Table 1 below outlines AT&T’s proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
AT&T	Alpha / 25°	763	160	15.7	5945	OPA65R-BU8D	75	0	8.0	183
		850	160	16.6	7313		63			
		2100	240	18.2	15856		69			
		739	160	15.1	5177	TPA65R-BU6D	66			
		1900	160	15.9	6225		68			
	Beta / 135°	763	160	15.7	5945	OPA65R-BU8D	74	0	8.0	183
		850	160	16.6	7313		63			
		2100	240	18.2	15856		54			
		763	160	15.1	5177	TPA65R-BU6D	73			
		1900	160	15.9	6225		66			
	Gamma / 265°	763	160	15.7	5945	OPA65R-BU8D	74	0	8.0	183
		850	160	16.6	7313		63			
		2100	240	18.2	15856		54			
		763	160	15.1	5177	TPA65R-BU6D	73			
		1900	160	15.9	6225		66			

Table 1: Proposed Antenna Inventory^{2 3}

² Antenna heights are in reference to the Hudson Design Group LLC. Construction Drawings, dated 08/04/2022.

³ Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

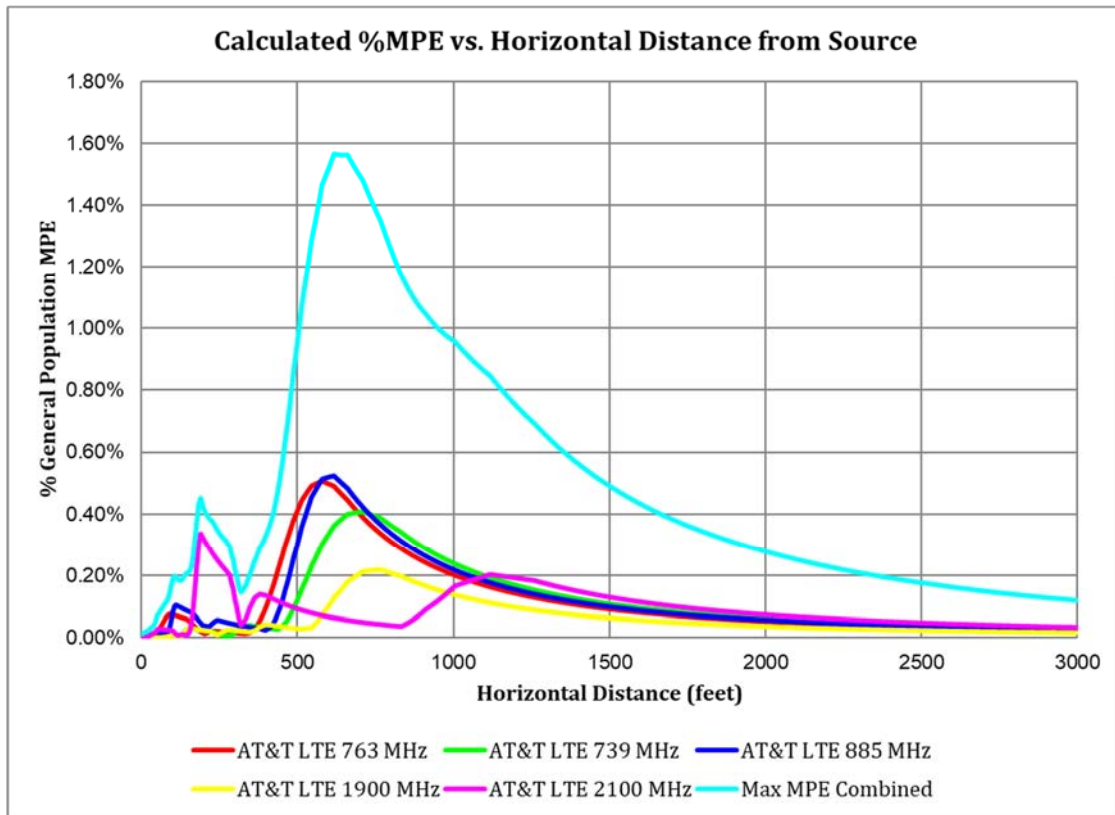


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (1.57% of the General Population limit) is calculated to occur at a horizontal distance of 618 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 2000 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 618 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six-foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm ²)	Limit (mW/cm ²)	% MPE
AT&T LTE 1900 MHz	1	160.0	183.0	618	0.001287	1.000	0.13%
AT&T LTE 2100 MHz	1	240.0	183.0	618	0.000629	1.000	0.06%
AT&T LTE 739 MHz	1	160.0	183.0	618	0.001785	0.493	0.36%
AT&T LTE 763 MHz	1	160.0	183.0	618	0.002490	0.509	0.49%
AT&T LTE 885 MHz	1	160.0	183.0	618	0.003085	0.590	0.52%
						Total	1.57%

Table 2: Maximum Percent of General Population Exposure Values

6. Conclusion

The above analysis verifies that RF exposure levels from the site with AT&T's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **1.57% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 618 feet away from the site.

7. 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 ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.

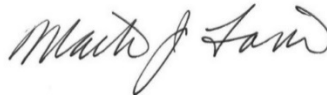


Report Prepared By:

Ram Acharya
RF Engineer 1
C Squared Systems, LLC

October 18, 2022

Date



Reviewed/Approved By:

Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

October 18, 2022

Date

Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure⁴				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6
(B) Limits for General Population/Uncontrolled Exposure⁵				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

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

Table 3: FCC Limits for Maximum Permissible Exposure

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.

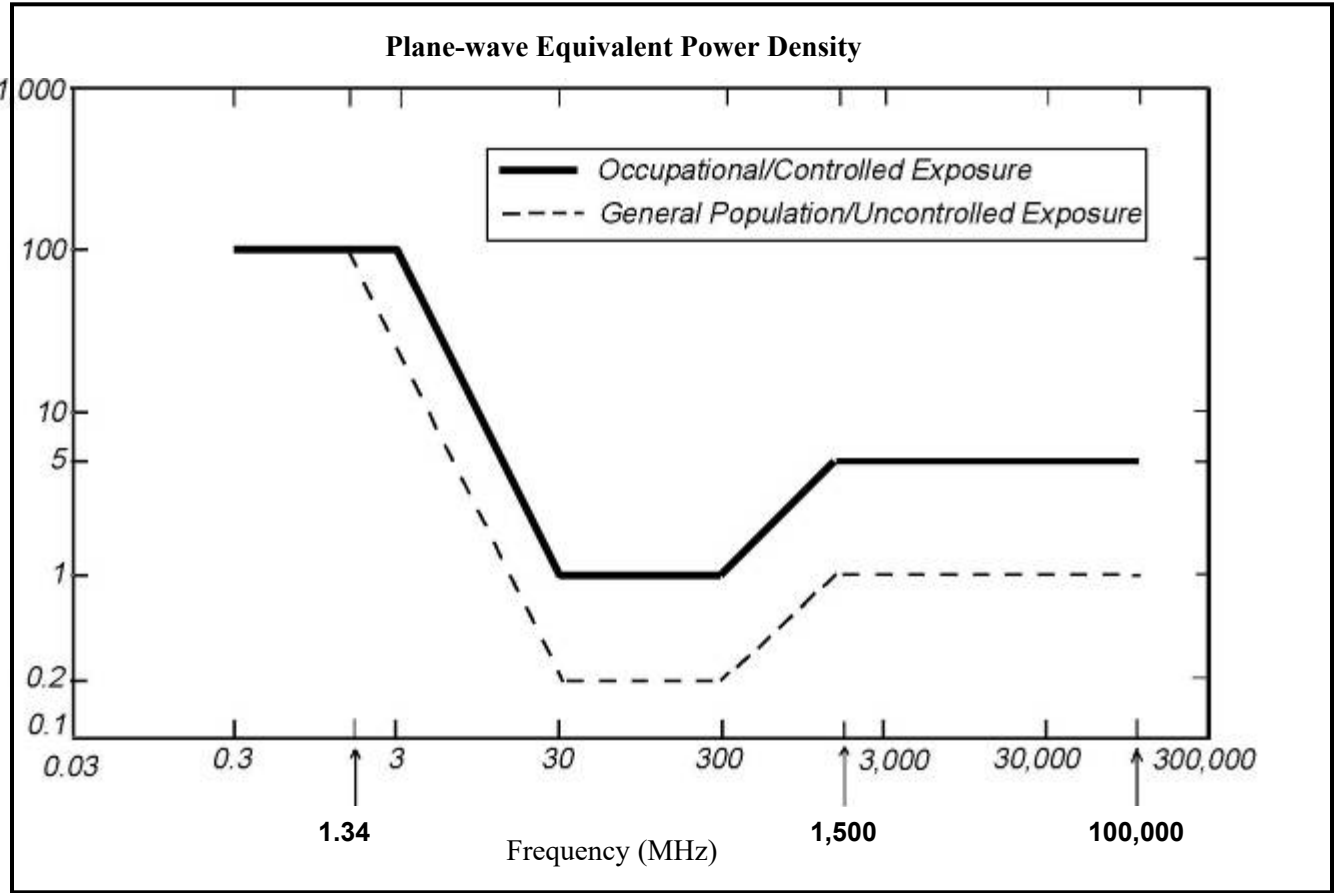
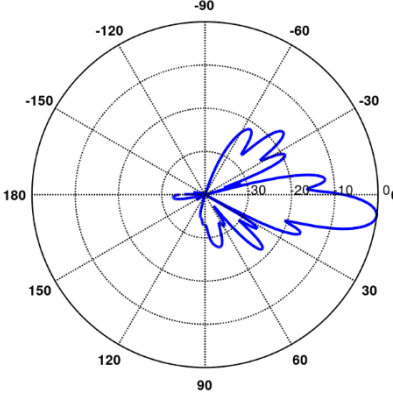
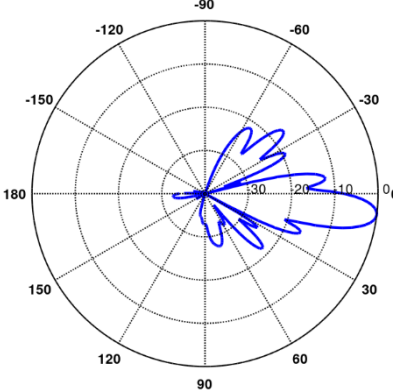
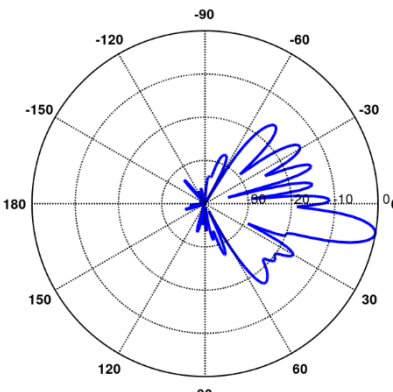
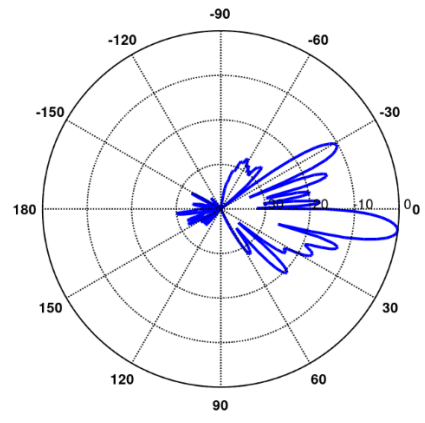
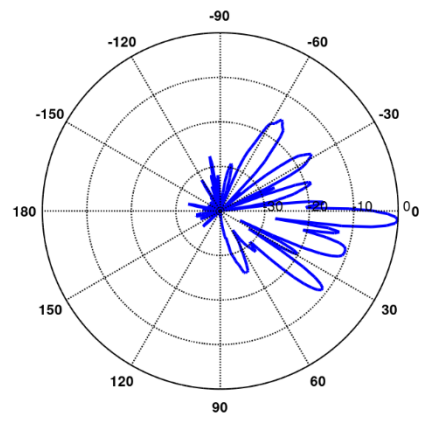


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

<p>739 MHz</p> <p>Manufacturer: CCI Model #: TPA65R-LCUUUU-H8 Frequency Band: 698-798 MHz Gain: 15.1 dBi Vertical Beamwidth: 9.3° Horizontal Beamwidth: 66° Polarization: Dual Pol 45° Dimensions (L x W x D): 96" x 14.4" x 8.6"</p>	
<p>763 MHz</p> <p>Manufacturer: CCI Model #: OPA65R-BU8D Frequency Band: 698 – 806 MHz Gain: 15.7 dBi Vertical Beamwidth: 9.5° Horizontal Beamwidth: 75° Polarization: Dual Linear 45° Dimensions (L x W x D): 96" x 20.7" x 7.7"</p>	
<p>885 MHz</p> <p>Manufacturer: CCI Model #: OPA65R-BU8D Frequency Band: 824 - 896 MHz Gain: 16.6 dBi Vertical Beamwidth: 8° Horizontal Beamwidth: 63° Polarization: Dual Linear 45° Dimensions (L x W x D): 96" x 20.7" x 7.7"</p>	

<p>1900 MHz</p> <p>Manufacturer: CCI Model #: TPA65R-LCUUUU-H8 Frequency Band: 1850 – 1990 MHz Gain: 15.9 dBi Vertical Beamwidth: 6.9° Horizontal Beamwidth: 68° Polarization: Dual Pol 45° Dimensions (L x W x D): 96” x 14.4” x 8.6”</p>	
<p>2100 MHz</p> <p>Manufacturer: CCI Model #: OPA65R-BU8D Frequency Band: 1920 – 2180 MHz Gain: 18.2 dBi Vertical Beamwidth: 4.8° Horizontal Beamwidth: 69° Polarization: Dual Linear 45° Dimensions (L x W x D): 96” x 20.7” x 7.7”</p>	

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:

- NEW AT&T ANTENNAS: OPA65R-BU4DA (ALPHA SECTOR, TOTAL OF 1).
- NEW AT&T ANTENNAS: OPA65R-BU8DA (TYP. OF 1 PER BETA & GAMMA SECTOR, TOTAL OF 2).
- NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4426 B66 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T DC & FIBER SURGE ARRESTOR DC6-48-60-18 (TOTAL OF 1)
- ADD (2) AWG 6 DC POWER & (1) 18-PAIR FIBER.
- ADD (3) Y-CABLES.
- PROPOSED MOUNT MODS (SEE S-1 SHEET).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (4) RECTIFIERS.
- ADD 6630+IDLE.

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T TMA'S: LGP17201 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXERS: LGP21901 (TYP. OF 2 PER SECTOR, TOTAL OF 6).

ITEMS TO REMAIN:

- (6) ANTENNAS, (5) RRU'S, (1) SURGE ARRESTOR, (6) DIPLEXER, (12) COAX CABLES, (2) DC POWER & (1) FIBER.

SITE ADDRESS: CHESTNUT HILL ROAD
COLCHESTER, CT 06415

LATITUDE: 41.568936° N 41° 34' 08.16" N
LONGITUDE: 72.303661° W 72° 18' 13.19" W
TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 180'-0"±
RAD CENTER: 183'-0"±
CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CTL02046
SITE NAME: COLCHESTER
FA CODE: 10035002

PACE ID: MRCTB062357, MRCTB062198, MRCTB062324
PROJECT: 5G NR 1DR-1 SITE OVERLAY.LTE.4TH CARRIER UPGRADE

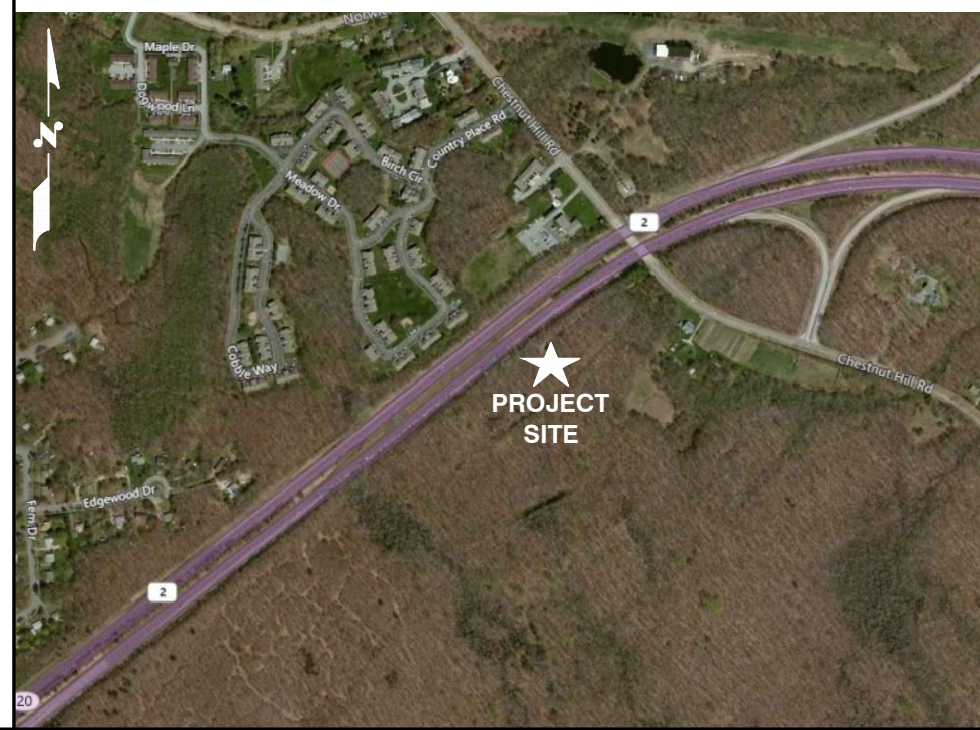
VICINITY MAP

GENERAL NOTES

DRAWING INDEX

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

DIRECTIONS TO SITE:
DEPART ENTERPRISE DR TOWARD CAPITOL BLVD. TURN LEFT ONTO CAPITOL BLVD. TURN LEFT ONTO WEST ST. TAKE RAMP LEFT FOR I-91 N. AT EXIT 25, TAKE RAMP RIGHT FOR CT-3 NORTH TOWARD GLASTONBURY. TAKE RAMP RIGHT FOR CT-2 EAST TOWARD NORWICH. AT EXIT 21, TAKE RAMP RIGHT AND FOLLOW SIGNS FOR CHESTNUT HILL ROAD. TURN RIGHT ONTO CHESTNUT HILL RD. ARRIVE AT SITE ON THE LEFT.



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

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL02046
SITE NAME: COLCHESTER

CHESTNUT HILL ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH

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

Daniel P. Hamm
No. 24178
PROFESSIONAL ENGINEER

AT&T

TITLE SHEET

5G NR 1DR-1 SITE OVERLAY.LTE.4TH CARRIER UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL02046	T-1	1

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – SAI
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

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

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

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

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

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

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

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

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

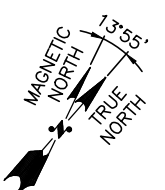
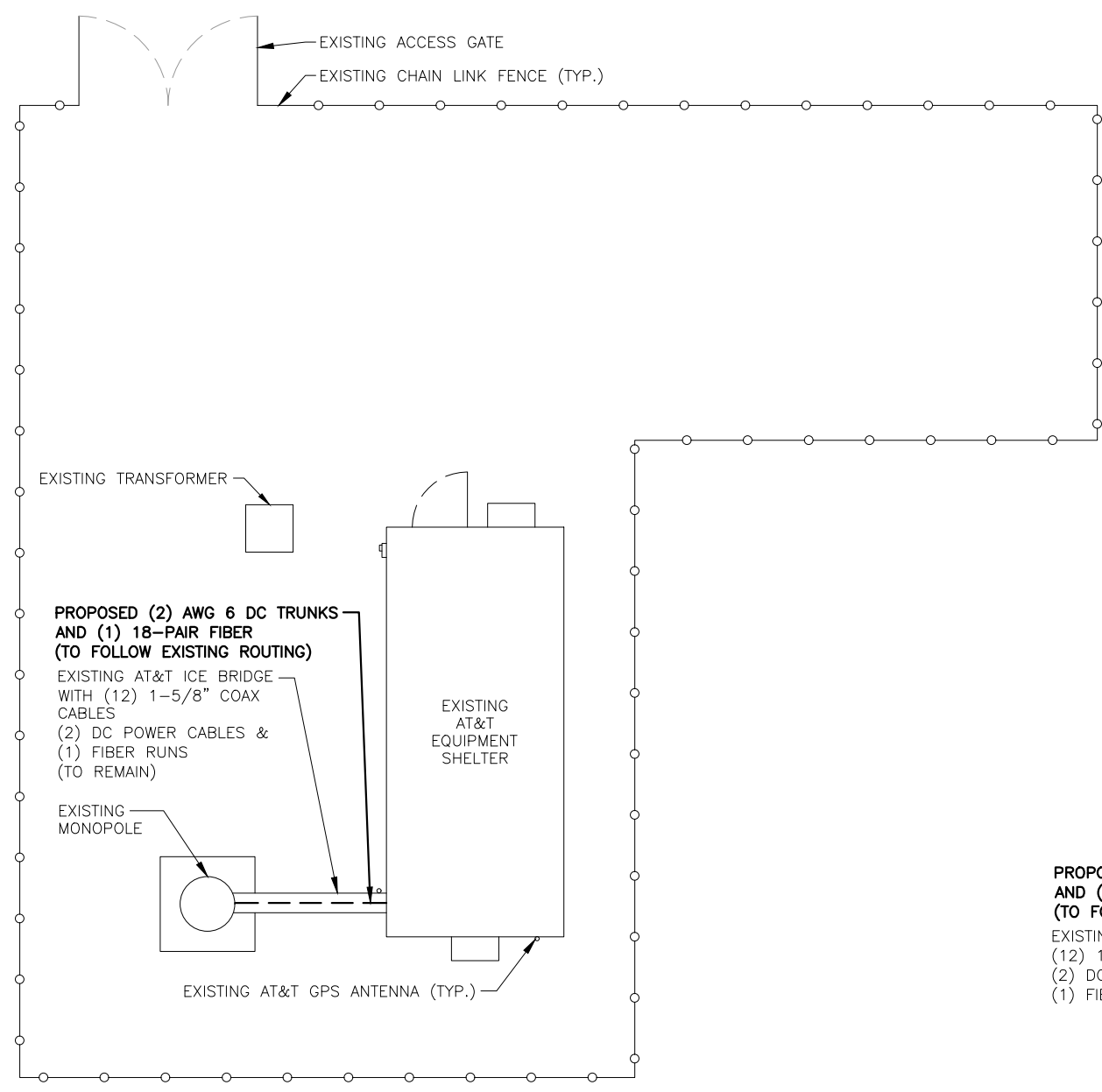
SAI
 12 INDUSTRIAL WAY SALEM, NH 03079

**SITE NUMBER: CTL02046
 SITE NAME: COLCHESTER**

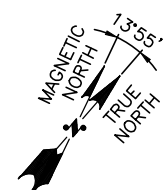
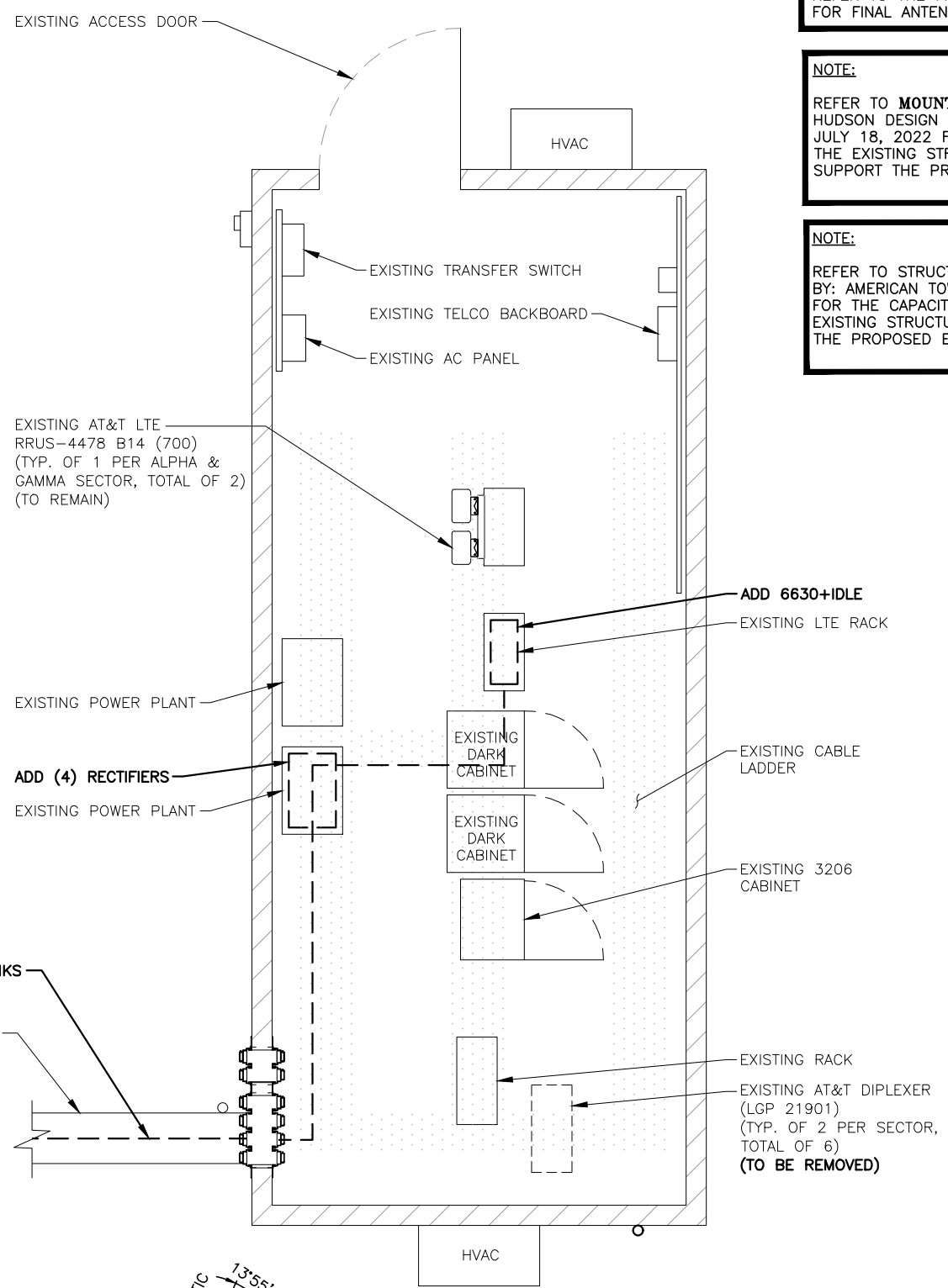
CHESTNUT HILL ROAD COLCHESTER, CT 06415 NEW LONDON COUNTY

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

				AT&T	
				GENERAL NOTES	
				50 NR 1DR-1 SITE OVERLAY.LTE.4TH CARRIER UPGRADE	
NO.		DATE		REVISIONS	
SCALE: AS SHOWN		DESIGNED BY: HC		DRAWN BY: PJ	
SITE NUMBER		DRAWING NUMBER		REV	
CTL02046		GN-1		1	



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



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



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

NOTE:
 REFER TO **MOUNT ANALYSIS** BY: HUDSON DESIGN GROUP, LLC. DATED: JULY 18, 2022 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
 REFER TO **STRUCTURAL ANALYSIS** BY: AMERICAN TOWER CORP. FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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

SAI
 12 INDUSTRIAL WAY SALEM, NH 03079

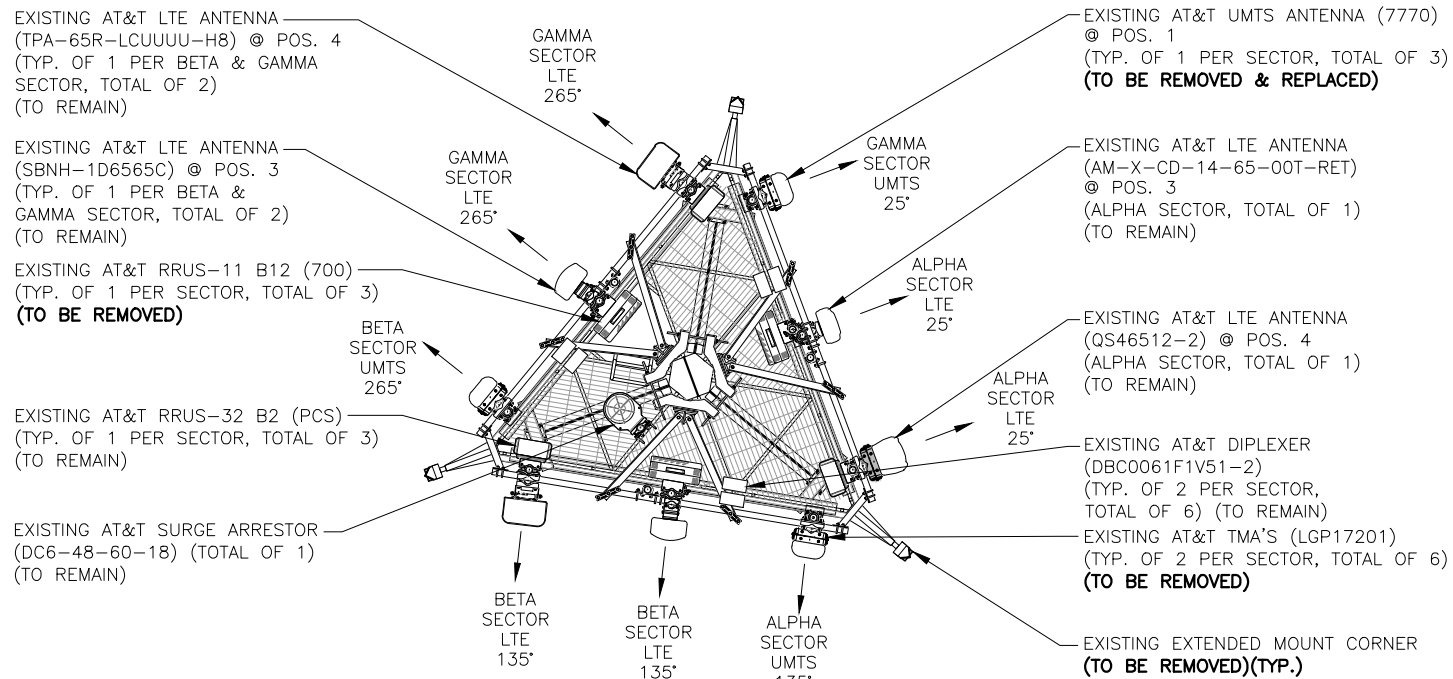
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SITE NAME: COLCHESTER
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 NEW LONDON COUNTY

at&t
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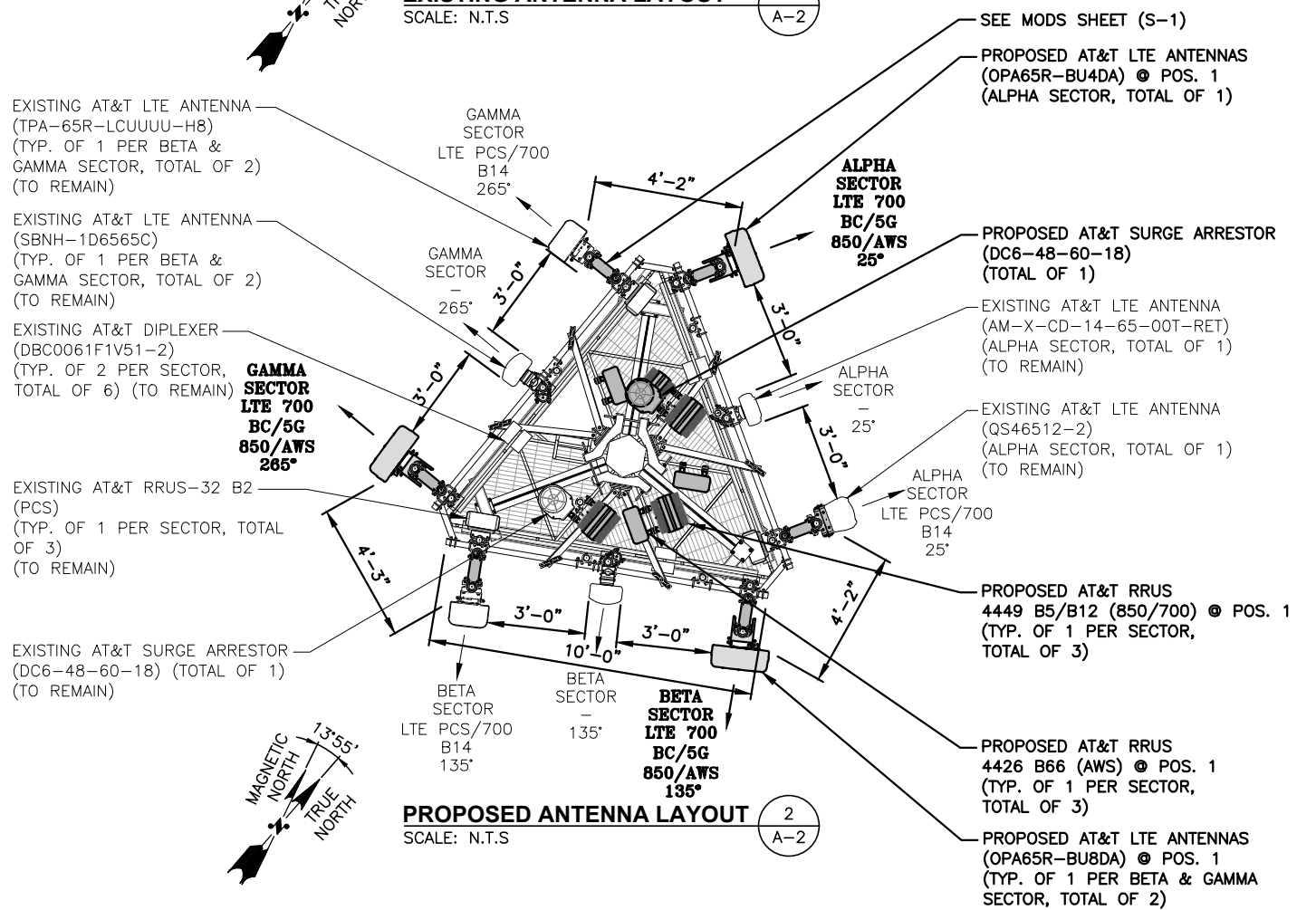
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A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: PJ		



