February 28, 2023

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 CT5100
220 Evergreen Street, Bridgeport, CT 06606 (the "Property")
Latitude: 41.197778 N Longitude: 73.190692 W

Dear Ms. Bachman:

AT&T currently maintains (12) antennas at the 128', 130' and 132' levels on the existing 135' monopole tower ("Tower") at 220 Evergreen Street, Bridgeport, CT. The Tower is owned by American Tower Corporation and the property is owned by Chapin & Bangs Company. AT&T intends to modify its facility by replacing (1) antenna with (1) MS-MBA-3.2-H4-L4 antenna and adding (3) 8843 B5/B66A & (1) 4449 B5/B12 Remote Radio Units ("RRUs") to the Tower, all at the 130' level. The height of AT&Ts existing antennas is 128', 130' and 132' and the proposed antenna & RRUs is 130' on the Tower.

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

The AT&T facility received CT Siting Council ("Council") approval in Docket 464 on April 14, 2016. The approval contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Honorable Joseph P. Ganim, Mayor, City of Bridgeport, as elected official, Mr. Thomas F. Gill, Director, Office of Planning & Economic Development, City of Bridgeport, Chapin & Bangs Company, the property owner and American Tower Corporation, the tower owner.

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

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

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

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

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

Sincerely,

Hollis M. Redding

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

Enclosures

Cc: Honorable Joseph P. Ganim, Mayor, City of Bridgeport, elected official
Thomas F. Gill, Director, Office of Planning & Economic Development, City of Bridgeport
Chapin & Bangs Company, the property owner
American Tower Corp, the tower owner

SAI Group
12 Industrial Way
Salem, NH 03079
(603) 421-0470
www.saigrp.com

Radio Frequency Exposure Theoretical Study

Prepared For:

AT&T Mobility

Site Name:	Bridgeport Evergreen St
FA#:	10107972
Site ID:	CTL05100
Address:	220 Evergreen Street, Bridgeport, CT 06606

Prepared by: **SAI Group**
12 Industrial Way
Salem, NH 03079
(603) 421-0470

Date of Report: February 24, 2023

Statement of Compliance

AT&T's proposed antenna installation along with other existing antennas is calculated to be within *10.6%* of FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure (MPE).

Table of Contents

1 General Summary

SAI Group was contracted by AT&T Mobility to conduct a Radio Frequency (RF) Analysis for a wireless facility located at 220 Evergreen Street, Bridgeport, CT to determine whether the radio facility is in compliance with Federal Communications Commission (FCC) regulations and standards regarding RF exposure.

RF exposure is calculated in accordance with FCC's suggested prediction methods.

2 Site Compliance Summary

Compliance Summary (General Public Limit)	
Site Compliance	Yes
Maximum Calculated %MPE at 0-6' Ground Level (Cumulative)	10.6% at about 348ft South-East from the tower.

3 RF Design Specifications

Table below shows the technical data used for the calculation of cumulative %MPE results.

Ant ID	Operator	Antenna Make	Antenna Model	Type	TX Freq (MHz)	Az (Deg)	Ant Gain (dBd)	Total ERP (Watts)	Z Rad Center (ft)
1	AT&T	QUINTEL	QD8616-7	Panel	700	20	12.994	3188	130
1	AT&T	QUINTEL	QD8616-7	Panel	700	20	12.994	1594	130
1	AT&T	QUINTEL	QD8616-7	Panel	2300	20	16.4508	4417	130
2	AT&T	ERICSSON	AIR6419	Panel	3500	20	23.45	23990	132
3	AT&T	ERICSSON	AIR6449	Panel	3700	20	23.5	24268	128
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	700	20	10.09	817	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	700	20	9.89	780	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	20	15.79	6069	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	20	15.79	6069	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	20	15.13	2607	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	850	20	12.8	1000	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	850	20	12.18	1000	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	20	15.13	2607	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	20	15.13	2607	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	20	15.13	2607	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	20	15.13	2607	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	20	15.13	2607	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	20	15.79	3035	130
4	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	20	15.79	3035	130
5	AT&T	QUINTEL	QD8616-7	Panel	700	150	12.994	3188	130
5	AT&T	QUINTEL	QD8616-7	Panel	700	150	12.994	1594	130
5	AT&T	QUINTEL	QD8616-7	Panel	1900	150	15.1477	2617	130
5	AT&T	QUINTEL	QD8616-7	Panel	1900	150	15.1477	1309	130
5	AT&T	QUINTEL	QD8616-7	Panel	2100	150	15.2949	1354	130
5	AT&T	QUINTEL	QD8616-7	Panel	1900	150	15.1477	3926	130
5	AT&T	QUINTEL	QD8616-7	Panel	2100	150	15.2949	4061	130
6	AT&T	ERICSSON	AIR6419	Panel	3500	150	23.45	23990	132
7	AT&T	ERICSSON	AIR6449	Panel	3700	150	23.5	24268	128
8	AT&T	CCI	DMP65R-BU8DA	Panel	700	150	12.25	1343	130
8	AT&T	CCI	DMP65R-BU8DA	Panel	2300	150	14.65	2917	130
8	AT&T	CCI	DMP65R-BU8DA	Panel	850	150	12.55	1000	130
9	AT&T	QUINTEL	QD8616-7	Panel	700	270	12.994	3188	130
9	AT&T	QUINTEL	QD8616-7	Panel	700	270	12.994	1594	130
9	AT&T	QUINTEL	QD8616-7	Panel	2300	270	16.5274	4495	130
10	AT&T	ERICSSON	AIR6419	Panel	3500	270	23.45	23990	132
11	AT&T	ERICSSON	AIR6449	Panel	3700	270	23.5	24268	128
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	700	270	10.09	817	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	700	270	9.89	780	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	270	16.26	3381	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	270	15.79	3035	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	270	16.04	3214	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.76	1507	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	850	270	12.8	1000	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	850	270	12.18	1000	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.76	1507	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.13	1303	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.13	1303	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.31	1359	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.31	1359	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.76	3014	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.13	2607	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	1900	270	15.31	2717	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	270	16.26	3381	130

12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	270	15.79	3035	130
12	AT&T	MATSING	MS-MBA-3.2-H4-L4	Panel	2100	270	16.04	3214	130
13	T-Mobile	ERICSSON	AIR 32	Panel	2100	60	15.75	4510	110
13	T-Mobile	ERICSSON	AIR 32	Panel	1900	60	15.55	4307	110
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	60	13.17	1660	110
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	60	13.09	815	110
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	60	13.09	815	110
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	60	15.29	5409	110
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	60	17.32	3237	110
15	T-Mobile	ERICSSON	AIR6419	Panel	2500	60	22.05	19239	110
15	T-Mobile	ERICSSON	AIR6419	Panel	2500	60	22.05	19239	110
16	T-Mobile	ERICSSON	AIR 32	Panel	2100	150	15.75	4510	110
16	T-Mobile	ERICSSON	AIR 32	Panel	1900	150	15.55	4307	110
17	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	150	13.17	1660	110
17	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	150	13.09	815	110
17	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	150	13.09	815	110
17	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	150	15.29	5409	110
17	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	150	17.32	3237	110
18	T-Mobile	ERICSSON	AIR6419	Panel	2500	150	22.05	19239	110
18	T-Mobile	ERICSSON	AIR6419	Panel	2500	150	22.05	19239	110
19	T-Mobile	ERICSSON	AIR 32	Panel	2100	240	15.75	4510	110
19	T-Mobile	ERICSSON	AIR 32	Panel	1900	240	15.55	4307	110
20	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	240	13.17	1660	110
20	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	240	13.09	815	110
20	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	240	13.09	815	110
20	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	240	15.29	5409	110
20	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	240	17.32	3237	110
21	T-Mobile	ERICSSON	AIR6419	Panel	2500	240	22.05	19239	110
21	T-Mobile	ERICSSON	AIR6419	Panel	2500	240	22.05	19239	110
22	T-Mobile	ERICSSON	AIR 32	Panel	2100	330	15.75	4510	110
22	T-Mobile	ERICSSON	AIR 32	Panel	1900	330	15.55	4307	110
23	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	330	13.17	1660	110
23	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	330	13.09	815	110
23	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	330	13.09	815	110
23	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	1900	330	15.29	5409	110
23	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	330	17.32	3237	110
24	T-Mobile	ERICSSON	AIR6419	Panel	2500	330	22.05	19239	110
24	T-Mobile	ERICSSON	AIR6419	Panel	2500	330	22.05	19239	110
25	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	30	15.85	6153	120
26	SPRINT	ANDREW	VHLP2	Dish	18000	90	36.95	198	120
27	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	30	13.35	1081	120
27	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	30	13.35	1081	120
27	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	30	15.85	3077	120
27	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	30	15.85	3077	120
28	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	180	15.85	6153	120
29	SPRINT	ANDREW	VHLP2	Dish	18000	180	36.95	198	120
30	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	180	13.35	1081	120
30	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	180	13.35	1081	120
30	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	180	15.85	3077	120
30	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	180	15.85	3077	120
31	SPRINT	RFS	APXVTM14 ALU-I20	Panel	2500	270	15.85	6153	120
32	SPRINT	ANDREW	VHLP2	Dish	18000	300	36.95	198	120
33	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	270	13.35	1081	120
33	SPRINT	RFS	APXVSPP18-C-A20	Panel	850	270	13.35	1081	120
33	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	270	15.85	3077	120
33	SPRINT	RFS	APXVSPP18-C-A20	Panel	1900	270	15.85	3077	120
34	SPRINT	MTI WIRELESS	MT-485025-NVH	Panel	5150	270	20.35	4	120
35	DISH	JMA	MX08FRO665-21	Panel	600	90	11.35	1637	99
35	DISH	JMA	MX08FRO665-21	Panel	2007	90	16.15	6011	99

35	DISH	JMA	MX08FRO665-21	Panel	2100	90	16.75	7570	99
36	DISH	JMA	MX08FRO665-21	Panel	600	200	11.35	1637	99
36	DISH	JMA	MX08FRO665-21	Panel	2007	200	16.15	6011	99
36	DISH	JMA	MX08FRO665-21	Panel	2100	200	16.75	7570	99
37	DISH	JMA	MX08FRO665-21	Panel	600	310	11.35	1637	99
37	DISH	JMA	MX08FRO665-21	Panel	2007	310	16.15	6011	99
37	DISH	JMA	MX08FRO665-21	Panel	2100	310	16.75	7570	99

NOTE: The Z value indicates the distance of radiation center of the antenna height above the ground site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or calculated based on SAI Group experience. SAI Group has assumed transmission parameters for “Unknown” RF emitters based on either similar installations found at other radio communications sites or from the latest data available for the site. “Generic” antenna models have been used where existing antenna part numbers or radiation patterns are not available. The frequencies presented in this table may have been assumed in order to represent the approximate band of operation and to support a worst-case calculation of power density

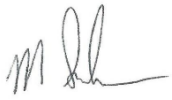
4 Conclusion

I certify to the best of my knowledge that the statements contained in this report are true and accurate. The theoretical computations contained are based on FCC recommended methods, with industry standard assumptions & formulas, and complies with FCC mandated Maximum Permissible RF Exposure requirements.

A comprehensive field survey was not performed prior to the generation of this report. If questions arise regarding the calculations herein, SAI Group recommends that a comprehensive field survey be performed to resolve any disputes.

Sanket Joshi
RF Engineer
SAI Group

February 24, 2023
Date



Matthew Smelcer
RF Engineering Manager

February 24, 2023
Date

Appendix A – FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted procedures and guidelines for evaluating of the effects of RF exposure. This guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following Tables and diagram:

Table 1. MPE Limits for General Population/ Uncontrolled Exposure

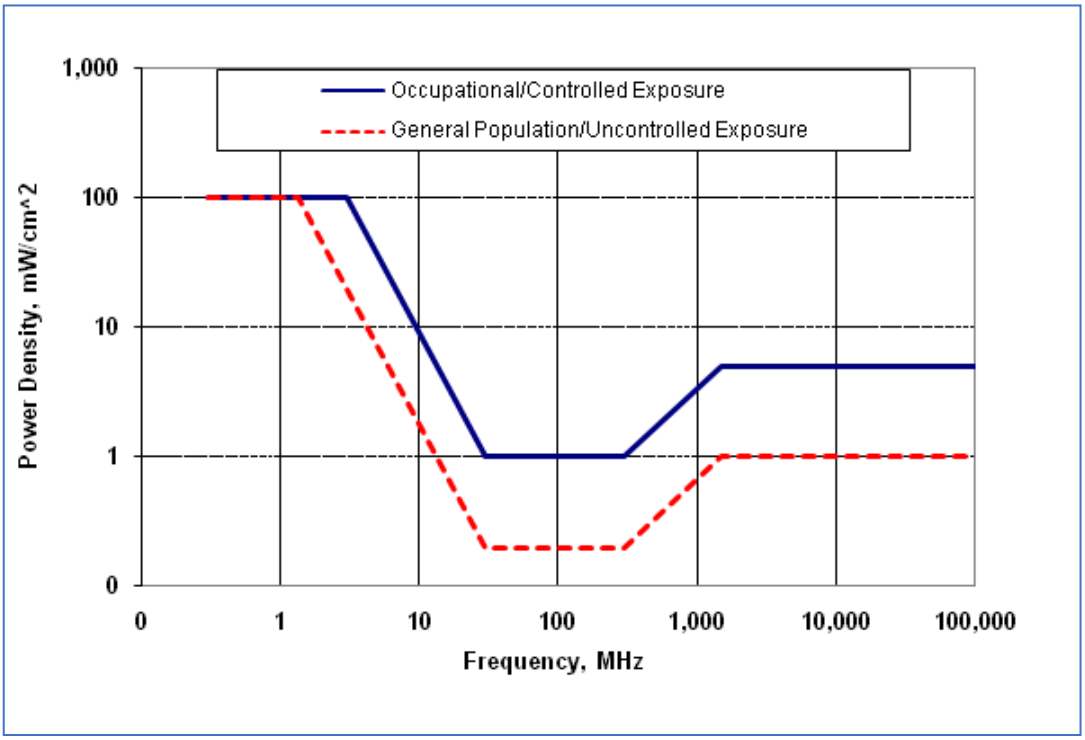
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	$(180/f^2)$*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--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

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 can't exercise control over their exposure. A site is evaluated with General Public limits if there is no access controls or no RF warning signage present.

Table 2. MPE Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, 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	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

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 such occupational/controlled limits apply provided he or she is made aware of the potential for exposure. Typical criteria to remediate controlled environment are restricted access to the areas where antennas are located along with appropriate RF warning signage. A site with Controlled environment is evaluated with Occupational limits.



Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPE's are functions of frequency.

Appendix B – Calculations Methodology and Assumptions

SAI Group has performed theoretical analysis using Waterford Consultants' RoofMaster™ 2020 Version 30.5.26.2022 which uses a cylindrical model for very conservative power density calculations within the near field of the antenna where the antenna pattern has not truly formed yet. The Cylindrical Model is used to determine the spatially averaged power density in the near field directly in front of an antenna. In order to implement this model in all directions, the calculations utilize the antenna manufacturer horizontal pattern data. Additionally, the model also incorporates factors that reduce the power density by inverse square of horizontal and vertical distances beyond the near field region.

RoofMaster™ uses far field model to calculate the spatial peak power density. The RoofMaster™ implementation of this model incorporated manufacturer's horizontal and vertical pattern data to determine the power density in all directions.

The calculations are based on worst-case assumptions that, all antennas are always operating at full power.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized.

Appendix C – Informative References

The following references can be followed for further information about RF Health and Safety.

FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety

FCC OET Bulletin 56
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

FCC OET Bulletin 65
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org

American National Standards Institute (ANSI)
http://www.ansi.org

Environmental Protection Agency (EPA)
https://www3.epa.gov/radtown/wireless-technology.html

National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/

Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/

International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org/

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • NEW AT&T ANTENNAS: MS-MBA-3.2-H4-L4 (TOTAL OF 1 FOR ALPHA). • PROPOSED AT&T RRUS-8843 B5/B66A (PCS/AWS) (TOTAL OF 3 FOR ALPHA). • PROPOSED AT&T RRUS 4449 B5/B12 (850/700) (TOTAL OF 1 FOR ALPHA). • NEW AT&T SURGE ARRESTOR DC6-48-60-18-8C-EV (TOTAL OF 1) WITH (2) #6 AWG DC TRUNKS. • NEW AT&T (4) Y-CABLES. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • ADD 6673 + XCEDE CABLES. • ADD (6) HIGH BAND COMBINERS (DBC0051F3V51-2). • ADD (1) INDOOR DC12. ITEMS TO BE REMOVED: • EXISTING AT&T ANTENNAS: DMP65R-BU8DA (TOTAL OF 1 PER ALPHA SECTOR). ITEMS TO REMAIN: • (11) ANTENNAS, (18) RRU'S, (4) SURGE ARRESTOR, (11) DC POWER & (3) FIBER.
SITE ADDRESS:	220 EVERGREEN ST BRIDGEPORT, CT 06606
LATITUDE:	41.197778° N, 41° 11' 52.00" N
LONGITUDE:	73.190692° W, 73° 11' 26.49" W
TYPE OF SITE:	MONOPOLE / INDOOR
STRUCTURE HEIGHT:	135'-0"±
RAD CENTER:	(LTE) 130'-0"± (CBAND) 128'-0"± & 132'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CTL05100

SITE NAME: BRIDGEPORT EVERGREEN ST

FA CODE: 10107972

PACE ID: MRCTB061024

PROJECT: SPLIT SECTOR LTE

DRAWING INDEX

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

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING WEST ON COCHITUATE RD/MA-30 TOWARD BURR ST. MAKE A U-TURN AT BURR ST ONTO COCHITUATE RD/MA-30. MERGE ONTO I-90 W/MASSACHUSETTS TPKE W TOWARD SPRINGFIELD/BOSTON. MERGE ONTO I-84 W/WILBUR CROSS HWY S VIA EXIT 9 TOWARD US-20/HARTFORD/NEW YORK CITY (PORTIONS TOLL) (CROSSING INTO CONNECTICUT). KEEP LEFT TO TAKE CT-15 S/WILBUR CROSS HWY S VIA EXIT 57 TOWARD I-91 S/CHARTER OAK BR/NY CITY. MERGE ONTO I-91 S VIA EXIT 86 TOWARD NEW HAVEN/NY CITY. MERGE ONTO CT-15 S VIA EXIT 17 TOWARD E MAIN ST. MERGE ONTO CT-8 S VIA EXIT 52 TOWARD BRIDGEPORT. TAKE EXIT 5 TOWARD NORTH AVE/BOSTON AVE/BEARDSLEY ZOOLOGICAL GARDENS/MOTOR VEH DEPT. MERGE ONTO CHOPSEY HILL RD. TURN RIGHT ONTO US-1 S/NORTH AVE. TURN LEFT ONTO RIVER ST. SCRUPLES LOUNGE IS ON THE LEFT. TAKE THE 1ST LEFT ONTO EVERGREEN ST. 220 EVERGREEN ST IS ON THE RIGHT.

GENERAL NOTES

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

72 HOURS

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OR CALL 811

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SITE NUMBER: CTL05100
SITE NAME: BRIDGEPORT EVERGREEN ST

220 EVERGREEN ST
BRIDGEPORT, CT 06606
FAIRFIELD COUNTY

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

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

AT&T

TITLE SHEET
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	T-1	2

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 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

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

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

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

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

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

ABBREVIATIONS

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

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12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05100
SITE NAME: BRIDGEPORT EVERGREEN ST

220 EVERGREEN ST
BRIDGEPORT, CT 06606
FAIRFIELD COUNTY

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

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

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

AT&T

GENERAL NOTES
SPLIT SECTOR LTE UPGRADE

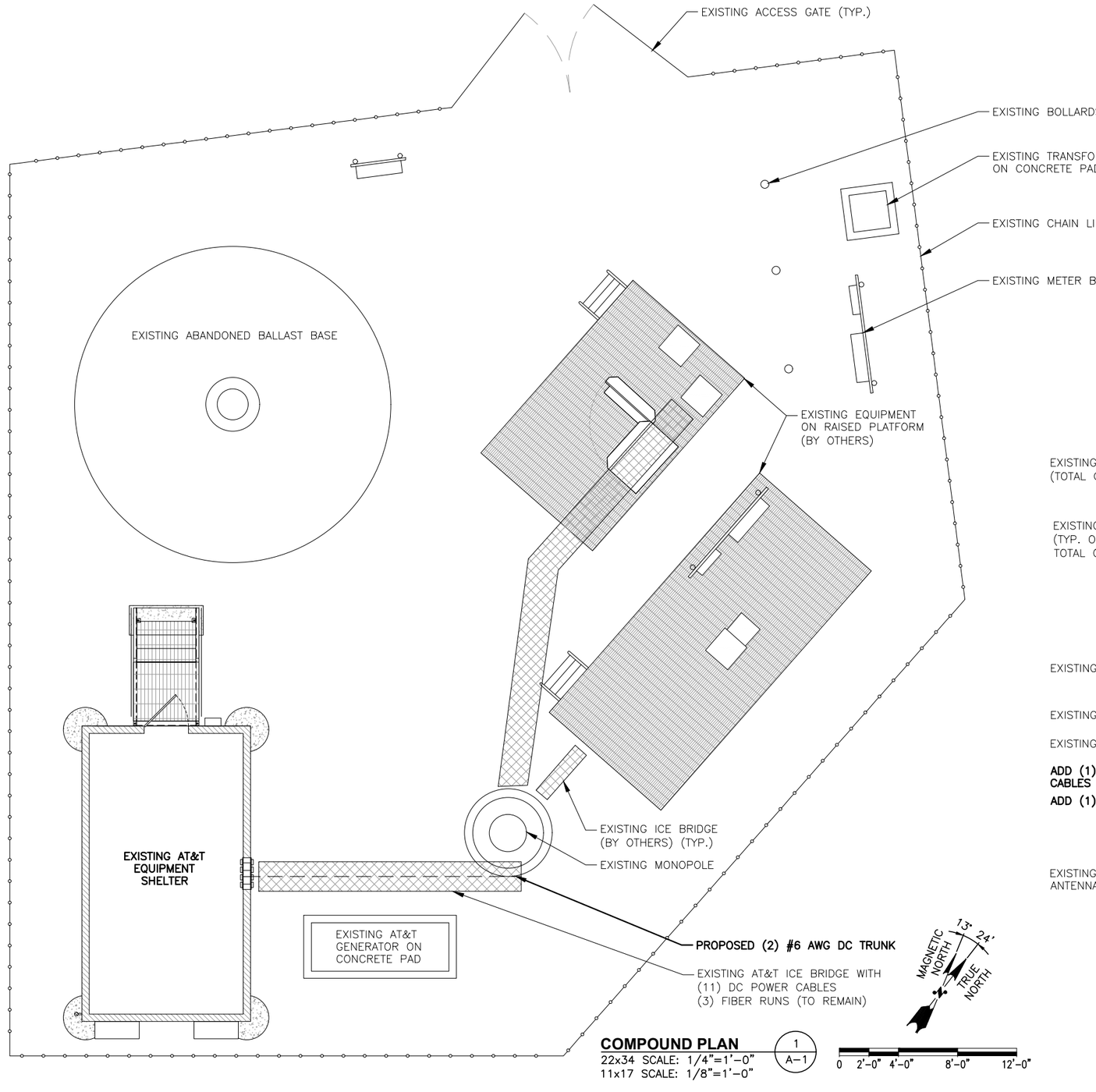
SITE NUMBER	DRAWING NUMBER	REV
CTL05100	GN-1	2

NOTE:

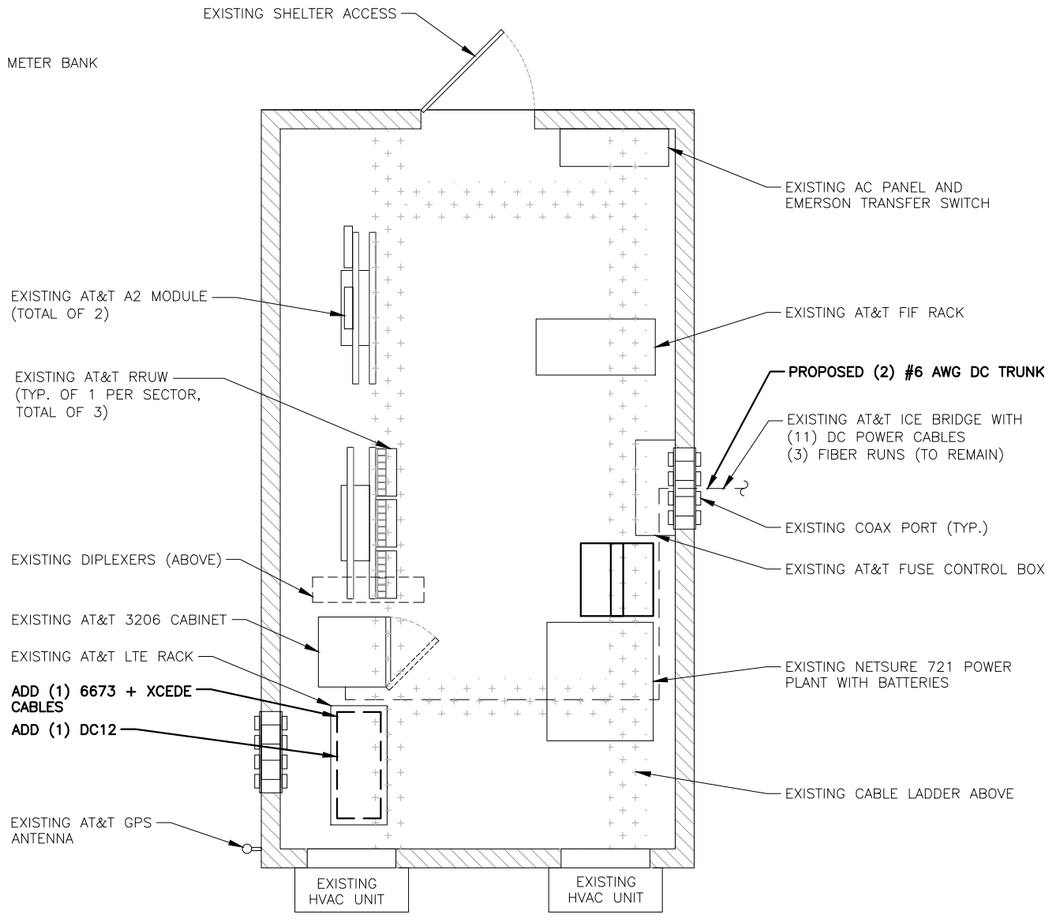
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: AMERICAN TOWER CORP.
DATED: JANUARY 14, 2022.
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



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



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

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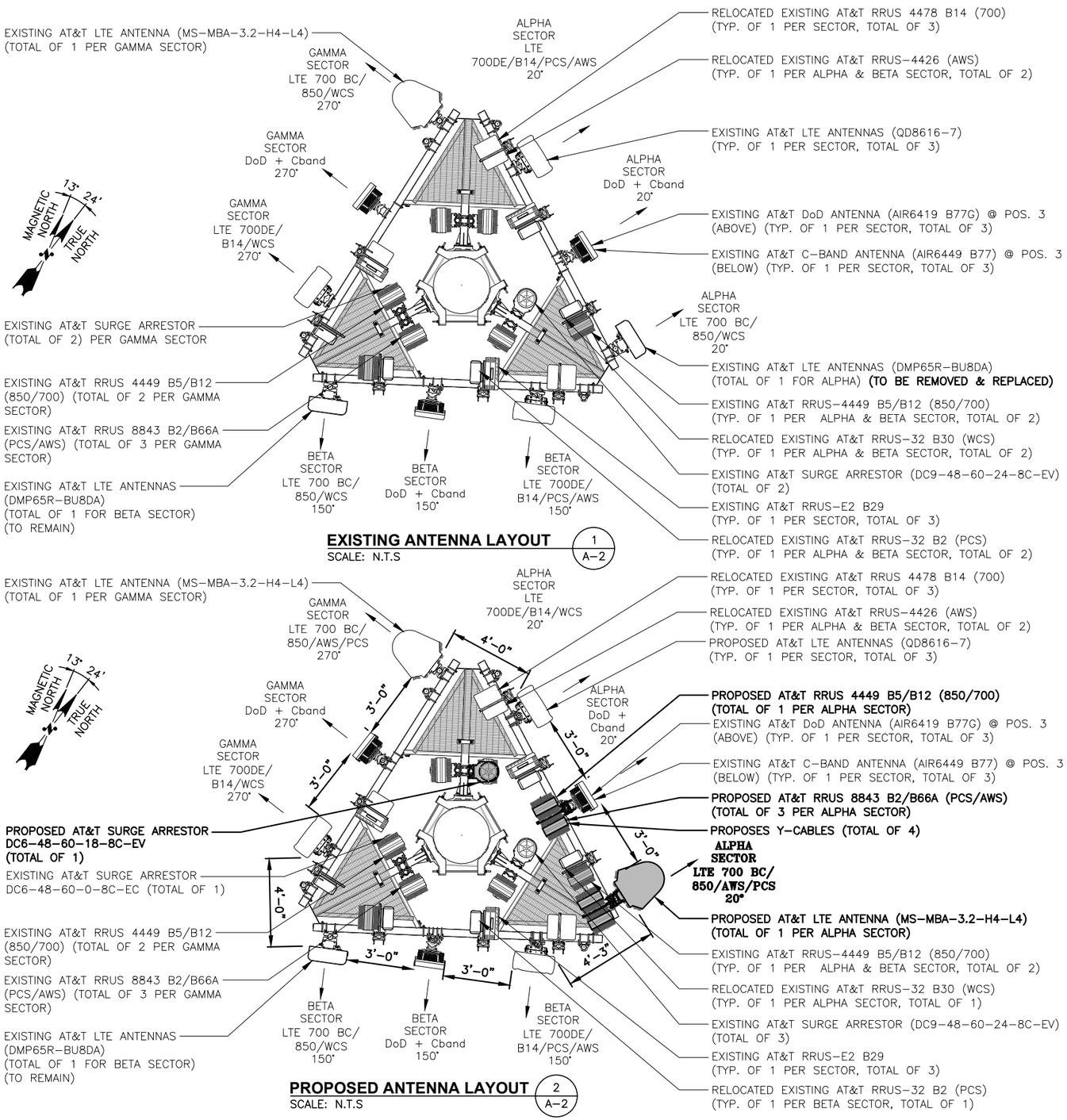
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

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

AT&T

COMPOUND & EQUIPMENT PLANS
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	A-1	2



EXISTING ANTENNA LAYOUT

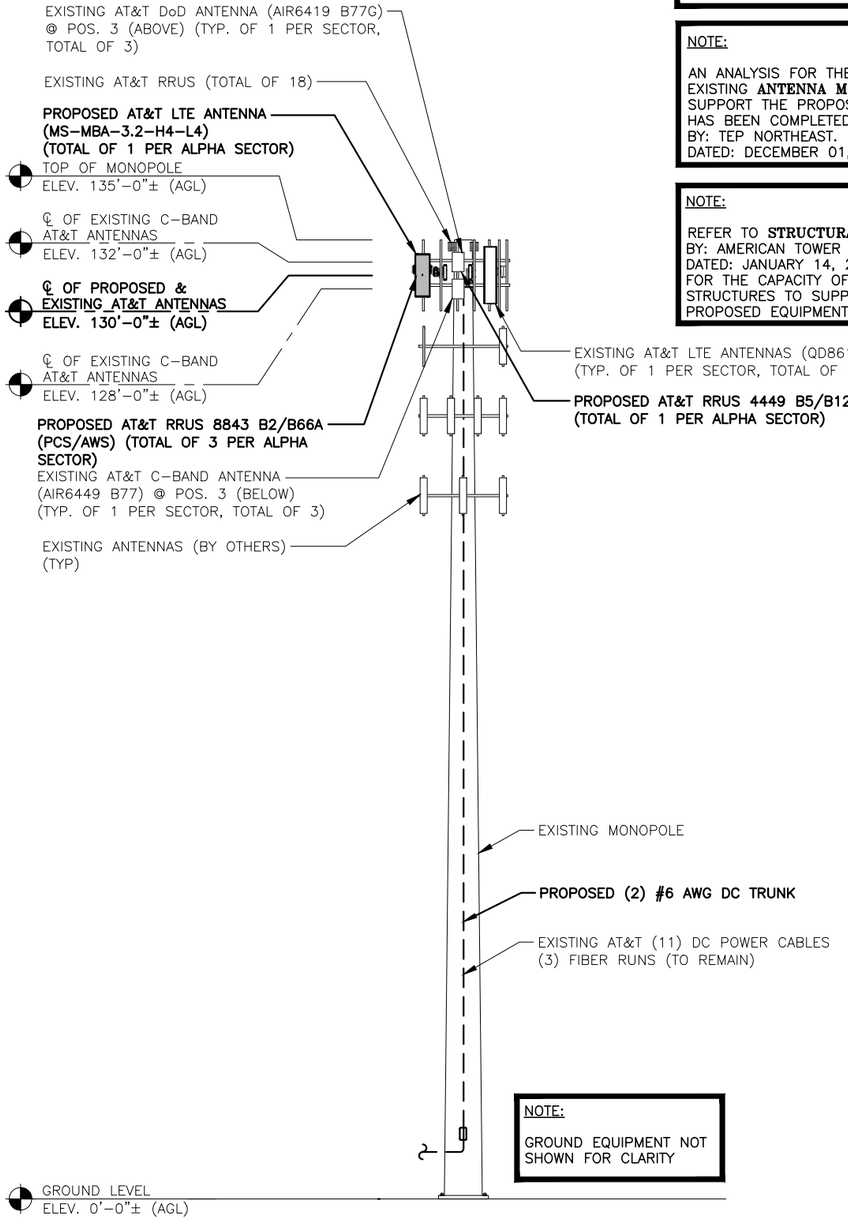
SCALE: N.T.S

1 / A-2

PROPOSED ANTENNA LAYOUT

SCALE: N.T.S

2 / A-2



NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: TEP NORTHEAST.
DATED: DECEMBER 01, 2022.