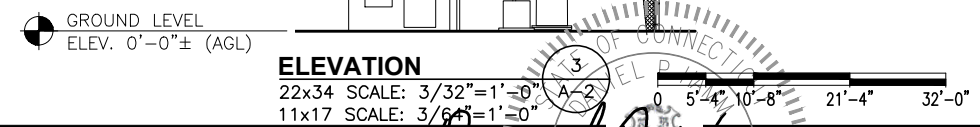
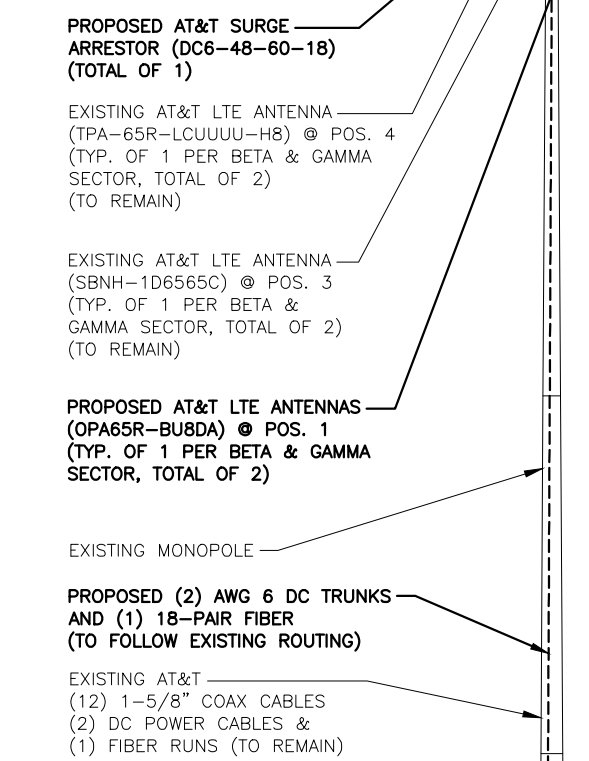
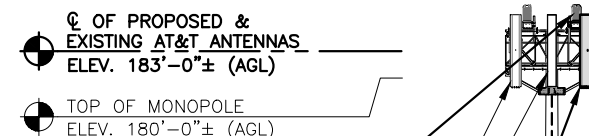
AT&T
COMPOUND & EQUIPMENT PLANS
 5G NR 1DR-1 SITE OVERLAY.LTE.4TH CARRIER UPGRADE
 SITE NUMBER: CTL02046
 DRAWING NUMBER: A-1
 REV: 1



EXISTING ANTENNA LAYOUT 1
SCALE: N.T.S.



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



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

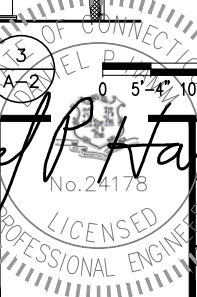
NOTE:
REFER TO MOUNT ANALYSIS BY: HUDSON DESIGN GROUP, LLC. DATED: JULY 18, 2022 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: AMERICAN TOWER CORP. FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH

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



ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ø HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	PROPOSED	LTE 700 BC/5G 850/AWS	OPA65R-BU4DA	48.2X21X7.8	183'-0"±	185'-0"±	25°	-	(P)(1) 4449 B5/B12 (850/700) (P)(1) 4426 B66 (AWS)	17.9x13.2x10.4 14.9x13.2x5.8	(4)1-5/8 COAX (P)(1) Y-CABLE	(E) (1) RAYCAP DC6-48-60-18-8F
A2	-	-	-	-	-	-	-	-	-	-	(E)(2) DC POWER & (1) FIBER	
A3	EXISTING	-	AM-X-CD-14-65-00T-RET	48X11.8X5.9	183'-0"±	185'-0"±	25°	-	-	-	-	
A4	EXISTING	LTE PCS/700 B14	QS46512-2	52X12X10.8	183'-0"±	185'-2"±	25°	-	(E)(1) 4478 B14 (700) (E)(1) RRUS-32 B2 (PCS)	-	-	
B1	PROPOSED	LTE 700 BC/5G 850/AWS	OPA65R-BU8DA	96X21X7.8	183'-0"±	187'-0"±	135°	-	(P)(1) 4449 B5/B12 (850/700) (P)(1) 4426 B66 (AWS)	17.9x13.2x10.4 14.9x13.2x5.8	(4)1-5/8 COAX (P)(1) Y-CABLE	(P) (1) RAYCAP DC6-48-60-18-8F
B2	-	-	-	-	-	-	-	-	-	-	(P)(2) DC POWER & (1) FIBER	
B3	EXISTING	-	SBNH-1D6565C	96.4X11.9X7 .1	183'-0"±	187'-0"±	135°	-	-	-	-	
B4	EXISTING	LTE PCS/700 B14	TPA-65R-LCUUUU-H8	96X14.4X8.6	183'-0"±	187'-0"±	135°	-	(E)(1) RRUS-32 B2 (PCS)	-	-	
C1	PROPOSED	LTE 700 BC/5G 850/AWS	OPA65R-BU8DA	96X21X7.8	183'-0"±	187'-0"±	265°	-	(P)(1) 4449 B5/B12 (850/700) (P)(1) 4426 B66 (AWS)	17.9x13.2x10.4 14.9x13.2x5.8	(4)1-5/8 COAX (P)(1) Y-CABLE	1
C2	-	-	-	-	-	-	-	-	-	-	-	
C3	EXISTING	-	SBNH-1D6565C	96.4X11.9X7 .1	183'-0"±	187'-0"±	265°	-	-	-	-	
C4	EXISTING	LTE PCS/700 B14	TPA-65R-LCUUUU-H8	96X14.4X8.6	183'-0"±	187'-0"±	265°	-	(E)(1) 4478 B14 (700) (E)(1) RRUS-32 B2 (PCS)	-	-	

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

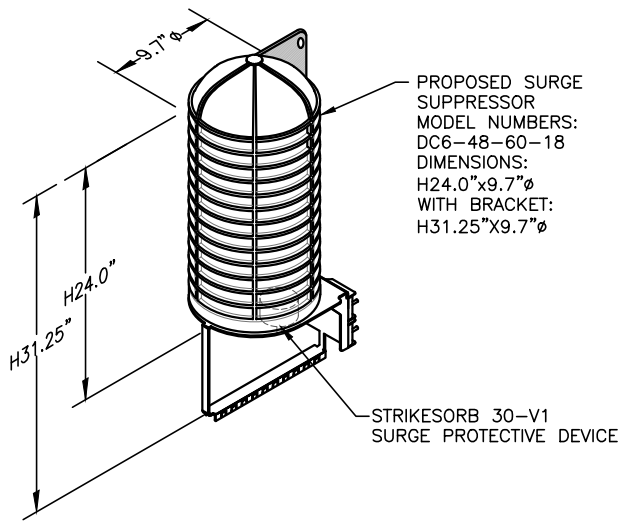
NOTE:
REFER TO **MOUNT ANALYSIS** BY:
HUDSON DESIGN GROUP, LLC. DATED:
JULY 18, 2022 FOR THE CAPACITY OF
THE EXISTING STRUCTURES TO
SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
REFER TO STRUCTURAL ANALYSIS
BY: AMERICAN TOWER CORP.
FOR THE CAPACITY OF THE
EXISTING STRUCTURES TO SUPPORT
THE PROPOSED EQUIPMENT.

QUANTITY	MODEL	SIZE (L x W x D)
P(3)	4449 B5/B12 (850/700)	17.9"x13.2"x10.4"
E(2)	4478 B14 (700)	18.1"x13.4"x8.3"
P(3)	4426 B66 (AWS)	14.9"x13.2"x5.8"
E(3)	RRUS-32 B2 (PCS)	27.2"x12.1"x7.0"

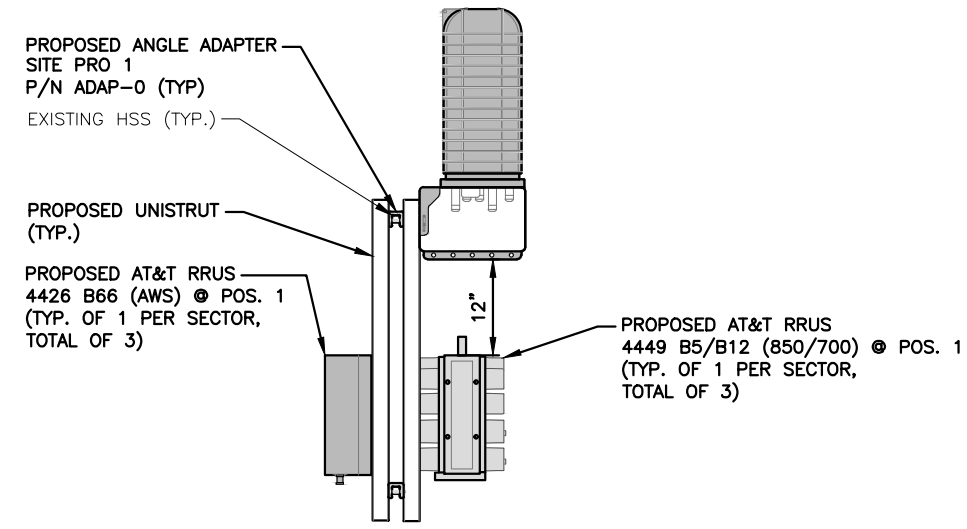
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

FINAL ANTENNA SCHEDULE 1
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL 3
SCALE: N.T.S



PROPOSED RRHS & SURGE ARRESTOR MOUNTING DETAIL

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

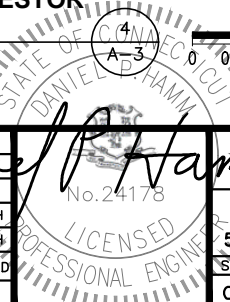
NOTE:
SEE RFDS FOR RRH
FREQUENCY AND
MODEL NUMBER

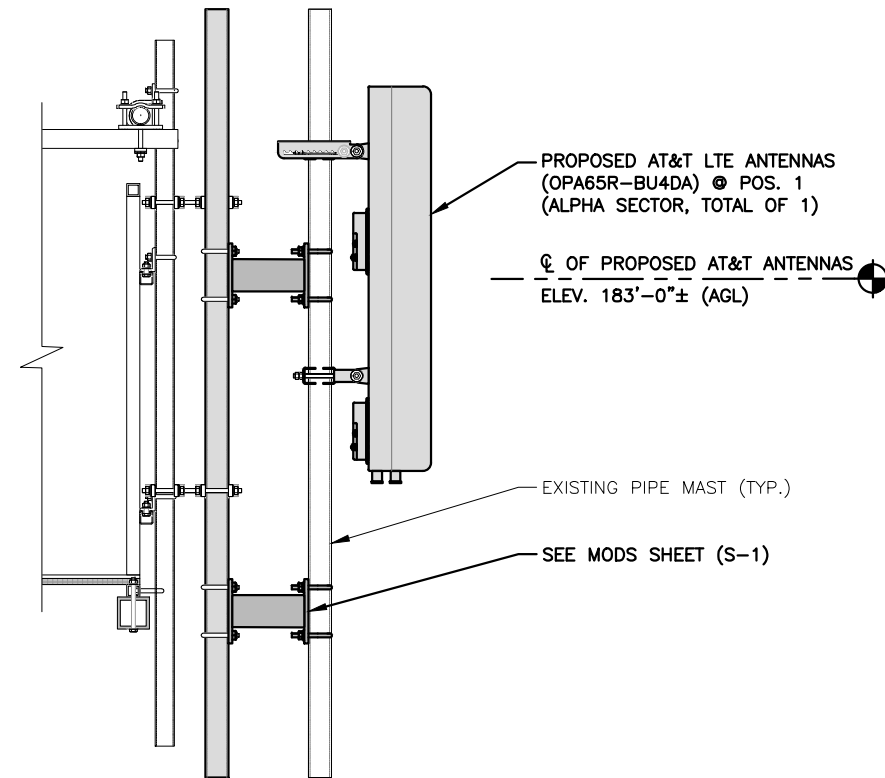
PROPOSED RRU REFER TO THE
FINAL RFDS AND CHART FOR
QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S
SPECIFICATIONS.

PROPOSED RRUS DETAIL 2
SCALE: N.T.S

1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: PJ		

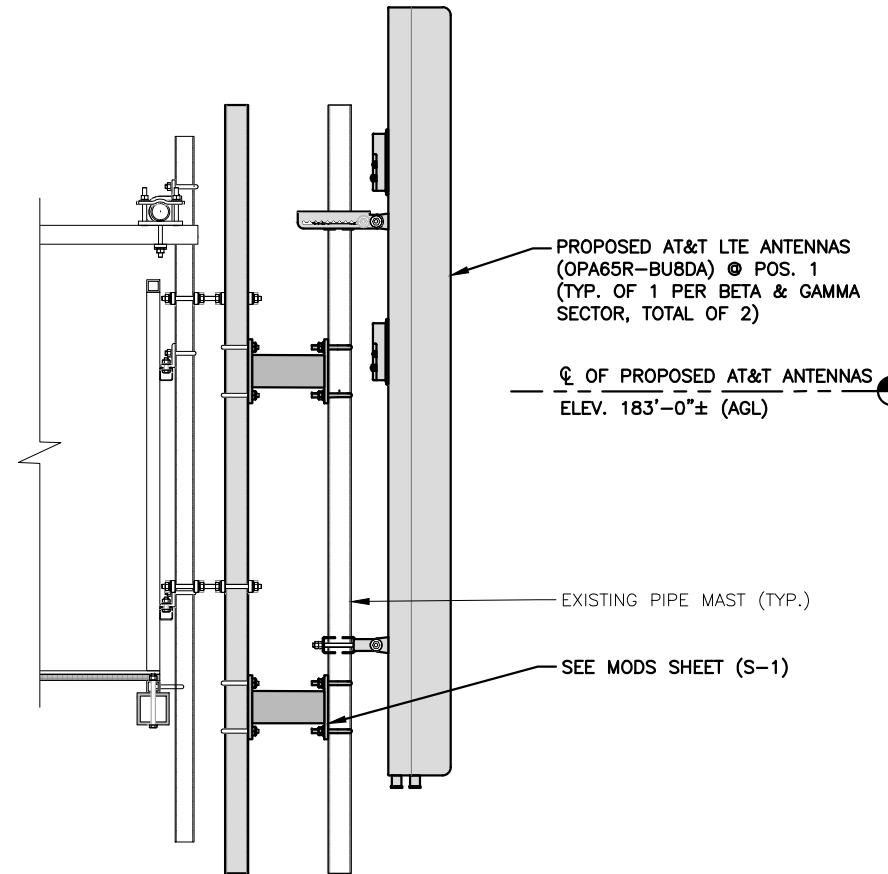




PROPOSED LTE ANTENNA MOUNTING DETAIL (ALPHA)

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

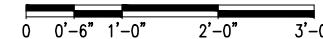
1
A-4



PROPOSED LTE ANTENNA MOUNTING DETAIL (BETA & GAMMA)

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

2
A-4



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

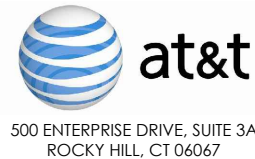
NOTE:
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NOTE:
REFER TO **STRUCTURAL ANALYSIS** BY: AMERICAN TOWER CORP. FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



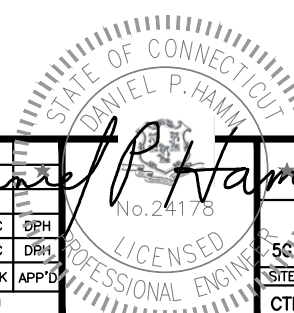
SITE NUMBER: CTL02046
SITE NAME: COLCHESTER

CHESTNUT HILL ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH

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



AT&T	
DETAILS	
5G NR 1DR-1 SITE OVERLAY.LTE.4TH CARRIER UPGRADE	
SITE NUMBER	DRAWING NUMBER
CTL02046	A-4
REV	1

STRUCTURAL NOTES:

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL", 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS, AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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




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



12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL02046
SITE NAME: COLCHESTER

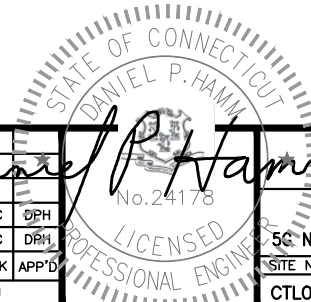
CHESTNUT HILL ROAD
COLCHESTER, CT 06415
NEW LONDON COUNTY



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

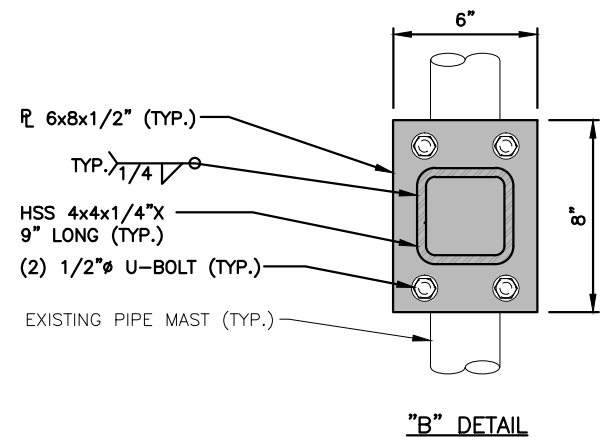
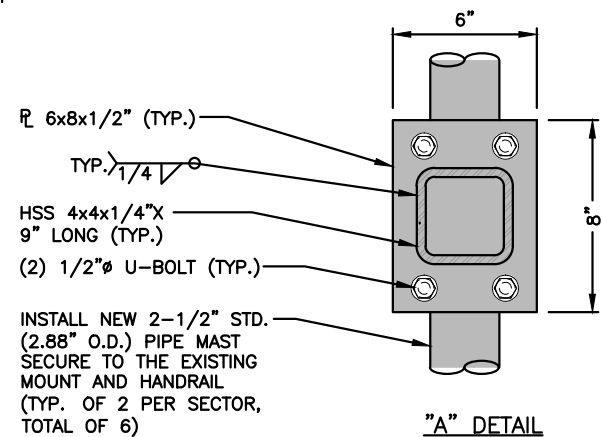
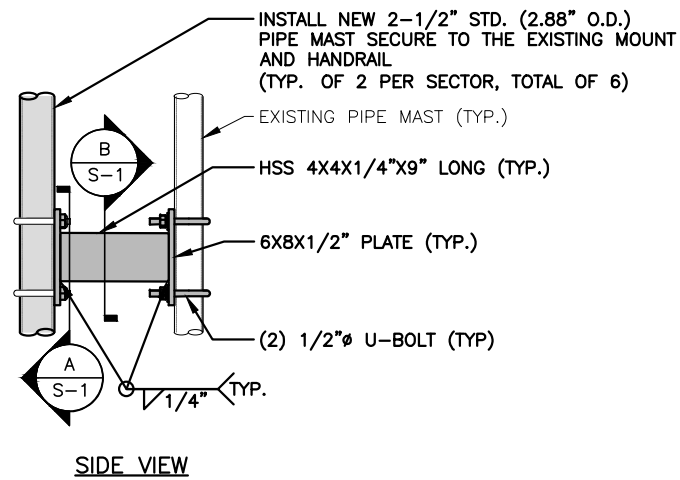
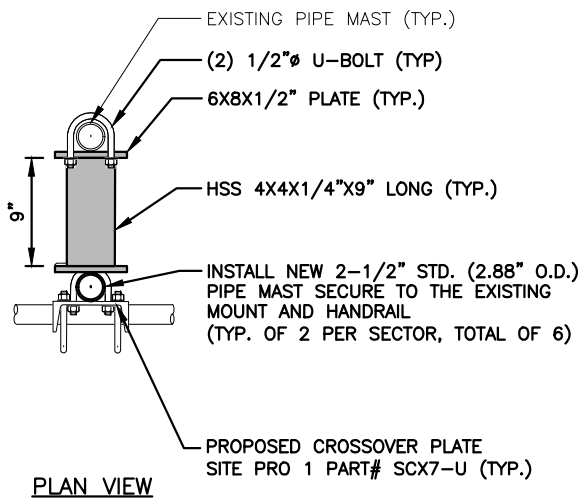
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH

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



DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

AT&T		
STRUCTURAL NOTES		
50 NR 1DR-1 SITE OVERLAY.LTE.4TH CARRIER UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CTL02046	SN-1	1

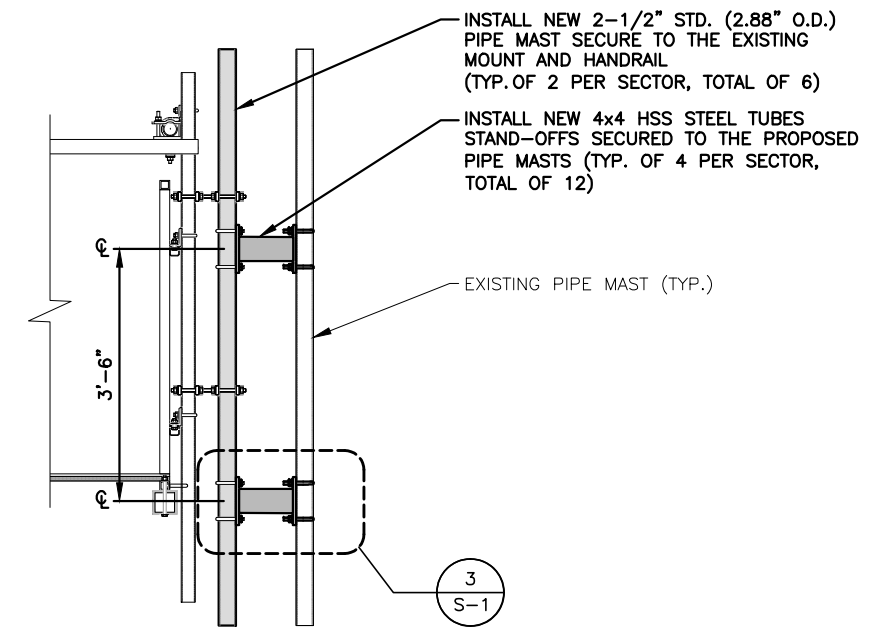
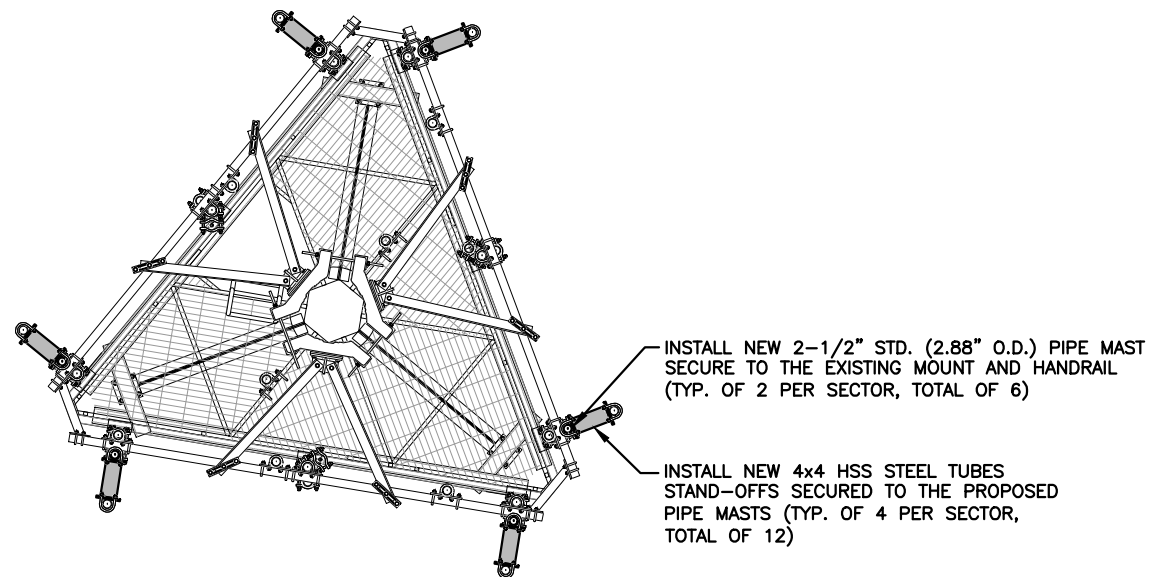


NOTE:
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
 REFER TO MOUNT ANALYSIS BY: HUDSON DESIGN GROUP, LLC. DATED: JULY 18, 2022 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

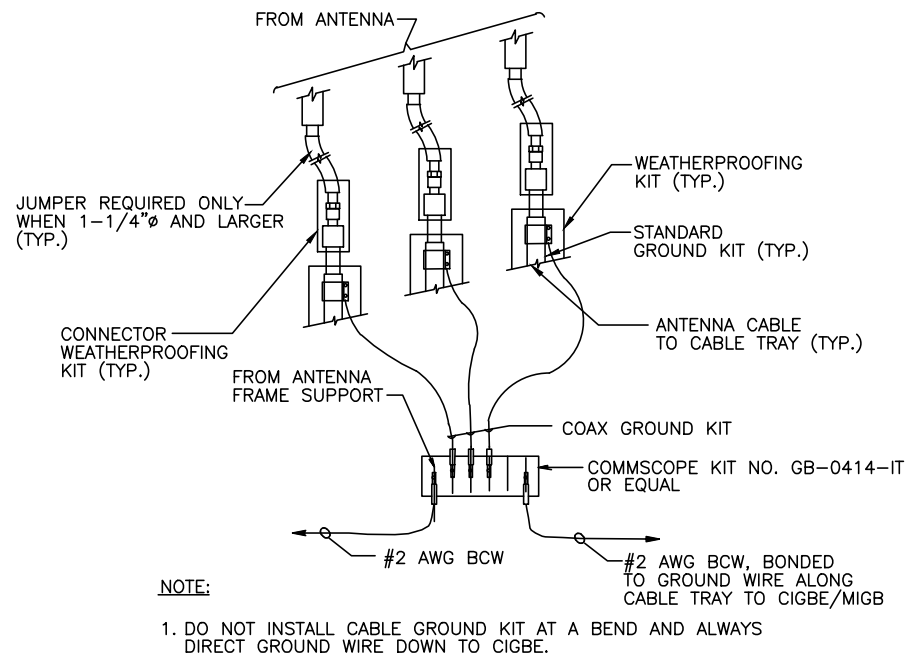
NOTE:
 REFER TO STRUCTURAL ANALYSIS BY: AMERICAN TOWER CORP. FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

CONNECTION DETAIL 3
 22x34 SCALE: 1-1/2"=1'-0"
 11x17 SCALE: 3/4"=1'-0"
 S-1
 0 0'-4" 0'-8" 1'-4" 2'-0"