NOTE:

REFER TO **STRUCTURAL ANALYSIS**
BY: AMERICAN TOWER CORP.
DATED: JANUARY 14, 2022.
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

GROUND EQUIPMENT NOT SHOWN FOR CLARITY

ELEVATION

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

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

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

AT&T

ANTENNA LAYOUTS & ELEVATION
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	A-2	2

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	COMBINERS	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–		–	–	–	–	–	(E) (1) RAYCAP EDC9-48-60-24-8C-EV **(P) (1) RAYCAP DC6-48-60-18-8C-EV**
A2	EXISTING	LTE 700(DE)/B14/WCS	QD8616-7	96X22X9.6	130'-0"±	134'-0"±	20°	–	(E) (1) 4478 B14 (700) (E) (1) RRUS-32 B30 (WCS) (E) (1) RRUS-E2 B29	–	(3)(E) DC POWER & (1) FIBER	
A3	EXISTING	DOD+CBAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	132'-0" 128'-0"	133'-3"± 129'-6"±	20°	–	–	–	–	
A4	**PROPOSED**	**LTE 700(BC)/850/PCS/AWS**	**MS-MBA-3.2-H4-L4**	**72X24X25**	**130'-0"±**	**134'-0"±**	20°	**(6)(P) DBC0051F3V51-2**	(E) (1) 4449 B5/B12 (700) **(P)(1) 4449 B5/B12 (700)** **(P)(3) RRU-8843 B5/B66A(PCS)**	**– 17.9X13.2X10.4 14.9"X13.2"X10.9"**	**(P)(2) #6 AWG DC TRUNKS (P)(4) Y CABLE**	
B1	–	–	–	–	–		–	–	–	–	–	(E) (1) RAYCAP EDC9-48-60-24-8C-EV
B2	EXISTING	LTE 700DE/B14/PCS/AWS	QD8616-7	96X22X9.6	130'-0"±	134'-0"±	150°	–	(E) (1) 4478 B14 (700) (E) (1) RRUS-32 B2 (1900) (E) (1) 4426 B66 (AWS) (E) (1) RRUS-E2 B29	–	(1)(E) DC POWER & (2)(E) DC POWER (1)(E) FIBER 24 PAIR	
B3	EXISTING	DOD+CBAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	132'-0" 128'-0"	133'-3"± 129'-6"±	**150°**	–	–	–	–	
B4	EXISTING	LTE 700 BC/850/WCS	DMP65R-BU8DA	96X20.7X7.7	130'-0"±	134'-0"±	150°	–	(E) (1) 4449 B5/B12 (700) (E) (1) RRUS-32 B30 (WCS)	–	–	
C1	–	–	–	–	–		–	–	–	–	–	(E)(1)DC6-48-60-0-8C-EC (E)(1)DC9-48-60-24-8C-EV
C2	EXISTING	LTE 700(DE)/B14/WCS	QD8616-7	96X22X9.6	130'-0"±	134'-0"±	**270°**	–	(E) (1) 4478 B14 (700) (E) (1) RRUS-32 B30 (WCS) (E) (1) RRUS-E2 B29	–	(3)(E) DC POWER & (1) FIBER	
C3	EXISTING	DOD+CBAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	132'-0" 128'-0"	133'-3"± 129'-6"±	270°	–	–	–	–	
C4	EXISTING	LTE 700 BC/850/AWS/PCS	MS-MBA-3.2-H4-L4	72X24X25	130'-0"±	133'-0"±	270°	(6)(E) DBC0051F3V51-2	(E) (2) 4449 B5/B12 (700) (E) (3) 8843 B2/B66A (1900)	–	(2)(E) DC POWER (E)(5) Y CABLE	

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: TEP NORTHEAST.
DATED: DECEMBER 01, 2022.

NOTE:

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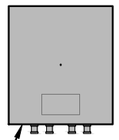
RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
E(4)	4449 (850/700)	17.9"x13.2"x10.4"
P(1)	**4449 (850/700)**	**17.9"X13.2"X10.4"**
P(3)	**8843 (PCS/AWS)**	**14.9"x13.2"x10.9"**
E(3)	8843 (PCS/AWS)	14.9"x13.2"x10.9"
E(3)	4478 B14 (700)	18.1"x13.4"x8.3"
E(2)	4426 B66 (AWS)	14.9"x13.2"x5.8"
E(3)	RRUS-32 B30 (WCS)	27.2"x12.1"x7.0"
E(2)	RRUS-32 B2 (PCS)	27.2"X12.1"X7.0"
E(3)	RRUS-E2 B29 (700)	20.4"x18.5"x7.5"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

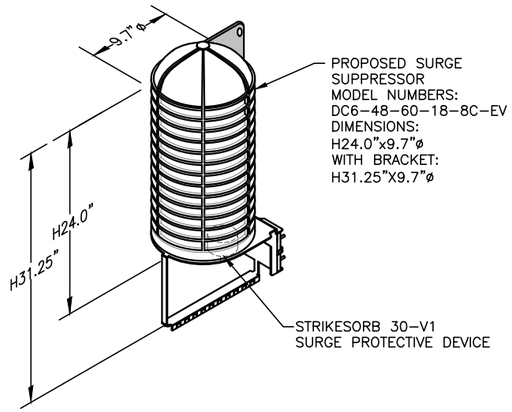


PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

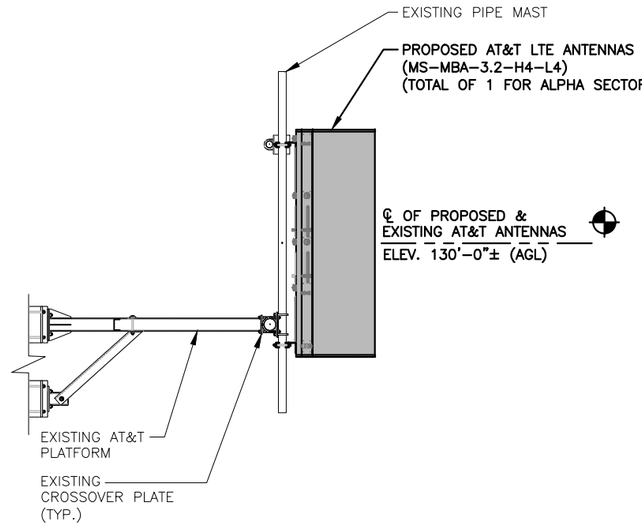
PROPOSED RRUS DETAIL 2 A-3
SCALE: N.T.S

FINAL ANTENNA SCHEDULE 1 A-3
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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



PROPOSED LTE ANTENNA MOUNTING DETAIL 1 A-3
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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TEL: (978) 557-5553
FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05100
SITE NAME: BRIDGEPORT EVERGREEN ST

220 EVERGREEN ST
BRIDGEPORT, CT 06606
FAIRFIELD COUNTY

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

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A	08/05/22	ISSUED FOR REVIEW	MR	HC	DPH

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

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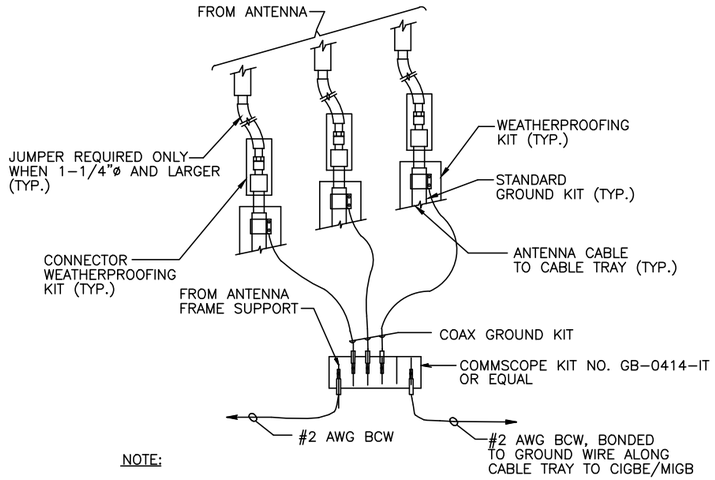
DETAILS
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	A-3	2



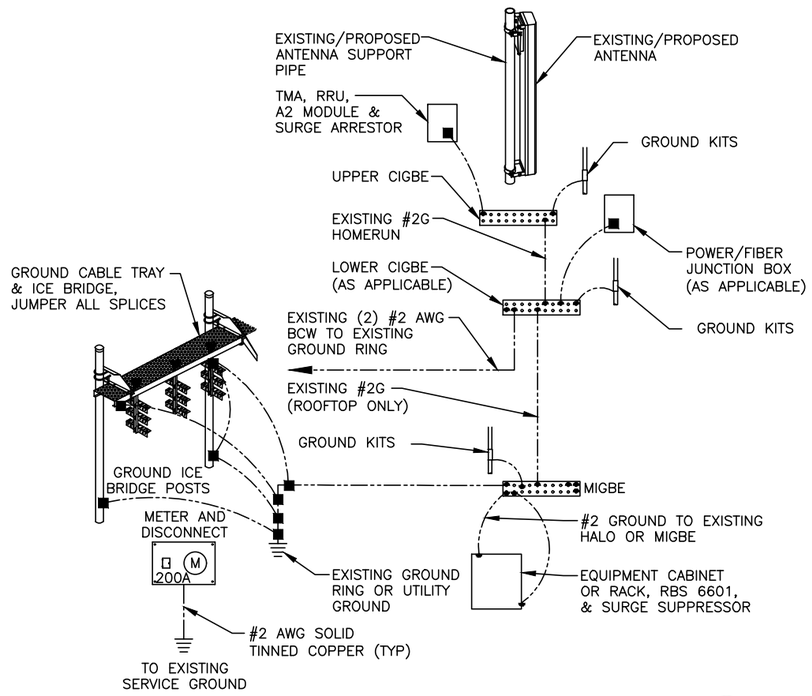
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

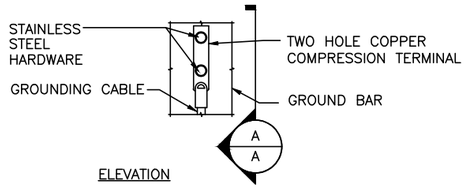
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

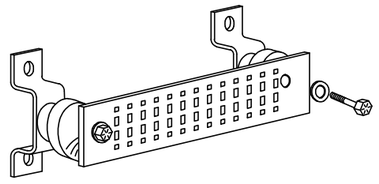
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

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STATE OF CONNECTICUT · DANIEL R. GAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

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GROUNDING DETAILS
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	G-1	2

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

SPECIAL INSPECTION CHECKLIST

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

HUDSON Design Group LLC
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12 INDUSTRIAL WAY
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

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

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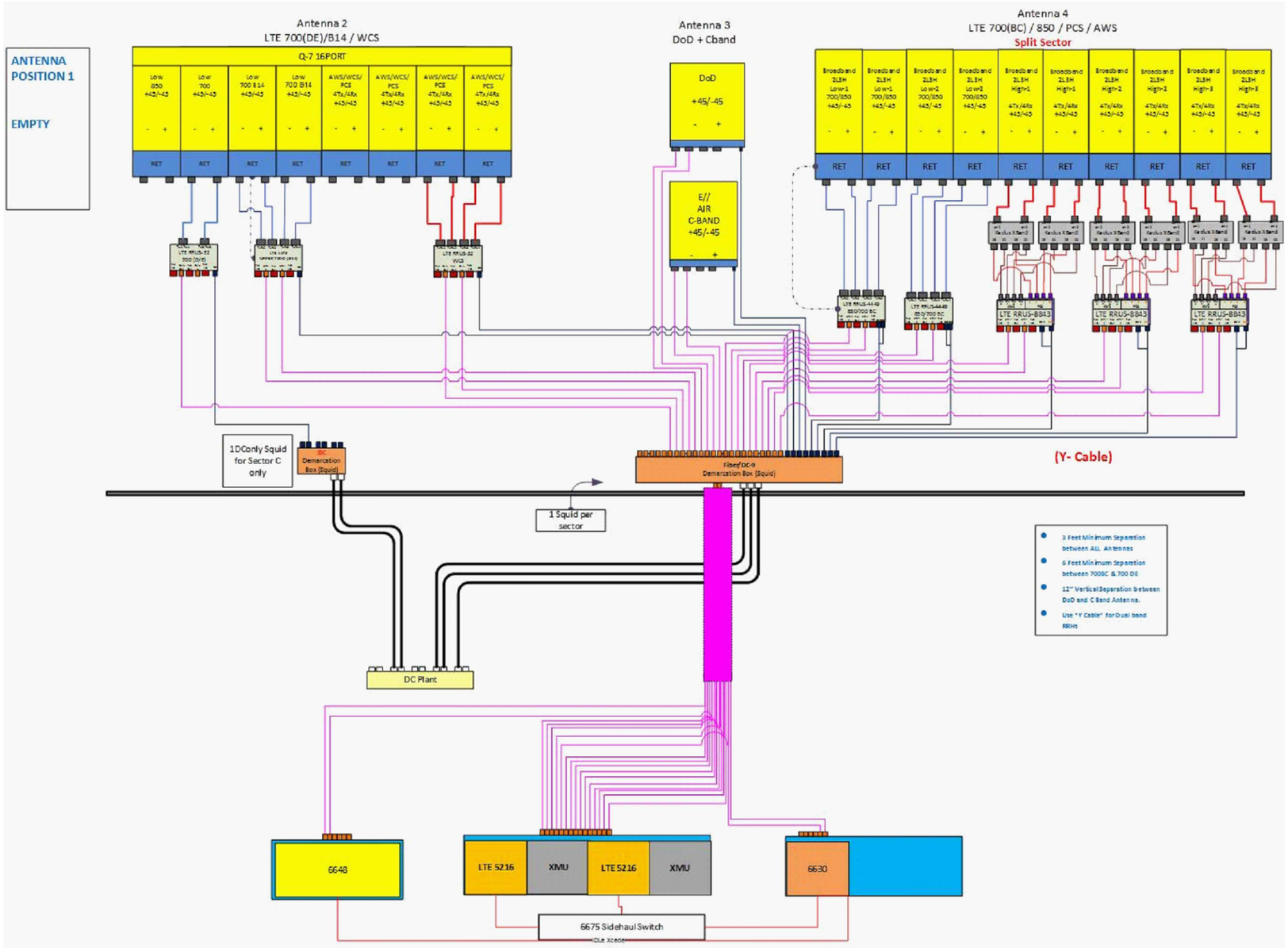
STRUCTURAL NOTES
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	SN-1	2

NOTE:

REV: 2
DATED: 08/25/2022
RFDS ID: 5252019

ALPHA & GAMMA



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

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

NOTE:

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

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

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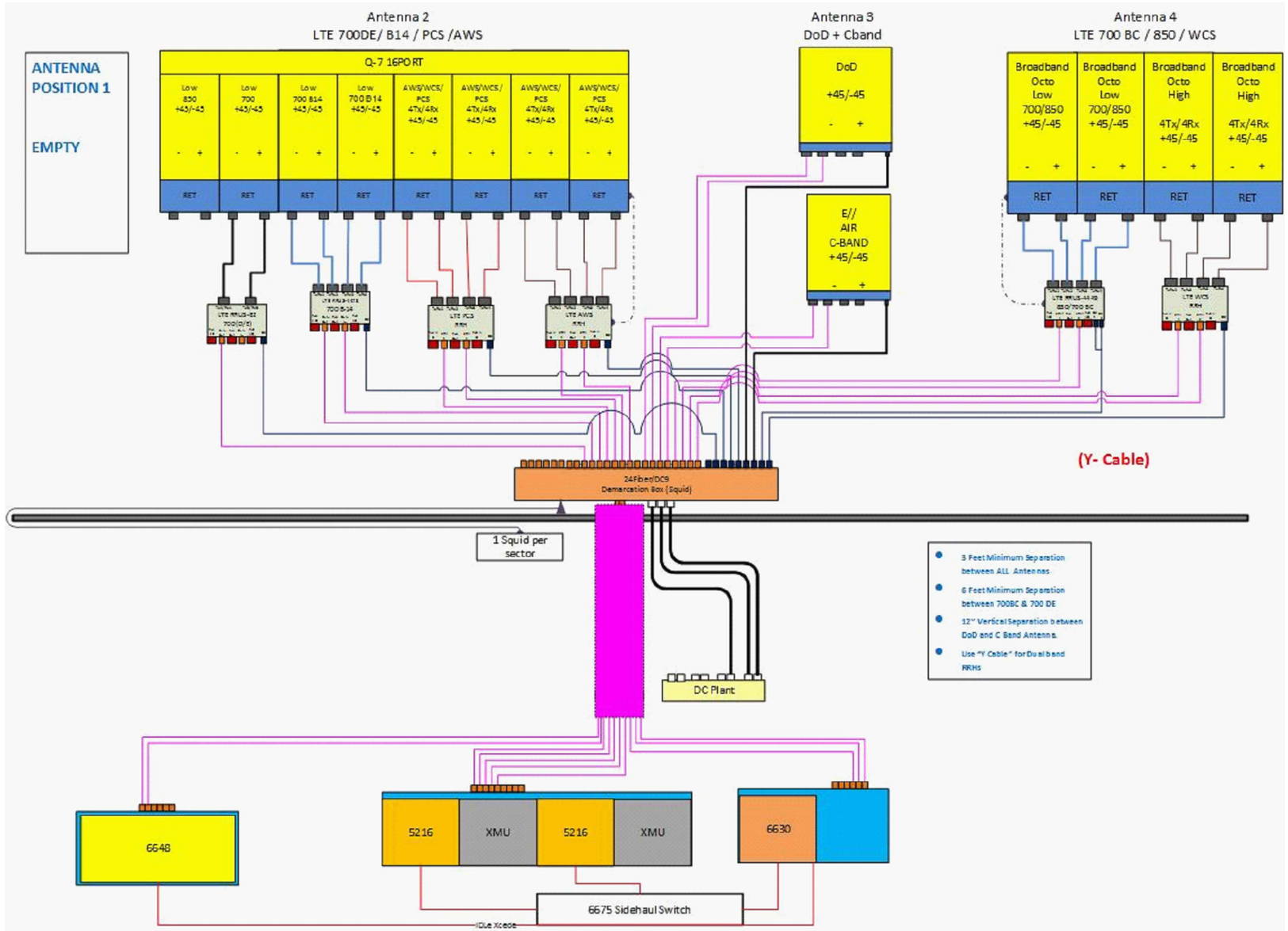
RF PLUMBING DIAGRAM
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	RF–1	2

NOTE:

REV: 2
DATED: 08/25/2022
RFDS ID: 5252019

BETA



RF PLUMBING DIAGRAM (1 / RF–2)
SCALE: N.T.S

NOTE:
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RF PLUMBING DIAGRAM
SPLIT SECTOR LTE UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05100	RF–2	2

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	134 ft Monopole
ATC Asset Name	:	Evergreen Street CT
ATC Asset Number	:	210747
Engineering Number	:	OAA780085_C3_03
Proposed Carrier	:	AT&T MOBILITY
Carrier Site Name	:	BRIDGEPORT EVERGREEN ST
Carrier Site Number	:	CT5100
Site Location	:	220 Evergreen Street Bridgeport, CT 06606 41.1978, -73.1907
County	:	Fairfield
Date	:	December 8, 2022
Max Usage	:	31%
Analysis Result	:	Pass

Prepared By:

Tanner Putman
Structural Engineer I

Reviewed

COA: PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 134 ft Monopole tower to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawing:	Rohn Drawing #217435-01-D1, dated March 17, 2016
Foundation Drawing:	Rohn Drawing #217435-01-F1, dated March 17, 2016
Geotechnical Report:	TEP Project #64250.39272, dated October 30, 2015

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:	120 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.21, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

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 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/Reserved Loading

Elev.*	Qty	Equipment	Lines	Carrier
123.8’	1	Motorola PTP-600	-	SPRINT NEXTEL
121.8’	3	Commscope VHLP2-18-1WH/C	-	SPRINT NEXTEL
	3	DragonWave Airpair (Radio-7.5" diameter)		
121.4’	3	RFS APXVSPP18-C-A20 (62 lbs)	-	SPRINT NEXTEL
121.2’	3	Alcatel-Lucent 800 MHz RRH	-	SPRINT NEXTEL
121.0’	-	-	(4) 1 1/4" Hybriflex Cable (4) 1/2" Coax	SPRINT NEXTEL
120.4’	3	RFS APXVTM14-ALU-I20	-	SPRINT NEXTEL
120.0’	1	Platform with Handrails	-	SPRINT NEXTEL
119.6’	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	-	SPRINT NEXTEL
119.4’	3	Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield	-	SPRINT NEXTEL
110.0’	1	Square Platform with Handrails	(4) 1 5/8" Hybriflex	T-MOBILE
	4	Andrew DBXNH-6565B-A2M		
	4	Ericsson AIR32 B4A B2P		
	4	Ericsson RRUS 11 B12		
	4	Ericsson RRUS 11 B4		
	4	Ericsson Radio 4478 B71		
	4	RFS APXVAA24_43-U-A20		
106.4’	4	Diplexer / Coupler	-	T-MOBILE
99.0’	1	Commscope MC-PK8-DSH	(1) 1.63" (41.3mm) Hybrid	DISH WIRELESS L.L.C.
	1	Raycap RDIDC-9181-PF-48		
	3	Fujitsu TA08025-B604		
	3	Fujitsu TA08025-B605		
	3	JMA Wireless MX08FRO665-21		

(If table breaks across pages, please see previous page for data in merged cells)

Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Proposed Carrier Final Loading

Elev.*	Qty	Equipment	Lines	Carrier
132.0’	3	Ericsson AIR 6419 B77G	-	AT&T MOBILITY
130.0’	1	CCI DMP65R-BU8D	(3) 0.39" (10mm) Fiber Trunk (8) 0.78" (19.7mm) 8 AWG 6 (5) 0.96" (24.3mm) Cable (5) 2" conduit (3) 3/8" (0.38"- 9.5mm) RET Control Cable	AT&T MOBILITY
	1	Ericsson RRUS 32 B2		
	1	Ericsson RRUS 4426 B66		
	1	Ericsson RRUS 4449 B5, B12		
	1	Platform with Handrails		
	1	Matsing MBA-3.2-H4-L4		
	1	Matsing MBA-3.2-H4-L4		
	2	Raycap DC6-48-60-0-8C		
	3	Ericsson RRUS 32 B30 (53 lbs)		
	3	Ericsson RRUS 4478 B14		
	3	Ericsson RRUS 8843 B2, B66A		
	3	Ericsson RRUS 8843 B2, B66A		
	3	Ericsson RRUS E2 B29		
	3	Quintel QD8616-7		
	3	Raycap DC9-48-60-24-8C-EV		
	4	Ericsson RRUS 4449 B5, B12		
	6	Kaelus DBC0051F3V51-2		

Elev.*	Qty	Equipment	Lines	Carrier
	6	Kaelus DBC0051F3V51-2		
128.0’	3	Ericsson Air 6449 B77D	-	AT&T MOBILITY

(If table breaks across pages, please see previous page for data in merged cells)

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	Usage	Pass/Fail
Anchor Rods	31%	Pass
Base Plate	8%	Pass
Shaft	26%	Pass

Foundation Reactions & Usages

Reaction Component	Analysis Reactions	Usage
Moment (k-ft)	2841.2	26%
Axial (k)	70.3	14%
Shear (k)	29.1	8%

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.

Antenna Deflection, Twist, and Sway

Elev.	Antenna	Carrier	Deflection	Twist	Sway [Rotation]
132.0’	Ericsson AIR 6419 B77G	AT&T MOBILITY	0.451’	N/A	0.360°
130.0’	Raycap DC9-48-60-24-8C-EV	AT&T MOBILITY	0.438’	N/A	0.360°
	Ericsson RRUS 8843 B2, B66A				
	Ericsson RRUS 4449 B5, B12				
	Kaelus DBC0051F3V51-2				
	Ericsson RRUS 4478 B14				
	Matsing MBA-3.2-H4-L4				
	Ericsson RRUS 32 B30 (53 lbs)				
	Raycap DC6-48-60-0-8C				
128.0’	Ericsson Air 6449 B77D	AT&T MOBILITY	0.426’	N/A	0.360°
121.8’	Commscope VHLP2-18-1WH/C	SPRINT NEXTEL	0.388’	N/A	0.350°

Deflection, Twist 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.

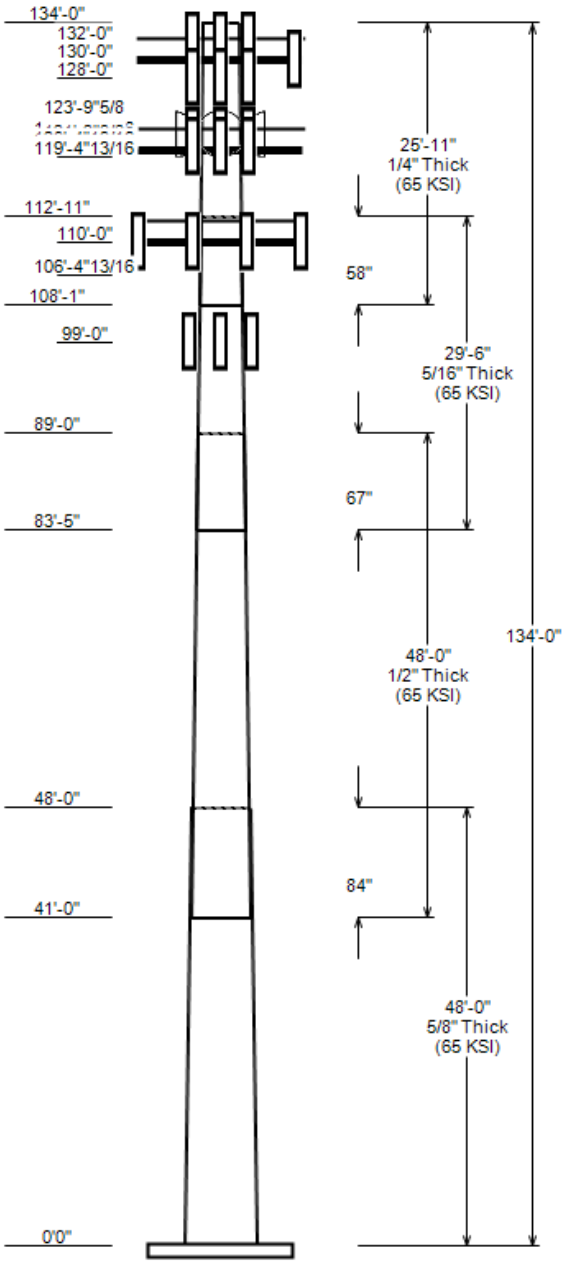
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

ANALYSIS PARAMETERS

Nominal Wind:	120 mph	**Ice Wind:**	50 mph w/ 1" ice	**Service Wind:**	60 mph
Risk Category:	II	**Exposure:**	B	**S_s:** 0.211	**S_1:** 0.054
Topo Category:	1	**Topo Factor:**	Method 1	**Topo Feature:**	
Structure Height:	134 ft	**Base Elevation:**	0.00 ft	**Structure Type:**	Taper
Base Diameter:	64 in	**Base Rotation:**	0°	**Taper:**	0.2730 (in/ft)



GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	2841.15	70.32	29.08
0.9D + 1.0W	2826.80	52.74	29.07
1.2D + 1.0Di + 1.0Wi	725.16	89.36	7.62
1.2D + 1.0Ev + 1.0Eh	235.39	70.10	2.29
0.9D - 1.0Ev + 1.0Eh	233.92	48.14	2.29
1.0D + 1.0W	633.29	58.62	6.50

POLE SECTION PROPERTIES

Section	Length (ft)	Flat Diameter (in) Top	Flat Diameter (in) Bottom	Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
1	48.000	50.89	64.00	0.625		0.000	18 Sides	65
2	48.000	40.69	53.80	0.500	Slip Joint	84.000	18 Sides	65
3	29.500	34.78	42.84	0.312	Slip Joint	67.000	18 Sides	65
4	25.917	29.52	36.60	0.250	Slip Joint	58.000	18 Sides	65

DISCRETE APPURTENANCE

Elev (ft)	Description
132.0	(3) Ericsson AIR 6419 B77G
130.0	(6) Kaelus DBC0051F3V51-2
130.0	(6) Kaelus DBC0051F3V51-2
130.0	(3) Raycap DC9-48-60-24-8C-EV
130.0	(3) Ericsson RRUS 8843 B2, B66A
130.0	(3) Ericsson RRUS 8843 B2, B66A
130.0	(1) Ericsson RRUS 4426 B66
130.0	(4) Ericsson RRUS 4449 B5, B12
130.0	(1) Ericsson RRUS 4449 B5, B12
130.0	(3) Ericsson RRUS 4478 B14
130.0	(1) Ericsson RRUS 32 B2
130.0	(3) Ericsson RRUS 32 B30 (53 lbs)
130.0	(2) Raycap DC6-48-60-0-8C
130.0	(3) Ericsson RRUS E2 B29
130.0	(1) Matsing MBA-3.2-H4-L4
130.0	(1) Matsing MBA-3.2-H4-L4
130.0	(1) CCI DMP65R-BU8D
130.0	(3) Quintel QD8616-7
130.0	(1) Generic Flat Platform with Han
128.0	(3) Ericsson Air 6449 B77D
123.8	(1) Motorola PTP-600
121.8	(3) DragonWave Airpair (Radio-7.5"
121.8	(3) Commscope VHLP2-18-1WH/C
121.4	(3) RFS APXVSPP18-C-A20 (62 lbs)
121.2	(3) Alcatel-Lucent 800 MHz RRH
120.4	(3) RFS APXVTM14-ALU-I20
120.0	(1) Generic Mount Reinforcement
120.0	(1) Generic Flat Platform with Han
119.6	(3) Alcatel-Lucent TD-RRH8x20-25 w
119.4	(3) Alcatel-Lucent 1900MHz RRH (65
110.0	(4) Ericsson Radio 4478 B71
110.0	(4) Ericsson RRUS 11 B12
110.0	(4) Ericsson RRUS 11 B4
110.0	(4) Ericsson AIR32 B4A B2P
110.0	(4) Andrew DBXNH-6565B-A2M
110.0	(4) RFS APXVAA24_43-U-A20
110.0	(1) Generic Square Platform with H
106.4	(4) Generic Diplexer / Coupler
99.0	(1) Raycap RDIDC-9181-PF-48
99.0	(3) Fujitsu TA08025-B605
99.0	(3) Fujitsu TA08025-B604
99.0	(3) JMA Wireless MX08FRO665-21
99.0	(1) Commscope MC-PK8-DSH

LINEAR APPURTENANCE

Elev To (ft)	Description
130.0	(3) 3/8" (0.38"- 9.5mm) RET Control Cabl
130.0	(4) 2" conduit
130.0	(1) 2" conduit
130.0	(2) 0.96" (24.3mm) Cable
130.0	(3) 0.96" (24.3mm) Cable
130.0	(8) 0.78" (19.7mm) 8 AWG 6
130.0	(3) 0.39" (10mm) Fiber Trunk
121.0	(4) 1/2" Coax
121.0	(4) 1 1/4" Hybriflex Cable
110.0	(4) 1 5/8" Hybriflex
99.0	(1) 1.63" (41.3mm) Hybrid

DISH SERVICEABILITY

Load Case	Elevation (ft)	Deflection (in)	Rotation (°)
1.0D + 1.0W	121.80	4.648	0.354

LOAD CASE KEY

1.2D + 1.0W	120 mph Wind with No Ice
0.9D + 1.0W	120 mph Wind with No Ice (Reduced
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