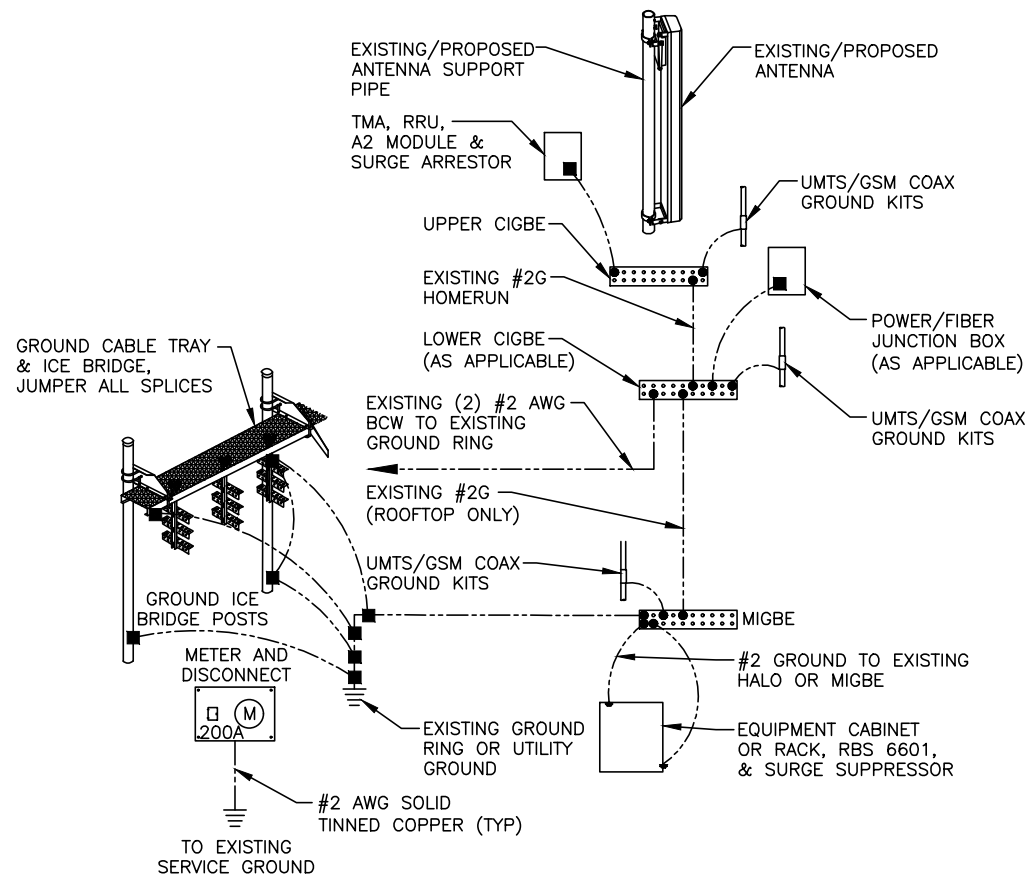


MAGNETIC NORTH 13°55' TRUE NORTH
PROPOSED MOUNT MODIFICATIONS PLAN 1
 22x34 SCALE: 1/2"=1'-0"
 11x17 SCALE: 1/4"=1'-0"
 S-1
 0 1'-0" 2'-0" 4'-0" 6'-0"

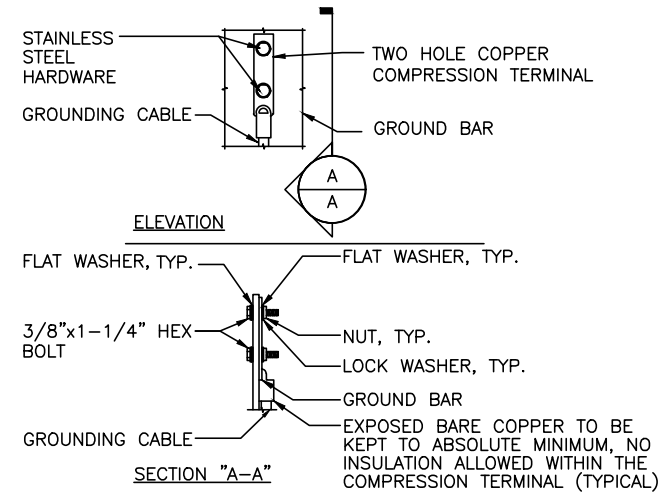
PROPOSED MOUNT MODIFICATIONS DETAIL 2
 22x34 SCALE: 3/4"=1'-0"
 11x17 SCALE: 3/8"=1'-0"
 S-1
 0 8" 1'-4" 2'-8" 4'-0"



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



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



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

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

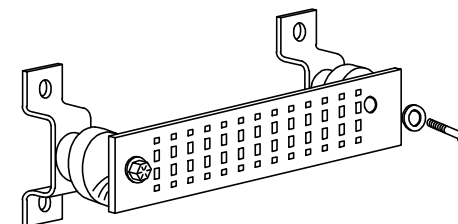
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

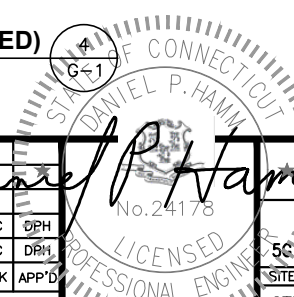
- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (AS REQUIRED) (4) G-1
SCALE: N.T.S

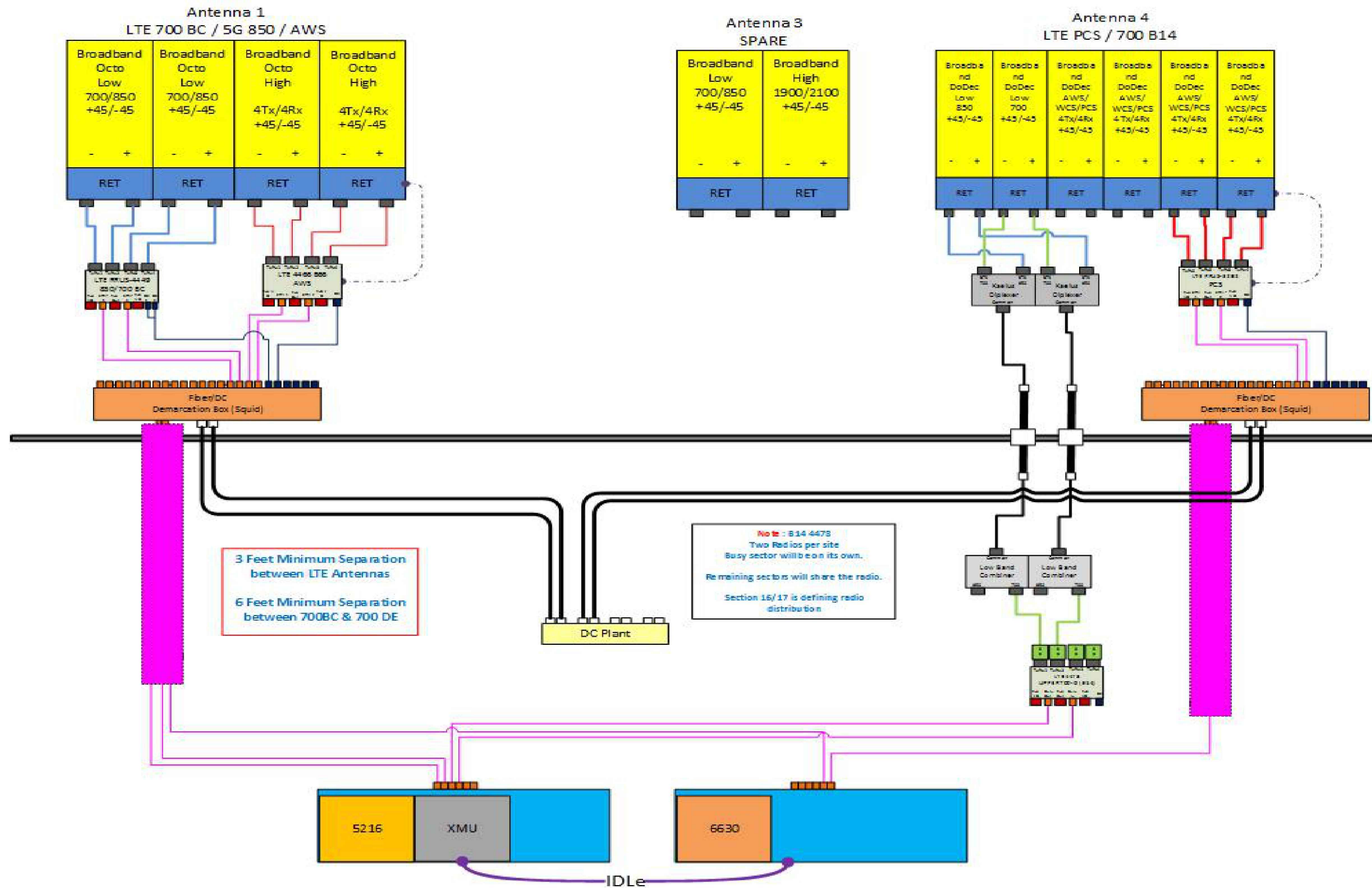
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH

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



SITE NUMBER	DRAWING NUMBER	REV
CTL02046	G-1	1

NOTE:
 REV: 2
 DATED: 06/24/2022
 RFDS ID: 5076822



RF PLUMBING DIAGRAM 1
 SCALE: N.T.S. RF-1

NOTE:
 1. CONTRACTOR TO CONFIRM ALL PARTS.
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.
 3. RFDS USED FOR REFERENCE.

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

1	08/04/22	ISSUED FOR CONSTRUCTION	YH	HC	DPH
A	07/13/22	ISSUED FOR REVIEW	PJ	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: PJ		



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 181 ft Monopole
ATC Site Name : Clch - Colchester,CT
ATC Site Number : 302496
Engineering Number : OAA779876_C3_01
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : COLCHESTER
Carrier Site Number : Ct2046
Site Location : Chestnut Hill Road
Colchester, CT 06415-2906
41.5689, -72.3037
County : New London
Date : July 26, 2022
Max Usage : 97%
Result : Pass*

Prepared By:

Dawson Allen
Structural Engineer

Reviewed By:



COA : PEC.0001553



Table of Contents

Introduction3
Supporting Documents3
Analysis3
Conclusion3
Existing and Reserved Equipment.....4
Equipment to be Removed4
Proposed Equipment4
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Foundations5
Deflection and Sway*5
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CalculationsAttached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 181 ft Monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Mapping by HighTower Project #HTS011509, dated January 13, 2008
Foundation Drawing	Mapping by American Tower Site #302496 dated January 22, 2009
Geotechnical Report	GEOServices Project #21-07254, dated January 6, 2009
Modifications	ATC Project #13674383_C6_09, dated March 10, 2022*

* The modifications by ATC Job #13674383_C6_09 are scheduled to be installed by September 30, 2022.

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	122 mph (3-second gust)**
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent**
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.20, S_i = 0.06$
Site Class:	D - Stiff Soil - Default

**Wind load and Ice thickness have been reduced by applicable existing structure load modification factors in accordance with TIA-222-H, Annex S.

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report. If the pending modifications cited in the Supporting Documents table are not completed by the forecast date above, the results of this analysis are no longer valid, and AT&T MOBILITY should contact American Tower's Site Manager for further direction on how to proceed.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
185.0	3	Kaelus DBC0061F1V51-2	Triangular Platform with Handrails with Modifications	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F (23.5" Height)			
	3	Ericsson RRUS-11 800 MHz			
	3	Ericsson RRUS 32 B2			
	1	KMW AM-X-CD-14-65-00T-RET			
	1	Quintel QS46512-2			
	2	Andrew SBNH-1D6565C			
	2	CCI TPA-65R-LCUUUU-H8			
167.0	3	Ericsson Radio 4460 B25+B66	Triangular Platform with Handrails	(3) 1 5/8" Hybriflex	T-MOBILE
	3	Ericsson Radio 4480 B71+B85A			
	3	Ericsson Air6449 B41			
	3	Commscope VV-65A-R1			
	3	RFS APXVAALL24 43-U-NA20			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
185.0	3	Powerwave Allgon 7770.00	-	(12) 1 1/4" Coax	AT&T MOBILITY
	6	Powerwave Allgon LGP17201			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
185.0	1	Raycap DC6-48-60-18-8F ("Squid")	Triangular Platform with Handrails with Modifications	(1) 0.39" (10mm) Fiber Trunk (2) 0.96" (24.3mm) Cable (12) 1 5/8" Coax	AT&T MOBILITY
	3	Ericsson RRUS 4426 B66			
	3	Ericsson RRUS 4449 B5, B12			
	1	CCI OPA65R-BU4DA-K			
	2	CCI OPA65R-BU8D			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations. Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	72%	Pass
Shaft	97%	Pass
Base Plate	22%	Pass
Flange Plate	23%	Pass
Reinforcement	82%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3433.5	21%
Axial (Kips)	51.4	2%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
185.0	Raycap DC6-48-60-18-8F ("Squid")	AT&T MOBILITY	3.387	2.220
	Ericsson RRUS 4426 B66			
	CCI OPA65R-BU8D			
	CCI OPA65R-BU4DA-K			
	Ericsson RRUS 4449 B5, B12			

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

Standard Conditions

All engineering services performed by A.T. Engineering Services LLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

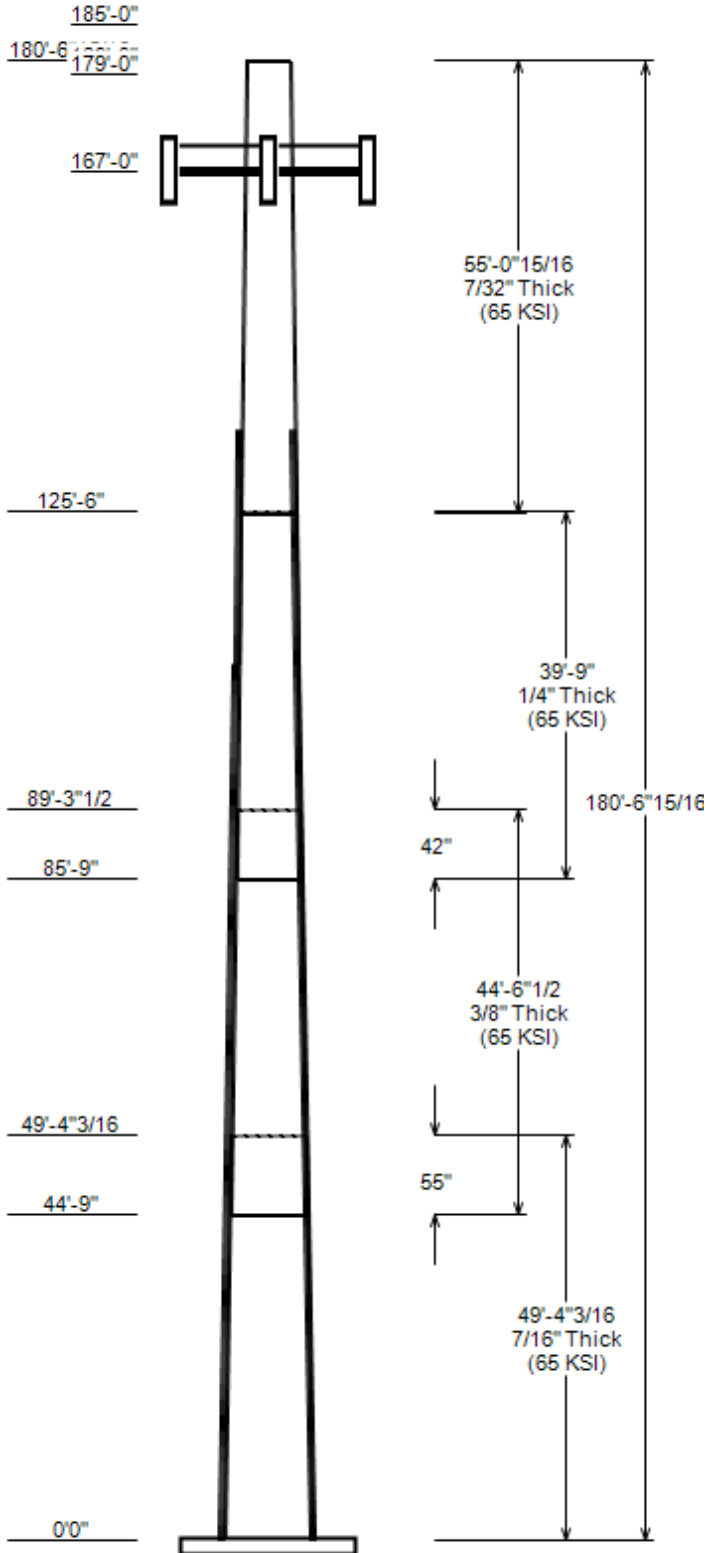
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Services LLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset : 302496, Clch - Colchester
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 180.58 ft
 Base Width : 41.7
 Shape : 12 Sides



SITE PARAMETERS

Nominal Wind: 118.91 mph wind with no ic **Topo Category:** 1
 Ice Wind: 48.73 mph wind with 0.850" **Topo Method:** Method 1
 Base Elev (ft): 0.00 **Taper :** 0.15100(ln/ft) **Topo Feature:**
Structure Class: II **Exposure :** B **S_s :** 0.204 **S₁ :** 0.055

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	49.350	34.23	41.70	0.438		0.000	12 Sides	65
2	44.541	28.93	35.67	0.375	Slip Joint	55.210	12 Sides	65
3	39.750	23.94	29.96	0.250	Slip Joint	42.490	12 Sides	65
4	55.080	15.60	23.94	0.219	Butt Joint	0.000	12 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
185.0	185.0	3	Kaelus DBC0061F1V51-2
185.0	185.0	1	Raycap DC6-48-60-18-8F (23.5"
185.0	185.0	1	Raycap DC6-48-60-18-8F ("Squid
185.0	185.0	3	Ericsson RRUS 4426 B66
185.0	185.0	3	Ericsson RRUS 4449 B5, B12
185.0	185.0	3	Ericsson RRUS-11 800 MHz
185.0	185.0	3	Ericsson RRUS 32 B2
185.0	185.0	1	KMW AM-X-CD-14-65-00T-RET
185.0	185.0	1	Quintel QS46512-2
185.0	185.0	1	CCI OPA65R-BU4DA-K
185.0	185.0	2	Andrew SBNH-1D6565C
185.0	185.0	2	CCI TPA-65R-LCUUUU-H8
185.0	185.0	2	CCI OPA65R-BU8D
180.0	180.0	1	Flat Platform with Round Handr
179.0	179.0	1	Generic Mount Reinforcement
167.0	167.0	3	Ericsson Radio 4460 B25+B66
167.0	167.0	3	Ericsson Radio 4480 B71+B85A
167.0	167.0	3	Ericsson Air6449 B41
167.0	167.0	3	Commscope VV-65A-R1
167.0	167.0	3	RFS APXVAALL24 43-U-NA20
167.0	167.0	1	Generic Round Platform with Ha

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	185.0	1 5/8" Coax	No
0.0	185.0	0.96" (24.3mm) Cable	No
0.0	185.0	0.78" (19.7mm) 8 AWG 6	No
0.0	185.0	0.39" (10mm) Fiber Trunk	No
0.0	185.0	0.39" (10mm) Fiber Trunk	No
0.0	167.0	1 5/8" Hybriflex	Yes
107.0	140.0	W8 Brackets for #20	Yes
107.0	140.0	W8 Brackets for #20	Yes
107.0	140.0	W8 Brackets for #20	Yes
107.0	140.0	W8 Brackets for #20	Yes
107.0	140.0	#20 w/ W Brackets	Yes
107.0	140.0	#20 w/ W Brackets	Yes
107.0	140.0	#20 w/ W Brackets	Yes
107.0	140.0	#20 w/ W Brackets	Yes
0.0	107.0	#20 w/ Angle Brackets	Yes
0.0	107.0	#20 w/ Angle Brackets	Yes
0.0	107.0	#20 w/ Angle Brackets	Yes

JOB INFORMATION

Asset : 302496, Clch - Colchester
 Client : AT&T MOBILITY
 Code : ANSI/TIA-222-H

Height : 180.58 ft
 Base Width : 41.7
 Shape : 12 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	107.0	#20 w/ Angle Brackets	Yes

LOAD CASES

1.2D + 1.0W Normal	118.91 mph wind with no ice
0.9D + 1.0W Normal	118.91 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Nor	48.73 mph wind with 0.850" radial
1.2D + 1.0Ev + 1.0Eh Nor	Seismic
0.9D - 1.0Ev + 1.0Eh Nor	Seismic (Reduced DL)
1.0D + 1.0W Service Norm	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	3446.18	29.14	51.59
0.9D + 1.0W Normal	3374.46	29.11	38.68
1.2D + 1.0Di + 1.0Wi Normal	676.12	5.06	64.46
1.2D + 1.0Ev + 1.0Eh Normal	203.30	1.30	51.68
0.9D - 1.0Ev + 1.0Eh Normal	197.61	1.30	35.59
1.0D + 1.0W Service Normal	776.29	6.63	43.05

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
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ASSET: 302496, Clich - Colchester
CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
ENG NO:

ANALYSIS PARAMETERS

Location:	New London County,CT	Height:	180.58 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	41.70 in
Manufacturer:	Undetermined	Top Diameter:	15.60 in
K_d (non-service):	0.95	Taper:	0.1510 in/ft
K_e:	0.98	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	119 mph
Risk Category:	II	Design Wind Speed w/Ice:	49 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	0.85 in
Crest Height:	0 ft	HMSL:	550.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	3.47
T_L (sec):	6	P:	1
S_s:	0.204	S₁:	0.055
F_a:	1.600	F_v:	2.400
S_{ds}:	0.218	S_{dt}:	0.088
		C_s:	0.030
		C_s Max:	0.030
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W Normal	118.91 mph wind with no ice
0.9D + 1.0W Normal	118.91 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Bottom							Top							
						Weight (lb)	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-12	49.35	0.4375	65		0.00	8,877	41.70	0.000	58.13	12,632.4	22.86	95.31	34.23	49.35	47.60	6,935.9	18.28	78.23	0.1515	
2-12	44.54	0.3750	65	Slip	55.21	5,843	35.67	44.749	42.62	6,777.9	22.81	95.13	28.93	89.29	34.48	3,587.1	17.99	77.14	0.1515	
3-12	39.75	0.2500	65	Slip	42.49	2,907	29.96	85.750	23.92	2,695.2	29.43	119.85	23.94	125.50	19.07	1,366.4	22.98	95.77	0.1515	
4-12	55.08	0.2188	65	Butt	0.00	2,581	23.94	0	16.71	1,200.6	26.64	109.42	15.60	180.58	10.84	327.2	16.42	71.29	0.1515	
Shaft Weight						20,208														

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
185.00	Raycap DC6-48-60-18-8F ("Squid	1	0.75	0.000	31.80	1.470	1.00	67.48	1.874	1.00
185.00	CCI TPA-65R-LCUUUU-H8	2	0.75	0.000	81.60	13.298	0.77	241.69	15.457	0.77
185.00	Andrew SBNH-1D6565C	2	0.75	0.000	66.10	11.440	0.77	198.79	13.311	0.77
185.00	CCI OPA65R-BU4DA-K	1	0.75	0.000	52.50	8.435	1.00	158.52	9.614	1.00
185.00	Quintel QS46512-2	1	0.75	0.000	104.00	5.553	1.00	189.74	6.719	1.00
185.00	KMW AM-X-CD-14-65-00T-RET	1	0.75	0.000	36.40	4.994	1.00	100.77	6.075	1.00
185.00	Ericsson RRUS 32 B2	3	0.75	0.000	53.00	2.743	0.50	95.54	3.419	0.50
185.00	Ericsson RRUS-11 800 MHz	3	0.75	0.000	54.00	2.522	0.50	97.60	3.124	0.50
185.00	Kaelus DBC0061F1V51-2	3	0.75	0.000	25.50	0.433	0.50	36.19	0.693	0.50
185.00	Raycap DC6-48-60-18-8F (23.5"	1	0.75	0.000	20.00	1.260	1.00	50.45	1.641	1.00
185.00	CCI OPA65R-BU8D	2	0.75	0.000	76.50	18.089	0.72	275.93	20.225	0.72
185.00	Ericsson RRUS 4426 B66	3	0.75	0.000	48.40	1.650	0.50	74.22	2.141	0.50
185.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	108.28	2.508	0.50
180.00	Flat Platform with Round Handr	1	1.00	0.000	2500.00	34.800	1.00	3506.87	48.816	1.00
179.00	Generic Mount Reinforcement	1	1.00	0.000	200.00	7.500	1.00	311.73	11.822	1.00
167.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3429.10	41.222	1.00
167.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	346.23	22.370	0.63
167.00	Commscope VV-65A-R1	3	0.75	0.000	23.80	5.928	0.63	91.16	7.143	0.63
167.00	Ericsson Air6449 B41	3	0.75	0.000	104.00	5.682	0.63	182.17	6.593	0.63
167.00	Ericsson Radio 4480 B71+B85A	3	0.75	0.000	84.00	2.852	0.50	127.34	3.493	0.50
167.00	Ericsson Radio 4460 B25+B66	3	0.75	0.000	109.00	2.564	0.50	159.70	3.169	0.50
Totals	Num Loadings: 21	44			7,979.60			13,202.77		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00_

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	185.00	12	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	185.00	2	0.96" (24.3mm) Cable	0.96	0.88	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	185.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	185.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	185.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	167.00	3	1 5/8" Hybriflex	1.98	1.3	N	3	1	1	90	1	Y	T-MOBILE
0	107.0	1	#20 w/ W Brackets	2.5	0	N	1	0	0	180	0	Y	
0	107.0	1	#20 w/ W Brackets	2.5	0	N	1	0	0	90	0	Y	
0	107.0	1	W8 Brackets for #20	2.48	6.3	N	1	0	0	270	0	Y	
0	107.0	1	W8 Brackets for #20	2.48	6.3	N	1	0	0	180	0	Y	
0	107.0	1	W8 Brackets for #20	2.48	6.3	N	1	0	0	0	0	Y	
0	107.0	1	#20 w/ W Brackets	2.5	0	N	1	0	0	270	0	Y	
0	107.0	1	W8 Brackets for #20	2.48	6.3	N	1	0	0	90	0	Y	
0	107.0	1	#20 w/ W Brackets	2.5	0	N	1	0	0	0	0	Y	
0	0.00	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	0	0	Y	

ASSET: 302496, Clich - Colchester
 CUSTOMER: AT&T MOBILITY

CODE: ANSI/TIA-222-H
 ENG NO:

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax/ Row	Dist Between Rows(in)	Dist Between Cols(in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	107.00	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	270	0	Y	
0.00	107.00	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	180	0	Y	
0.00	107.00	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	90	0	Y	

ADDITIONAL STEEL

Intermediate Connectors

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	107.00	4	SOL #20 All Thread Bar	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	N
107.00	135.44	4	SOL #20 All Thread Bar	80	8.19	6" T Bracket	30.00	3.31	5/8" A36 U-Bolt	N

SEGMENT PROPERTIES

(Max Len: 5.ft)

Additional Reinforcing

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)	Area (in ²)	Ix (in ⁴)	Weight (lb)
0.00		0.4375	41.700	58.129	12,632.40	22.86	95.31	79.8	585.2	0.0	0.0	19.640	5,801.50	0.0
5.00		0.4375	40.943	57.062	11,949.60	22.40	93.58	80.3	563.8	0.0	979.9	19.640	5,622.30	334.0
10.00		0.4375	40.185	55.995	11,291.80	21.93	91.85	80.8	542.8	0.0	961.8	19.640	5,445.90	334.0
15.00		0.4375	39.428	54.928	10,658.60	21.47	90.12	81.3	522.2	0.0	943.6	19.640	5,272.30	334.0
20.00		0.4375	38.671	53.861	10,049.50	21.00	88.39	81.8	502.0	0.0	925.5	19.640	5,101.50	334.0
25.00		0.4375	37.914	52.794	9,464.10	20.54	86.66	81.9	482.2	0.0	907.3	19.640	4,933.50	334.0
30.00		0.4375	37.156	51.727	8,901.90	20.08	84.93	81.9	462.8	0.0	889.2	19.640	4,768.40	334.0
35.00		0.4375	36.399	50.661	8,362.40	19.61	83.20	81.9	443.8	0.0	871.0	19.640	4,606.00	334.0
40.00		0.4375	35.642	49.594	7,845.10	19.15	81.47	81.9	425.2	0.0	852.9	19.640	4,446.50	334.0
44.75	Bot - Section 2	0.4375	34.922	48.580	7,374.00	18.71	79.82	81.9	407.9	0.0	793.3	19.640	4,297.60	317.3
45.00		0.4375	34.884	48.527	7,349.60	18.69	79.74	81.9	407.0	0.0	77.7	19.640	4,445.00	16.7
49.35	Top - Section 1	0.3750	34.975	41.780	6,384.40	22.31	93.27	80.4	352.6	0.0	1,335.7	19.640	4,308.50	290.6
50.00		0.3750	34.877	41.661	6,330.00	22.24	93.01	80.5	350.6	0.0	92.3	19.640	4,288.30	43.4
55.00		0.3750	34.120	40.747	5,922.30	21.70	90.99	81	335.3	0.0	701.0	19.640	4,134.50	334.0
60.00		0.3750	33.362	39.832	5,532.40	21.16	88.97	81.6	320.4	0.0	685.5	19.640	3,983.40	334.0
65.00		0.3750	32.605	38.918	5,160.10	20.62	86.95	81.9	305.7	0.0	669.9	19.640	3,835.20	334.0
70.00		0.3750	31.848	38.003	4,804.80	20.08	84.93	81.9	291.5	0.0	654.4	19.640	3,689.80	334.0
75.00		0.3750	31.091	37.089	4,466.30	19.54	82.91	81.9	277.5	0.0	638.8	19.640	3,547.20	334.0
80.00		0.3750	30.333	36.175	4,144.00	18.99	80.89	81.9	263.9	0.0	623.2	19.640	3,407.40	334.0
85.00		0.3750	29.576	35.260	3,837.60	18.45	78.87	81.9	250.7	0.0	607.7	19.640	3,270.40	334.0
85.75	Bot - Section 3	0.3750	29.462	35.123	3,793.00	18.37	78.57	81.9	248.7	0.0	89.8	19.640	3,250.20	50.1
89.29	Top - Section 2	0.2500	29.426	23.487	2,551.90	28.86	117.70	73.2	167.5	0.0	704.9	19.640	3,243.70	236.5
90.00		0.2500	29.319	23.400	2,523.80	28.74	117.27	73.4	166.3	0.0	56.6	19.640	3,224.60	47.4
95.00		0.2500	28.561	22.791	2,331.60	27.93	114.25	74.3	157.7	0.0	392.9	19.640	3,091.40	334.0
100.00		0.2500	27.804	22.181	2,149.50	27.12	111.22	75.1	149.3	0.0	382.6	19.640	2,961.00	334.0
105.00		0.2500	27.047	21.571	1,977.10	26.31	108.19	76	141.2	0.0	372.2	19.640	2,833.40	334.0
107.00	Reinf. Top Reinf Bottom	0.2500	26.744	21.327	1,910.80	25.98	106.98	76.4	138.0	0.0	146.0	19.640	2,783.20	133.6
110.00		0.2500	26.289	20.962	1,814.20	25.50	105.16	76.9	133.3	0.0	215.9	19.640	5,016.50	200.4
115.00		0.2500	25.532	20.352	1,660.40	24.69	102.13	77.8	125.6	0.0	351.5	19.640	4,850.00	334.0
120.00		0.2500	24.775	19.742	1,515.60	23.87	99.10	78.7	118.2	0.0	341.1	19.640	4,686.30	334.0
125.00		0.2500	24.018	19.133	1,379.50	23.06	96.07	79.6	111.0	0.0	330.7	19.640	4,525.40	334.0
125.50	Top - Section 3	0.2500	23.942	19.072	1,366.40	22.98	95.77	79.7	110.3	0.0	32.5	19.640	4,509.40	33.4
125.50	Bot - Section 4	0.2188	23.942	16.714	1,200.60	26.64	109.42	75.7	96.9	0.0		19.640	4,509.40	
130.00		0.2188	23.260	16.233	1,100.10	25.81	106.31	76.6	91.4	0.0	252.3	19.640	4,367.30	300.6
135.00		0.2188	22.503	15.700	995.10	24.88	102.85	77.6	85.4	0.0	271.7	19.640	4,212.00	334.0
135.44	Reinf. Top	0.2188	22.436	15.653	986.20	24.80	102.54	77.7	84.9	0.0	23.5	19.640	4,198.40	29.4
140.00		0.2188	21.746	15.166	897.10	23.95	99.39	78.6	79.7	0.0	239.1			
145.00		0.2188	20.988	14.633	805.70	23.02	95.92	79.6	74.2	0.0	253.5			
150.00		0.2188	20.231	14.099	720.70	22.10	92.46	80.6	68.8	0.0	244.4			
155.00		0.2188	19.474	13.566	642.00	21.17	89.00	81.6	63.7	0.0	235.3			
160.00		0.2188	18.716	13.032	569.20	20.24	85.54	81.9	58.7	0.0	226.3			
165.00		0.2188	17.959	12.499	502.10	19.31	82.08	81.9	54.0	0.0	217.2			
167.00		0.2188	17.656	12.285	476.80	18.94	80.70	81.9	52.2	0.0	84.3			
170.00		0.2188	17.202	11.965	440.50	18.39	78.62	81.9	49.5	0.0	123.8			
175.00		0.2188	16.445	11.432	384.10	17.46	75.16	81.9	45.1	0.0	199.0			
179.00		0.2188	15.839	11.005	342.70	16.72	72.39	81.9	41.8	0.0	152.7			
180.00		0.2188	15.687	10.898	332.80	16.53	71.70	81.9	41.0	0.0	37.3			
180.58		0.2188	15.599	10.836	327.20	16.42	71.30	81.9	40.5	0.0	21.4			

Totals: 20,209.2 9,047.4

Load Case: 1.2D + 1.0W Normal	118.91 mph wind with no ice	30 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.20		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.59	-29.14	0.00	-3,446.2	0.00	3,446.18	4,173.88	1,020.16	3,971.44	3,501.82	0	0	0.684
5.00	-49.68	-28.66	0.00	-3,300.5	0.00	3,300.49	4,123.26	1,001.43	3,827.05	3,395.19	0.14	-0.26	0.671
10.00	-47.78	-28.18	0.00	-3,157.2	0.00	3,157.17	4,071.66	982.71	3,685.34	3,289.35	0.55	-0.52	0.657
15.00	-45.92	-27.69	0.00	-3,016.3	0.00	3,016.27	4,019.09	963.99	3,546.30	3,184.35	1.24	-0.78	0.643
20.00	-44.08	-27.27	0.00	-2,877.8	0.00	2,877.82	3,965.55	945.26	3,409.93	3,080.23	2.2	-1.05	0.629
25.00	-42.27	-26.82	0.00	-2,741.5	0.00	2,741.47	3,891.47	926.54	3,276.24	2,962.13	3.44	-1.31	0.617
30.00	-40.48	-26.35	0.00	-2,607.4	0.00	2,607.40	3,812.83	907.82	3,145.22	2,842.95	4.95	-1.58	0.606
35.00	-38.72	-25.86	0.00	-2,475.6	0.00	2,475.64	3,734.19	889.09	3,016.87	2,726.22	6.74	-1.84	0.594
40.00	-36.99	-25.36	0.00	-2,346.3	0.00	2,346.32	3,655.56	870.37	2,891.20	2,611.93	8.81	-2.1	0.581
44.75	-35.42	-25.01	0.00	-2,225.9	0.00	2,225.89	3,580.86	852.59	2,774.29	2,505.63	11.03	-2.36	0.569
45.00	-35.25	-24.82	0.00	-2,219.6	0.00	2,219.63	3,576.92	851.65	2,768.20	2,500.09	11.16	-2.37	0.561
49.35	-33.08	-24.43	0.00	-2,111.6	0.00	2,111.65	3,022.48	733.24	2,393.65	2,125.89	13.42	-2.6	0.602
50.00	-32.84	-24.19	0.00	-2,095.8	0.00	2,095.77	3,016.75	731.15	2,380.05	2,115.77	13.78	-2.63	0.599
55.00	-31.30	-23.60	0.00	-1,974.8	0.00	1,974.81	2,972.18	715.11	2,276.76	2,038.26	16.68	-2.9	0.579
60.00	-29.80	-23.00	0.00	-1,856.8	0.00	1,856.80	2,926.64	699.06	2,175.75	1,961.49	19.86	-3.17	0.558
65.00	-28.31	-22.37	0.00	-1,741.8	0.00	1,741.83	2,868.63	683.01	2,077.04	1,877.98	23.33	-3.44	0.540
70.00	-26.86	-21.74	0.00	-1,630.0	0.00	1,629.96	2,801.23	666.96	1,980.61	1,790.27	27.08	-3.71	0.522
75.00	-25.43	-21.08	0.00	-1,521.3	0.00	1,521.29	2,733.83	650.91	1,886.48	1,704.66	31.1	-3.97	0.505
80.00	-24.03	-20.42	0.00	-1,415.9	0.00	1,415.87	2,666.42	634.86	1,794.64	1,621.14	35.4	-4.23	0.486
85.00	-22.67	-19.93	0.00	-1,313.8	0.00	1,313.77	2,599.02	618.81	1,705.10	1,539.72	39.97	-4.49	0.467
85.75	-22.46	-19.71	0.00	-1,298.8	0.00	1,298.83	2,588.91	616.41	1,691.87	1,527.70	40.67	-4.53	0.464
89.29	-21.17	-19.31	0.00	-1,229.0	0.00	1,229.05	1,548.14	412.19	1,134.47	920.26	44.1	-4.71	0.598
90.00	-20.99	-19.04	0.00	-1,215.4	0.00	1,215.35	1,545.08	410.67	1,126.13	915.03	44.8	-4.75	0.593
95.00	-19.87	-18.37	0.00	-1,120.2	0.00	1,120.18	1,522.99	399.97	1,068.23	878.25	49.92	-5.04	0.558
100.00	-18.78	-17.69	0.00	-1,028.4	0.00	1,028.35	1,499.92	389.28	1,011.87	841.61	55.34	-5.32	0.523
105.00	-17.72	-17.14	0.00	-939.9	0.00	939.89	1,475.88	378.58	957.03	805.15	61.05	-5.59	0.488
107.00	-17.29	-16.78	0.00	-905.6	0.00	905.61	1,466.00	374.30	935.52	790.64	63.42	-5.7	0.320
107.00	-17.29	-16.78	0.00	-905.6	0.00	905.61	1,466.00	374.30	935.52	790.64	63.42	-5.7	0.474
110.00	-16.65	-16.31	0.00	-855.3	0.00	855.29	1,450.87	367.88	903.71	768.93	67.05	-5.86	0.303
115.00	-15.59	-15.64	0.00	-773.8	0.00	773.76	1,424.89	357.18	851.93	732.99	73.27	-6.03	0.277
120.00	-14.56	-14.97	0.00	-695.6	0.00	695.58	1,397.94	346.48	801.67	697.38	79.66	-6.19	0.251
125.00	-13.54	-14.50	0.00	-620.8	0.00	620.76	1,370.02	335.78	752.95	662.13	86.21	-6.34	0.226
125.50	-13.45	-14.25	0.00	-613.5	0.00	613.51	1,367.17	334.71	748.16	658.63	86.88	-6.36	0.223
125.50	-13.45	-14.25	0.00	-613.5	0.00	613.51	1,138.09	293.33	656.46	549.72	86.88	-6.36	0.242
130.00	-12.59	-13.64	0.00	-549.4	0.00	549.37	1,118.70	284.90	619.29	524.68	92.92	-6.48	0.218
135.00	-11.64	-13.18	0.00	-481.2	0.00	481.19	1,096.22	275.53	579.26	497.08	99.77	-6.62	0.192
135.44	-11.57	-12.94	0.00	-475.4	0.00	475.39	1,094.20	274.71	575.80	494.67	100.38	-6.63	0.190
135.44	-11.57	-12.94	0.00	-475.4	0.00	475.39	1,094.20	274.71	575.80	494.67	100.38	-6.63	0.974
140.00	-11.04	-12.46	0.00	-416.4	0.00	416.38	1,072.77	266.17	540.57	469.76	106.76	-6.74	0.899
145.00	-10.55	-12.16	0.00	-354.1	0.00	354.06	1,048.35	256.81	503.22	442.75	114.13	-7.35	0.812
150.00	-10.10	-11.84	0.00	-293.2	0.00	293.25	1,022.96	247.44	467.20	416.11	122.12	-7.92	0.717
155.00	-9.67	-11.51	0.00	-234.0	0.00	234.03	996.60	238.08	432.53	389.88	130.67	-8.44	0.612
160.00	-9.28	-11.16	0.00	-176.5	0.00	176.47	960.61	228.72	399.18	360.85	139.73	-8.9	0.501
165.00	-8.92	-10.89	0.00	-120.7	0.00	120.66	921.28	219.35	367.18	331.75	149.22	-9.27	0.376
167.00	-4.79	-6.69	0.00	-98.9	0.00	98.88	905.55	215.61	354.75	320.45	153.12	-9.39	0.315
170.00	-4.62	-6.43	0.00	-78.8	0.00	78.82	881.95	209.99	336.51	303.86	159.04	-9.55	0.266
175.00	-4.34	-6.14	0.00	-46.6	0.00	46.65	842.62	200.62	307.18	277.20	169.12	-9.76	0.174
179.00	-3.93	-5.60	0.00	-22.1	0.00	22.11	811.16	193.13	284.68	256.76	177.3	-9.86	0.092
180.00	-1.18	-3.54	0.00	-16.5	0.00	16.51	803.29	191.26	279.19	251.77	179.36	-9.87	0.067
180.58	0.00	-3.29	0.00	-14.5	0.00	14.46	798.73	190.17	276.03	248.90	180.55	-9.88	0.058

Load Case: 0.9D + 1.0W Normal	118.91 mph wind with no ice	30 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 0.90		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.68	-29.11	0.00	-3,374.5	0.00	3,374.46	4,173.88	1,020.16	3,971.44	3,501.82	0	0	0.668
5.00	-37.21	-28.57	0.00	-3,228.9	0.00	3,228.93	4,123.26	1,001.43	3,827.05	3,395.19	0.14	-0.25	0.654
10.00	-35.77	-28.04	0.00	-3,086.1	0.00	3,086.06	4,071.66	982.71	3,685.34	3,289.35	0.54	-0.51	0.640
15.00	-34.34	-27.49	0.00	-2,945.9	0.00	2,945.89	4,019.09	963.99	3,546.30	3,184.35	1.21	-0.77	0.626
20.00	-32.94	-27.02	0.00	-2,808.4	0.00	2,808.43	3,965.55	945.26	3,409.93	3,080.23	2.15	-1.02	0.612
25.00	-31.55	-26.53	0.00	-2,673.3	0.00	2,673.31	3,891.47	926.54	3,276.24	2,962.13	3.36	-1.28	0.600
30.00	-30.19	-26.02	0.00	-2,540.7	0.00	2,540.68	3,812.83	907.82	3,145.22	2,842.95	4.84	-1.54	0.589
35.00	-28.85	-25.50	0.00	-2,410.6	0.00	2,410.57	3,734.19	889.09	3,016.87	2,726.22	6.59	-1.8	0.577
40.00	-27.54	-24.96	0.00	-2,283.1	0.00	2,283.07	3,655.56	870.37	2,891.20	2,611.93	8.61	-2.05	0.564
44.75	-26.34	-24.61	0.00	-2,164.5	0.00	2,164.52	3,580.86	852.59	2,774.29	2,505.63	10.78	-2.3	0.552
45.00	-26.21	-24.40	0.00	-2,158.4	0.00	2,158.35	3,576.92	851.65	2,768.20	2,500.09	10.9	-2.31	0.544
49.35	-24.57	-24.02	0.00	-2,052.2	0.00	2,052.21	3,022.48	733.24	2,393.65	2,125.89	13.11	-2.53	0.583
50.00	-24.38	-23.75	0.00	-2,036.6	0.00	2,036.60	3,016.75	731.15	2,380.05	2,115.77	13.45	-2.57	0.580
55.00	-23.22	-23.14	0.00	-1,917.8	0.00	1,917.84	2,972.18	715.11	2,276.76	2,038.26	16.28	-2.83	0.560
60.00	-22.07	-22.51	0.00	-1,802.2	0.00	1,802.15	2,926.64	699.06	2,175.75	1,961.49	19.39	-3.09	0.540
65.00	-20.95	-21.88	0.00	-1,689.6	0.00	1,689.58	2,868.63	683.01	2,077.04	1,877.98	22.76	-3.35	0.522
70.00	-19.85	-21.23	0.00	-1,580.2	0.00	1,580.20	2,801.23	666.96	1,980.61	1,790.27	26.41	-3.61	0.505
75.00	-18.77	-20.57	0.00	-1,474.1	0.00	1,474.07	2,733.83	650.91	1,886.48	1,704.66	30.33	-3.87	0.487
80.00	-17.71	-19.90	0.00	-1,371.2	0.00	1,371.23	2,666.42	634.86	1,794.64	1,621.14	34.52	-4.12	0.469
85.00	-16.69	-19.42	0.00	-1,271.7	0.00	1,271.74	2,599.02	618.81	1,705.10	1,539.72	38.96	-4.37	0.451
85.75	-16.53	-19.19	0.00	-1,257.2	0.00	1,257.18	2,588.91	616.41	1,691.87	1,527.70	39.65	-4.41	0.448
89.29	-15.56	-18.81	0.00	-1,189.2	0.00	1,189.24	1,548.14	412.19	1,134.47	920.26	42.98	-4.58	0.577
90.00	-15.42	-18.52	0.00	-1,175.9	0.00	1,175.90	1,545.08	410.67	1,126.13	915.03	43.67	-4.62	0.572
95.00	-14.58	-17.85	0.00	-1,083.3	0.00	1,083.31	1,522.99	399.97	1,068.23	878.25	48.65	-4.9	0.537
100.00	-13.75	-17.17	0.00	-994.1	0.00	994.08	1,499.92	389.28	1,011.87	841.61	53.92	-5.17	0.504
105.00	-12.96	-16.63	0.00	-908.2	0.00	908.23	1,475.88	378.58	957.03	805.15	59.47	-5.44	0.470
107.00	-12.64	-16.26	0.00	-875.0	0.00	874.98	1,466.00	374.30	935.52	790.64	61.77	-5.54	0.307
107.00	-12.64	-16.26	0.00	-875.0	0.00	874.98	1,466.00	374.30	935.52	790.64	61.77	-5.54	0.457
110.00	-12.16	-15.80	0.00	-826.2	0.00	826.19	1,450.87	367.88	903.71	768.93	65.29	-5.7	0.292
115.00	-11.37	-15.14	0.00	-747.2	0.00	747.20	1,424.89	357.18	851.93	732.99	71.34	-5.86	0.266
120.00	-10.60	-14.49	0.00	-671.5	0.00	671.48	1,397.94	346.48	801.67	697.38	77.55	-6.01	0.241
125.00	-9.84	-14.05	0.00	-599.0	0.00	599.02	1,370.02	335.78	752.95	662.13	83.91	-6.16	0.217
125.50	-9.77	-13.80	0.00	-592.0	0.00	592.00	1,367.17	334.71	748.16	658.63	84.56	-6.17	0.214
125.50	-9.77	-13.80	0.00	-592.0	0.00	592.00	1,380.09	293.33	656.46	549.72	84.56	-6.17	0.233
130.00	-9.14	-13.20	0.00	-529.9	0.00	529.89	1,118.70	284.90	619.29	524.68	90.43	-6.3	0.209
135.00	-8.44	-12.77	0.00	-463.9	0.00	463.87	1,096.22	275.53	579.26	497.08	97.08	-6.43	0.184
135.44	-8.39	-12.54	0.00	-458.2	0.00	458.25	1,094.20	274.71	575.80	494.67	97.67	-6.44	0.182
135.44	-8.39	-12.54	0.00	-458.2	0.00	458.25	1,094.20	274.71	575.80	494.67	97.67	-6.44	0.936
140.00	-7.98	-12.05	0.00	-401.1	0.00	401.09	1,072.77	266.17	540.57	469.76	103.86	-6.54	0.863
145.00	-7.61	-11.73	0.00	-340.8	0.00	340.83	1,048.35	256.81	503.22	442.75	111.02	-7.13	0.779
150.00	-7.26	-11.40	0.00	-282.2	0.00	282.19	1,022.96	247.44	467.20	416.11	118.76	-7.68	0.687
155.00	-6.93	-11.05	0.00	-225.2	0.00	225.21	996.60	238.08	432.53	389.88	127.06	-8.18	0.587
160.00	-6.64	-10.70	0.00	-170.0	0.00	169.95	960.61	228.72	399.18	360.85	135.84	-8.62	0.480
165.00	-6.37	-10.43	0.00	-116.5	0.00	116.46	921.28	219.35	367.18	331.75	145.03	-8.98	0.360
167.00	-3.39	-6.43	0.00	-95.6	0.00	95.60	905.55	215.61	354.75	320.45	148.8	-9.1	0.303
170.00	-3.26	-6.18	0.00	-76.3	0.00	76.31	881.95	209.99	336.51	303.86	154.55	-9.25	0.256
175.00	-3.06	-5.89	0.00	-45.4	0.00	45.41	842.62	200.62	307.18	277.20	164.31	-9.45	0.168
179.00	-2.77	-5.37	0.00	-21.8	0.00	21.84	811.16	193.13	284.68	256.76	172.24	-9.55	0.089
180.00	-0.76	-3.46	0.00	-16.5	0.00	16.47	803.29	191.26	279.19	251.77	174.23	-9.56	0.067
180.58	0.00	-3.29	0.00	-14.5	0.00	14.46	798.73	190.17	276.03	248.90	175.39	-9.57	0.058

Load Case: 1.2D + 1.0Di + 1.0Wi Normal	48.73 mph wind with 0.850" radial ice			29 Iterations
Gust Response Factor: 1.10	Ice Dead Load Factor	1.00		
Dead load Factor: 1.20			Ice Importance Factor	1.00
Wind Load Factor: 1.00				

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-64.46	-5.06	0.00	-676.1	0.00	676.12	4,173.88	1,020.16	3,971.44	3,501.82	0	0	0.144
5.00	-62.43	-5.02	0.00	-650.8	0.00	650.82	4,123.26	1,001.43	3,827.05	3,395.19	0.03	-0.05	0.142
10.00	-60.39	-4.98	0.00	-625.7	0.00	625.73	4,071.66	982.71	3,685.34	3,289.35	0.11	-0.1	0.139
15.00	-58.37	-4.93	0.00	-600.8	0.00	600.85	4,019.09	963.99	3,546.30	3,184.35	0.24	-0.15	0.137
20.00	-56.36	-4.89	0.00	-576.2	0.00	576.18	3,965.55	945.26	3,409.93	3,080.23	0.43	-0.21	0.135
25.00	-54.37	-4.84	0.00	-551.7	0.00	551.74	3,891.47	926.54	3,276.24	2,962.13	0.68	-0.26	0.133
30.00	-52.40	-4.79	0.00	-527.5	0.00	527.54	3,812.83	907.82	3,145.22	2,842.95	0.98	-0.31	0.131
35.00	-50.45	-4.74	0.00	-503.6	0.00	503.58	3,734.19	889.09	3,016.87	2,726.22	1.34	-0.37	0.129
40.00	-48.52	-4.68	0.00	-479.9	0.00	479.91	3,655.56	870.37	2,891.20	2,611.93	1.75	-0.42	0.127
44.75	-46.71	-4.64	0.00	-457.7	0.00	457.69	3,580.86	852.59	2,774.29	2,505.63	2.2	-0.47	0.125
45.00	-46.57	-4.61	0.00	-456.5	0.00	456.53	3,576.92	851.65	2,768.20	2,500.09	2.22	-0.48	0.123
49.35	-44.18	-4.56	0.00	-436.5	0.00	436.47	3,022.48	733.24	2,393.65	2,125.89	2.68	-0.52	0.133
50.00	-43.95	-4.53	0.00	-433.5	0.00	433.51	3,016.75	731.15	2,380.05	2,115.77	2.75	-0.53	0.132
55.00	-42.21	-4.46	0.00	-410.9	0.00	410.86	2,972.18	715.11	2,276.76	2,038.26	3.33	-0.59	0.128
60.00	-40.49	-4.38	0.00	-388.6	0.00	388.58	2,926.64	699.06	2,175.75	1,961.49	3.98	-0.64	0.124
65.00	-38.78	-4.30	0.00	-366.7	0.00	366.69	2,868.63	683.01	2,077.04	1,877.98	4.68	-0.7	0.121
70.00	-37.10	-4.21	0.00	-345.2	0.00	345.21	2,801.23	666.96	1,980.61	1,790.27	5.44	-0.76	0.118
75.00	-35.44	-4.12	0.00	-324.2	0.00	324.16	2,733.83	650.91	1,886.48	1,704.66	6.27	-0.81	0.115
80.00	-33.80	-4.03	0.00	-303.6	0.00	303.56	2,666.42	634.86	1,794.64	1,621.14	7.15	-0.87	0.111
85.00	-32.18	-3.96	0.00	-283.4	0.00	283.42	2,599.02	618.81	1,705.10	1,539.72	8.08	-0.92	0.107
85.75	-31.94	-3.93	0.00	-280.4	0.00	280.45	2,588.91	616.41	1,691.87	1,527.70	8.23	-0.93	0.107
89.29	-30.47	-3.87	0.00	-266.5	0.00	266.54	1,548.14	412.19	1,134.47	920.26	8.93	-0.97	0.138
90.00	-30.27	-3.83	0.00	-263.8	0.00	263.80	1,545.08	410.67	1,126.13	915.03	9.08	-0.98	0.137
95.00	-28.91	-3.73	0.00	-244.6	0.00	244.65	1,522.99	399.97	1,068.23	878.25	10.14	-1.04	0.130
100.00	-27.57	-3.64	0.00	-226.0	0.00	225.98	1,499.92	389.28	1,011.87	841.61	11.26	-1.1	0.123
105.00	-26.25	-3.56	0.00	-207.8	0.00	207.79	1,475.88	378.58	957.03	805.15	12.45	-1.16	0.115
107.00	-25.72	-3.51	0.00	-200.7	0.00	200.67	1,466.00	374.30	935.52	790.64	12.94	-1.19	0.078
107.00	-25.72	-3.51	0.00	-200.7	0.00	200.67	1,466.00	374.30	935.52	790.64	12.94	-1.19	0.113
110.00	-24.91	-3.44	0.00	-190.1	0.00	190.13	1,450.87	367.88	903.71	768.93	13.7	-1.22	0.075
115.00	-23.56	-3.33	0.00	-172.9	0.00	172.93	1,424.89	357.18	851.93	732.99	15	-1.26	0.069
120.00	-22.23	-3.23	0.00	-156.3	0.00	156.26	1,397.94	346.48	801.67	697.38	16.34	-1.3	0.063
125.00	-20.91	-3.15	0.00	-140.1	0.00	140.13	1,370.02	335.78	752.95	662.13	17.72	-1.33	0.057
125.50	-20.78	-3.11	0.00	-138.6	0.00	138.55	1,367.17	334.71	748.16	658.63	17.86	-1.33	0.056
125.50	-20.78	-3.11	0.00	-138.6	0.00	138.55	1,380.09	293.33	656.46	549.72	17.86	-1.33	0.062
130.00	-19.66	-3.01	0.00	-124.6	0.00	124.55	1,118.70	284.90	619.29	524.68	19.13	-1.36	0.056
135.00	-18.42	-2.94	0.00	-109.5	0.00	109.49	1,096.22	275.53	579.26	497.08	20.57	-1.39	0.050
135.44	-18.31	-2.90	0.00	-108.2	0.00	108.19	1,094.20	274.71	575.80	494.67	20.7	-1.4	0.049
135.44	-18.31	-2.90	0.00	-108.2	0.00	108.19	1,094.20	274.71	575.80	494.67	20.7	-1.4	0.236
140.00	-17.56	-2.82	0.00	-95.0	0.00	94.98	1,072.77	266.17	540.57	469.76	22.04	-1.42	0.219
145.00	-16.97	-2.77	0.00	-80.9	0.00	80.86	1,048.35	256.81	503.22	442.75	23.61	-1.56	0.199
150.00	-16.40	-2.71	0.00	-67.0	0.00	67.02	1,022.96	247.44	467.20	416.11	25.31	-1.69	0.177
155.00	-15.84	-2.65	0.00	-53.5	0.00	53.48	996.60	238.08	432.53	389.88	27.15	-1.81	0.153
160.00	-15.30	-2.58	0.00	-40.2	0.00	40.25	960.61	228.72	399.18	360.85	29.1	-1.91	0.128
165.00	-14.78	-2.52	0.00	-27.4	0.00	27.36	921.28	219.35	367.18	331.75	31.15	-2	0.099
167.00	-8.27	-1.55	0.00	-22.3	0.00	22.32	905.55	215.61	354.75	320.45	32	-2.03	0.079
170.00	-8.00	-1.49	0.00	-17.7	0.00	17.67	881.95	209.99	336.51	303.86	33.28	-2.06	0.067
175.00	-7.58	-1.42	0.00	-10.2	0.00	10.23	842.62	200.62	307.18	277.20	35.47	-2.11	0.046
179.00	-6.93	-1.27	0.00	-4.6	0.00	4.57	811.16	193.13	284.68	256.76	37.24	-2.13	0.026
180.00	-3.10	-0.76	0.00	-3.3	0.00	3.29	803.29	191.26	279.19	251.77	37.69	-2.13	0.017
180.58	0.00	-0.65	0.00	-2.8	0.00	2.85	798.73	190.17	276.03	248.90	37.95	-2.13	0.011

Load Case: 1.0D + 1.0W Service Normal	60 mph Wind with No Ice	28 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.05	-6.63	0.00	-776.3	0.00	776.29	4,173.88	1,020.16	3,971.44	3,501.82	0	0	0.160
5.00	-41.55	-6.52	0.00	-743.1	0.00	743.13	4,123.26	1,001.43	3,827.05	3,395.19	0.03	-0.06	0.156
10.00	-40.07	-6.40	0.00	-710.6	0.00	710.55	4,071.66	982.71	3,685.34	3,289.35	0.12	-0.12	0.153
15.00	-38.61	-6.28	0.00	-678.6	0.00	678.56	4,019.09	963.99	3,546.30	3,184.35	0.28	-0.18	0.150
20.00	-37.17	-6.18	0.00	-647.2	0.00	647.17	3,965.55	945.26	3,409.93	3,080.23	0.5	-0.24	0.146
25.00	-35.74	-6.07	0.00	-616.3	0.00	616.30	3,891.47	926.54	3,276.24	2,962.13	0.77	-0.29	0.144
30.00	-34.34	-5.96	0.00	-586.0	0.00	585.97	3,812.83	907.82	3,145.22	2,842.95	1.11	-0.35	0.141
35.00	-32.95	-5.84	0.00	-556.2	0.00	556.19	3,734.19	889.09	3,016.87	2,726.22	1.52	-0.41	0.138
40.00	-31.58	-5.72	0.00	-527.0	0.00	526.99	3,655.56	870.37	2,891.20	2,611.93	1.98	-0.47	0.135
44.75	-30.30	-5.64	0.00	-499.8	0.00	499.83	3,580.86	852.59	2,774.29	2,505.63	2.48	-0.53	0.132
45.00	-30.19	-5.60	0.00	-498.4	0.00	498.41	3,576.92	851.65	2,768.20	2,500.09	2.51	-0.53	0.130
49.35	-28.41	-5.51	0.00	-474.1	0.00	474.08	3,022.48	733.24	2,393.65	2,125.89	3.02	-0.58	0.140
50.00	-28.25	-5.45	0.00	-470.5	0.00	470.50	3,016.75	731.15	2,380.05	2,115.77	3.1	-0.59	0.139
55.00	-27.03	-5.31	0.00	-443.2	0.00	443.25	2,972.18	715.11	2,276.76	2,038.26	3.75	-0.65	0.134
60.00	-25.83	-5.17	0.00	-416.7	0.00	416.68	2,926.64	699.06	2,175.75	1,961.49	4.47	-0.71	0.129
65.00	-24.65	-5.03	0.00	-390.8	0.00	390.82	2,868.63	683.01	2,077.04	1,877.98	5.25	-0.77	0.125
70.00	-23.48	-4.88	0.00	-365.7	0.00	365.67	2,801.23	666.96	1,980.61	1,790.27	6.09	-0.83	0.121
75.00	-22.32	-4.74	0.00	-341.2	0.00	341.25	2,733.83	650.91	1,886.48	1,704.66	7	-0.89	0.117
80.00	-21.19	-4.58	0.00	-317.6	0.00	317.58	2,666.42	634.86	1,794.64	1,621.14	7.96	-0.95	0.113
85.00	-20.07	-4.47	0.00	-294.7	0.00	294.66	2,599.02	618.81	1,705.10	1,539.72	8.99	-1.01	0.108
85.75	-19.90	-4.42	0.00	-291.3	0.00	291.30	2,588.91	616.41	1,691.87	1,527.70	9.15	-1.02	0.108
89.29	-18.83	-4.34	0.00	-275.6	0.00	275.64	1,548.14	412.19	1,134.47	920.26	9.92	-1.06	0.139
90.00	-18.70	-4.27	0.00	-272.6	0.00	272.56	1,545.08	410.67	1,126.13	915.03	10.08	-1.07	0.137
95.00	-17.80	-4.12	0.00	-251.2	0.00	251.21	1,522.99	399.97	1,068.23	878.25	11.23	-1.13	0.129
100.00	-16.90	-3.97	0.00	-230.6	0.00	230.61	1,499.92	389.28	1,011.87	841.61	12.45	-1.19	0.121
105.00	-16.02	-3.84	0.00	-210.8	0.00	210.77	1,475.88	378.58	957.03	805.15	13.73	-1.26	0.113
107.00	-15.67	-3.76	0.00	-203.1	0.00	203.09	1,466.00	374.30	935.52	790.64	14.26	-1.28	0.075
107.00	-15.67	-3.76	0.00	-203.1	0.00	203.09	1,466.00	374.30	935.52	790.64	14.26	-1.28	0.110
110.00	-15.12	-3.65	0.00	-191.8	0.00	191.81	1,450.87	367.88	903.71	768.93	15.08	-1.32	0.072
115.00	-14.23	-3.50	0.00	-173.5	0.00	173.54	1,424.89	357.18	851.93	732.99	16.48	-1.35	0.066
120.00	-13.35	-3.35	0.00	-156.0	0.00	156.01	1,397.94	346.48	801.67	697.38	17.92	-1.39	0.060
125.00	-12.47	-3.25	0.00	-139.2	0.00	139.24	1,370.02	335.78	752.95	662.13	19.39	-1.42	0.054
125.50	-12.39	-3.20	0.00	-137.6	0.00	137.61	1,367.17	334.71	748.16	658.63	19.54	-1.43	0.053
125.50	-12.39	-3.20	0.00	-137.6	0.00	137.61	1,380.09	293.33	656.46	549.72	19.54	-1.43	0.058
130.00	-11.65	-3.06	0.00	-123.2	0.00	123.23	1,118.70	284.90	619.29	524.68	20.9	-1.46	0.052
135.00	-10.83	-2.96	0.00	-107.9	0.00	107.94	1,096.22	275.53	579.26	497.08	22.44	-1.49	0.046
135.44	-10.76	-2.90	0.00	-106.6	0.00	106.64	1,094.20	274.71	575.80	494.67	22.58	-1.49	0.045
135.44	-10.76	-2.90	0.00	-106.6	0.00	106.64	1,094.20	274.71	575.80	494.67	22.58	-1.49	0.226
140.00	-10.33	-2.80	0.00	-93.4	0.00	93.40	1,072.77	266.17	540.57	469.76	24.01	-1.51	0.209
145.00	-9.99	-2.73	0.00	-79.4	0.00	79.42	1,048.35	256.81	503.22	442.75	25.67	-1.65	0.189
150.00	-9.66	-2.65	0.00	-65.8	0.00	65.79	1,022.96	247.44	467.20	416.11	27.47	-1.78	0.168
155.00	-9.34	-2.58	0.00	-52.5	0.00	52.53	996.60	238.08	432.53	389.88	29.4	-1.9	0.144
160.00	-9.02	-2.50	0.00	-39.6	0.00	39.64	960.61	228.72	399.18	360.85	31.44	-2	0.119
165.00	-8.72	-2.44	0.00	-27.1	0.00	27.14	921.28	219.35	367.18	331.75	33.58	-2.08	0.091
167.00	-4.81	-1.50	0.00	-22.3	0.00	22.26	905.55	215.61	354.75	320.45	34.45	-2.11	0.075
170.00	-4.64	-1.45	0.00	-17.8	0.00	17.76	881.95	209.99	336.51	303.86	35.79	-2.14	0.064
175.00	-4.38	-1.38	0.00	-10.5	0.00	10.53	842.62	200.62	307.18	277.20	38.06	-2.19	0.043
179.00	-3.98	-1.26	0.00	-5.0	0.00	5.02	811.16	193.13	284.68	256.76	39.91	-2.21	0.024
180.00	-1.45	-0.81	0.00	-3.8	0.00	3.76	803.29	191.26	279.19	251.77	40.37	-2.22	0.017
180.58	0.00	-0.75	0.00	-3.3	0.00	3.29	798.73	190.17	276.03	248.90	40.64	-2.22	0.013