ANALYSIS PARAMETERS

Location:	Fairfield County,CT	**Height:**	134 ft
Type and Shape:	Taper, 18 Sides	**Base Diameter:**	64.00 in
Manufacturer:	Rohn	**Top Diameter:**	29.52 in
K_d (non-service):	0.95	**Taper:**	0.2730 in/ft
K_e:	1.00	**Rotation:**	0.000º

ICE & WIND PARAMETERS

Risk Category:	II	**Design Wind Speed:**	120 mph
Exposure Category:	B	**Design Wind Speed w/ Ice:**	50 mph
Topo Factor Procedure:	Method 1	**Design Ice Thickness:**	1.00 in
Topographic Category:	1	**Service Wind Speed:**	60 mph
Crest Height:	0 ft	**HMSL:**	0.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil		**Period Based on Rayleigh Method (sec):**		1.48
T_L (sec):	6	**P:**	1	**$C_{s:}$**	0.039
$S_{s:}$	0.211	**$S_{1:}$**	0.054	**C_s Max:**	0.039
$F_{a:}$	1.600	**$F_{v:}$**	2.400	**C_s Min:**	0.030
$S_{ds:}$	0.225	**$S_{d1:}$**	0.086		

LOAD CASES

1.2D + 1.0W	120 mph Wind with No Ice
0.9D + 1.0W	120 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

							Bottom						Top						
Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	48.00	0.6250	65		0.00	18,409	64.00	0.000	125.72	63,793.8	16.29	102.40	50.89	48.00	99.71	31,824.	12.59	81.42	0.2732
2-18	48.00	0.5000	65	Slip	84.00	12,116	53.80	41.000	84.58	30,359.6	17.21	107.60	40.69	89.00	63.78	13,013.	12.59	81.38	0.2732
3-18	29.50	0.3125	65	Slip	67.00	3,833	42.84	83.420	42.18	9,637.1	22.41	137.08	34.78	112.92	34.19	5,131.1	17.86	111.30	0.2732
4-18	25.92	0.2500	65	Slip	58.00	2,296	36.60	108.083	28.84	4,815.0	24.05	146.40	29.52	134.00	23.23	2,514.0	19.06	118.08	0.2732
			Total Shaft Weight			**36,654**													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
132.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	130.04	4.665	0.65
130.00	Ericsson RRUS 32 B30 (53 lbs)	3	0.75	0.000	53.00	2.743	0.67	101.40	3.513	0.67
130.00	Matsing MBA-3.2-H4-L4	1	0.75	0.000	130.00	15.211	1.00	445.68	17.108	1.00
130.00	Matsing MBA-3.2-H4-L4	1	0.75	0.000	130.00	15.211	1.00	445.68	17.108	1.00
130.00	Ericsson RRUS E2 B29	3	0.75	0.000	60.00	3.145	0.62	113.22	3.908	0.62
130.00	Raycap DC6-48-60-0-8C	2	0.75	0.000	16.00	3.048	0.70	64.78	3.798	0.70
130.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3668.98	56.200	1.00
130.00	Quintel QD8616-7	3	0.75	0.000	150.00	18.815	0.65	400.57	21.247	0.65
130.00	CCI DMP65R-BU8D	1	0.75	0.000	95.70	17.871	0.63	319.36	20.296	0.63
130.00	Ericsson RRUS 32 B2	1	0.75	0.000	53.00	2.743	0.67	101.40	3.513	0.67
130.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.40	2.021	0.67	99.78	2.642	0.67
130.00	Ericsson RRUS 4449 B5, B12	1	0.75	0.000	71.00	1.969	0.50	113.41	2.583	0.50
130.00	Ericsson RRUS 4449 B5, B12	4	0.75	0.000	71.00	1.969	0.50	113.41	2.583	0.50
130.00	Ericsson RRUS 4426 B66	1	0.75	0.000	48.40	1.650	0.50	77.78	2.209	0.50
130.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	112.33	2.195	0.50
130.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	112.33	2.195	0.50
130.00	Raycap DC9-48-60-24-8C-EV	3	0.75	0.000	16.00	1.010	0.50	45.67	1.379	0.50
130.00	Kaelus DBC0051F3V51-2	6	0.75	0.000	12.40	0.413	0.50	22.18	0.703	0.50
130.00	Kaelus DBC0051F3V51-2	6	0.75	0.000	12.40	0.413	0.50	22.18	0.703	0.50
128.00	Ericsson Air 6449 B77D	3	0.75	0.000	81.60	4.028	0.65	149.14	4.931	0.65
123.80	Motorola PTP-600	1	0.75	0.000	12.10	1.752	1.00	38.17	2.322	1.00
121.80	Commscope VHLP2-18-1WH/C	3	0.75	0.000	17.00	4.650	1.00	75.81	5.481	1.00
121.80	DragonWave Airpair (Radio-7.5"	3	0.75	0.000	7.00	0.340	1.00	12.53	0.630	1.00
121.40	RFS APXVSPP18-C-A20 (62 lbs)	3	0.75	0.000	62.00	8.024	0.71	180.44	9.848	0.71
121.20	Alcatel-Lucent 800 MHz RRH	3	0.75	0.000	53.00	2.134	0.67	101.25	2.773	0.67
120.40	RFS APXVTM14-ALU-I20	3	0.75	0.000	56.20	6.342	0.66	146.17	7.765	0.66
120.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3660.36	56.099	1.00
120.00	Generic Mount Reinforcement	1	1.00	0.000	200.00	7.500	1.00	326.41	12.391	1.00
119.60	Alcatel-Lucent TD-RRH8x20-25 w	3	0.75	0.000	70.00	4.046	0.61	131.72	4.913	0.61
119.40	Alcatel-Lucent 1900MHz RRH (65	3	0.75	0.000	60.00	2.583	0.67	120.10	3.309	0.67
110.00	Generic Square Platform with H	1	1.00	0.000	3790.00	49.300	1.00	6660.23	104.415	1.00
110.00	RFS APXVAA24_43-U-A20	4	0.75	0.000	101.40	20.267	0.63	353.67	22.670	0.63
110.00	Andrew DBXNH-6565B-A2M	4	0.75	0.000	46.30	8.173	0.69	160.13	9.997	0.69
110.00	Ericsson AIR32 B4A B2P	4	0.75	0.000	105.80	6.523	0.71	209.15	7.943	0.71
110.00	Ericsson RRUS 11 B12	4	0.75	0.000	50.70	2.791	0.67	97.55	3.501	0.67
110.00	Ericsson RRUS 11 B4	4	0.75	0.000	50.70	2.791	0.67	97.55	3.501	0.67
110.00	Ericsson Radio 4478 B71	4	0.75	0.000	60.00	1.650	0.50	92.38	2.198	0.50
106.40	Generic Diplexer / Coupler	4	0.75	0.000	5.00	0.600	0.50	15.78	0.956	0.50
99.00	Raycap RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	58.29	2.443	1.00
99.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.07	2.550	0.50
99.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.20	2.550	0.50
99.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	228.88	14.286	0.64
99.00	Commscope MC-PK8-DSH	1	1.00	0.000	1801.00	27.200	1.00	2603.42	39.319	1.00
Totals	**Row Count: 43**	**116**			**16,973.60**			**30,906.32**		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg): 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/ Row	Distance Between Rows(in)	Distance Between Cols(in)	Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	130.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	4	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	3	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	3	0.96" (24.3mm) Cable	0.96	0.88	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	2	0.96" (24.3mm) Cable	0.96	0.88	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	130.00	1	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	121.00	4	1 1/4" Hybriflex Cabl	1.54	1	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	121.00	4	1/2" Coax	0.63	0.15	N	0	0	0	0	0	N	SPRINT NEXTEL
0.00	110.00	4	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	T-MOBILE
0.00	99.00	1	1.63" (41.3mm) Hybrid	1.63	1.91	N	0	0	0	0	0	N	DISH WIRELESS L.L.C.

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description *(Max Length: 5 ft)*	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)
0.00		0.6250	64.000	125.716	63,793.80	16.29	102.40	82.2	1963.3	0.0	0.0
5.00		0.6250	62.634	123.006	59,757.40	15.91	100.21	82.6	1879.2	0.0	2,115.9
10.00		0.6250	61.268	120.297	55,895.00	15.52	98.03	82.6	1796.9	0.0	2,069.8
15.00		0.6250	59.902	117.587	52,202.70	15.14	95.84	82.6	1716.4	0.0	2,023.7
20.00		0.6250	58.537	114.878	48,676.70	14.75	93.66	82.6	1637.9	0.0	1,977.6
25.00		0.6250	57.171	112.169	45,313.20	14.37	91.47	82.6	1561.1	0.0	1,931.5
30.00		0.6250	55.805	109.459	42,108.20	13.98	89.29	82.6	1486.2	0.0	1,885.4
35.00		0.6250	54.439	106.750	39,058.10	13.60	87.10	82.6	1413.1	0.0	1,839.3
40.00		0.6250	53.073	104.040	36,159.00	13.21	84.92	82.6	1341.9	0.0	1,793.2
41.00	Bot - Section 2	0.6250	52.800	103.498	35,596.90	13.13	84.48	82.6	1327.9	0.0	353.1
45.00		0.6250	51.707	101.331	33,407.00	12.82	82.73	82.6	1272.5	0.0	2,533.5
48.00	Top - Section 1	0.5000	51.888	81.550	27,207.90	16.54	103.78	82	1032.8	0.0	1,865.2
50.00		0.5000	51.342	80.683	26,349.30	16.34	102.68	82.2	1010.8	0.0	552.0
55.00		0.5000	49.976	78.515	24,282.20	15.86	99.95	82.6	957.0	0.0	1,354.3
60.00		0.5000	48.610	76.348	22,326.20	15.38	97.22	82.6	904.6	0.0	1,317.4
65.00		0.5000	47.244	74.180	20,478.10	14.90	94.49	82.6	853.7	0.0	1,280.5
70.00		0.5000	45.878	72.012	18,735.00	14.42	91.76	82.6	804.3	0.0	1,243.7
75.00		0.5000	44.512	69.845	17,093.70	13.93	89.02	82.6	756.4	0.0	1,206.8
80.00		0.5000	43.146	67.677	15,551.10	13.45	86.29	82.6	709.9	0.0	1,169.9
83.42	Bot - Section 3	0.5000	42.213	66.196	14,552.30	13.12	84.43	82.6	679.0	0.0	778.2
85.00		0.5000	41.781	65.510	14,104.30	12.97	83.56	82.6	664.9	0.0	580.9
89.00	Top - Section 2	0.3125	41.313	40.666	8,636.90	21.55	132.20	76.1	411.8	0.0	1,440.7
90.00		0.3125	41.040	40.395	8,465.40	21.39	131.33	76.2	406.3	0.0	137.9
95.00		0.3125	39.674	39.040	7,642.00	20.62	126.96	77.1	379.4	0.0	675.7
99.00		0.3125	38.581	37.956	7,023.00	20.01	123.46	77.9	358.5	0.0	524.0
100.00		0.3125	38.308	37.685	6,873.70	19.85	122.59	78.1	353.4	0.0	128.7
105.00		0.3125	36.942	36.331	6,158.80	19.08	118.21	79	328.4	0.0	629.7
106.40		0.3125	36.560	35.951	5,967.90	18.87	116.99	79.2	321.5	0.0	172.2
108.08	Bot - Section 4	0.3125	36.100	35.495	5,743.60	18.61	115.52	79.5	313.4	0.0	204.6
110.00		0.3125	35.576	34.976	5,495.20	18.31	113.84	79.9	304.2	0.0	416.6
112.92	Top - Section 3	0.2500	35.280	27.795	4,309.10	23.12	141.12	74.2	240.6	0.0	622.2
115.00		0.2500	34.710	27.343	4,102.50	22.72	138.84	74.7	232.8	0.0	195.4
119.40		0.2500	33.509	26.390	3,688.00	21.87	134.03	75.7	216.8	0.0	402.3
119.60		0.2500	33.454	26.346	3,669.90	21.83	133.82	75.7	216.1	0.0	17.9
120.00		0.2500	33.345	26.260	3,633.80	21.75	133.38	75.8	214.6	0.0	35.8
120.40		0.2500	33.235	26.173	3,597.90	21.68	132.94	75.9	213.2	0.0	35.7
121.20		0.2500	33.017	26.000	3,526.80	21.52	132.07	76.1	210.4	0.0	71.0
121.40		0.2500	32.962	25.956	3,509.20	21.49	131.85	76.1	209.7	0.0	17.7
121.80		0.2500	32.853	25.869	3,474.20	21.41	131.41	76.2	208.3	0.0	35.3
123.80		0.2500	32.307	25.436	3,302.40	21.02	129.23	76.7	201.3	0.0	174.6
125.00		0.2500	31.979	25.176	3,202.20	20.79	127.92	76.9	197.2	0.0	103.3
128.00		0.2500	31.159	24.526	2,960.40	20.21	124.64	77.6	187.1	0.0	253.7
130.00		0.2500	30.613	24.092	2,806.20	19.83	122.45	78.1	180.5	0.0	165.4

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description	*(Max Length: 5 ft)*	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)
132.00			0.2500	30.067	23.659	2,657.40	19.44	120.27	78.5	174.1	0.0	162.5
134.00			0.2500	29.520	23.225	2,514.00	19.06	118.08	79	167.7	0.0	159.5
											Total:	**36,654.3**