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.204
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.218
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	3.470
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	43.050 k
Seismic Base Shear (E):	1.290 k

1.2D + 1.0Ev + 1.0Eh Normal Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
46	180.29	29	940	0.002	3	36
45	179.5	50	1,616	0.003	4	62
44	177	204	6,400	0.014	17	254
43	172.5	264	7,842	0.016	21	328
42	168.5	162	4,613	0.010	13	202
41	166	118	3,250	0.007	9	147
40	162.5	301	7,953	0.017	22	375
39	157.5	310	7,697	0.016	21	386
38	152.5	319	7,427	0.016	20	397
37	147.5	328	7,145	0.015	19	408
36	142.5	338	6,853	0.014	19	420
35	137.72	431	8,168	0.017	22	535
34	135.22	71	1,304	0.003	4	89
33	132.5	816	14,320	0.030	39	1,014
32	127.7499	742	12,108	0.026	33	923
31	125.2499	87	1,363	0.003	4	108
30	122.5	875	13,126	0.028	36	1,088
29	117.5	885	12,220	0.026	33	1,101
28	112.5	895	11,333	0.024	31	1,114
27	108.5	542	6,384	0.014	17	674
26	106	351	3,940	0.008	11	436
25	102.5	884	9,285	0.020	25	1,099
24	97.5	894	8,500	0.018	23	1,112
23	92.5	905	7,739	0.016	21	1,125
22	89.6453	129	1,038	0.002	3	161
21	87.5202	1,067	8,174	0.017	22	1,327
20	85.3749	166	1,214	0.003	3	207
19	82.5	1,119	7,618	0.016	21	1,392
18	77.5	1,135	6,816	0.014	19	1,411
17	72.5	1,150	6,047	0.013	16	1,431
16	67.5	1,166	5,312	0.011	14	1,450
15	62.5	1,182	4,615	0.010	13	1,469
14	57.5	1,197	3,958	0.008	11	1,489
13	52.5	1,213	3,342	0.007	9	1,508

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
12	49.675	159	392	0.001	1	197
11	47.175	1,781	3,963	0.008	11	2,215
10	44.8748	103	208	0.000	1	128
9	42.3748	1,279	2,297	0.005	6	1,591
8	37.5	1,364	1,919	0.004	5	1,697
7	32.5	1,383	1,460	0.003	4	1,719
6	27.5	1,401	1,059	0.002	3	1,742
5	22.5	1,419	718	0.002	2	1,764
4	17.5	1,437	440	0.001	1	1,787
3	12.5	1,455	227	0.000	1	1,810
2	7.5	1,473	83	0.000	0	1,832
1	2.5	1,492	9	0.000	0	1,855
Kaelus DBC0061F1V51-2	180.58	76	2,495	0.005	7	95
Raycap DC6-48-60-18-8F (23.5" Height)	180.58	20	652	0.001	20	25
Raycap DC6-48-60-18-8F ("Squid")	180.58	32	1,037	0.002	3	40
Ericsson RRUS 4426 B66	180.58	145	4,735	0.010	13	181
Ericsson RRUS 4449 B5, B12	180.58	213	6,946	0.015	19	265
Ericsson RRUS-11 800 MHz	180.58	162	5,283	0.011	14	201
Ericsson RRUS 32 B2	180.58	159	5,185	0.011	14	198
KMW AM-X-CD-14-65-00T-RET	180.58	36	1,187	0.002	3	45
Quintel QS46512-2	180.58	104	3,391	0.007	9	129
CCI OPA65R-BU4DA-K	180.58	52	1,712	0.004	5	65
Andrew SBNH-1D6565C	180.58	132	4,311	0.009	12	164
CCI TPA-65R-LCUUUU-H8	180.58	163	5,322	0.011	15	203
CCI OPA65R-BU8D	180.58	153	4,989	0.010	14	190
Flat Platform with Round Handrails	180	2,500	81,000	0.171	221	3,109
Generic Mount Reinforcement	179	200	6,408	0.014	17	249
Ericsson Radio 4460 B25+B66	167	327	9,120	0.019	25	407
Ericsson Radio 4480 B71+B85A	167	252	7,028	0.015	19	313
Ericsson Air6449 B41	167	312	8,701	0.018	24	388
Commscope VV-65A-R1	167	71	1,991	0.004	5	89
RFS APXVAALL24 43-U-NA20	167	368	10,274	0.022	28	458
Generic Round Platform with Handrails	167	2,500	69,722	0.147	190	3,109
		43,051	473,927	1.000	1,292	53,535

0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
46	180.29	29	940	0.002	3	25
45	179.5	50	1,616	0.003	4	43
44	177	204	6,400	0.014	17	175
43	172.5	264	7,842	0.016	21	226
42	168.5	162	4,613	0.010	13	139
41	166	118	3,250	0.007	9	101
40	162.5	301	7,953	0.017	22	258
39	157.5	310	7,697	0.016	21	266
38	152.5	319	7,427	0.016	20	274
37	147.5	328	7,145	0.015	19	281
36	142.5	338	6,853	0.014	19	289
35	137.72	431	8,168	0.017	22	369
34	135.22	71	1,304	0.003	4	61
33	132.5	816	14,320	0.030	39	699
32	127.7499	742	12,108	0.026	33	635
31	125.2499	87	1,363	0.003	4	74
30	122.5	875	13,126	0.028	36	749
29	117.5	885	12,220	0.026	33	758
28	112.5	895	11,333	0.024	31	767
27	108.5	542	6,384	0.014	17	464
26	106	351	3,940	0.008	11	300
25	102.5	884	9,285	0.020	25	757
24	97.5	894	8,500	0.018	23	766
23	92.5	905	7,739	0.016	21	775

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vz}	Horizontal Force (lb)	Vertical Force (lb)
22	89.6453	129	1,038	0.002	3	111
21	87.5202	1,067	8,174	0.017	22	914
20	85.3749	166	1,214	0.003	3	143
19	82.5	1,119	7,618	0.016	21	959
18	77.5	1,135	6,816	0.014	19	972
17	72.5	1,150	6,047	0.013	16	985
16	67.5	1,166	5,312	0.011	14	999
15	62.5	1,182	4,615	0.010	13	1,012
14	57.5	1,197	3,958	0.008	11	1,025
13	52.5	1,213	3,342	0.007	9	1,039
12	49.675	159	392	0.001	1	136
11	47.175	1,781	3,963	0.008	11	1,525
10	44.8748	103	208	0.000	1	88
9	42.3748	1,279	2,297	0.005	6	1,096
8	37.5	1,364	1,919	0.004	5	1,169
7	32.5	1,383	1,460	0.003	4	1,184
6	27.5	1,401	1,059	0.002	3	1,200
5	22.5	1,419	718	0.002	2	1,215
4	17.5	1,437	440	0.001	1	1,231
3	12.5	1,455	227	0.000	1	1,246
2	7.5	1,473	83	0.000	0	1,262
1	2.5	1,492	9	0.000	0	1,277
Kaelus DBC0061F1V51-2	180.58	76	2,495	0.005	7	66
Raycap DC6-48-60-18-8F (23.5" Height)	180.58	20	652	0.001	2	17
Raycap DC6-48-60-18-8F ("Squid")	180.58	32	1,037	0.002	3	27
Ericsson RRUS 4426 B66	180.58	145	4,735	0.010	13	124
Ericsson RRUS 4449 B5, B12	180.58	213	6,946	0.015	19	182
Ericsson RRUS-11 800 MHz	180.58	162	5,283	0.011	14	139
Ericsson RRUS 32 B2	180.58	159	5,185	0.011	14	136
KMW AM-X-CD-14-65-00T-RET	180.58	36	1,187	0.002	3	31
Quintel QS46512-2	180.58	104	3,391	0.007	9	89
CCI OPA65R-BU4DA-K	180.58	52	1,712	0.004	5	45
Andrew SBNH-1D6565C	180.58	132	4,311	0.009	12	113
CCI TPA-65R-LCUUUU-H8	180.58	163	5,322	0.011	15	140
CCI OPA65R-BU8D	180.58	153	4,989	0.010	14	131
Flat Platform with Round Handrails	180	2,500	81,000	0.171	221	2,141
Generic Mount Reinforcement	179	200	6,408	0.014	17	171
Ericsson Radio 4460 B25+B66	167	327	9,120	0.019	25	280
Ericsson Radio 4480 B71+B85A	167	252	7,028	0.015	19	216
Ericsson Air6449 B41	167	312	8,701	0.018	24	267
Commscope VV-65A-R1	167	71	1,991	0.004	5	61
RFS APXVAALL24 43-U-NA20	167	368	10,274	0.022	28	316
Generic Round Platform with Handrails	167	2,500	69,722	0.147	190	2,141
		43,051	473,927	1.000	1,292	36,873

1.2D + 1.0Ev + 1.0Eh Normal Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.68	-1.30	0.00	-203.30	0.00	203.30	4,173.88	1,020.16	3,971	3,501.82	0.00	0.00	0.05
5.00	-49.85	-1.31	0.00	-196.81	0.00	196.81	4,123.26	1,001.43	3,827	3,395.19	0.01	-0.02	0.05
10.00	-48.04	-1.32	0.00	-190.25	0.00	190.25	4,071.66	982.71	3,685	3,289.35	0.03	-0.03	0.05
15.00	-46.25	-1.33	0.00	-183.64	0.00	183.64	4,019.09	963.99	3,546	3,184.35	0.07	-0.05	0.05
20.00	-44.49	-1.34	0.00	-176.97	0.00	176.97	3,965.55	945.26	3,410	3,080.23	0.13	-0.06	0.05
25.00	-42.74	-1.35	0.00	-170.26	0.00	170.26	3,891.47	926.54	3,276	2,962.13	0.21	-0.08	0.05
30.00	-41.02	-1.35	0.00	-163.52	0.00	163.52	3,812.83	907.82	3,145	2,842.95	0.30	-0.10	0.05
35.00	-39.33	-1.36	0.00	-156.75	0.00	156.75	3,734.19	889.09	3,017	2,726.22	0.41	-0.11	0.05
40.00	-37.74	-1.36	0.00	-149.96	0.00	149.96	3,655.56	870.37	2,891	2,611.93	0.53	-0.13	0.04
44.75	-37.61	-1.36	0.00	-143.50	0.00	143.50	3,580.86	852.59	2,774	2,505.63	0.67	-0.15	0.04
45.00	-35.39	-1.35	0.00	-143.16	0.00	143.16	3,576.92	851.65	2,768	2,500.09	0.68	-0.15	0.04
49.35	-35.19	-1.36	0.00	-137.28	0.00	137.28	3,022.48	733.24	2,394	2,125.89	0.82	-0.16	0.05
50.00	-33.69	-1.35	0.00	-136.40	0.00	136.40	3,016.75	731.15	2,380	2,115.77	0.84	-0.16	0.05
55.00	-32.20	-1.34	0.00	-129.66	0.00	129.66	2,972.18	715.11	2,277	2,038.26	1.02	-0.18	0.05

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
107.00	-13.02	-1.11	0.00	-61.07	0.00	61.07	1,466.00	374.30	936	790.64	3.88	-0.36	0.04
107.00	-13.02	-1.11	0.00	-61.07	0.00	61.07	1,466.00	374.30	936	790.64	3.88	-0.36	0.03
110.00	-12.25	-1.08	0.00	-57.74	0.00	57.74	1,450.87	367.88	904	768.93	4.11	-0.37	0.02
115.00	-11.49	-1.04	0.00	-52.36	0.00	52.36	1,424.89	357.18	852	732.99	4.51	-0.38	0.02
120.00	-10.74	-1.00	0.00	-47.15	0.00	47.15	1,397.94	346.48	802	697.38	4.91	-0.39	0.02
125.00	-10.67	-1.00	0.00	-42.14	0.00	42.14	1,370.02	335.78	753	662.13	5.33	-0.40	0.02
125.50	-10.03	-0.96	0.00	-41.64	0.00	41.64	1,367.17	334.71	748	658.63	5.37	-0.40	0.02
125.50	-10.03	-0.96	0.00	-41.64	0.00	41.64	1,138.09	293.33	656	549.72	5.37	-0.40	0.02
130.00	-9.33	-0.92	0.00	-37.31	0.00	37.31	1,118.70	284.90	619	524.68	5.76	-0.41	0.02
135.00	-9.27	-0.92	0.00	-32.72	0.00	32.72	1,096.22	275.53	579	497.08	6.19	-0.42	0.02
135.44	-8.90	-0.89	0.00	-32.31	0.00	32.31	1,094.20	274.71	576	494.67	6.23	-0.42	0.02
135.44	-8.90	-0.89	0.00	-32.31	0.00	32.31	1,094.20	274.71	576	494.67	6.23	-0.42	0.07
140.00	-8.61	-0.88	0.00	-28.25	0.00	28.25	1,072.77	266.17	541	469.76	6.64	-0.43	0.07
145.00	-8.33	-0.86	0.00	-23.87	0.00	23.87	1,048.35	256.81	503	442.75	7.11	-0.47	0.06
150.00	-8.06	-0.84	0.00	-19.57	0.00	19.57	1,022.96	247.44	467	416.11	7.62	-0.51	0.06
155.00	-7.79	-0.82	0.00	-15.36	0.00	15.36	996.60	238.08	433	389.88	8.18	-0.54	0.05
160.00	-7.54	-0.80	0.00	-11.25	0.00	11.25	960.61	228.72	399	360.85	8.76	-0.57	0.04
165.00	-7.43	-0.79	0.00	-7.24	0.00	7.24	921.28	219.35	367	331.75	9.38	-0.60	0.03
167.00	-4.02	-0.46	0.00	-5.65	0.00	5.65	905.55	215.61	355	320.45	9.63	-0.60	0.02
170.00	-3.79	-0.43	0.00	-4.29	0.00	4.29	881.95	209.99	337	303.86	10.01	-0.61	0.02
175.00	-3.62	-0.41	0.00	-2.12	0.00	2.12	842.62	200.62	307	277.20	10.66	-0.62	0.01
179.00	-3.40	-0.39	0.00	-0.47	0.00	0.47	811.16	193.13	285	256.76	11.18	-0.63	0.01
180.00	-1.24	-0.14	0.00	-0.08	0.00	0.08	803.29	191.26	279	251.77	11.31	-0.63	0.00
180.58	0.00	-0.13	0.00	0.00	0.00	0.00	798.73	190.17	276	248.90	11.39	-0.63	0.00

ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W Normal	29.14	0.00	51.59	0.00	0.00	3446.18	135.44	0.97
0.9D + 1.0W Normal	29.11	0.00	38.68	0.00	0.00	3374.46	135.44	0.94
1.2D + 1.0Di + 1.0Wi Normal	5.06	0.00	64.46	0.00	0.00	676.12	135.44	0.24
1.2D + 1.0Ev + 1.0Eh Normal	1.36	0.00	51.68	0.00	0.00	203.30	135.44	0.08
0.9D - 1.0Ev + 1.0Eh Normal	1.33	0.00	35.59	0.00	0.00	197.61	135.44	0.07
1.0D + 1.0W Service Normal	6.63	0.00	43.05	0.00	0.00	776.29	135.44	0.23

ADDITIONAL STEEL SUMMARY

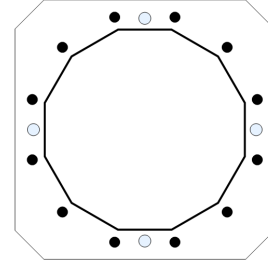
Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors			Max member			
			VQ/I	Shear Applied (kips)	Shear (phiVn) (kips)	Ratio	Pu (kip)	PhiPn (kip)	Ratio
0.00	107.00	SOL #20 All Thread Bar	296.7	8.9	16.8	0.5296	270.8	330.5	0.8194
107.00	135.44	SOL #20 All Thread Bar	267.3	8.0	16.8	0.4771	175.3	330.5	0.5303

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors				Lower Termination Connectors					
			MQ/I	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kip)	Num Reqd	Num Actual	Ratio
0.00	107.00	SOL #20 All Thread Bar	191.1089	12	16	20	0.7963	0	12	0	0	0.0000
107.00	135.44	SOL #20 All Thread Bar	111.6061	12	10	12	0.7750	173.1799	12	15	20	0.7216

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 14013)

Diameter: 53.7 in
 Shape: Square
 Thickness: 2.5 in
 Grade: A36
 Yield Strength: 36 ksi
 Tensile Strength: 58 ksi
 Rod Detail Type: d
 Clear Distance: 4.5 in
 Base Weld Size: 0.125 in
 Orientation Offset: - °
 Analysis Type: Elastic
 Neutral Axis: 346 °



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 14314]	Radial	12	2.25	48.2	A615-75	75	100	-	15

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 739]	#20	2.5	80	100	Angle	2.19	48.58	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (12) 2.25"Ø [ID 14314]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.785	17.04	17.04	19.533	1239.919	177.20	2.00
2	1.309	6.24	23.28	22.784	1686.754	206.21	0.07
3	1.833	-6.24	23.28	19.930	1290.889	180.75	1.88
4	2.356	-17.04	17.04	11.736	448.188	107.63	3.33
5	2.880	-23.28	6.24	0.398	1.353	6.44	3.89
6	3.403	-23.28	-6.24	-11.048	397.218	-95.69	3.40
7	3.927	-17.04	-17.04	-19.533	1239.919	-171.41	2.00
8	4.451	-6.24	-23.28	-22.784	1686.754	-200.42	0.07
9	4.974	6.24	-23.28	-19.930	1290.889	-174.96	1.88
10	5.498	17.04	-17.04	-11.736	448.188	-101.84	3.33
11	6.021	23.28	-6.24	-0.398	1.353	-0.66	3.89
12	0.262	23.28	6.24	11.048	397.218	101.48	3.40

ASSET: 302496, Clch - Colchester
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 13674383

DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #20 [ID 739]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)
1	1.571	0.00	24.29	23.568	2728.591	273.97
2	3.142	-24.29	0.00	-5.876	171.420	-63.04
3	4.712	0.00	-24.29	-23.568	2728.591	-265.53
4	6.283	24.29	0.00	5.876	171.420	71.47

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	41.7"ø x 0.4375" (12 Sides)	2319.2	51.59	29.14	0.673
Bolt Group	Original (12) 2.25"ø	2319.2	-	29.14	0.673
Dywidag Group	(4) #20	1127.0	-	-	0.327
TOTALS		3446.18	51.59	29.14	

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	41.7"ø x 0.4375" (12 Sides)	56.0675	-	-	11936.12	-
Bolt Group	Original (12) 2.25"ø	3.9761	3.2477	0.8393	10128.64	4.5
Dywidag Group	(4) #20	4.9087	4.9087	1.9175	5800.02	-

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 41.82 in
 Point-to-Point Diameter: 43.30 in
 Flat Width: 11.207 in
 Flat Radians: 0.524 rad

PLATE PROPERTIES

Neutral Axis: 346 °
 Bend Line Lower Limit: 0.943 rad
 Bend Line Upper Limit: 1.675 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	34.118	0.00	53.310	385.9	1727.2	0.223
Corner	32.643	0.00	51.004	233.8	1652.5	0.141
Circumferential	29.673	0.00	46.365	234.5	1502.2	0.156

ELASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio	Interaction
Original	12	2.25	206.2	0.1	243.6	0.847	0.719

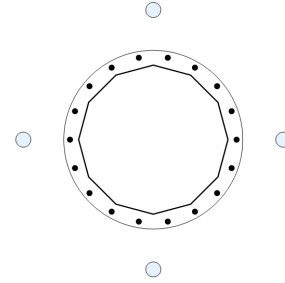
DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity φPn (k)	Ratio
4	#20	48.58	274.0	368.2	0.744

UPPER FLANGE PLATE ANALYSIS @ 125.4998 FT

PLATE PARAMETERS (ID# 14014)

Diameter:	29.6	in
Shape:	Round	
Thickness:	1.25	in
Grade:	A36	
Yield Strength:	36	ksi
Tensile Strength:	58	ksi
Pole Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	150	°



FLANGE BOLT PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 14315]	Radial	18	1	27.561	A325	92	120	-	-

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	Fy (ksi)	Fu (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 740]	#20	2.5	80	100	W8x21	8.28	43.00	-

FLANGE BOLT GEOMETRY AND APPLIED LOADS --- ORIGINAL (18) 1"Ø [ID 14315]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.349	12.95	4.71	-10.078	61.549	-9.36	0.80
2	0.698	10.56	8.86	-12.362	92.601	-11.51	0.42
3	1.047	6.89	11.93	-13.156	104.864	-12.26	0.00
4	1.396	2.39	13.57	-12.362	92.601	-11.51	0.42
5	1.745	-2.39	13.57	-10.078	61.549	-9.36	0.80
6	2.094	-6.89	11.93	-6.578	26.238	-6.06	1.07
7	2.443	-10.56	8.86	-2.284	3.190	-2.01	1.22
8	2.793	-12.95	4.71	2.284	3.190	2.30	1.22
9	3.142	-13.78	0.00	6.578	26.238	6.35	1.07
10	3.491	-12.95	-4.71	10.078	61.549	9.66	0.80
11	3.840	-10.56	-8.86	12.362	92.601	11.81	0.42
12	4.189	-6.89	-11.93	13.156	104.864	12.56	0.00
13	4.538	-2.39	-13.57	12.362	92.601	11.81	0.42
14	4.887	2.39	-13.57	10.078	61.549	9.66	0.80
15	5.236	6.89	-11.93	6.578	26.238	6.35	1.07
16	5.585	10.56	-8.86	2.284	3.190	2.30	1.22
17	5.934	12.95	-4.71	-2.284	3.190	-2.01	1.22
18	6.283	13.78	0.00	-6.578	26.238	-6.06	1.07

ASSET: 302496, Clch - Colchester
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 13674383

DYWIDAG BAR GEOMETRY AND APPLIED LOADS --- (4) #20 [ID 740]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)
1	1.571	0.00	21.50	-18.620	1703.858	-115.77
2	3.142	-21.50	0.00	10.750	569.231	71.08
3	4.712	0.00	-21.50	18.620	1703.858	121.15
4	6.283	21.50	0.00	-10.750	569.231	-65.70

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	23.9418"ø x 0.2188" (12 Sides)	122.5	13.45	14.25	0.200
Bolt Group	Original (18) 1"ø	122.5	-	14.25	0.200
Dywidag Group	(4) #20	491.0	-	-	0.800
TOTALS		613.51	13.45	14.25	

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	23.9418"ø x 0.2188" (12 Sides)	16.1211	-	-	1134.34	-
Bolt Group	Original (18) 1"ø	0.7854	0.6057	0.0292	944.04	8.0
Dywidag Group	(4) #20	4.9087	4.9087	1.9175	4546.18	-

EXTERNAL UPPER FLANGE PLATE BEND LINE ANALYSIS @ 125.4998 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 24.07 in
 Point-to-Point Diameter: 24.92 in
 Flat Width: 6.449 in
 Flat Radians: 0.524 rad

PLATE PROPERTIES

Neutral Axis: 150 °
 Bend Line Lower Limit: 3.643 rad
 Bend Line Upper Limit: 4.735 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	16.422	0.00	6.415	21.9	207.8	0.105
Corner	15.103	0.00	5.900	8.8	191.2	0.046
Circumferential	20.790	0.00	8.121	25.2	263.1	0.096

ELASTIC FLANGE BOLT ANALYSIS

Class	Group Quantity	Bolt Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio	Interaction
Original	18	1	12.6	0.0	54.5	0.230	0.230

DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load Pu (k)	Compressive Capacity φPn (k)	Ratio
4	#20	43.00	121.2	368.2	0.329

Pier Foundation Analysis (ANSI/TIA-222-H)

Foundation Analysis Parameters

Pier Diameter	<i>D</i>	6.00	ft
Pier Embedment	<i>L-h</i>	33.2	ft
Pier Height above Ground	<i>H</i>	0.75	ft
Water Table Depth [BGL]	<i>GW</i>	12	ft
Pullout Angle	Θ	30	°
Unit Weight of Concrete		150	pcf
Uplift Skin Friction Factor		0.750	

Reactions

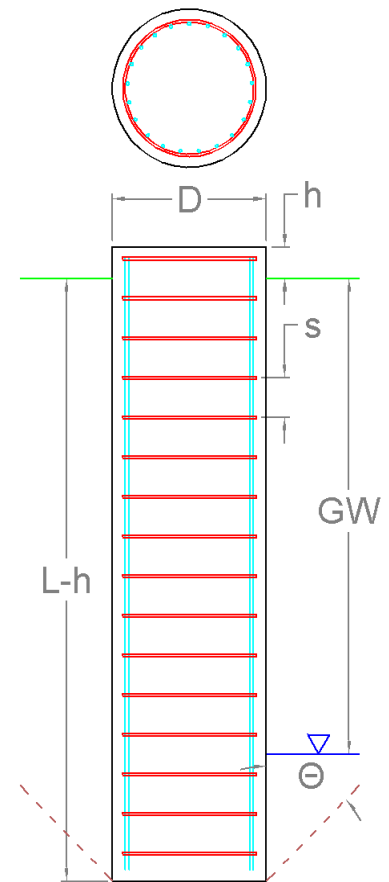
Moment, M_u	3,446.2	k-ft
Shear, V_u	29.1	k
Axial, P_u	51.6	k
Uplift, T_u	0.0	k

Soil Properties

Layer Depth (ft)		Unit Weight	Cohesion	Friction Angle	Ultimate Skin Friction	Ultimate Bearing Pressure
TOP	BTM	pcf	psf	°	psf	psf
0.0	1.5	105	0	0	0	0
1.5	2.9	136	0	40	0	0
2.9	5.5	129	0	36	0	0
5.5	7.5	133	0	40	922	0
7.5	9.5	132	0	39	1,170	0
9.5	12.0	133	0	40	1,422	0
12.0	16.5	138	0	40	1,763	0
16.5	21.5	136	0	40	1,942	0
21.5	26.5	136	0	40	2,086	0
26.5	34.3	142	0	40	2,250	106,775

Soil Strength Capacities

Volume of Concrete	961.3	ft ³
Weight of Concrete [Buoyancy Considered]	106.7	k
Average Soil Unit Weight	95.0	pcf
Skin Friction Resistance	961.3	k
Compressive Bearing Resistance	3,019.0	k
Pullout Weight [Minus Concrete Weight]	1,790.8	k
Compressive Force, P_u	68.6	k
Nominal Compressive Capacity, $\phi_s P_n$	2,985.2	k
$P_u / \phi_s P_n$	2.3%	
Total Lateral Resistance	4,026.0	k
Inflection Point [BGL]	22.5	ft
Moment at Inflection Point, M_D	4,122.8	k-ft
Nominal Moment Capacity, $\phi_s M_n$	19,826.4	k-ft
$M_D / \phi_s M_n$	20.8%	



July 18, 2022



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT2046
 FA Number: 10035002
 PACE Number: MRCTB062198
 PT Number: 2051A1472Y
 Site Name: COLCHESTER
 Site Address: Chestnut Hill Road
 Colchester, CT 06415

To Whom It May Concern:

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

- (2) TPA-65R-LCUUUU-H8 Antennas (96.0"x14.4"x8.6" - Wt. = 75 lbs. /each)
- (1) AM-X-CD-14-65-00T-RET Antenna (48.0"x11.8"x5.9" – Wt. =37 lbs.)
- (1) QS46512-2 Antenna (52.0"x12.0"x10.8" – Wt. =75 lbs.)
- (2) SBNH-1D6565C Antennas (96.4"x11.9"x7.1" - Wt. = 61 lbs. /each)
- (2) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each) (Pos.4)
- (3) RRUS 32-B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each) (Pos.4)
- (6) DBC0061F1V51-2 Diplexers (8.0"x6.2"x6.5" - Wt. = 26 lbs. /each)
- (1) DC6-48-60-18 Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs.)
- **(1) OPA65R-BU4DA Antenna (48.2"x21.0"x7.8" - Wt. = 53 lbs.)**
- **(2) OPA65R-BU8DA Antennas (96.0"x21.0"x7.8" - Wt. = 77 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each) (Pos.1)**
- **(3) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each) (Pos.1)**
- **(1) DC6-48-60-18 Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs.)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's sub-consultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on September 18, 2017. HDG conducted a ground audit of the existing mounts on March 31, 2022.

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 of this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.19 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_s , of 0.174 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.061.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount is secured to the existing monopole with ring mounts and threaded rods. HDG considers the threaded rods as the governing connection members.

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	25	LC11	93%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC dated March 7, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The 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:



FIELD PHOTOS: (CONT.)





HUDSON
Design Group LLC

Wind & Ice Calculations

ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name	CT2046 - Colchester		
State	Connecticut		
County	New London		<i>Reference</i>
Structure Class	II		<i>Table 2-1</i>
Exposure Category	B		<i>Section 2.6.5.1.2</i>
Topographic Category	1 - Kzt = 1		<i>Section 2.6.6.2.1</i>
Mean Elevation of base of structure	z _s 546.38	ft	<i>ASCE7-16 Hazards</i>
Height Above Ground	z 183	ft	
Wind Parameters			
Basic wind speed	V 130	mph	<i>Appendix N of Connecticut Building Code</i>
Wind direction probability factor	K _d 0.95		<i>Section 16.6</i>
Gust effect factor	G _h 1		<i>Section 16.6</i>
Velocity Pressure (K _a = 0.9)	42.59	psf	<i>Section 2.6.11.6</i>
Wind & Ice Parameters			
Base windspeed in conjunction with ice, V	50	mph	<i>ASCE7-16 Hazards Tool</i>
Base Ice thickness	t _i 1.00	in	<i>ASCE7-16 Hazards Tool</i>
Ice Velocity Pressure (K _a = 0.9)	q _{ice} 6.30	psf	<i>Section 2.6.11.6</i>
Design Ice Thickness	t _{iz} 1.19	in	<i>Section 2.6.10</i>
Seismic Parameters			
Site Soil Class	D - Default		<i>Table 2-10</i>
Seismic Design Category	B		<i>ASCE7-16 Hazards</i>
Spectral Response at Short Periods	S _s 0.174		<i>Appendix N of Connecticut Building Code</i>
Spectral Response at 1sec	S ₁ 0.061		<i>Appendix N of Connecticut Building Code</i>
Long Period Transition Period	T _L 6		<i>ASCE7-16 Hazards Tool</i>
Seismic Importance Factor	I _s 1		<i>Table 2-3</i>
Response modification coefficient	R 2		<i>Section 16.7</i>
Short-Period Site Coefficient	F _a 1.6		<i>Table 2-11</i>
Design Spectral Response at Short Periods	S _{DS} 0.186		<i>Section 2.7.5</i>
Seismic Response Coefficient	C _s 0.093		<i>Section 2.7.7.1</i>

ALPHA SECTOR

Appurtenance properties						Wind		Ice	Seismic
Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0° [lbs]	90° [lbs]	IceWeight [lbs]	E _H [lbs]
CCI	OPA65R-BU4DA	48.2	21.0	7.8	53.0	359.3	151.6	140.8	4.9
KMW	AM-X-CD-14-65-00T-RET	48.0	11.8	5.9	37.0	212.7	120.4	85.5	3.4
Quintel	QS46512-2	52.0	12.0	10.8	75.0	236.5	216.4	111.4	7.0
Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	59.7	83.9	40.1	6.8
Ericsson	4426 B66	14.9	13.2	5.8	49.0	30.8	69.8	30.3	4.5
Ericsson	4478 B14	18.1	13.4	8.3	60.0	86.1	53.3	39.5	5.6
Ericsson	RRUS 32-B2	27.2	12.1	7.0	60.0	116.8	71.1	52.0	5.6
Kaelus	DBC0061F1V51-2	8.0	6.2	6.5	26.0	18.5	17.6	11.3	2.4
Kaelus	DBC0061F1V51-2	8.0	6.2	6.5	26.0	18.5	17.6	11.3	2.4
Raycap	DC6-48-60-18	31.4	10.2	10.2	29.0	116.1	116.1	61.5	2.7

BETA SECTOR

Appurtenance properties						Wind		Ice	Seismic
Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0° [lbs]	90° [lbs]	IceWeight [lbs]	E _H [lbs]
CCI	OPA65R-BU8DA	96.0	21.0	7.8	77.0	454.6	665.2	277.0	7.1
KMW	SBNH-1D6565C	96.4	11.9	7.1	61.0	367.4	446.4	176.9	5.7
CCI	TPA-65R-LCUUUU-H8	96.0	14.4	8.6	75.0	423.4	518.7	210.9	7.0
Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	77.8	65.8	40.1	6.8
Ericsson	4426 B66	14.9	13.2	5.8	49.0	60.0	40.5	30.3	4.5
Ericsson	RRUS 32-B2	27.2	12.1	7.0	60.0	82.5	105.4	52.0	5.6
Kaelus	DBC0061F1V51-2	8.0	6.2	6.5	26.0	17.8	18.2	11.3	2.4
Kaelus	DBC0061F1V51-2	8.0	6.2	6.5	26.0	17.8	18.2	11.3	2.4
Raycap	DC6-48-60-18	31.4	10.2	10.2	29.0	116.1	116.1	61.5	2.7

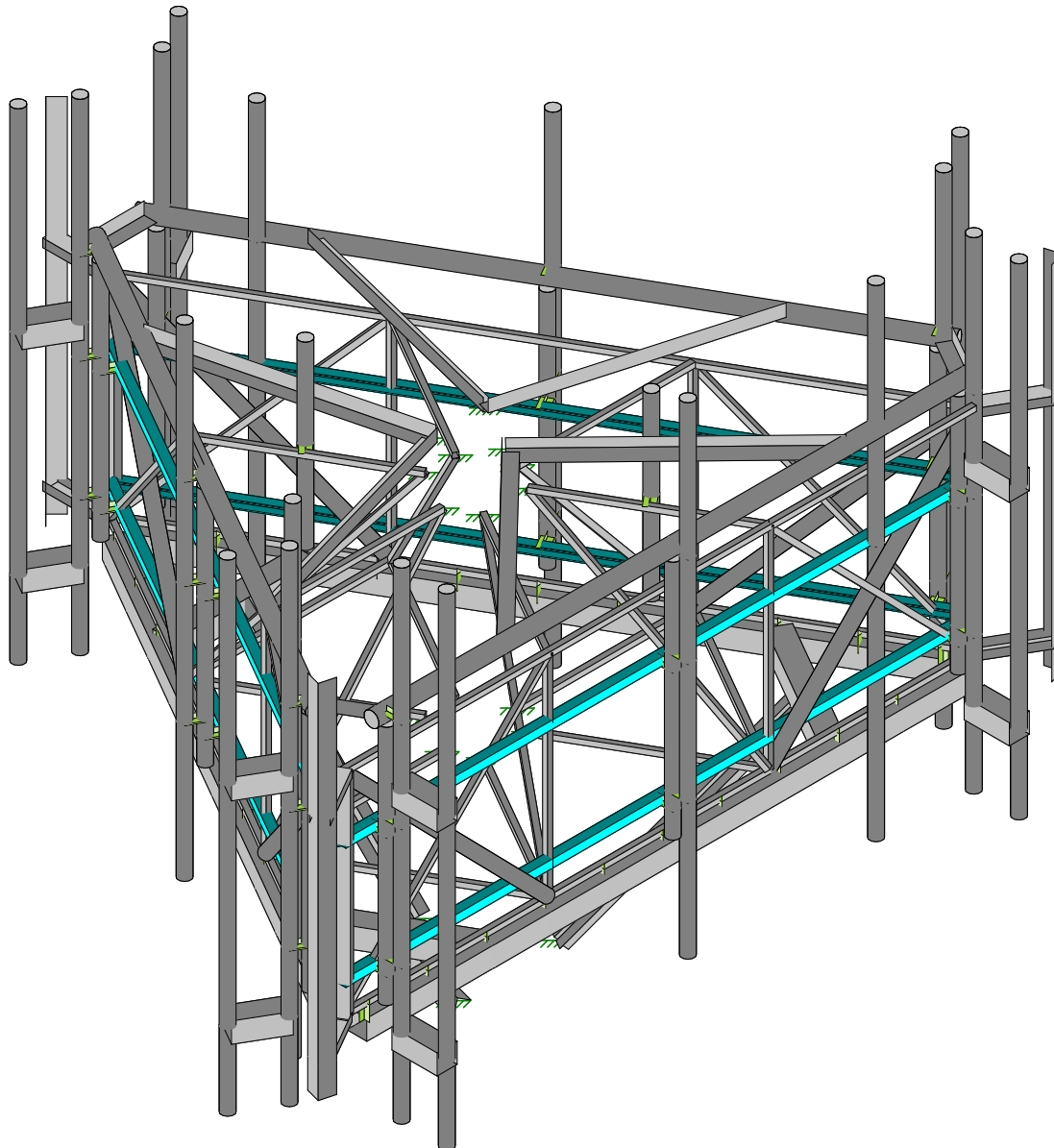
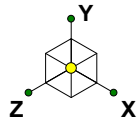
GAMMA SECTOR

Appurtenance properties						Wind		Ice	Seismic
Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0° [lbs]	90° [lbs]	IceWeight [lbs]	E _H [lbs]
CCI	OPA65R-BU8DA	96.0	21.0	7.8	77.0	454.6	665.2	277.0	7.1
KMW	SBNH-1D6565C	96.4	11.9	7.1	61.0	367.4	446.4	176.9	5.7
CCI	TPA-65R-LCUUUU-H8	96.0	14.4	8.6	75.0	423.4	518.7	210.9	7.0
Ericsson	4449 B5/B12	17.9	13.2	9.4	73.0	77.8	65.8	40.1	6.8
Ericsson	4426 B66	14.9	13.2	5.8	49.0	60.0	40.5	30.3	4.5
Ericsson	4478 B14	18.1	13.4	8.3	60.0	61.5	77.9	39.5	5.6
Ericsson	RRUS 32-B2	27.2	12.1	7.0	60.0	82.5	105.4	52.0	5.6
Kaelus	DBC0061F1V51-2	8.0	6.2	6.5	26.0	17.8	18.2	11.3	2.4
Kaelus	DBC0061F1V51-2	8.0	6.2	6.5	26.0	17.8	18.2	11.3	2.4



HUDSON
Design Group LLC

**Mount Calculations
(Proposed Conditions)**



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Hudson Design Group, LLC

SI

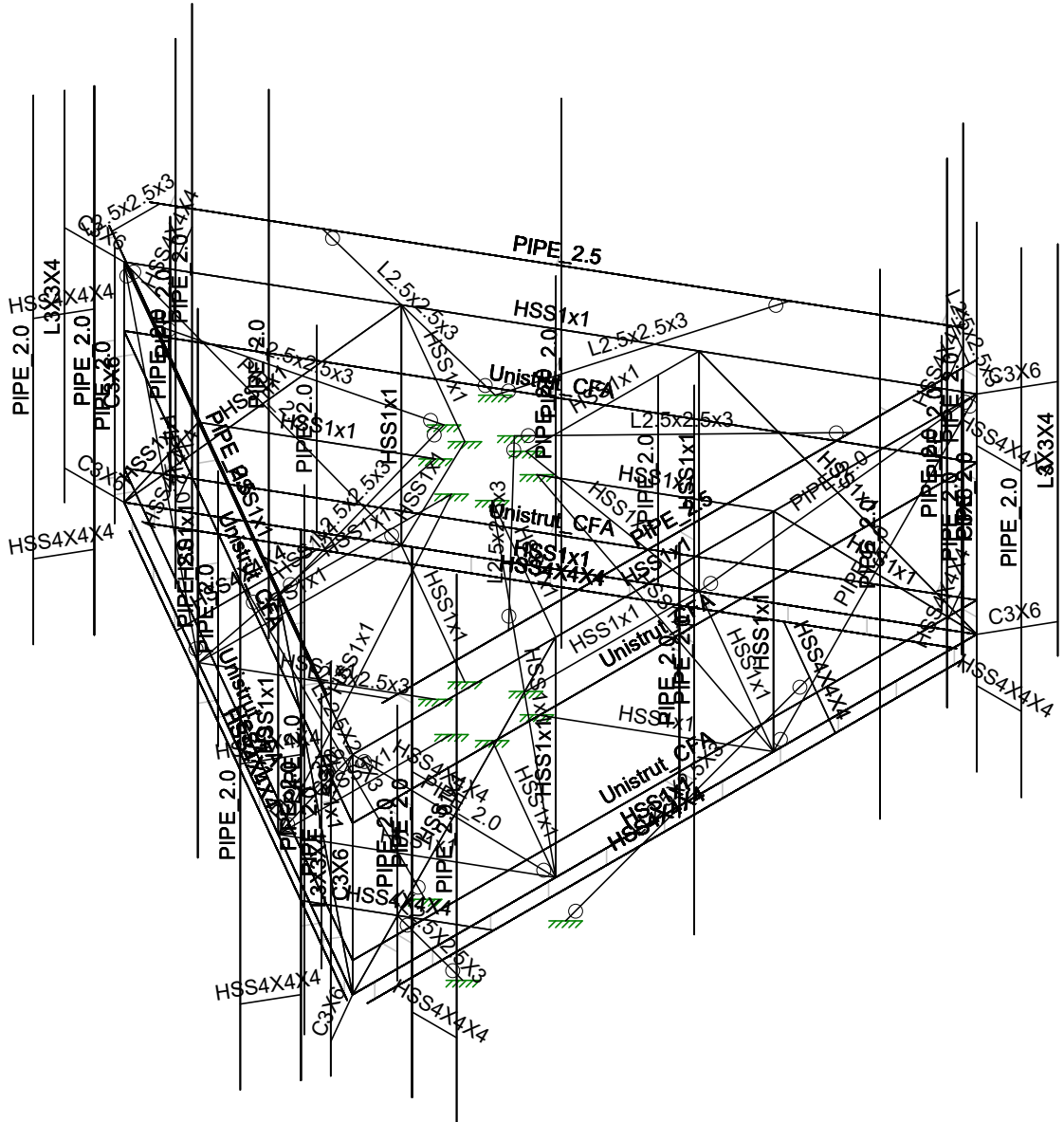
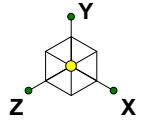
CT2046

COLCHESTER

SK -1

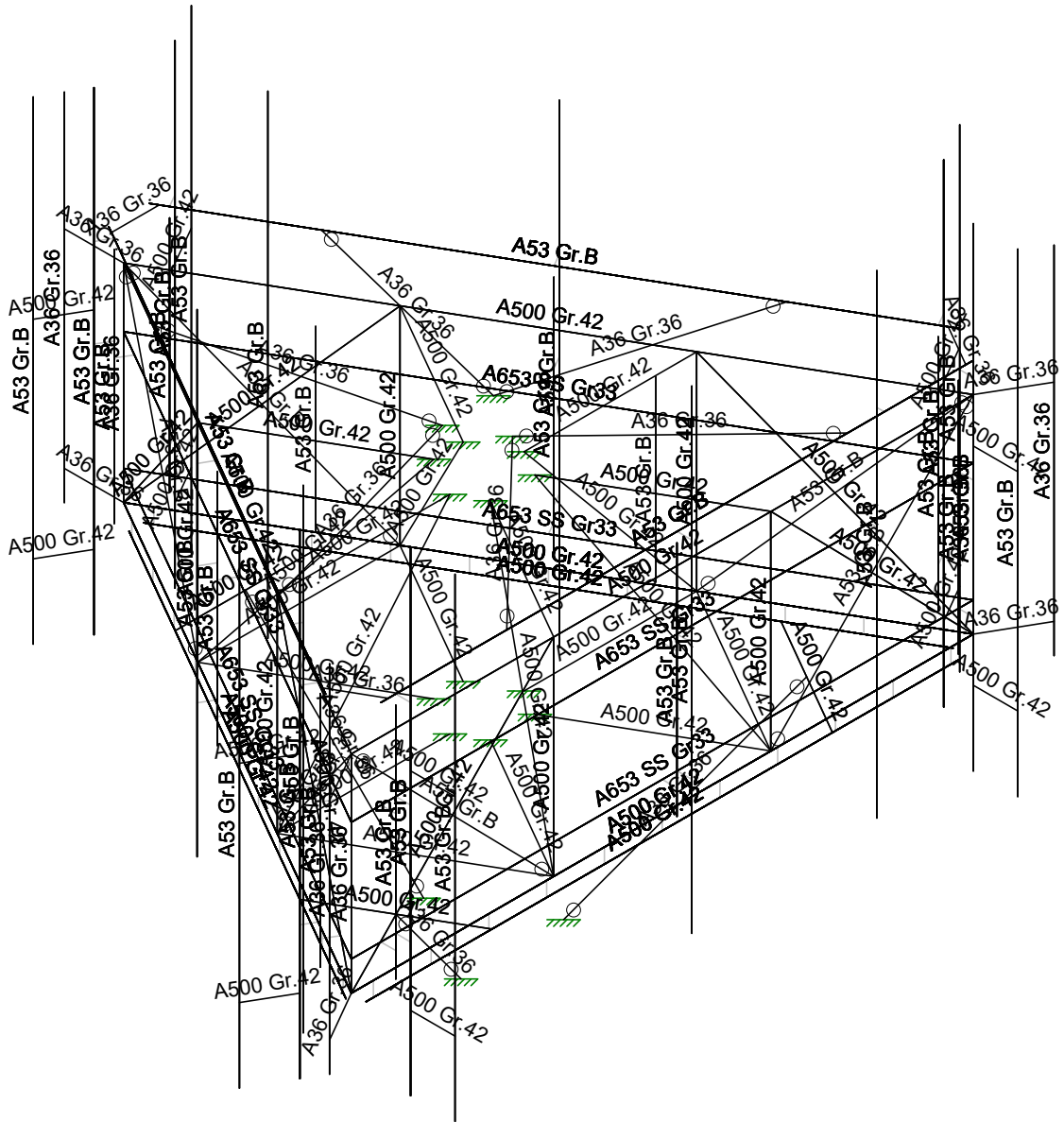
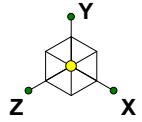
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Envelope Only Solution

Hudson Design Group, LLC

SI

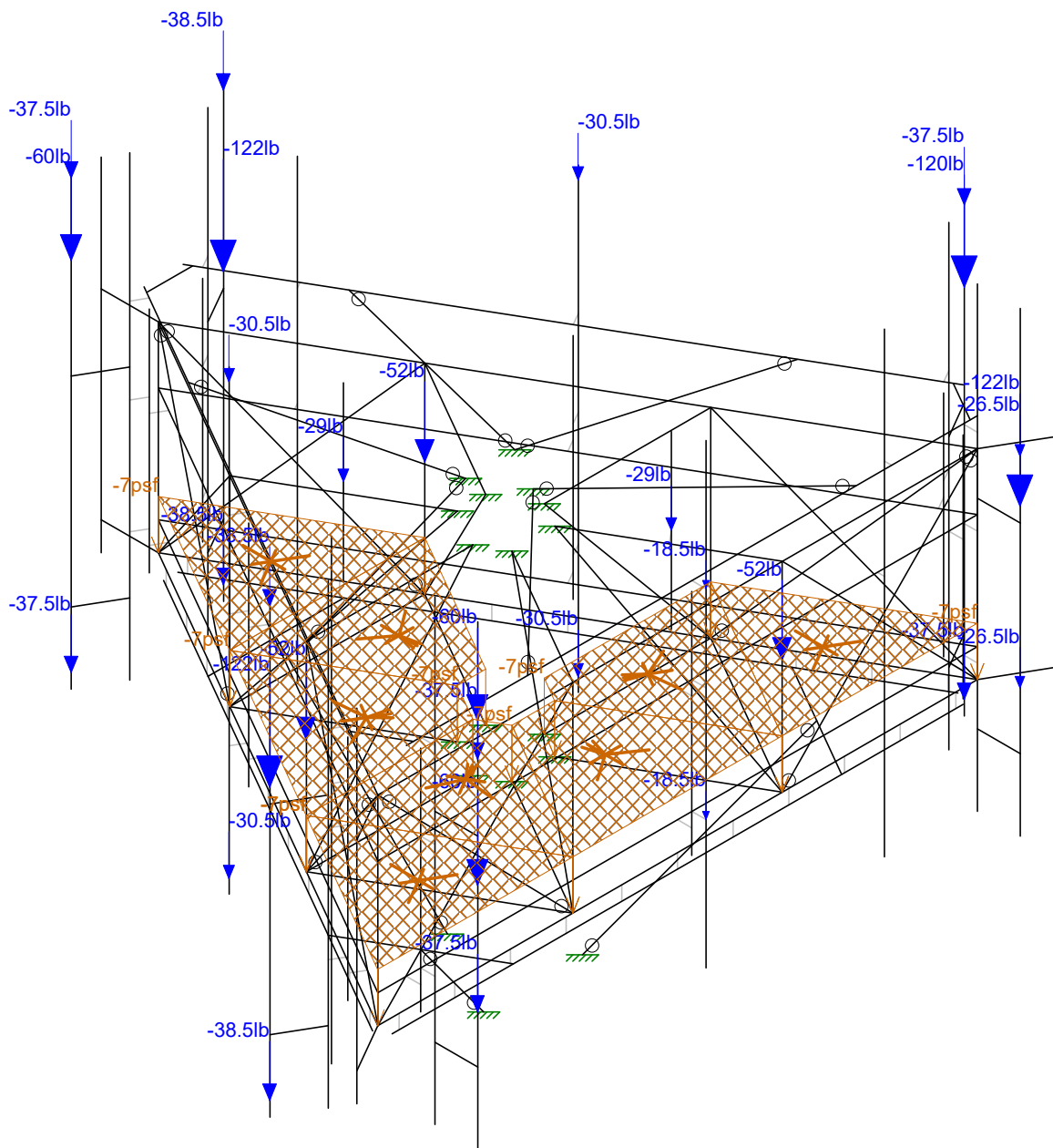
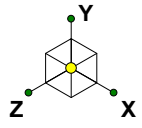
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COLCHESTER

SK -3

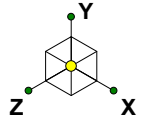
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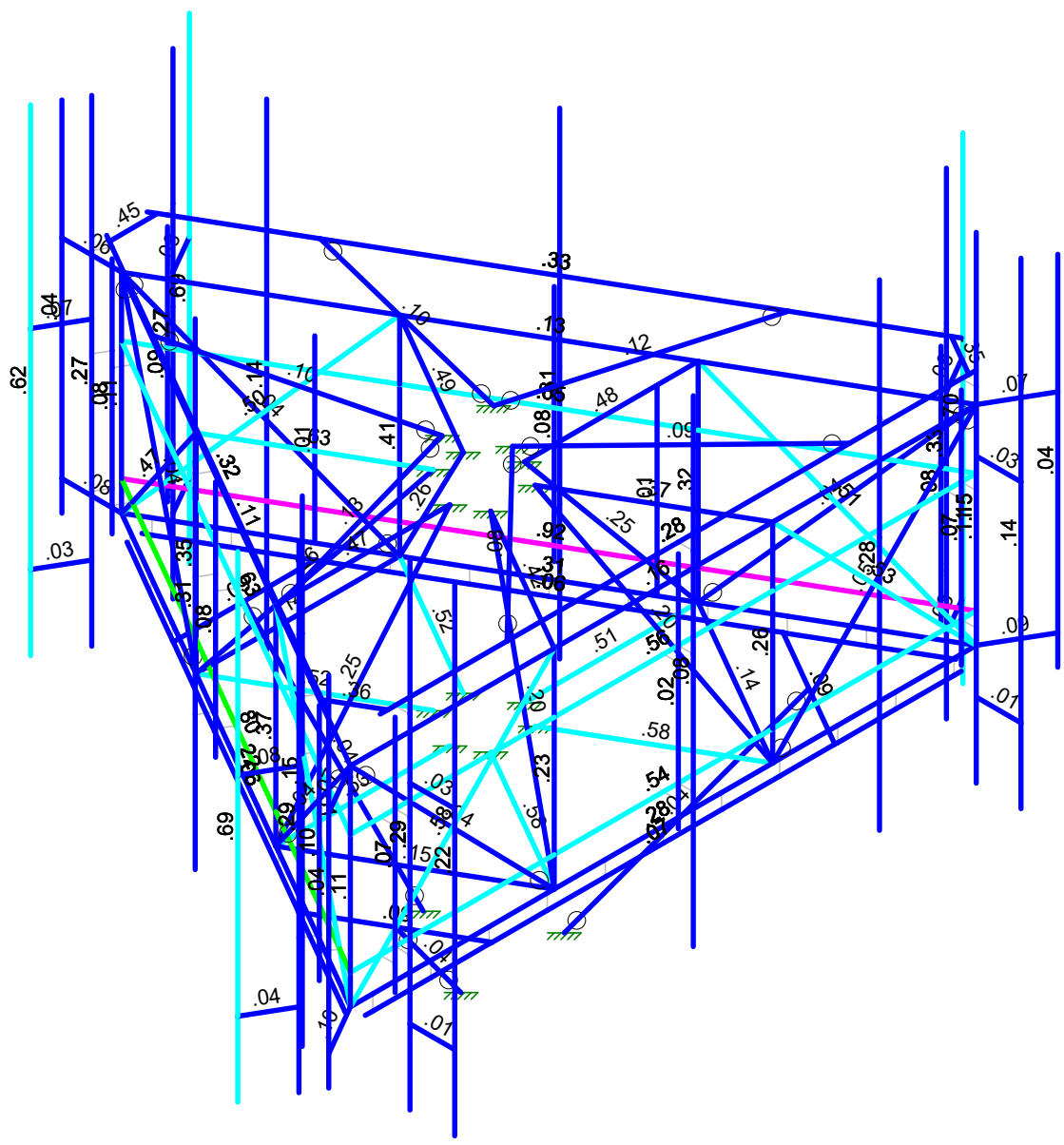


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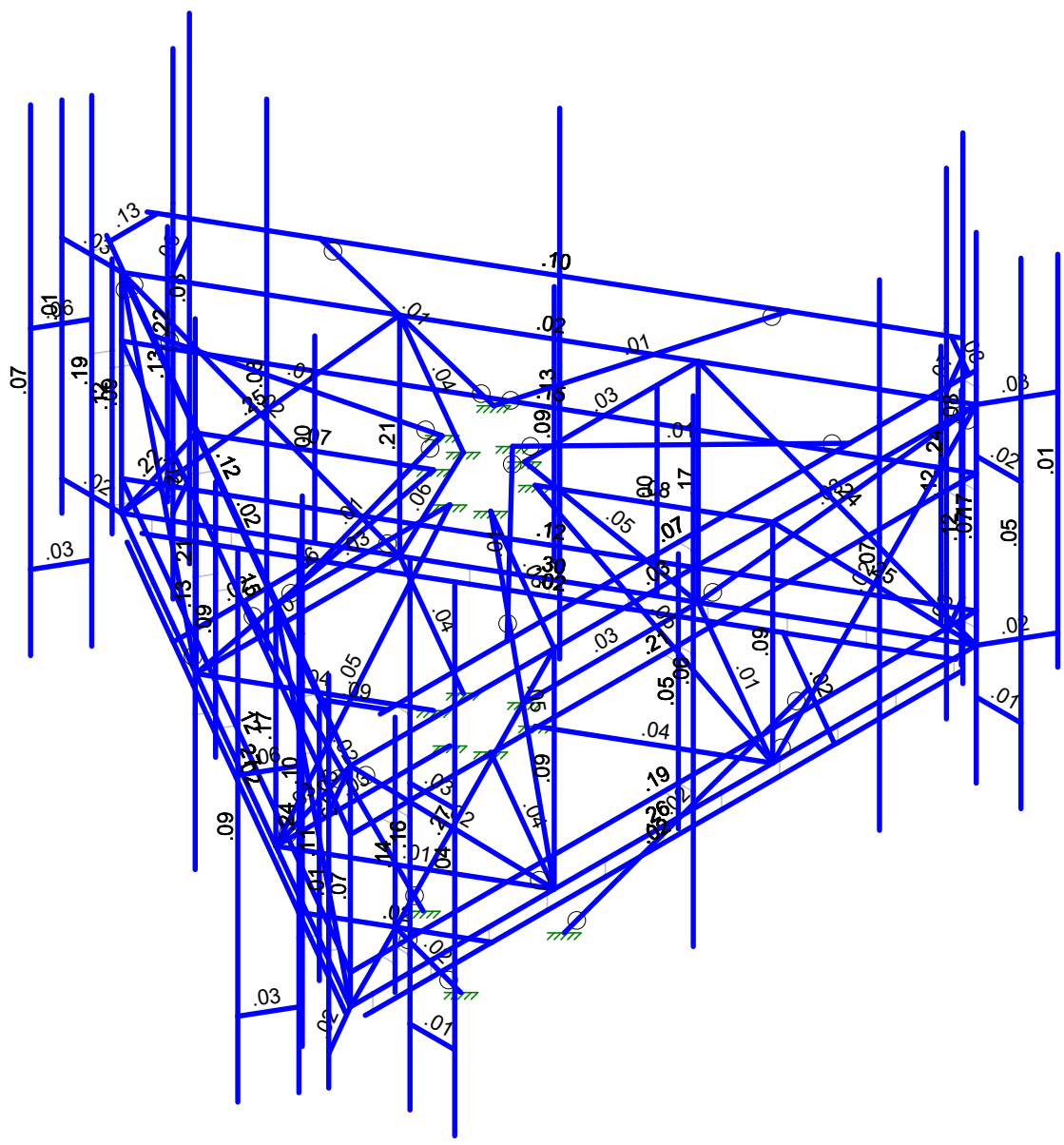
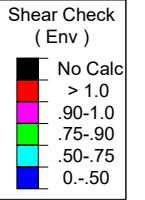
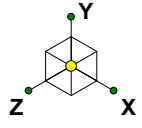


Code Check (Env)	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)
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Hudson Design Group, LLC	COLCHESTER	SK -5
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CT2046		CT2046_updated 2.r3d



Member Shear Checks Displayed (Enveloped)
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Hudson Design Group, LLC	COLCHESTER	SK -6
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CT2046		CT2046_updated 2.r3d



(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISACONNECTION CODE	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	AA ADM1-15: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	1
Cd X	1
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

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

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A653 SS Gr33	29500	11346	.3	.65	.49	33	45
2	A653 SS Gr50/1	29500	11346	.3	.65	.49	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	PIPE 2.0	PIPE 2.0	None	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	HSS 1X1X1/8	HSS1x1	None	None	A500 Gr.42	Typical	.438	.057	.057	.084
3	L3X3X4	L3X3X4	None	None	A36 Gr.36	Typical	1.44	1.23	1.23	.031
4	C3X6	C3X6	None	None	A36 Gr.36	Typical	1.76	.3	2.07	.072
5	HSS 4X4X4	HSS4X4X4	None	None	A500 Gr.42	Typical	3.37	7.8	7.8	12.8
6	PIPE2.5	PIPE 2.5	None	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
7	L2.5X2.5X3	L2.5x2.5x3	None	None	A36 Gr.36	Typical	.901	.535	.535	.011
8	LL2.5X2.5X3	LL2.5X2.5X3	None	None	A36 Gr.36	Typical	1.92	2.096	1.158	.024



Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in ²]	I _{yy} [in ⁴]	I _{zz} [in ⁴]	J [in ⁴]
1	Unistrut	Unistrut_CFA	None	None	A653 SS Gr33	Typical	.49	.144	.212	.002

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N90	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N39	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N89	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N31	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N32	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N33	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N34	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N44	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N45	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
10	N46	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N47	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
12	N52	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
13	N53	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
14	N54	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
15	N55	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
16	N108	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
17	N106	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
18	N107	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		180	Unistrut	None	None	A653 SS ...	Typical
2	M2	N3	N4			RIGID	None	None	RIGID	Typical
3	M3	N5	N6		180	HSS 1X1X1/8	None	None	A500 Gr.42	Typical
4	M4	N7	N8			PIPE 2.0	None	None	A53 Gr.B	Typical
5	M5	N9	N10			RIGID	None	None	RIGID	Typical
6	M6	N11	N12			PIPE 2.0	None	None	A53 Gr.B	Typical
7	M7	N13	N14			RIGID	None	None	RIGID	Typical
8	M8	N15	N16			PIPE 2.0	None	None	A53 Gr.B	Typical
9	M9	N17	N18		180	HSS 1X1X1/8	None	None	A500 Gr.42	Typical
10	M10	N19	N20		180	Unistrut	None	None	A653 SS ...	Typical
11	M11	N21	N22			RIGID	None	None	RIGID	Typical
12	M12	N23	N24			RIGID	None	None	RIGID	Typical
13	M13	N25	N26			RIGID	None	None	RIGID	Typical
14	M14	N27	N29			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
15	M15	N28	N30			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
16	M16	N27	N17			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
17	M17	N28	N18			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
18	M18	N27	N31			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
19	M19	N29	N33			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
20	M20	N32	N28			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
21	M21	N30	N34			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
22	M22	N31	N29			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
23	M23	N32	N30			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
24	M24	N1	N35			Unistrut	None	None	A653 SS ...	Typical
25	M25	N35	N2			Unistrut	None	None	A653 SS ...	Typical
26	M26	N17	N37			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
27	M27	N37	N18			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
28	M28	N5	N36			HSS 1X1X1/8	None	None	A500 Gr.42	Typical