CALCULATED FORCES

Load Case: 1.2D + 1.0W — 120 mph Wind with No Ice — 19 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.20
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-70.32	-29.08	0.00	-2,841.2	0.00	2,841.15	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.242
5.00	-67.51	-28.63	0.00	-2,695.7	0.00	2,695.74	9,138.75	2,158.76	12,091.65	11,634.30	0.03	-0.06	0.239
10.00	-64.76	-28.19	0.00	-2,552.6	0.00	2,552.59	8,937.45	2,111.21	11,564.92	11,124.92	0.13	-0.12	0.237
15.00	-62.06	-27.75	0.00	-2,411.6	0.00	2,411.65	8,736.16	2,063.66	11,049.92	10,626.94	0.3	-0.19	0.234
20.00	-59.42	-27.32	0.00	-2,272.9	0.00	2,272.90	8,534.86	2,016.11	10,546.65	10,140.36	0.53	-0.25	0.231
25.00	-56.84	-26.89	0.00	-2,136.3	0.00	2,136.31	8,333.57	1,968.56	10,055.11	9,665.19	0.83	-0.32	0.228
30.00	-54.31	-26.47	0.00	-2,001.8	0.00	2,001.83	8,132.27	1,921.01	9,575.30	9,201.41	1.19	-0.38	0.224
35.00	-51.83	-26.04	0.00	-1,869.5	0.00	1,869.48	7,930.97	1,873.46	9,107.22	8,749.05	1.63	-0.45	0.220
40.00	-49.43	-25.77	0.00	-1,739.3	0.00	1,739.29	7,729.68	1,825.91	8,650.87	8,308.08	2.13	-0.51	0.216
41.00	-48.94	-25.55	0.00	-1,713.5	0.00	1,713.52	7,689.42	1,816.40	8,561.00	8,221.26	2.24	-0.53	0.215
45.00	-45.69	-25.21	0.00	-1,611.3	0.00	1,611.34	7,528.38	1,778.36	8,206.24	7,878.52	2.7	-0.58	0.211
48.00	-43.30	-24.96	0.00	-1,535.7	0.00	1,535.72	6,014.85	1,431.19	6,643.24	6,347.94	3.08	-0.62	0.249
50.00	-42.52	-24.64	0.00	-1,485.8	0.00	1,485.81	5,967.36	1,415.98	6,502.76	6,230.22	3.34	-0.65	0.246
55.00	-40.63	-24.18	0.00	-1,362.6	0.00	1,362.59	5,833.27	1,377.94	6,158.11	5,925.03	4.06	-0.72	0.237
60.00	-38.79	-23.71	0.00	-1,241.7	0.00	1,241.69	5,672.24	1,339.90	5,822.85	5,600.81	4.86	-0.8	0.229
65.00	-36.99	-23.25	0.00	-1,123.1	0.00	1,123.12	5,511.20	1,301.86	5,496.97	5,285.72	5.74	-0.87	0.220
70.00	-35.23	-22.78	0.00	-1,006.9	0.00	1,006.90	5,350.16	1,263.82	5,180.47	4,979.75	6.69	-0.95	0.209
75.00	-33.53	-22.31	0.00	-893.0	0.00	893.02	5,189.13	1,225.78	4,873.36	4,682.90	7.73	-1.02	0.197
80.00	-31.87	-21.91	0.00	-781.5	0.00	781.49	5,028.09	1,187.74	4,575.63	4,395.18	8.83	-1.09	0.184
83.42	-30.76	-21.67	0.00	-706.6	0.00	706.64	4,918.05	1,161.74	4,377.58	4,203.82	9.63	-1.14	0.175
85.00	-29.98	-21.41	0.00	-672.3	0.00	672.34	4,867.06	1,149.70	4,287.28	4,116.58	10.01	-1.16	0.170
89.00	-28.06	-21.14	0.00	-586.7	0.00	586.72	2,783.63	713.68	2,642.94	2,348.85	11	-1.21	0.261
90.00	-27.83	-20.89	0.00	-565.6	0.00	565.57	2,771.67	708.93	2,607.84	2,323.06	11.26	-1.22	0.254
95.00	-26.76	-20.48	0.00	-461.1	0.00	461.14	2,710.57	685.15	2,435.88	2,195.08	12.59	-1.31	0.221
99.00	-23.06	-18.25	0.00	-379.2	0.00	379.21	2,660.10	666.13	2,302.53	2,093.93	13.71	-1.37	0.191
100.00	-22.85	-17.99	0.00	-361.0	0.00	360.96	2,647.26	661.38	2,269.78	2,068.83	14	-1.38	0.184
105.00	-21.87	-17.70	0.00	-271.0	0.00	271.00	2,581.73	637.60	2,109.55	1,944.50	15.49	-1.45	0.149
106.40	-21.57	-17.53	0.00	-246.2	0.00	246.23	2,562.99	630.95	2,065.73	1,910.06	15.92	-1.47	0.138
108.08	-21.25	-17.37	0.00	-216.7	0.00	216.72	2,540.22	622.94	2,013.66	1,868.87	16.44	-1.49	0.125
110.00	-14.26	-11.81	0.00	-183.4	0.00	183.43	2,514.00	613.83	1,955.18	1,822.28	17.04	-1.5	0.107
112.92	-13.40	-11.58	0.00	-149.0	0.00	148.98	1,856.34	487.80	1,543.35	1,338.93	17.97	-1.53	0.119
115.00	-13.08	-11.30	0.00	-124.8	0.00	124.85	1,837.80	479.88	1,493.62	1,303.87	18.64	-1.55	0.103
119.40	-12.22	-10.93	0.00	-75.1	0.00	75.12	1,797.38	463.14	1,391.25	1,230.39	20.08	-1.58	0.068
119.60	-11.94	-10.68	0.00	-72.9	0.00	72.93	1,795.50	462.38	1,386.69	1,227.07	20.14	-1.58	0.067
120.00	-8.70	-8.56	0.00	-68.7	0.00	68.66	1,791.74	460.86	1,377.57	1,220.44	20.28	-1.58	0.061
120.40	-8.45	-8.12	0.00	-65.2	0.00	65.24	1,787.96	459.33	1,368.49	1,213.81	20.41	-1.58	0.059
121.20	-8.15	-7.94	0.00	-58.7	0.00	58.74	1,780.35	456.29	1,350.42	1,200.58	20.67	-1.59	0.054
121.40	-7.92	-7.40	0.00	-57.2	0.00	57.15	1,778.44	455.53	1,345.92	1,197.28	20.74	-1.59	0.052
121.80	-7.79	-6.84	0.00	-54.2	0.00	54.19	1,774.61	454.01	1,336.95	1,190.68	20.87	-1.59	0.050
123.80	-7.50	-6.65	0.00	-40.5	0.00	40.51	1,755.25	446.40	1,292.52	1,157.81	21.54	-1.6	0.039
125.00	-7.34	-6.48	0.00	-32.5	0.00	32.53	1,743.46	441.84	1,266.23	1,138.18	21.94	-1.6	0.033
128.00	-6.65	-6.03	0.00	-13.1	0.00	13.08	1,713.44	430.42	1,201.67	1,089.46	22.95	-1.61	0.016
130.00	-0.61	-0.44	0.00	-1.0	0.00	1.03	1,692.98	422.82	1,159.57	1,057.27	23.62	-1.61	0.001
132.00	-0.19	-0.07	0.00	-0.1	0.00	0.14	1,672.17	415.21	1,118.22	1,025.33	24.3	-1.61	0.000
134.00	0.00	-0.07	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	24.97	-1.61	0.000

CALCULATED FORCES

Load Case: 0.9D + 1.0W — 120 mph Wind with No Ice (Reduced DL) — 19 Iterations

Gust Response Factor: 1.10
Dead load Factor: 0.90
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-52.74	-29.07	0.00	-2,826.8	0.00	2,826.80	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.239
5.00	-50.62	-28.60	0.00	-2,681.4	0.00	2,681.44	9,138.75	2,158.76	12,091.65	11,634.30	0.03	-0.06	0.236
10.00	-48.55	-28.14	0.00	-2,538.4	0.00	2,538.42	8,937.45	2,111.21	11,564.92	11,124.92	0.13	-0.12	0.234
15.00	-46.52	-27.69	0.00	-2,397.7	0.00	2,397.71	8,736.16	2,063.66	11,049.92	10,626.94	0.3	-0.19	0.231
20.00	-44.53	-27.24	0.00	-2,259.3	0.00	2,259.27	8,534.86	2,016.11	10,546.65	10,140.36	0.52	-0.25	0.228
25.00	-42.59	-26.81	0.00	-2,123.0	0.00	2,123.05	8,333.57	1,968.56	10,055.11	9,665.19	0.82	-0.31	0.225
30.00	-40.68	-26.37	0.00	-1,989.0	0.00	1,989.02	8,132.27	1,921.01	9,575.30	9,201.41	1.18	-0.38	0.221
35.00	-38.82	-25.93	0.00	-1,857.2	0.00	1,857.16	7,930.97	1,873.46	9,107.22	8,749.05	1.62	-0.44	0.217
40.00	-37.01	-25.65	0.00	-1,727.5	0.00	1,727.52	7,729.68	1,825.91	8,650.87	8,308.08	2.12	-0.51	0.213
41.00	-36.65	-25.42	0.00	-1,701.9	0.00	1,701.87	7,689.42	1,816.40	8,561.00	8,221.26	2.22	-0.52	0.212
45.00	-34.21	-25.08	0.00	-1,600.2	0.00	1,600.18	7,528.38	1,778.36	8,206.24	7,878.52	2.69	-0.57	0.208
48.00	-32.41	-24.84	0.00	-1,524.9	0.00	1,524.92	6,014.85	1,431.19	6,643.24	6,347.94	3.06	-0.61	0.246
50.00	-31.82	-24.51	0.00	-1,475.2	0.00	1,475.25	5,967.36	1,415.98	6,502.76	6,230.22	3.32	-0.64	0.242
55.00	-30.40	-24.04	0.00	-1,352.7	0.00	1,352.69	5,833.27	1,377.94	6,158.11	5,925.03	4.04	-0.72	0.234
60.00	-29.01	-23.57	0.00	-1,232.5	0.00	1,232.48	5,672.24	1,339.90	5,822.85	5,600.81	4.83	-0.79	0.225
65.00	-27.65	-23.09	0.00	-1,114.6	0.00	1,114.64	5,511.20	1,301.86	5,496.97	5,285.72	5.7	-0.87	0.216
70.00	-26.33	-22.62	0.00	-999.2	0.00	999.17	5,350.16	1,263.82	5,180.47	4,979.75	6.65	-0.94	0.206
75.00	-25.05	-22.15	0.00	-886.1	0.00	886.08	5,189.13	1,225.78	4,873.36	4,682.90	7.68	-1.01	0.194
80.00	-23.80	-21.75	0.00	-775.3	0.00	775.34	5,028.09	1,187.74	4,575.63	4,395.18	8.78	-1.08	0.181
83.42	-22.97	-21.51	0.00	-701.0	0.00	701.04	4,918.05	1,161.74	4,377.58	4,203.82	9.57	-1.13	0.172
85.00	-22.38	-21.24	0.00	-667.0	0.00	666.99	4,867.06	1,149.70	4,287.28	4,116.58	9.95	-1.15	0.167
89.00	-20.94	-20.99	0.00	-582.0	0.00	582.01	2,783.63	713.68	2,642.94	2,348.85	10.93	-1.2	0.256
90.00	-20.76	-20.73	0.00	-561.0	0.00	561.02	2,771.67	708.93	2,607.84	2,323.06	11.19	-1.21	0.250
95.00	-19.96	-20.32	0.00	-457.4	0.00	457.39	2,710.57	685.15	2,435.88	2,195.08	12.51	-1.3	0.217
99.00	-17.19	-18.10	0.00	-376.1	0.00	376.11	2,660.10	666.13	2,302.53	2,093.93	13.62	-1.36	0.187
100.00	-17.04	-17.84	0.00	-358.0	0.00	358.00	2,647.26	661.38	2,269.78	2,068.83	13.91	-1.38	0.180
105.00	-16.29	-17.55	0.00	-268.8	0.00	268.78	2,581.73	637.60	2,109.55	1,944.50	15.39	-1.44	0.145
106.40	-16.07	-17.38	0.00	-244.2	0.00	244.20	2,562.99	630.95	2,065.73	1,910.06	15.81	-1.46	0.135
108.08	-15.83	-17.23	0.00	-214.9	0.00	214.94	2,540.22	622.94	2,013.66	1,868.87	16.33	-1.48	0.122
110.00	-10.62	-11.71	0.00	-181.9	0.00	181.93	2,514.00	613.83	1,955.18	1,822.28	16.93	-1.49	0.104
112.92	-9.98	-11.49	0.00	-147.8	0.00	147.76	1,856.34	487.80	1,543.35	1,338.93	17.85	-1.52	0.116
115.00	-9.74	-11.21	0.00	-123.8	0.00	123.83	1,837.80	479.88	1,493.62	1,303.87	18.51	-1.53	0.101
119.40	-9.09	-10.85	0.00	-74.5	0.00	74.51	1,797.38	463.14	1,391.25	1,230.39	19.94	-1.56	0.066
119.60	-8.89	-10.59	0.00	-72.3	0.00	72.34	1,795.50	462.38	1,386.69	1,227.07	20.01	-1.57	0.064
120.00	-6.47	-8.49	0.00	-68.1	0.00	68.10	1,791.74	460.86	1,377.57	1,220.44	20.14	-1.57	0.060
120.40	-6.29	-8.06	0.00	-64.7	0.00	64.71	1,787.96	459.33	1,368.49	1,213.81	20.27	-1.57	0.057
121.20	-6.06	-7.88	0.00	-58.3	0.00	58.26	1,780.35	456.29	1,350.42	1,200.58	20.54	-1.57	0.052
121.40	-5.89	-7.34	0.00	-56.7	0.00	56.68	1,778.44	455.53	1,345.92	1,197.28	20.6	-1.58	0.051
121.80	-5.80	-6.79	0.00	-53.8	0.00	53.75	1,774.61	454.01	1,336.95	1,190.68	20.73	-1.58	0.049
123.80	-5.58	-6.60	0.00	-40.2	0.00	40.17	1,755.25	446.40	1,292.52	1,157.81	21.4	-1.58	0.038
125.00	-5.46	-6.43	0.00	-32.2	0.00	32.25	1,743.46	441.84	1,266.23	1,138.18	21.8	-1.59	0.032
128.00	-4.95	-5.98	0.00	-13.0	0.00	12.97	1,713.44	430.42	1,201.67	1,089.46	22.8	-1.59	0.015
130.00	-0.46	-0.44	0.00	-1.0	0.00	1.02	1,692.98	422.82	1,159.57	1,057.27	23.46	-1.6	0.001
132.00	-0.14	-0.07	0.00	-0.1	0.00	0.14	1,672.17	415.21	1,118.22	1,025.33	24.13	-1.6	0.000
134.00	0.00	-0.07	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	24.8	-1.6	0.000

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph Wind with 1" Radial Ice — 19 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

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	-89.36	-7.62	0.00	-725.2	0.00	725.16	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.070
5.00	-86.27	-7.49	0.00	-687.0	0.00	687.05	9,138.75	2,158.76	12,091.65	11,634.30	0.01	-0.02	0.069
10.00	-83.21	-7.36	0.00	-649.6	0.00	649.60	8,937.45	2,111.21	11,564.92	11,124.92	0.03	-0.03	0.068
15.00	-80.19	-7.24	0.00	-612.8	0.00	612.78	8,736.16	2,063.66	11,049.92	10,626.94	0.08	-0.05	0.067
20.00	-77.23	-7.11	0.00	-576.6	0.00	576.59	8,534.86	2,016.11	10,546.65	10,140.36	0.13	-0.06	0.066
25.00	-74.32	-6.99	0.00	-541.0	0.00	541.02	8,333.57	1,968.56	10,055.11	9,665.19	0.21	-0.08	0.065
30.00	-71.47	-6.87	0.00	-506.1	0.00	506.07	8,132.27	1,921.01	9,575.30	9,201.41	0.3	-0.1	0.064
35.00	-68.67	-6.74	0.00	-471.7	0.00	471.73	7,930.97	1,873.46	9,107.22	8,749.05	0.41	-0.11	0.063
40.00	-65.94	-6.66	0.00	-438.0	0.00	438.02	7,729.68	1,825.91	8,650.87	8,308.08	0.54	-0.13	0.061
41.00	-65.39	-6.60	0.00	-431.4	0.00	431.36	7,689.42	1,816.40	8,561.00	8,221.26	0.57	-0.13	0.061
45.00	-61.88	-6.50	0.00	-405.0	0.00	404.97	7,528.38	1,778.36	8,206.24	7,878.52	0.69	-0.15	0.060
48.00	-59.30	-6.43	0.00	-385.5	0.00	385.46	6,014.85	1,431.19	6,643.24	6,347.94	0.78	-0.16	0.071
50.00	-58.40	-6.34	0.00	-372.6	0.00	372.61	5,967.36	1,415.98	6,502.76	6,230.22	0.85	-0.16	0.070
55.00	-56.20	-6.20	0.00	-340.9	0.00	340.92	5,833.27	1,377.94	6,158.11	5,925.03	1.03	-0.18	0.067
60.00	-54.05	-6.07	0.00	-309.9	0.00	309.91	5,672.24	1,339.90	5,822.85	5,600.81	1.23	-0.2	0.065
65.00	-51.95	-5.93	0.00	-279.6	0.00	279.58	5,511.20	1,301.86	5,496.97	5,285.72	1.45	-0.22	0.062
70.00	-49.90	-5.79	0.00	-249.9	0.00	249.94	5,350.16	1,263.82	5,180.47	4,979.75	1.69	-0.24	0.060
75.00	-47.90	-5.65	0.00	-221.0	0.00	220.99	5,189.13	1,225.78	4,873.36	4,682.90	1.95	-0.26	0.056
80.00	-45.95	-5.53	0.00	-192.7	0.00	192.73	5,028.09	1,187.74	4,575.63	4,395.18	2.23	-0.27	0.053
83.42	-44.65	-5.46	0.00	-173.8	0.00	173.82	4,918.05	1,161.74	4,377.58	4,203.82	2.43	-0.29	0.050
85.00	-43.78	-5.39	0.00	-165.2	0.00	165.17	4,867.06	1,149.70	4,287.28	4,116.58	2.53	-0.29	0.049
89.00	-41.63	-5.31	0.00	-143.6	0.00	143.62	2,783.63	713.68	2,642.94	2,348.85	2.78	-0.3	0.076
90.00	-41.36	-5.23	0.00	-138.3	0.00	138.31	2,771.67	708.93	2,607.84	2,323.06	2.84	-0.31	0.075
95.00	-40.02	-5.11	0.00	-112.1	0.00	112.14	2,710.57	685.15	2,435.88	2,195.08	3.18	-0.33	0.066
99.00	-34.85	-4.58	0.00	-91.7	0.00	91.69	2,660.10	666.13	2,302.53	2,093.93	3.46	-0.34	0.057
100.00	-34.59	-4.50	0.00	-87.1	0.00	87.11	2,647.26	661.38	2,269.78	2,068.83	3.53	-0.35	0.055
105.00	-33.34	-4.41	0.00	-64.6	0.00	64.61	2,581.73	637.60	2,109.55	1,944.50	3.9	-0.36	0.046
106.40	-32.94	-4.36	0.00	-58.4	0.00	58.44	2,562.99	630.95	2,065.73	1,910.06	4.01	-0.37	0.043
108.08	-32.53	-4.31	0.00	-51.1	0.00	51.09	2,540.22	622.94	2,013.66	1,868.87	4.14	-0.37	0.040
110.00	-21.23	-2.80	0.00	-42.8	0.00	42.83	2,514.00	613.83	1,955.18	1,822.28	4.29	-0.37	0.032
112.92	-20.21	-2.73	0.00	-34.6	0.00	34.65	1,856.34	487.80	1,543.35	1,338.93	4.52	-0.38	0.037
115.00	-19.79	-2.65	0.00	-29.0	0.00	28.95	1,837.80	479.88	1,493.62	1,303.87	4.68	-0.38	0.033
119.40	-18.56	-2.55	0.00	-17.3	0.00	17.29	1,797.38	463.14	1,391.25	1,230.39	5.04	-0.39	0.024
119.60	-18.13	-2.49	0.00	-16.8	0.00	16.78	1,795.50	462.38	1,386.69	1,227.07	5.06	-0.39	0.024
120.00	-13.81	-1.98	0.00	-15.8	0.00	15.78	1,791.74	460.86	1,377.57	1,220.44	5.09	-0.39	0.021
120.40	-13.32	-1.88	0.00	-15.0	0.00	14.99	1,787.96	459.33	1,368.49	1,213.81	5.12	-0.39	0.020
121.20	-12.86	-1.83	0.00	-13.5	0.00	13.49	1,780.35	456.29	1,350.42	1,200.58	5.19	-0.39	0.018
121.40	-12.32	-1.71	0.00	-13.1	0.00	13.12	1,778.44	455.53	1,345.92	1,197.28	5.21	-0.39	0.018
121.80	-12.01	-1.58	0.00	-12.4	0.00	12.44	1,774.61	454.01	1,336.95	1,190.68	5.24	-0.39	0.017
123.80	-11.60	-1.53	0.00	-9.3	0.00	9.27	1,755.25	446.40	1,292.52	1,157.81	5.41	-0.4	0.015
125.00	-11.38	-1.48	0.00	-7.4	0.00	7.44	1,743.46	441.84	1,266.23	1,138.18	5.51	-0.4	0.013
128.00	-10.39	-1.36	0.00	-3.0	0.00	3.00	1,713.44	430.42	1,201.67	1,089.46	5.75	-0.4	0.009
130.00	-0.95	-0.12	0.00	-0.3	0.00	0.29	1,692.98	422.82	1,159.57	1,057.27	5.92	-0.4	0.001
132.00	-0.28	-0.02	0.00	-0.0	0.00	0.05	1,672.17	415.21	1,118.22	1,025.33	6.09	-0.4	0.000
134.00	0.00	-0.02	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	6.26	-0.4	0.000