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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
29	M29	N36	N6			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
30	M30	N19	N38			Unistrut	None	None	A653 SS ...	Typical
31	M31	N38	N20			Unistrut	None	None	A653 SS ...	Typical
32	M32	N5	N17		330	C3X6	None	None	A36 Gr.36	Typical
33	M33	N6	N18		210	C3X6	None	None	A36 Gr.36	Typical
34	M34	N36	N37		90	C3X6	None	None	A36 Gr.36	Typical
35	M35	N40	N42			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
36	M36	N41	N43			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
37	M37	N40	N18			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
38	M38	N41	N37			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
39	M39	N40	N44			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
40	M40	N42	N46			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
41	M41	N45	N41			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
42	M42	N43	N47			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
43	M43	N44	N42			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
44	M44	N45	N43			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
45	M45	N48	N50			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
46	M46	N49	N51			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
47	M47	N48	N37			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
48	M48	N49	N17			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
49	M49	N48	N52			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
50	M50	N50	N54			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
51	M51	N53	N49			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
52	M52	N51	N55			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
53	M53	N52	N50			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
54	M54	N53	N51			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
55	M55	N42	N30			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
56	M56	N43	N50			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
57	M57	N29	N51			HSS 1X1X1/8	None	None	A500 Gr.42	Typical
58	M58	N36	N56		90	C3X6	None	None	A36 Gr.36	Typical
59	M59	N37	N57		270	C3X6	None	None	A36 Gr.36	Typical
60	M60	N5	N58		90	C3X6	None	None	A36 Gr.36	Typical
61	M61	N17	N59		270	C3X6	None	None	A36 Gr.36	Typical
62	M62	N61	N60		15	L3X3X4	None	None	A36 Gr.36	Typical
63	M63	N6	N62		90	C3X6	None	None	A36 Gr.36	Typical
64	M64	N18	N63		270	C3X6	None	None	A36 Gr.36	Typical
65	M65	N65	N64		255	L3X3X4	None	None	A36 Gr.36	Typical
66	M66	N67	N66		135	L3X3X4	None	None	A36 Gr.36	Typical
67	M67	N68	N69		180	PIPE2.5	None	None	A53 Gr.B	Typical
68	M68	N73	N74		180	PIPE2.5	None	None	A53 Gr.B	Typical
69	M69	N75	N76		180	PIPE2.5	None	None	A53 Gr.B	Typical
70	M70	N79	N80			L2.5X2.5X3	None	None	A36 Gr.36	Typical
71	M71	N77	N82			L2.5X2.5X3	None	None	A36 Gr.36	Typical
72	M72	N81	N78		270	L2.5X2.5X3	None	None	A36 Gr.36	Typical
73	M73	N83	N39			L2.5X2.5X3	None	None	A36 Gr.36	Typical
74	M74	N84	N39		90	L2.5X2.5X3	None	None	A36 Gr.36	Typical
75	M75	N86	N89		270	L2.5X2.5X3	None	None	A36 Gr.36	Typical
76	M76	N85	N89			L2.5X2.5X3	None	None	A36 Gr.36	Typical
77	M77	N87	N90			L2.5X2.5X3	None	None	A36 Gr.36	Typical
78	M78	N88	N90		270	L2.5X2.5X3	None	None	A36 Gr.36	Typical
79	M79	N91	N92		180	HSS 4X4X4	None	None	A500 Gr.42	Typical
80	M80	N93	N94		180	HSS 4X4X4	None	None	A500 Gr.42	Typical
81	M81	N95	N96		180	HSS 4X4X4	None	None	A500 Gr.42	Typical
82	M82	N102	N97			HSS 4X4X4	None	None	A500 Gr.42	Typical
83	M83	N98	N99			HSS 4X4X4	None	None	A500 Gr.42	Typical
84	M84	N100	N101			HSS 4X4X4	None	None	A500 Gr.42	Typical
85	M85	N104	N108			LL2.5X2.5X3	None	None	A36 Gr.36	Typical



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	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
86	M86	N105	N107			LL2.5X2.5X3	None	None	A36 Gr.36	Typical
87	M87	N103	N106			LL2.5X2.5X3	None	None	A36 Gr.36	Typical
88	M88	N116	N110			RIGID	None	None	RIGID	Typical
89	M89	N118	N112			RIGID	None	None	RIGID	Typical
90	M90	N117	N111			RIGID	None	None	RIGID	Typical
91	M91	N120	N114			RIGID	None	None	RIGID	Typical
92	M92	N119	N113			RIGID	None	None	RIGID	Typical
93	M93	N115	N109			RIGID	None	None	RIGID	Typical
94	M94	N70	N121			RIGID	None	None	RIGID	Typical
95	M95	N72	N123			RIGID	None	None	RIGID	Typical
96	M96	N71	N122			RIGID	None	None	RIGID	Typical
97	M97	N127	N124			RIGID	None	None	RIGID	Typical
98	M98	N129	N126			RIGID	None	None	RIGID	Typical
99	M99	N128	N125			RIGID	None	None	RIGID	Typical
100	M100	N133	N130			RIGID	None	None	RIGID	Typical
101	M101	N135	N132			RIGID	None	None	RIGID	Typical
102	M102	N134	N131			RIGID	None	None	RIGID	Typical
103	M103	N137	N140			PIPE 2.0	None	None	A53 Gr.B	Typical
104	M104	N138	N141			PIPE 2.0	None	None	A53 Gr.B	Typical
105	M105	N136	N139			PIPE 2.0	None	None	A53 Gr.B	Typical
106	M106	N142	N143			RIGID	None	None	RIGID	Typical
107	M107	N144	N145			PIPE 2.0	None	None	A53 Gr.B	Typical
108	M108	N146	N147			RIGID	None	None	RIGID	Typical
109	M109	N148	N149			PIPE 2.0	None	None	A53 Gr.B	Typical
110	M110	N5	N29			PIPE 2.0	None	None	A53 Gr.B	Typical
111	M111	N6	N30			PIPE 2.0	None	None	A53 Gr.B	Typical
112	M112	N151	N150			RIGID	None	None	RIGID	Typical
113	M113	N153	N152			RIGID	None	None	RIGID	Typical
114	M114	N155	N154			RIGID	None	None	RIGID	Typical
115	M115	N157	N156			RIGID	None	None	RIGID	Typical
116	M116	N159	N158			RIGID	None	None	RIGID	Typical
117	M117	N161	N160			RIGID	None	None	RIGID	Typical
118	M118	N163	N162			RIGID	None	None	RIGID	Typical
119	M119	N165	N164			RIGID	None	None	RIGID	Typical
120	M120	N167	N166			RIGID	None	None	RIGID	Typical
121	M121	N169	N168			RIGID	None	None	RIGID	Typical
122	M122	N171	N170			RIGID	None	None	RIGID	Typical
123	M123	N173	N172			RIGID	None	None	RIGID	Typical
124	M124	N175	N174			RIGID	None	None	RIGID	Typical
125	M125	N177	N176			RIGID	None	None	RIGID	Typical
126	M126	N179	N178			RIGID	None	None	RIGID	Typical
127	M127	N181	N180			RIGID	None	None	RIGID	Typical
128	M128	N183	N182			RIGID	None	None	RIGID	Typical
129	M129	N185	N184			RIGID	None	None	RIGID	Typical
130	M130	N187	N186			RIGID	None	None	RIGID	Typical
131	M131	N189	N188			RIGID	None	None	RIGID	Typical
132	M132	N191	N190			RIGID	None	None	RIGID	Typical
133	M133	N193	N192			RIGID	None	None	RIGID	Typical
134	M134	N195	N194			RIGID	None	None	RIGID	Typical
135	M135	N197	N196			RIGID	None	None	RIGID	Typical
136	M136	N199	N198			RIGID	None	None	RIGID	Typical
137	M137	N201	N200			RIGID	None	None	RIGID	Typical
138	M138	N203	N202			RIGID	None	None	RIGID	Typical
139	M139	N6	N42			PIPE 2.0	None	None	A53 Gr.B	Typical
140	M140	N36	N43			PIPE 2.0	None	None	A53 Gr.B	Typical
141	M141	N36	N50			PIPE 2.0	None	None	A53 Gr.B	Typical
142	M142	N5	N51			PIPE 2.0	None	None	A53 Gr.B	Typical



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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
143	M143	N217	N218			RIGID	None	None	RIGID	Typical
144	M144	N219	N220			PIPE 2.0	None	None	A53 Gr.B	Typical
145	M145	N221	N222			RIGID	None	None	RIGID	Typical
146	M146	N223	N224			PIPE 2.0	None	None	A53 Gr.B	Typical
147	M147	N225	N226			RIGID	None	None	RIGID	Typical
148	M148	N227	N228			PIPE 2.0	None	None	A53 Gr.B	Typical
149	M149	N229	N230			RIGID	None	None	RIGID	Typical
150	M150	N231	N232			RIGID	None	None	RIGID	Typical
151	M151	N233	N234			RIGID	None	None	RIGID	Typical
152	M152	N235	N238			RIGID	None	None	RIGID	Typical
153	M153	N237	N240			RIGID	None	None	RIGID	Typical
154	M154	N236	N239			RIGID	None	None	RIGID	Typical
155	M155	N244	N241			RIGID	None	None	RIGID	Typical
156	M156	N246	N243			RIGID	None	None	RIGID	Typical
157	M157	N245	N242			RIGID	None	None	RIGID	Typical
158	M158	N250	N247			RIGID	None	None	RIGID	Typical
159	M159	N252	N249			RIGID	None	None	RIGID	Typical
160	M160	N251	N248			RIGID	None	None	RIGID	Typical
161	M161	N254	N257			PIPE 2.0	None	None	A53 Gr.B	Typical
162	M162	N255	N258			PIPE 2.0	None	None	A53 Gr.B	Typical
163	M163	N253	N256			PIPE 2.0	None	None	A53 Gr.B	Typical
164	M164	N259	N260			RIGID	None	None	RIGID	Typical
165	M165	N261	N262			PIPE 2.0	None	None	A53 Gr.B	Typical
166	M166	N263	N264			RIGID	None	None	RIGID	Typical
167	M167	N265	N266			PIPE 2.0	None	None	A53 Gr.B	Typical
168	M168	N267	N268			RIGID	None	None	RIGID	Typical
169	M169	N269	N270			PIPE 2.0	None	None	A53 Gr.B	Typical
170	M170	N271	N272			RIGID	None	None	RIGID	Typical
171	M171	N273	N274			RIGID	None	None	RIGID	Typical
172	M172	N275	N276			RIGID	None	None	RIGID	Typical
173	M173	N277	N280			RIGID	None	None	RIGID	Typical
174	M174	N279	N282			RIGID	None	None	RIGID	Typical
175	M175	N278	N281			RIGID	None	None	RIGID	Typical
176	M176	N286	N283			RIGID	None	None	RIGID	Typical
177	M177	N288	N285			RIGID	None	None	RIGID	Typical
178	M178	N287	N284			RIGID	None	None	RIGID	Typical
179	M179	N292	N289			RIGID	None	None	RIGID	Typical
180	M180	N294	N291			RIGID	None	None	RIGID	Typical
181	M181	N293	N290			RIGID	None	None	RIGID	Typical
182	M182	N296	N299			PIPE 2.0	None	None	A53 Gr.B	Typical
183	M183	N297	N300			PIPE 2.0	None	None	A53 Gr.B	Typical
184	M184	N295	N298			PIPE 2.0	None	None	A53 Gr.B	Typical
185	M185	N301	N305			HSS 4X4X4	None	None	A500 Gr.42	Typical
186	M186	N303	N307			HSS 4X4X4	None	None	A500 Gr.42	Typical
187	M187	N304	N308			HSS 4X4X4	None	None	A500 Gr.42	Typical
188	M188	N302	N306			HSS 4X4X4	None	None	A500 Gr.42	Typical
189	M189	N310	N311			PIPE 2.0	None	None	A53 Gr.B	Typical
190	M190	N309	N312			PIPE 2.0	None	None	A53 Gr.B	Typical
191	M191	N315	N316			RIGID	None	None	RIGID	Typical
192	M192	N313	N314			RIGID	None	None	RIGID	Typical
193	M193	N317	N318			PIPE 2.0	None	None	A53 Gr.B	Typical
194	M194	N319	N323			HSS 4X4X4	None	None	A500 Gr.42	Typical
195	M195	N321	N325			HSS 4X4X4	None	None	A500 Gr.42	Typical
196	M196	N322	N326			HSS 4X4X4	None	None	A500 Gr.42	Typical
197	M197	N320	N324			HSS 4X4X4	None	None	A500 Gr.42	Typical
198	M198	N328	N329			PIPE 2.0	None	None	A53 Gr.B	Typical
199	M199	N327	N330			PIPE 2.0	None	None	A53 Gr.B	Typical



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	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
200	M200	N333	N334			RIGID	None	None	RIGID	Typical
201	M201	N331	N332			RIGID	None	None	RIGID	Typical
202	M202	N335	N336			PIPE 2.0	None	None	A53 Gr.B	Typical
203	M203	N337	N341			HSS 4X4X4	None	None	A500 Gr.42	Typical
204	M204	N339	N343			HSS 4X4X4	None	None	A500 Gr.42	Typical
205	M205	N340	N344			HSS 4X4X4	None	None	A500 Gr.42	Typical
206	M206	N338	N342			HSS 4X4X4	None	None	A500 Gr.42	Typical
207	M207	N346	N347			PIPE 2.0	None	None	A53 Gr.B	Typical
208	M208	N345	N348			PIPE 2.0	None	None	A53 Gr.B	Typical
209	M209	N351	N352			RIGID	None	None	RIGID	Typical
210	M210	N349	N350			RIGID	None	None	RIGID	Typical
211	M211	N353	N354			PIPE 2.0	None	None	A53 Gr.B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes	** NA **			None
2	M2		OOOXOO				Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5		OOOXOO				Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7		OOOXOO				Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11		OOOXOO				Yes	** NA **			None
12	M12		OOOXOO				Yes	** NA **			None
13	M13		OOOXOO				Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes	** NA **			None
18	M18						Yes	** NA **			None
19	M19						Yes	** NA **			None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes	** NA **			None
26	M26						Yes	** NA **			None
27	M27						Yes	** NA **			None
28	M28						Yes	** NA **			None
29	M29						Yes	** NA **			None
30	M30						Yes	** NA **			None
31	M31						Yes	** NA **			None
32	M32						Yes	** NA **			None
33	M33						Yes	** NA **			None
34	M34						Yes	** NA **			None
35	M35						Yes	** NA **			None
36	M36						Yes	** NA **			None
37	M37						Yes	** NA **			None
38	M38						Yes	** NA **			None
39	M39						Yes	** NA **			None
40	M40						Yes	** NA **			None



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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
41	M41						Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43						Yes	** NA **			None
44	M44						Yes	** NA **			None
45	M45						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49						Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57						Yes	** NA **			None
58	M58						Yes	** NA **			None
59	M59						Yes	** NA **			None
60	M60						Yes	** NA **			None
61	M61						Yes	** NA **			None
62	M62						Yes	** NA **			None
63	M63						Yes	** NA **			None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes	** NA **			None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73	BenPIN	BenPIN				Yes	** NA **			None
74	M74	BenPIN	BenPIN				Yes	** NA **			None
75	M75	BenPIN	BenPIN				Yes	** NA **			None
76	M76	BenPIN	BenPIN				Yes	** NA **			None
77	M77	BenPIN	BenPIN				Yes	** NA **			None
78	M78	BenPIN	BenPIN				Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85	BenPIN	BenPIN				Yes	** NA **			None
86	M86	BenPIN	BenPIN				Yes	** NA **			None
87	M87	BenPIN	BenPIN				Yes	** NA **			None
88	M88						Yes	** NA **			None
89	M89						Yes	** NA **			None
90	M90						Yes	** NA **			None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95						Yes	** NA **			None
96	M96						Yes	** NA **			None
97	M97						Yes	** NA **			None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
98	M98						Yes	** NA **			None
99	M99						Yes	** NA **			None
100	M100						Yes	** NA **			None
101	M101						Yes	** NA **			None
102	M102						Yes	** NA **			None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	M107						Yes	** NA **			None
108	M108						Yes	** NA **			None
109	M109						Yes	** NA **			None
110	M110	BenPIN	BenPIN				Yes	** NA **			None
111	M111	BenPIN	BenPIN				Yes	** NA **			None
112	M112						Yes	** NA **			None
113	M113						Yes	** NA **			None
114	M114						Yes	** NA **			None
115	M115						Yes	** NA **			None
116	M116						Yes	** NA **			None
117	M117						Yes	** NA **			None
118	M118						Yes	** NA **			None
119	M119						Yes	** NA **			None
120	M120						Yes	** NA **			None
121	M121						Yes	** NA **			None
122	M122						Yes	** NA **			None
123	M123						Yes	** NA **			None
124	M124						Yes	** NA **			None
125	M125						Yes	** NA **			None
126	M126						Yes	** NA **			None
127	M127						Yes	** NA **			None
128	M128						Yes	** NA **			None
129	M129						Yes	** NA **			None
130	M130						Yes	** NA **			None
131	M131						Yes	** NA **			None
132	M132						Yes	** NA **			None
133	M133						Yes	** NA **			None
134	M134						Yes	** NA **			None
135	M135						Yes	** NA **			None
136	M136						Yes	** NA **			None
137	M137						Yes	** NA **			None
138	M138						Yes	** NA **			None
139	M139	BenPIN	BenPIN				Yes	** NA **			None
140	M140	BenPIN	BenPIN				Yes	** NA **			None
141	M141	BenPIN	BenPIN				Yes	** NA **			None
142	M142	BenPIN	BenPIN				Yes	** NA **			None
143	M143		OOOXOO				Yes	** NA **			None
144	M144						Yes	** NA **			None
145	M145		OOOXOO				Yes	** NA **			None
146	M146						Yes	** NA **			None
147	M147		OOOXOO				Yes	** NA **			None
148	M148						Yes	** NA **			None
149	M149		OOOXOO				Yes	** NA **			None
150	M150		OOOXOO				Yes	** NA **			None
151	M151		OOOXOO				Yes	** NA **			None
152	M152						Yes	** NA **			None
153	M153						Yes	** NA **			None
154	M154						Yes	** NA **			None



Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
155	M155						Yes	** NA **			None
156	M156						Yes	** NA **			None
157	M157						Yes	** NA **			None
158	M158						Yes	** NA **			None
159	M159						Yes	** NA **			None
160	M160						Yes	** NA **			None
161	M161						Yes	** NA **			None
162	M162						Yes	** NA **			None
163	M163						Yes	** NA **			None
164	M164		OOOXOO				Yes	** NA **			None
165	M165						Yes	** NA **			None
166	M166		OOOXOO				Yes	** NA **			None
167	M167						Yes	** NA **			None
168	M168		OOOXOO				Yes	** NA **			None
169	M169						Yes	** NA **			None
170	M170		OOOXOO				Yes	** NA **			None
171	M171		OOOXOO				Yes	** NA **			None
172	M172		OOOXOO				Yes	** NA **			None
173	M173						Yes	** NA **			None
174	M174						Yes	** NA **			None
175	M175						Yes	** NA **			None
176	M176						Yes	** NA **			None
177	M177						Yes	** NA **			None
178	M178						Yes	** NA **			None
179	M179						Yes	** NA **			None
180	M180						Yes	** NA **			None
181	M181						Yes	** NA **			None
182	M182						Yes	** NA **			None
183	M183						Yes	** NA **			None
184	M184						Yes	** NA **			None
185	M185						Yes	** NA **			None
186	M186						Yes	** NA **			None
187	M187						Yes	** NA **			None
188	M188						Yes	** NA **			None
189	M189						Yes	** NA **			None
190	M190						Yes	** NA **			None
191	M191						Yes	** NA **			None
192	M192						Yes	** NA **			None
193	M193						Yes	** NA **			None
194	M194						Yes	** NA **			None
195	M195						Yes	** NA **			None
196	M196						Yes	** NA **			None
197	M197						Yes	** NA **			None
198	M198						Yes	** NA **			None
199	M199						Yes	** NA **			None
200	M200						Yes	** NA **			None
201	M201						Yes	** NA **			None
202	M202						Yes	** NA **			None
203	M203						Yes	** NA **			None
204	M204						Yes	** NA **			None
205	M205						Yes	** NA **			None
206	M206						Yes	** NA **			None
207	M207						Yes	** NA **			None
208	M208						Yes	** NA **			None
209	M209						Yes	** NA **			None
210	M210						Yes	** NA **			None
211	M211						Yes	** NA **			None



Company : Hudson Design Group, LLC
 Designer : SI
 Job Number : CT2046
 Model Name : COLCHESTER

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Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	M3	HSS 1X1X1/8	126			Lbyy						Lateral
2	M4	PIPE 2.0	48			Lbyy						Lateral
3	M6	PIPE 2.0	48			Lbyy						Lateral
4	M8	PIPE 2.0	48			Lbyy						Lateral
5	M9	HSS 1X1X1/8	126	44	44	Lbyy						Lateral
6	M14	HSS 1X1X1/8	42									Lateral
7	M15	HSS 1X1X1/8	42									Lateral
8	M16	HSS 1X1X1/8	58.694									Lateral
9	M17	HSS 1X1X1/8	58.694									Lateral
10	M18	HSS 1X1X1/8	35									Lateral
11	M19	HSS 1X1X1/8	35									Lateral
12	M20	HSS 1X1X1/8	35									Lateral
13	M21	HSS 1X1X1/8	35									Lateral
14	M22	HSS 1X1X1/8	54.672									Lateral
15	M23	HSS 1X1X1/8	54.672									Lateral
16	M26	HSS 1X1X1/8	126.001	44	44							Lateral
17	M27	HSS 1X1X1/8	126.001	44	44							Lateral
18	M28	HSS 1X1X1/8	126.001									Lateral
19	M29	HSS 1X1X1/8	126.001									Lateral
20	M32	C3X6	42									Lateral
21	M33	C3X6	42									Lateral
22	M34	C3X6	42									Lateral
23	M35	HSS 1X1X1/8	42									Lateral
24	M36	HSS 1X1X1/8	42									Lateral
25	M37	HSS 1X1X1/8	58.694									Lateral
26	M38	HSS 1X1X1/8	58.695									Lateral
27	M39	HSS 1X1X1/8	35									Lateral
28	M40	HSS 1X1X1/8	35									Lateral
29	M41	HSS 1X1X1/8	35									Lateral
30	M42	HSS 1X1X1/8	35									Lateral
31	M43	HSS 1X1X1/8	54.672									Lateral
32	M44	HSS 1X1X1/8	54.672									Lateral
33	M45	HSS 1X1X1/8	42									Lateral
34	M46	HSS 1X1X1/8	42									Lateral
35	M47	HSS 1X1X1/8	58.695									Lateral
36	M48	HSS 1X1X1/8	58.694									Lateral
37	M49	HSS 1X1X1/8	35									Lateral
38	M50	HSS 1X1X1/8	35									Lateral
39	M51	HSS 1X1X1/8	35									Lateral
40	M52	HSS 1X1X1/8	35									Lateral
41	M53	HSS 1X1X1/8	54.672									Lateral
42	M54	HSS 1X1X1/8	54.672									Lateral
43	M55	HSS 1X1X1/8	41									Lateral
44	M56	HSS 1X1X1/8	41									Lateral
45	M57	HSS 1X1X1/8	41									Lateral
46	M58	C3X6	12									Lateral
47	M59	C3X6	12									Lateral
48	M60	C3X6	12									Lateral
49	M61	C3X6	12									Lateral
50	M62	L3X3X4	72									Lateral
51	M63	C3X6	12									Lateral
52	M64	C3X6	12									Lateral
53	M65	L3X3X4	72									Lateral
54	M66	L3X3X4	72									Lateral
55	M67	PIPE2.5	120			Lbyy						Lateral
56	M68	PIPE2.5	120			Lbyy						Lateral



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Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
57	M69	PIPE2.5	120			Lbyy						Lateral
58	M70	L2.5X2.5X3	9.697									Lateral
59	M71	L2.5X2.5X3	9.697									Lateral
60	M72	L2.5X2.5X3	9.697									Lateral
61	M73	L2.5X2.5X3	48									Lateral
62	M74	L2.5X2.5X3	48									Lateral
63	M75	L2.5X2.5X3	48									Lateral
64	M76	L2.5X2.5X3	48									Lateral
65	M77	L2.5X2.5X3	48									Lateral
66	M78	L2.5X2.5X3	48									Lateral
67	M79	HSS 4X4X4	120			Lbyy						Lateral
68	M80	HSS 4X4X4	120			Lbyy						Lateral
69	M81	HSS 4X4X4	120			Lbyy						Lateral
70	M82	HSS 4X4X4	28.5									Lateral
71	M83	HSS 4X4X4	28.5									Lateral
72	M84	HSS 4X4X4	28.5									Lateral
73	M85	LL2.5X2.5X3	50.957									Lateral
74	M86	LL2.5X2.5X3	50.957									Lateral
75	M87	LL2.5X2.5X3	50.957									Lateral
76	M103	PIPE 2.0	96									Lateral
77	M104	PIPE 2.0	96									Lateral
78	M105	PIPE 2.0	96									Lateral
79	M107	PIPE 2.0	36									Lateral
80	M109	PIPE 2.0	36									Lateral
81	M110	PIPE 2.0	58.694									Lateral
82	M111	PIPE 2.0	58.694									Lateral
83	M139	PIPE 2.0	58.694									Lateral
84	M140	PIPE 2.0	58.695									Lateral
85	M141	PIPE 2.0	58.695									Lateral
86	M142	PIPE 2.0	58.694									Lateral
87	M144	PIPE 2.0	48			Lbyy						Lateral
88	M146	PIPE 2.0	48			Lbyy						Lateral
89	M148	PIPE 2.0	48			Lbyy						Lateral
90	M161	PIPE 2.0	96									Lateral
91	M162	PIPE 2.0	96									Lateral
92	M163	PIPE 2.0	96									Lateral
93	M165	PIPE 2.0	48			Lbyy						Lateral
94	M167	PIPE 2.0	48			Lbyy						Lateral
95	M169	PIPE 2.0	48			Lbyy						Lateral
96	M182	PIPE 2.0	96									Lateral
97	M183	PIPE 2.0	96									Lateral
98	M184	PIPE 2.0	96									Lateral
99	M185	HSS 4X4X4	9									Lateral
100	M186	HSS 4X4X4	9									Lateral
101	M187	HSS 4X4X4	9									Lateral
102	M188	HSS 4X4X4	9									Lateral
103	M189	PIPE 2.0	96									Lateral
104	M190	PIPE 2.0	96									Lateral
105	M193	PIPE 2.0	96									Lateral
106	M194	HSS 4X4X4	9									Lateral
107	M195	HSS 4X4X4	9									Lateral
108	M196	HSS 4X4X4	9									Lateral
109	M197	HSS 4X4X4	9									Lateral
110	M198	PIPE 2.0	96									Lateral
111	M199	PIPE 2.0	96									Lateral
112	M202	PIPE 2.0	96									Lateral
113	M203	HSS 4X4X4	9									Lateral



Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
114	M204	HSS 4X4X4	9									Lateral
115	M205	HSS 4X4X4	9									Lateral
116	M206	HSS 4X4X4	9									Lateral
117	M207	PIPE 2.0	96									Lateral
118	M208	PIPE 2.0	96									Lateral
119	M211	PIPE 2.0	96									Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Length...	Lbyy[in]	Lbzz[in]	Lcomp to...	Lcomp bo..	L-torque[in]	Kyy	Kzz	Cb	R	a[in]	Funct...
1	M1	Unistrut	126			Lbyy								Lateral
2	M10	Unistrut	126			Lbyy								Lateral
3	M24	Unistrut	126.001											Lateral
4	M25	Unistrut	126.001											Lateral
5	M30	Unistrut	126.001											Lateral
6	M31	Unistrut	126.001											Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Self We	DL		-1.1					
2	We	DL					44	8	
3	Ice We	DL					44	89	8
4	W0	WL					44	89	
5	W30	WL					88	178	
6	W60	WL					88	178	
7	W90	WL					44	89	
8	W120	WL					88	178	
9	W150	WL					88	178	
10	W0 + Ice	WL					44	89	
11	W30 + Ice	WL					88	178	
12	W60 + Ice	WL					88	178	
13	W90 + Ice	WL					44	89	
14	W120 + Ice	WL					88	178	
15	W150 + Ice	WL					88	178	
16	500lbs LM 1	LL				1			
17	500lbs LM 2	LL				1			
18	500lbs LM 3	LL				1			
19	500lbs LM 4	LL							
20	250lbs LV 5	LL				1			
21	250lbs LV 6	LL				1			
22	E0	EL	-.09				44		
23	E90	EL		.09			44		
24	BLC 2 Transient Area...	None						106	
25	BLC 3 Transient Area...	None						106	

Load Combinations

	Description	Sol..	PD..	SR..	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
1	Dead	Yes	Y		1	1.4	2	1.4	0	0			
2	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	1	0		
3	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	1	0		
4	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	1	0		
5	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	1	0		
6	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	1	0		



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 Designer : SI
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Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
7	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	1	0			
8	Dead + Wi...	Yes	Y		1	1.2	2	1.2	4	-1	0			
9	Dead + Wi...	Yes	Y		1	1.2	2	1.2	5	-1	0			
10	Dead + Wi...	Yes	Y		1	1.2	2	1.2	6	-1	0			
11	Dead + Wi...	Yes	Y		1	1.2	2	1.2	7	-1	0			
12	Dead + Wi...	Yes	Y		1	1.2	2	1.2	8	-1	0			
13	Dead + Wi...	Yes	Y		1	1.2	2	1.2	9	-1	0			
14	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	1	3	1		
15	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	1	3	1		
16	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	1	3	1		
17	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	1	3	1		
18	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	1	3	1		
19	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	1	3	1		
20	Dead + Ic...	Yes	Y		1	1.2	2	1.2	10	-1	3	1		
21	Dead + Ic...	Yes	Y		1	1.2	2	1.2	11	-1	3	1		
22	Dead + Ic...	Yes	Y		1	1.2	2	1.2	12	-1	3	1		
23	Dead + Ic...	Yes	Y		1	1.2	2	1.2	13	-1	3	1		
24	Dead + Ic...	Yes	Y		1	1.2	2	1.2	14	-1	3	1		
25	Dead + Ic...	Yes	Y		1	1.2	2	1.2	15	-1	3	1		
26	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	.053		
27	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	.053		
28	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	.053		
29	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	.053		
30	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	.053		
31	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	.053		
32	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.053		
33	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.053		
34	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.053		
35	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.053		
36	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.053		
37	Dead + L...	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.053		
38	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	.053		
39	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	.053		
40	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	.053		
41	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	.053		
42	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	.053		
43	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	.053		
44	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.053		
45	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.053		
46	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.053		
47	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.053		
48	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.053		
49	Dead + L...	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.053		
50	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	.053		
51	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	.053		
52	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	.053		
53	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	.053		
54	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	.053		
55	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	.053		
56	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.053		
57	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.053		
58	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.053		
59	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.053		
60	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.053		
61	Dead + L...	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.053		
62	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	.053		
63	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	.053		



Company : Hudson Design Group, LLC
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 Job Number : CT2046
 Model Name : COLCHESTER

July 18, 2022
 3:10 PM
 Checked By: SC

Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
64	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	.053		
65	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	.053		
66	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	.053		
67	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	.053		
68	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.053		
69	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.053		
70	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.053		
71	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.053		
72	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.053		
73	Dead + L...	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.053		
74	Dead + LV...	Yes	Y		1	1.2	2	1.2	20	1.5	0			
75	Dead + LV...	Yes	Y		1	1.2	2	1.2	21	1.5	0			
76	Service 60...	Yes	Y		1	1	2	1	4	.213	0			
77	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	1	23			
78	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	.866	23	.5		
79	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	.5	23	.866		
80	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22		23	1		
81	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	-.5	23	.866		
82	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	-.866	23	.5		
83	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	-1	23			
84	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	-.866	23	-.5		
85	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	-.5	23	-.866		
86	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22		23	-1		
87	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	.5	23	-.866		
88	(1.2 + 0.2...	Yes	Y		1	1.237	2	1.237	22	.866	23	-.5		

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N90	max	1520.585	3	48.463	16	1909.109	11	0	9	0	88	.001	5
2		min	-1526.591	9	13.622	76	-1906.344	5	-.005	15	0	1	-.004	11
3	N39	max	1039.288	2	48.182	20	1110.202	9	.002	9	0	88	.012	39
4		min	-1072.122	8	13.351	76	-1096.761	3	-.002	3	0	1	0	9
5	N89	max	1570.964	13	48.506	24	1776.024	11	.005	23	0	88	0	7
6		min	-1567.453	7	13.581	76	-1761.199	5	-.001	5	0	1	-.003	25
7	N31	max	213.79	2	1079.95	8	134.318	13	.481	11	2.926	11	.374	11
8		min	-843.913	8	-202.801	2	-509.326	7	-.578	5	-2.868	5	-.214	5
9	N32	max	326.566	2	1314.873	20	640.067	9	.784	11	2.176	11	.716	17
10		min	-1055.95	8	-112.632	2	-206.999	3	-.285	5	-2.194	5	-.034	11
11	N33	max	1473.209	11	46.334	23	752.761	11	-.059	5	2.464	11	.282	23
12		min	-1253.928	5	17.273	5	-572.681	5	-.16	14	-2.452	5	.065	5
13	N34	max	1537.546	5	47.482	17	544.645	11	.161	14	2.456	11	.286	17
14		min	-1204.079	11	17.707	11	-791.392	5	.056	8	-2.46	5	.065	11
15	N44	max	130.909	5	1125.544	12	1003.049	12	.245	17	3.284	11	.675	5
16		min	-153.065	11	-300.187	6	-316.202	6	.043	7	-3.229	5	-.672	11
17	N45	max	954.14	12	1269.46	12	657.296	11	.682	5	3.306	11	.419	5
18		min	-246.993	6	-272.882	6	-228.18	5	-.582	11	-3.335	5	-.582	11
19	N46	max	106.628	5	23.405	18	1067.542	9	.183	15	2.531	11	.018	8
20		min	-118.149	11	7.998	9	-1316.241	3	.038	9	-2.519	5	-.019	2
21	N47	max	849.981	3	24.244	18	557.537	3	.105	21	2.518	11	-.022	12
22		min	-1190.618	9	5.899	12	-735.308	9	.007	3	-2.523	5	-.178	18
23	N52	max	996.708	4	1197.515	16	342.591	11	.542	5	3.907	11	.135	11
24		min	-396.546	10	-281.891	10	-708.78	5	-.738	11	-3.85	5	-.94	17
25	N53	max	131.998	11	1294.494	16	219.172	10	-.023	9	3.231	11	.681	11
26		min	-152.235	5	-175.975	10	-1092.032	16	-.274	23	-3.258	5	-.683	5
27	N54	max	869.461	13	44.957	22	679.082	7	-.033	13	2.53	11	-.081	4



Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [...]	phi*Pnt [lb]	phi*Mn y...	phi*Mn z...	Cb	Eqn	
99	M87	LL2.5X2.5X3	.044	50.957	20	.019	0	z	5	48043.077	62208	43.463	33.332	1	H1-1b*
100	M86	LL2.5X2.5X3	.043	50.957	24	.020	0	y	5	48043.077	62208	43.463	33.332	1	H1-1b*
101	M141	PIPE 2.0	.042	58.695	5	.022	0		10	24117.685	32130	22.459	22.459	1...	H1-1b*
102	M142	PIPE 2.0	.042	58.694	3	.026	0		10	24117.734	32130	22.459	22.459	1...	H1-1b*
103	M85	LL2.5X2.5X3	.041	50.957	16	.020	0	y	11	48043.077	62208	43.463	33.332	1	H1-1b*
104	M110	PIPE 2.0	.041	58.694	9	.021	58.694		5	24117.798	32130	22.459	22.459	1...	H1-1b*
105	M66	L3X3X4	.041	24	13	.007	24	z	13	21017.331	46656	20.258	43.855	2...	H2-1
106	M139	PIPE 2.0	.040	58.694	13	.028	58.694		6	24117.837	32130	22.459	22.459	1...	H1-1b*
107	M62	L3X3X4	.039	24	5	.008	24	z	5	21017.331	46656	20.258	44.38	2...	H2-1
108	M65	L3X3X4	.038	24	9	.007	24	y	11	21017.331	46656	20.258	44.528	2...	H2-1
109	M195	HSS4X4X4	.037	9	12	.030	0	y	11	127112.4...	127386	177.282	177.282	2...	H1-1b
110	M204	HSS4X4X4	.036	9	4	.029	0	y	4	127112.4...	127386	177.282	177.282	2...	H1-1b
111	M187	HSS4X4X4	.033	0	7	.028	0	z	5	127112.4...	127386	177.282	177.282	1...	H1-1b
112	M185	HSS4X4X4	.031	0	30	.024	0	y	36	127112.4...	127386	177.282	177.282	2...	H1-1b
113	M197	HSS4X4X4	.030	9	12	.025	0	y	13	127112.4...	127386	177.282	177.282	2...	H1-1b
114	M206	HSS4X4X4	.029	9	4	.026	0	y	5	127112.4...	127386	177.282	177.282	2...	H1-1b
115	M8	PIPE 2.0	.020	40	8	.045	16		3	26521.424	32130	22.459	22.459	4...	H1-1b
116	M186	HSS4X4X4	.010	9	27	.008	0	y	35	127112.4...	127386	177.282	177.282	2...	H1-1b
117	M188	HSS4X4X4	.010	9	61	.009	0	z	5	127112.4...	127386	177.282	177.282	2...	H1-1b
118	M109	PIPE 2.0	.005	18	11	.001	18		11	28843.414	32130	22.459	22.459	1...	H1-1b
119	M107	PIPE 2.0	.005	18	13	.001	18		13	28843.414	32130	22.459	22.459	1...	H1-1b

Envelope AISI S100-16: LRFD Cold Formed Steel Code Checks

Member	Shape	Code ...	Loc[in]	LC	Shear...	Loc[in]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mny...	phi*Mnz...	phi*V...	phi*V...	Cb	Eqn	
1	M25	Unistrut...	.920	63	11	.122	126....	z	24	1968.597	14553	3.593	7.61	2202...	4404...	2.569	H1.2-1
2	M24	Unistrut...	.800	63	11	.118	126....	z	16	1968.597	14553	4.064	7.749	2202...	4404...	3.1	H1.2-1
3	M31	Unistrut...	.653	5.25	11	.148	0	y	23	1968.597	14553	3.593	7.749	2202...	4404...	3.974	H1.2-1
4	M30	Unistrut...	.628	120.7...	5	.147	0	y	15	1968.597	14553	3.593	7.749	2202...	4404...	4.322	H1.2-1
5	M10	Unistrut...	.560	105	38	.205	84	y	43	1968.619	14553	4.34	7.749	2202...	4404...	4.532	H1.1-1
6	M1	Unistrut...	.544	5.25	11	.191	42	y	42	1968.619	14553	3.593	7.749	2202...	4404...	3.253	H1.2-1



HUDSON
Design Group LLC

Connection Check

SITE DETAILS

Site Name/Code	CT2046 - Colchester
Date	07/18/2022
Engineer	SI

CONNECTION PARAMETERS

b - width of member	1 in
d - height of member	1 in
Section Shape	HSS
Weld Thickness	3/16 in

FLANGE LOADS

Loadcase #	5	
Bending Moment	Mzz	0.44 kips-in
Bending Moment	Myy	2.98 kips-in
Torsional Moment	Mxx	0.11 kips-in
Shear Force	Vy	0.04 kips
Shear Force	Vz	0.16 kips
Axial Force	Px	0.16 kips

WELD CHECK

Filler Metal F_{EXX}	70 ksi
Weld Thk.	0.1875 in
Base metal F_u	58 ksi
Type of section	HSS
Length of Section [b]	1.0 in
Length of Section [d]	1.0 in
I_{total}	4.00 in
I_p	1.33 in ³
S_z	1.33 in ²
S_y	1.33 in ²
R_{ux}	2.60 kips/in
R_{uy}	0.05 kips/in
R_{uz}	0.08 kips/in
R_u	2.60 kips/in
Allowable Weld Stress	4.18 kips/in

Are stiffeners present?

No



62.4% PASS

Connection Sketch



Town of Colchester, CT

Property Report

Map Block Lot

4W-01/007-000

PID 4760

Building # 1

Section # 1

Account

S0499700

Property Information

Property Location	CHESTNUT HILL RD
Owner	COLCHESTER REALTY LLC
Co-Owner	C/O ACRE GROUP
Mailing Address	2 CENTRAL AVE NEW HARTFORD CT 06057
Land Use	3900 Comm Vac
Land Class	C
Zoning Code	C
Census Tract	

Neighborhood	
Acreage	26.17
Utilities	UNKNOWN
Lot Setting/Desc	UNKNOWN UNKNOWN
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	0
Stories	
Building Style	UNKNOWN
Building Use	Vacant
Building Condition	
Interior Floors 1	
Interior Floors 2	NA
Total Rooms	0
Basement Garages	
Occupancy	
Building Grade	

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	
AC Type	
Fireplaces	0

Exterior Walls	
Exterior Walls 2	NA
Interior Walls	
Interior Walls 2	NA
Heating Type	
Heating Fuel	
Sq. Ft. Basement	
Fin BSMT Quality	
Extra Kitchens	



Town of Colchester, CT

Property Report

Map Block Lot **4W-01/007-000**

PID **4760**

Building # **1** Section # **1** Account **S0499700**

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed	Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Buildings	0	0			
Extras	0	0			
Improvements					
Outbuildings	0	0			
Land	1564600	1095200			
Total	1564600	1095200			

Sub Areas

Outbuilding and Extra Features

Type	Description

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
COLCHESTER REALTY LLC	0819/0042	12/1/2004	0
COLCHESTER REALTY LLC	0819/0039	12/1/2004	3700690
STELCO INDUSTRIES INC	0177/0342		0



Town of Colchester, CT

Property Report

Map Block Lot

4W-01/007-000/TW

PID **105114**

Building # **1**

Section # **1**

Account

11AT0004

Property Information

Property Location	CHESTNUT HILL RD
Owner	AT&T MOBILITY LLC
Co-Owner	ATTN PROP TAX DEPT
Mailing Address	1010 PINE 9E-L-01 ST. LOUIS MO 63101
Land Use	4310 Tel Rel Tw
Land Class	I
Zoning Code	
Census Tract	

Neighborhood	
Acreage	0
Utilities	UNKNOWN
Lot Setting/Desc	UNKNOWN UNKNOWN
Additional Info	

Photo



Sketch



Primary Construction Details

Year Built	0
Stories	
Building Style	UNKNOWN
Building Use	Vacant
Building Condition	
Interior Floors 1	
Interior Floors 2	NA
Total Rooms	0
Basement Garages	
Occupancy	
Building Grade	

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	
AC Type	
Fireplaces	0

Exterior Walls	
Exterior Walls 2	NA
Interior Walls	
Interior Walls 2	NA
Heating Type	
Heating Fuel	
Sq. Ft. Basement	
Fin BSMT Quality	
Extra Kitchens	



Town of Colchester, CT

Property Report

Map Block Lot

4W-01/007-000/TW

PID **105114**

Building # **1**

Section # **1**

Account

11AT0004

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Improvements		
Outbuildings	366500	256500
Land	0	0
Total	366500	256500

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Outbuilding and Extra Features

Type	Description
Cell Tower	1 SITES
Fence 8' Chain	256 L.F.
Cell Shed	312 S.F.

Sales History

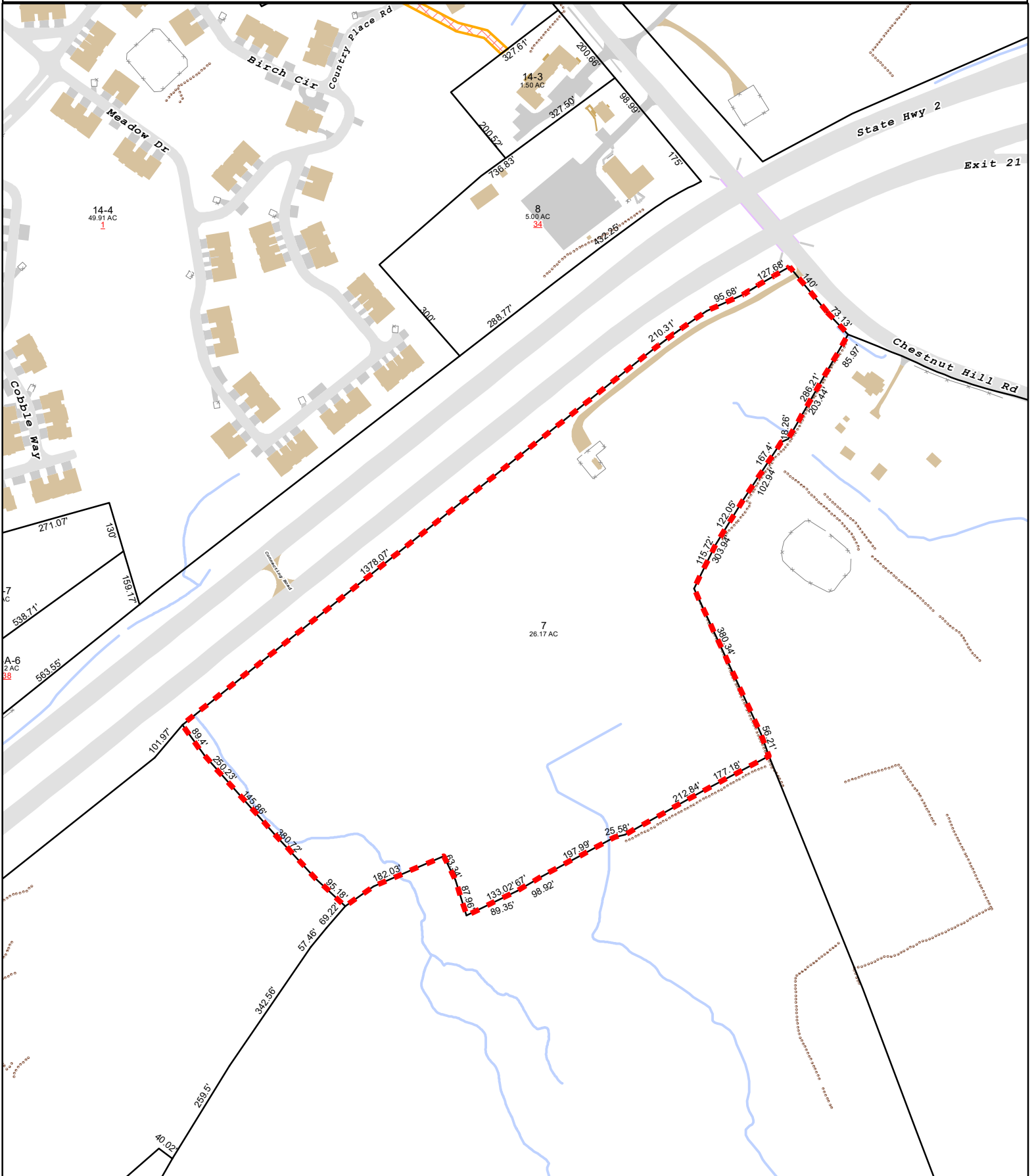
Owner of Record	Book/ Page	Sale Date	Sale Price
AT&T MOBILITY LLC	0000/0000	10/1/2011	0



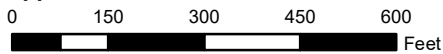
Town of Colchester, Connecticut - Assessment Parcel Map

Parcel: 4W-01-007-000

Address: CHESTNUT HILL RD



Approximate Scale: 1 inch = 300 feet



Map Produced: April 2022 / Grand List: 2021

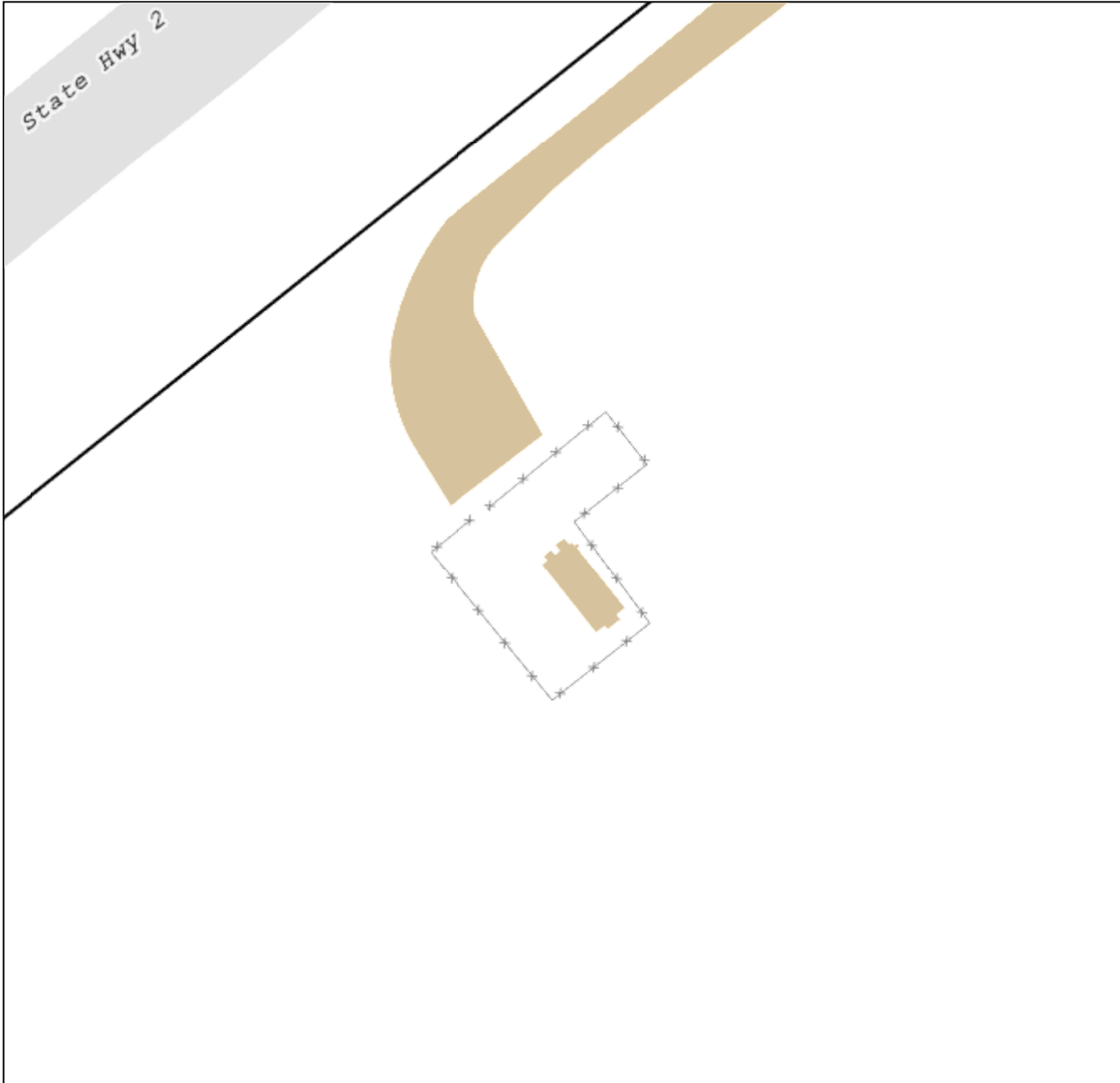
Disclaimer: This map is for informational purposes only All information is subject to verification by any user. The Town of Colchester and its mapping contractors assume no legal responsibility for the information contained herein.

Town of Colchester

Geographic Information System (GIS)



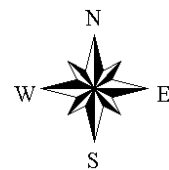
Date Printed: 9/27/2022



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Colchester and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 50 feet



DOCKET NO. 112 - An application of
SNET Cellular, Inc., for a Certificate
of Environmental Compatibility and
Public Need for a cellular telephone
tower and associated equipment in the
Town of Colchester, Connecticut.

: Connecticut
: Siting
: Council

ORIGINAL

:September 8, 1989

DECISION AND ORDER

Pursuant to the foregoing Opinion, the Connecticut Siting Council finds that the effects associated with the construction, operation, and maintenance of a cellular monopole tower and associated equipment building at the proposed Colchester site, including effects on the natural environment; ecological balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife, are not significant either alone or cumulatively with other effects, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the Connecticut General Statutes (CGS) be issued to SNET Cellular, Inc., (SNET) for the construction, operation, and maintenance of a cellular telephone tower site and associated equipment at the proposed site on Chestnut Hill Road in Colchester, Connecticut.

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

1. The tower shall be a monopole no taller than necessary to provide the proposed service, and in no event shall the structure exceed a total height of 197 feet, including antennas.

2. No part of the tower site or access road shall be within an inland wetland as defined by CGS 22a-38(15) and identified by a certified soil scientist.
3. The facility shall be constructed in accordance with applicable sections of the State of Connecticut Basic Building Code.
4. Unless necessary to comply with conditions of the Federal Aviation Administration, no lights shall be installed on this tower.
5. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M Plan shall include detailed plans for erosion and sediment control along the access road and at the tower site, plans for permanent evergreen screening along the outside perimeter of the eight-foot fence surrounding the site, plans for loaming and seeding the site and side of the access road following completion of construction, and, to the greatest extent possible, plans to shift the tower site and/or reduce the height of the tower to prevent an overlap of the tower fall zone with the nearest traveled portion of Route 2. The access road shall be constructed in a manner to minimize erosion and tree clearing as much as possible. The Certificate Holder shall consult with the Town of Colchester in the preparation of the D&M Plan. Utilities shall be installed underground if it is found overhead utilities would interfere with the development of land adjacent to the site.

6. The Certificate Holder or its successor shall permit public or private entities to share space on the tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
7. The Certificate Holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application are added to this facility.
8. If this facility does not provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council and a Certificate granted before any such new use is made.
9. The Certificate Holder shall comply with any future radio frequency (RF) standard, promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.
10. 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 issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision and Order.

Pursuant to Section 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. A notice of issuance shall be published in the Hartford Courant, the New London Day, the Norwich Bulletin, and the Colchester Regional Standard.

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 State Agencies.

The parties or intervenors to this proceeding are:

PARTY

SNET Cellular, Inc.
227 Church Street
New Haven, CT 06506

ITS REPRESENTATIVE

SNET Cellular, Inc.
c/o Peter J. Tyrrell
Senior Attorney
227 Church Street
Room 1021
New Haven, CT 06506

INTERVENOR

Metro Mobile CTS of
Hartford, Inc.
100 Corporate Drive
Windsor, CT 06095

ITS REPRESENTATIVE

Kenneth I. Friedman, Esq.
David W. Bogan, Esq.
Byrne, Slater, Sandler
Shulman & Rouse, P.C.
330 Main Street
P.O. Box 3216
Hartford, CT 06103


CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 112 or read the record thereof, and that we voted as follows:


Dated at New Britain, Connecticut the 8th day of September, 1989.

Council Members

Vote Cast


Gloria Dibble Pond
Chairperson

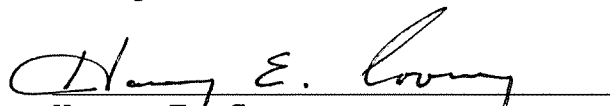
YES


Commissioner Peter Boucher
Designee: Robert A. Pulito

NO

Commissioner Leslie Carothers
Designee: Brian Emerick

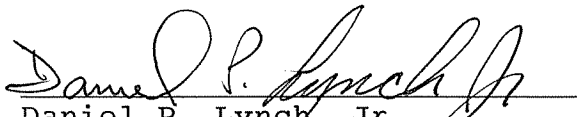
ABSENT


Harry E. Covey

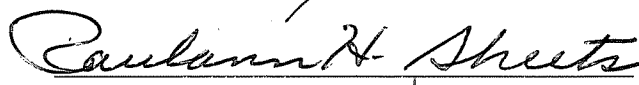
ABSTAIN


Mortimer A. Gelston

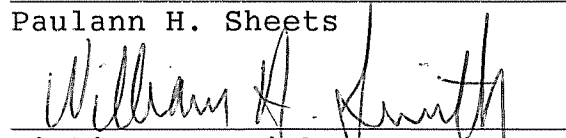
YES


Daniel P. Lynch, Jr.

YES


Paulann H. Sheets

NO


William H. Smith

YES


Colin C. Tait

NO



AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION FOR PERMITTING

ATC SITE#/NAME/PROJECT: 302496 / CLCH - COLCHESTER / OAA779876
SITE ADDRESS: CHESTNUT HILL ROAD, COLCHESTER, CT 06415
LICENSEE: NEW CINGULAR WIRELESS PCS, LLC dba AT&T MOBILITY

I, Margaret Robinson, Vice President, UST Legal for American Tower*, owner/operator of the tower facility located at the address identified above (the “Tower Facility”), do hereby authorize **NEW CINGULAR WIRELESS PCS, LLC dba AT&T MOBILITY** their successors and assigns, and/or their agent, (collectively, the “Licensee”) to act as American Tower’s non-exclusive agent for the sole purpose of filing and consummating any land-use, building, or electrical permit application(s) as may be required by the applicable permitting authorities for Licensee’s telecommunications’ installation on the Tower Facility.

American Tower understands that this application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee’s installation and any such conditions of approval or modifications will be Licensee’s sole responsibility.

Signature:

Print Name: Margaret Robinson
Vice President, UST Legal
American Tower*

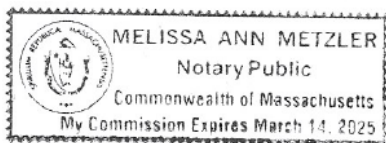
NOTARY BLOCK

Commonwealth of MASSACHUSETTS
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Vice President, UST Legal for American Tower*, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

WITNESS my hand and official seal, this 27th day of September, 2022

NOTARY SEAL



Notary Public
My Commission Expires: March 14, 2025

* American Tower is defined as American Tower Corporation and any of its affiliates or subsidiaries.



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10/21/2022

Mailed from 03079 986779152842602

PRIORITY MAIL®

HOLLIS M REDDING

SAI GROUP

12 INDUSTRIAL WAY

SALEM NH 03079-2837

Expected Delivery Date: 10/22/22

Ref#: CT2046

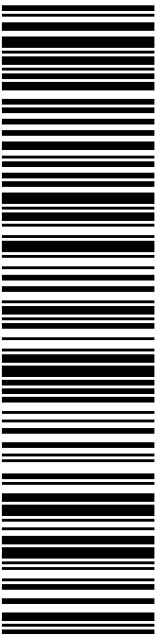
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C046



AMERICAN TOWER CORP
10 PRESIDENTIAL WAY
WOBURN MA 01801-1053

USPS TRACKING #



9405 5036 9930 0376 4986 60

Electronic Rate Approved #038555749



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10/21/2022

Mailed from 03079 986779152841282

PRIORITY MAIL®

HOLLIS M REDDING

SAI GROUP

12 INDUSTRIAL WAY

SALEM NH 03079-2837

Expected Delivery Date: 10/24/22

Ref#: CT2046

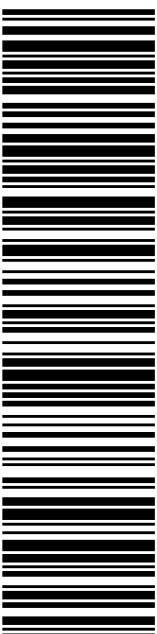
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R777



COLCHESTER REALTY LLC
C/O ACRE GROUP
2 CENTRAL AVE
NEW HARTFORD CT 06057

USPS TRACKING #



9405 5036 9930 0376 4986 77

Electronic Rate Approved #038555749



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Mailed from 03079 986779152840523

PRIORITY MAIL®

HOLLIS M REDDING

Expected Delivery Date: 10/24/22

SAI GROUP

Ref#: CT2046

12 INDUSTRIAL WAY

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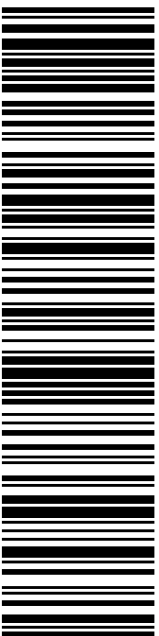
SALEM NH 03079-2837

C001



ANDREAS BISBIKOS, 1ST SELECTMAN ARIEL
TOWN OF COLCHESTER TOWN HALL
127 NORWICH AVE
COLCHESTER CT 06415-1230

USPS TRACKING #



9405 5036 9930 0376 4986 84

Electronic Rate Approved #038555749



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10/21/2022

Mailed from 03079 986779152838922

PRIORITY MAIL®

HOLLIS M REDDING

Expected Delivery Date: 10/24/22

SAI GROUP

Ref#: CT2610

12 INDUSTRIAL WAY

SALEM NH 03079-2837

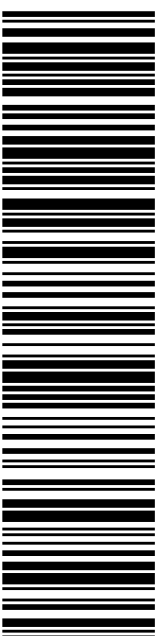
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C006



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

USPS TRACKING #



9405 5036 9930 0376 4987 14

Electronic Rate Approved #038555749



Cut on dotted line.



From: auto-reply@usps.com
Sent: Thursday, October 20, 2022 3:36 PM
To: Hollis Redding
Subject: USPS® Expected Delivery by Friday, October 21, 2022 arriving by 9:00pm 9405503699300376498684



Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 3:07 pm on October 20, 2022 in MERIDEN, CT 06450.

Tracking Number: [9405503699300376498684](#)

Expected Delivery By



By 9:00pm



From: auto-reply@usps.com
Sent: Thursday, October 20, 2022 3:36 PM
To: Hollis Redding
Subject: USPS® Expected Delivery by Friday, October 21, 2022 arriving by 9:00pm 9405503699300376498677



Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 3:07 pm on October 20, 2022 in MERIDEN, CT 06450.

Tracking Number: [9405503699300376498677](#)

Expected Delivery By



By 9:00pm



From: auto-reply@usps.com
Sent: Thursday, October 20, 2022 3:30 PM
To: Hollis Redding
Subject: USPS® in possession of item 9405503699300376498660



Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 3:07 pm on October 20, 2022 in MERIDEN, CT 06450.

Tracking Number: [9405503699300376498660](#)

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