CALCULATED FORCES

Load Case: 1.0D + 1.0W — 60 mph Wind with No Ice — 18 Iterations

Gust Response Factor: 1.10
Dead load Factor: 1.00
Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-58.62	-6.50	0.00	-633.3	0.00	633.29	9,304.68	2,206.31	12,630.11	12,109.07	0	0	0.059
5.00	-56.30	-6.40	0.00	-600.8	0.00	600.78	9,138.75	2,158.76	12,091.65	11,634.30	0.01	-0.01	0.058
10.00	-54.03	-6.30	0.00	-568.8	0.00	568.78	8,937.45	2,111.21	11,564.92	11,124.92	0.03	-0.03	0.057
15.00	-51.80	-6.20	0.00	-537.3	0.00	537.30	8,736.16	2,063.66	11,049.92	10,626.94	0.07	-0.04	0.056
20.00	-49.62	-6.10	0.00	-506.3	0.00	506.31	8,534.86	2,016.11	10,546.65	10,140.36	0.12	-0.06	0.056
25.00	-47.49	-6.00	0.00	-475.8	0.00	475.82	8,333.57	1,968.56	10,055.11	9,665.19	0.18	-0.07	0.055
30.00	-45.40	-5.90	0.00	-445.8	0.00	445.82	8,132.27	1,921.01	9,575.30	9,201.41	0.27	-0.08	0.054
35.00	-43.36	-5.81	0.00	-416.3	0.00	416.29	7,930.97	1,873.46	9,107.22	8,749.05	0.36	-0.1	0.053
40.00	-41.37	-5.75	0.00	-387.3	0.00	387.26	7,729.68	1,825.91	8,650.87	8,308.08	0.47	-0.11	0.052
41.00	-40.98	-5.69	0.00	-381.5	0.00	381.51	7,689.42	1,816.40	8,561.00	8,221.26	0.5	-0.12	0.052
45.00	-38.28	-5.62	0.00	-358.7	0.00	358.73	7,528.38	1,778.36	8,206.24	7,878.52	0.6	-0.13	0.051
48.00	-36.30	-5.56	0.00	-341.9	0.00	341.88	6,014.85	1,431.19	6,643.24	6,347.94	0.69	-0.14	0.060
50.00	-35.66	-5.49	0.00	-330.8	0.00	330.75	5,967.36	1,415.98	6,502.76	6,230.22	0.74	-0.14	0.059
55.00	-34.11	-5.39	0.00	-303.3	0.00	303.29	5,833.27	1,377.94	6,158.11	5,925.03	0.9	-0.16	0.057
60.00	-32.59	-5.28	0.00	-276.4	0.00	276.36	5,672.24	1,339.90	5,822.85	5,600.81	1.08	-0.18	0.055
65.00	-31.11	-5.18	0.00	-250.0	0.00	249.95	5,511.20	1,301.86	5,496.97	5,285.72	1.28	-0.19	0.053
70.00	-29.66	-5.07	0.00	-224.1	0.00	224.07	5,350.16	1,263.82	5,180.47	4,979.75	1.49	-0.21	0.051
75.00	-28.26	-4.97	0.00	-198.7	0.00	198.71	5,189.13	1,225.78	4,873.36	4,682.90	1.72	-0.23	0.048
80.00	-26.89	-4.88	0.00	-173.9	0.00	173.89	5,028.09	1,187.74	4,575.63	4,395.18	1.97	-0.24	0.045
83.42	-25.97	-4.82	0.00	-157.2	0.00	157.23	4,918.05	1,161.74	4,377.58	4,203.82	2.14	-0.25	0.043
85.00	-25.33	-4.76	0.00	-149.6	0.00	149.59	4,867.06	1,149.70	4,287.28	4,116.58	2.23	-0.26	0.042
89.00	-23.73	-4.71	0.00	-130.5	0.00	130.54	2,783.63	713.68	2,642.94	2,348.85	2.45	-0.27	0.064
90.00	-23.55	-4.65	0.00	-125.8	0.00	125.83	2,771.67	708.93	2,607.84	2,323.06	2.51	-0.27	0.063
95.00	-22.67	-4.56	0.00	-102.6	0.00	102.59	2,710.57	685.15	2,435.88	2,195.08	2.8	-0.29	0.055
99.00	-19.56	-4.06	0.00	-84.4	0.00	84.36	2,660.10	666.13	2,302.53	2,093.93	3.05	-0.3	0.048
100.00	-19.39	-4.00	0.00	-80.3	0.00	80.30	2,647.26	661.38	2,269.78	2,068.83	3.12	-0.31	0.046
105.00	-18.57	-3.94	0.00	-60.3	0.00	60.29	2,581.73	637.60	2,109.55	1,944.50	3.45	-0.32	0.038
106.40	-18.32	-3.90	0.00	-54.8	0.00	54.78	2,562.99	630.95	2,065.73	1,910.06	3.54	-0.33	0.036
108.08	-18.06	-3.86	0.00	-48.2	0.00	48.21	2,540.22	622.94	2,013.66	1,868.87	3.66	-0.33	0.033
110.00	-12.12	-2.63	0.00	-40.8	0.00	40.81	2,514.00	613.83	1,955.18	1,822.28	3.79	-0.33	0.027
112.92	-11.41	-2.58	0.00	-33.1	0.00	33.14	1,856.34	487.80	1,543.35	1,338.93	4	-0.34	0.031
115.00	-11.14	-2.51	0.00	-27.8	0.00	27.78	1,837.80	479.88	1,493.62	1,303.87	4.15	-0.34	0.027
119.40	-10.42	-2.43	0.00	-16.7	0.00	16.71	1,797.38	463.14	1,391.25	1,230.39	4.47	-0.35	0.019
119.60	-10.18	-2.38	0.00	-16.2	0.00	16.23	1,795.50	462.38	1,386.69	1,227.07	4.49	-0.35	0.019
120.00	-7.44	-1.90	0.00	-15.3	0.00	15.28	1,791.74	460.86	1,377.57	1,220.44	4.52	-0.35	0.017
120.40	-7.22	-1.81	0.00	-14.5	0.00	14.51	1,787.96	459.33	1,368.49	1,213.81	4.54	-0.35	0.016
121.20	-6.96	-1.77	0.00	-13.1	0.00	13.07	1,780.35	456.29	1,350.42	1,200.58	4.6	-0.35	0.015
121.40	-6.75	-1.65	0.00	-12.7	0.00	12.72	1,778.44	455.53	1,345.92	1,197.28	4.62	-0.35	0.014
121.80	-6.64	-1.52	0.00	-12.1	0.00	12.06	1,774.61	454.01	1,336.95	1,190.68	4.65	-0.35	0.014
123.80	-6.39	-1.48	0.00	-9.0	0.00	9.01	1,755.25	446.40	1,292.52	1,157.81	4.8	-0.36	0.011
125.00	-6.26	-1.44	0.00	-7.2	0.00	7.24	1,743.46	441.84	1,266.23	1,138.18	4.89	-0.36	0.010
128.00	-5.67	-1.34	0.00	-2.9	0.00	2.91	1,713.44	430.42	1,201.67	1,089.46	5.11	-0.36	0.006
130.00	-0.52	-0.10	0.00	-0.2	0.00	0.23	1,692.98	422.82	1,159.57	1,057.27	5.26	-0.36	0.001
132.00	-0.16	-0.02	0.00	-0.0	0.00	0.03	1,672.17	415.21	1,118.22	1,025.33	5.41	-0.36	0.000
134.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,651.00	407.60	1,077.62	993.65	5.56	-0.36	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period (S_S):	0.211
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.054
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}):	0.225
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.086
Seismic Response Coefficient (C_s):	0.039
Upper Limit C_S:	0.039
Lower Limit C_S:	0.030
Period based on Rayleigh Method (sec):	1.480
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.490
Total Unfactored Dead Load:	58.620 k
Seismic Base Shear (E):	2.290 k

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	133	160	231	0.006	14	199
43	131	162	230	0.006	14	202
42	129	222	307	0.008	19	276
41	126.5	338	455	0.012	28	421
40	124.4	137	180	0.005	11	171
39	122.8	231	297	0.008	18	288
38	121.6	47	59	0.002	4	58
37	121.3	23	29	0.001	2	29
36	120.8	96	121	0.003	7	120
35	120.2	49	61	0.002	4	61
34	119.8	49	61	0.002	4	61
33	119.5	25	30	0.001	2	31
32	117.2	547	656	0.017	40	681
31	113.9583	264	303	0.008	18	329
30	111.4583	718	799	0.021	49	894
29	109.0417	489	527	0.014	32	609
28	107.2417	269	282	0.008	17	334
27	105.7	225	232	0.006	14	281
26	102.5	820	805	0.021	49	1,021
25	99.5	167	157	0.004	10	208
24	97	684	619	0.016	38	851
23	92.5	875	738	0.020	45	1,090
22	89.5	178	143	0.004	9	221
21	87	1,601	1,232	0.033	75	1,993
20	84.2083	644	472	0.012	29	802
19	81.7083	915	641	0.017	39	1,139
18	77.5	1,370	887	0.024	54	1,705
17	72.5	1,407	825	0.022	50	1,751
16	67.5	1,443	761	0.020	46	1,797
15	62.5	1,480	696	0.018	42	1,843
14	57.5	1,517	630	0.017	38	1,889
13	52.5	1,554	564	0.015	34	1,935
12	49	632	207	0.006	13	787
11	46.5	1,985	601	0.016	37	2,471
10	43	2,693	726	0.019	44	3,353
9	40.5	393	97	0.003	6	489
8	37.5	1,993	438	0.012	27	2,481
7	32.5	2,039	362	0.010	22	2,539

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh **Seismic**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
6	27.5	2,085	289	0.008	18	2,596
5	22.5	2,131	219	0.006	13	2,653
4	17.5	2,177	154	0.004	9	2,711
3	12.5	2,223	95	0.002	6	2,768
2	7.5	2,270	46	0.001	3	2,826
1	2.5	2,316	9	0.000	1	2,883
Ericsson AIR 6419 B77G	132	198	284	0.008	17	247
Kaelus DBC0051F3V51-2	130	74	104	0.003	6	93
Kaelus DBC0051F3V51-2	130	74	104	0.003	6	93
Raycap DC9-48-60-24-8C-EV	130	48	67	0.002	4	60
Ericsson RRUS 8843 B2, B66A	130	216	302	0.008	18	269
Ericsson RRUS 8843 B2, B66A	130	216	302	0.008	18	269
Ericsson RRUS 4426 B66	130	48	68	0.002	4	60
Ericsson RRUS 4449 B5, B12	130	284	397	0.011	24	354
Ericsson RRUS 4449 B5, B12	130	71	99	0.003	6	88
Ericsson RRUS 4478 B14	130	178	249	0.007	15	222
Ericsson RRUS 32 B2	130	53	74	0.002	5	66
Ericsson RRUS 32 B30 (53 lbs)	130	159	222	0.006	14	198
Raycap DC6-48-60-0-8C	130	32	45	0.001	3	40
Ericsson RRUS E2 B29	130	180	252	0.007	15	224
Matsing MBA-3.2-H4-L4	130	130	182	0.005	11	162
Matsing MBA-3.2-H4-L4	130	130	182	0.005	11	162
CCI DMP65R-BU8D	130	96	134	0.004	8	119
Quintel QD8616-7	130	450	629	0.017	38	560
Generic Flat Platform with Handrails	130	2,500	3,497	0.093	213	3,113
Generic Flat Platform with Handrails	120	2,500	3,105	0.082	189	3,113
Ericsson Air 6449 B77D	128	245	335	0.009	20	305
Motorola PTP-600	123.8	12	16	0.000	1	15
DragonWave Airpair (Radio-7.5" diameter)	121.8	21	27	0.001	2	26
Commscope VHLP2-18-1WH/C	121.8	51	65	0.002	4	63
RFS APXVSPP18-C-A20 (62 lbs)	121.4	186	235	0.006	14	232
Alcatel-Lucent 800 MHz RRH	121.2	159	200	0.005	12	198
RFS APXVTM14-ALU-I20	120.4	169	210	0.006	13	210
Generic Mount Reinforcement	120	200	248	0.007	15	249
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	119.6	210	259	0.007	16	261
Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield	119.4	180	222	0.006	13	224
Ericsson Radio 4478 B71	110	240	262	0.007	16	299
Ericsson RRUS 11 B4	110	203	221	0.006	13	252
Ericsson RRUS 11 B12	110	203	221	0.006	13	252
Ericsson AIR32 B4A B2P	110	423	462	0.012	28	527
Andrew DBXNH-6565B-A2M	110	185	202	0.005	12	231
RFS APXVAA24_43-U-A20	110	406	443	0.012	27	505
Generic Square Platform with Handrails	110	3,790	4,135	0.110	251	4,719
Generic Diplexer / Coupler	106.4	20	21	0.001	1	25
Raycap RDIDC-9181-PF-48	99	22	20	0.000	1	27
Fujitsu TA08025-B605	99	225	210	0.006	13	280
Fujitsu TA08025-B604	99	192	179	0.005	11	239
JMA Wireless MX08FRO665-21	99	194	180	0.005	11	241
Commscope MC-PK8-DSH	99	1,801	1,680	0.045	102	2,242
	Totals:	**58,617**	**37,626**	**1.000**	**2,287**	**72,978**

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
44	133	160	231	0.006	14	136
43	131	162	230	0.006	14	139
42	129	222	307	0.008	19	190
41	126.5	338	455	0.012	28	289
40	124.4	137	180	0.005	11	117
39	122.8	231	297	0.008	18	198

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	121.6	47	59	0.002	4	40
37	121.3	23	29	0.001	2	20
36	120.8	96	121	0.003	7	82
35	120.2	49	61	0.002	4	42
34	119.8	49	61	0.002	4	42
33	119.5	25	30	0.001	2	21
32	117.2	547	656	0.017	40	467
31	113.9583	264	303	0.008	18	226
30	111.4583	718	799	0.021	49	614
29	109.0417	489	527	0.014	32	418
28	107.2417	269	282	0.008	17	230
27	105.7	225	232	0.006	14	193
26	102.5	820	805	0.021	49	701
25	99.5	167	157	0.004	10	143
24	97	684	619	0.016	38	585
23	92.5	875	738	0.020	45	749
22	89.5	178	143	0.004	9	152
21	87	1,601	1,232	0.033	75	1,368
20	84.2083	644	472	0.012	29	551
19	81.7083	915	641	0.017	39	782
18	77.5	1,370	887	0.024	54	1,171
17	72.5	1,407	825	0.022	50	1,203
16	67.5	1,443	761	0.020	46	1,234
15	62.5	1,480	696	0.018	42	1,266
14	57.5	1,517	630	0.017	38	1,297
13	52.5	1,554	564	0.015	34	1,329
12	49	632	207	0.006	13	540
11	46.5	1,985	601	0.016	37	1,697
10	43	2,693	726	0.019	44	2,303
9	40.5	393	97	0.003	6	336
8	37.5	1,993	438	0.012	27	1,704
7	32.5	2,039	362	0.010	22	1,743
6	27.5	2,085	289	0.008	18	1,783
5	22.5	2,131	219	0.006	13	1,822
4	17.5	2,177	154	0.004	9	1,862
3	12.5	2,223	95	0.002	6	1,901
2	7.5	2,270	46	0.001	3	1,940
1	2.5	2,316	9	0.000	1	1,980
Ericsson AIR 6419 B77G	132	198	284	0.008	17	170
Kaelus DBC0051F3V51-2	130	74	104	0.003	6	64
Kaelus DBC0051F3V51-2	130	74	104	0.003	6	64
Raycap DC9-48-60-24-8C-EV	130	48	67	0.002	4	41
Ericsson RRUS 8843 B2, B66A	130	216	302	0.008	18	185
Ericsson RRUS 8843 B2, B66A	130	216	302	0.008	18	185
Ericsson RRUS 4426 B66	130	48	68	0.002	4	41
Ericsson RRUS 4449 B5, B12	130	284	397	0.011	24	243
Ericsson RRUS 4449 B5, B12	130	71	99	0.003	6	61
Ericsson RRUS 4478 B14	130	178	249	0.007	15	152
Ericsson RRUS 32 B2	130	53	74	0.002	5	45
Ericsson RRUS 32 B30 (53 lbs)	130	159	222	0.006	14	136
Raycap DC6-48-60-0-8C	130	32	45	0.001	3	27
Ericsson RRUS E2 B29	130	180	252	0.007	15	154
Matsing MBA-3.2-H4-L4	130	130	182	0.005	11	111
Matsing MBA-3.2-H4-L4	130	130	182	0.005	11	111
CCI DMP65R-BU8D	130	96	134	0.004	8	82
Quintel QD8616-7	130	450	629	0.017	38	385
Generic Flat Platform with Handrails	130	2,500	3,497	0.093	213	2,137
Generic Flat Platform with Handrails	120	2,500	3,105	0.082	189	2,137
Ericsson Air 6449 B77D	128	245	335	0.009	20	209
Motorola PTP-600	123.8	12	16	0.000	1	10
DragonWave Airpair (Radio-7.5" diameter)	121.8	21	27	0.001	2	18

SEISMIC FORCES

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
Commscope VHLP2-18-1WH/C	121.8	51	65	0.002	4	44
RFS APXVSPP18-C-A20 (62 lbs)	121.4	186	235	0.006	14	159
Alcatel-Lucent 800 MHz RRH	121.2	159	200	0.005	12	136
RFS APXVTM14-ALU-I20	120.4	169	210	0.006	13	144
Generic Mount Reinforcement	120	200	248	0.007	15	171
Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	119.6	210	259	0.007	16	180
Alcatel-Lucent 1900MHz RRH (65MHz) w/ solar shield	119.4	180	222	0.006	13	154
Ericsson Radio 4478 B71	110	240	262	0.007	16	205
Ericsson RRUS 11 B4	110	203	221	0.006	13	173
Ericsson RRUS 11 B12	110	203	221	0.006	13	173
Ericsson AIR32 B4A B2P	110	423	462	0.012	28	362
Andrew DBXNH-6565B-A2M	110	185	202	0.005	12	158
RFS APXVAA24_43-U-A20	110	406	443	0.012	27	347
Generic Square Platform with Handrails	110	3,790	4,135	0.110	251	3,240
Generic Diplexer / Coupler	106.4	20	21	0.001	1	17
Raycap RDIDC-9181-PF-48	99	22	20	0.000	1	19
Fujitsu TA08025-B605	99	225	210	0.006	13	192
Fujitsu TA08025-B604	99	192	179	0.005	11	164
JMA Wireless MX08FRO665-21	99	194	180	0.005	11	165
Commscope MC-PK8-DSH	99	1,801	1,680	0.045	102	1,540
	Totals:	**58,617**	**37,626**	**1.000**	**2,287**	**50,116**

1.2D + 1.0Ev + 1.0Eh **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	-70.10	-2.29	0.00	-235.39	0.00	235.39	9,304.68	2,206.31	12,630	12,109.07	0.00	0.00	0.03
5.00	-67.27	-2.29	0.00	-223.95	0.00	223.95	9,138.75	2,158.76	12,092	11,634.30	0.00	-0.01	0.03
10.00	-64.50	-2.29	0.00	-212.49	0.00	212.49	8,937.45	2,111.21	11,565	11,124.92	0.01	-0.01	0.03
15.00	-61.79	-2.29	0.00	-201.03	0.00	201.03	8,736.16	2,063.66	11,050	10,626.94	0.02	-0.02	0.03
20.00	-59.14	-2.28	0.00	-189.59	0.00	189.59	8,534.86	2,016.11	10,547	10,140.36	0.04	-0.02	0.03
25.00	-56.54	-2.27	0.00	-178.19	0.00	178.19	8,333.57	1,968.56	10,055	9,665.19	0.07	-0.03	0.03
30.00	-54.00	-2.25	0.00	-166.87	0.00	166.87	8,132.27	1,921.01	9,575	9,201.41	0.10	-0.03	0.03
35.00	-51.52	-2.22	0.00	-155.63	0.00	155.63	7,930.97	1,873.46	9,107	8,749.05	0.14	-0.04	0.02
40.00	-51.03	-2.22	0.00	-144.51	0.00	144.51	7,729.68	1,825.91	8,651	8,308.08	0.18	-0.04	0.02
41.00	-47.68	-2.18	0.00	-142.29	0.00	142.29	7,689.42	1,816.40	8,561	8,221.26	0.19	-0.04	0.02
45.00	-45.21	-2.14	0.00	-133.58	0.00	133.58	7,528.38	1,778.36	8,206	7,878.52	0.22	-0.05	0.02
48.00	-44.42	-2.13	0.00	-127.16	0.00	127.16	6,014.85	1,431.19	6,643	6,347.94	0.26	-0.05	0.03
50.00	-42.48	-2.10	0.00	-122.90	0.00	122.90	5,967.36	1,415.98	6,503	6,230.22	0.28	-0.05	0.03
55.00	-40.60	-2.06	0.00	-112.41	0.00	112.41	5,833.27	1,377.94	6,158	5,925.03	0.34	-0.06	0.03
60.00	-38.75	-2.02	0.00	-102.10	0.00	102.10	5,672.24	1,339.90	5,823	5,600.81	0.40	-0.07	0.03
65.00	-36.95	-1.98	0.00	-91.99	0.00	91.99	5,511.20	1,301.86	5,497	5,285.72	0.48	-0.07	0.02
70.00	-35.20	-1.93	0.00	-82.11	0.00	82.11	5,350.16	1,263.82	5,180	4,979.75	0.56	-0.08	0.02
75.00	-33.50	-1.88	0.00	-72.47	0.00	72.47	5,189.13	1,225.78	4,873	4,682.90	0.64	-0.08	0.02
80.00	-32.36	-1.84	0.00	-63.09	0.00	63.09	5,028.09	1,187.74	4,576	4,395.18	0.73	-0.09	0.02
83.42	-31.56	-1.81	0.00	-56.82	0.00	56.82	4,918.05	1,161.74	4,378	4,203.82	0.80	-0.09	0.02
85.00	-29.56	-1.73	0.00	-53.95	0.00	53.95	4,867.06	1,149.70	4,287	4,116.58	0.83	-0.10	0.02
89.00	-29.34	-1.72	0.00	-47.03	0.00	47.03	2,783.63	713.68	2,643	2,348.85	0.91	-0.10	0.03
90.00	-28.25	-1.68	0.00	-45.30	0.00	45.30	2,771.67	708.93	2,608	2,323.06	0.93	-0.10	0.03
95.00	-27.40	-1.64	0.00	-36.91	0.00	36.91	2,710.57	685.15	2,436	2,195.08	1.04	-0.11	0.03
99.00	-24.16	-1.49	0.00	-30.33	0.00	30.33	2,660.10	666.13	2,303	2,093.93	1.14	-0.11	0.02
100.00	-23.14	-1.44	0.00	-28.84	0.00	28.84	2,647.26	661.38	2,270	2,068.83	1.16	-0.11	0.02
105.00	-22.86	-1.43	0.00	-21.64	0.00	21.64	2,581.73	637.60	2,110	1,944.50	1.28	-0.12	0.02
106.40	-22.50	-1.41	0.00	-19.64	0.00	19.64	2,562.99	630.95	2,066	1,910.06	1.32	-0.12	0.02
108.08	-21.89	-1.38	0.00	-17.27	0.00	17.27	2,540.22	622.94	2,014	1,868.87	1.36	-0.12	0.02
110.00	-14.22	-0.95	0.00	-14.63	0.00	14.63	2,514.00	613.83	1,955	1,822.28	1.41	-0.12	0.01
112.92	-13.89	-0.93	0.00	-11.86	0.00	11.86	1,856.34	487.80	1,543	1,338.93	1.48	-0.13	0.02
115.00	-13.21	-0.89	0.00	-9.92	0.00	9.92	1,837.80	479.88	1,494	1,303.87	1.54	-0.13	0.02
119.40	-12.95	-0.88	0.00	-6.00	0.00	6.00	1,797.38	463.14	1,391	1,230.39	1.66	-0.13	0.01

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
119.60	-12.63	-0.86	0.00	-5.82	0.00	5.82	1,795.50	462.38	1,387	1,227.07	1.66	-0.13	0.01
120.00	-9.21	-0.64	0.00	-5.48	0.00	5.48	1,791.74	460.86	1,378	1,220.44	1.67	-0.13	0.01
120.40	-8.88	-0.62	0.00	-5.22	0.00	5.22	1,787.96	459.33	1,368	1,213.81	1.68	-0.13	0.01
121.20	-8.65	-0.60	0.00	-4.73	0.00	4.73	1,780.35	456.29	1,350	1,200.58	1.71	-0.13	0.01
121.40	-8.36	-0.59	0.00	-4.61	0.00	4.61	1,778.44	455.53	1,346	1,197.28	1.71	-0.13	0.01
121.80	-7.99	-0.56	0.00	-4.37	0.00	4.37	1,774.61	454.01	1,337	1,190.68	1.72	-0.13	0.01
123.80	-7.80	-0.55	0.00	-3.25	0.00	3.25	1,755.25	446.40	1,293	1,157.81	1.78	-0.13	0.01
125.00	-7.38	-0.52	0.00	-2.59	0.00	2.59	1,743.46	441.84	1,266	1,138.18	1.81	-0.13	0.01
128.00	-6.80	-0.48	0.00	-1.03	0.00	1.03	1,713.44	430.42	1,202	1,089.46	1.89	-0.13	0.01
130.00	-0.45	-0.03	0.00	-0.06	0.00	0.06	1,692.98	422.82	1,160	1,057.27	1.95	-0.13	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00	1,672.17	415.21	1,118	1,025.33	2.00	-0.13	0.00
134.00	0.00	0.00	0.00	0.00	0.00	0.00	1,651.00	407.60	1,078	993.65	2.06	-0.13	0.00

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

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	-48.14	-2.29	0.00	-233.92	0.00	233.92	9,304.68	2,206.31	12,630	12,109.07	0.00	0.00	0.02
5.00	-46.20	-2.29	0.00	-222.48	0.00	222.48	9,138.75	2,158.76	12,092	11,634.30	0.00	-0.01	0.02
10.00	-44.29	-2.29	0.00	-211.03	0.00	211.03	8,937.45	2,111.21	11,565	11,124.92	0.01	-0.01	0.02
15.00	-42.43	-2.28	0.00	-199.60	0.00	199.60	8,736.16	2,063.66	11,050	10,626.94	0.02	-0.02	0.02
20.00	-40.61	-2.27	0.00	-188.19	0.00	188.19	8,534.86	2,016.11	10,547	10,140.36	0.04	-0.02	0.02
25.00	-38.83	-2.26	0.00	-176.83	0.00	176.83	8,333.57	1,968.56	10,055	9,665.19	0.07	-0.03	0.02
30.00	-37.08	-2.24	0.00	-165.55	0.00	165.55	8,132.27	1,921.01	9,575	9,201.41	0.10	-0.03	0.02
35.00	-35.38	-2.21	0.00	-154.36	0.00	154.36	7,930.97	1,873.46	9,107	8,749.05	0.13	-0.04	0.02
40.00	-35.04	-2.21	0.00	-143.30	0.00	143.30	7,729.68	1,825.91	8,651	8,308.08	0.18	-0.04	0.02
41.00	-32.74	-2.16	0.00	-141.09	0.00	141.09	7,689.42	1,816.40	8,561	8,221.26	0.18	-0.04	0.02
45.00	-31.04	-2.13	0.00	-132.43	0.00	132.43	7,528.38	1,778.36	8,206	7,878.52	0.22	-0.05	0.02
48.00	-30.50	-2.12	0.00	-126.05	0.00	126.05	6,014.85	1,431.19	6,643	6,347.94	0.25	-0.05	0.03
50.00	-29.17	-2.08	0.00	-121.81	0.00	121.81	5,967.36	1,415.98	6,503	6,230.22	0.28	-0.05	0.02
55.00	-27.88	-2.05	0.00	-111.39	0.00	111.39	5,833.27	1,377.94	6,158	5,925.03	0.34	-0.06	0.02
60.00	-26.61	-2.01	0.00	-101.16	0.00	101.16	5,672.24	1,339.90	5,823	5,600.81	0.40	-0.07	0.02
65.00	-25.38	-1.96	0.00	-91.12	0.00	91.12	5,511.20	1,301.86	5,497	5,285.72	0.47	-0.07	0.02
70.00	-24.17	-1.91	0.00	-81.32	0.00	81.32	5,350.16	1,263.82	5,180	4,979.75	0.55	-0.08	0.02
75.00	-23.00	-1.86	0.00	-71.76	0.00	71.76	5,189.13	1,225.78	4,873	4,682.90	0.64	-0.08	0.02
80.00	-22.22	-1.82	0.00	-62.46	0.00	62.46	5,028.09	1,187.74	4,576	4,395.18	0.73	-0.09	0.02
83.42	-21.67	-1.79	0.00	-56.24	0.00	56.24	4,918.05	1,161.74	4,378	4,203.82	0.79	-0.09	0.02
85.00	-20.30	-1.72	0.00	-53.41	0.00	53.41	4,867.06	1,149.70	4,287	4,116.58	0.82	-0.09	0.02
89.00	-20.15	-1.71	0.00	-46.54	0.00	46.54	2,783.63	713.68	2,643	2,348.85	0.91	-0.10	0.03
90.00	-19.40	-1.66	0.00	-44.84	0.00	44.84	2,771.67	708.93	2,608	2,323.06	0.93	-0.10	0.03
95.00	-18.82	-1.63	0.00	-36.52	0.00	36.52	2,710.57	685.15	2,436	2,195.08	1.03	-0.11	0.02
99.00	-16.59	-1.48	0.00	-30.02	0.00	30.02	2,660.10	666.13	2,303	2,093.93	1.13	-0.11	0.02
100.00	-15.89	-1.43	0.00	-28.54	0.00	28.54	2,647.26	661.38	2,270	2,068.83	1.15	-0.11	0.02
105.00	-15.70	-1.41	0.00	-21.41	0.00	21.41	2,581.73	637.60	2,110	1,944.50	1.27	-0.12	0.02
106.40	-15.45	-1.39	0.00	-19.43	0.00	19.43	2,562.99	630.95	2,066	1,910.06	1.31	-0.12	0.02
108.08	-15.03	-1.36	0.00	-17.09	0.00	17.09	2,540.22	622.94	2,014	1,868.87	1.35	-0.12	0.02
110.00	-9.76	-0.94	0.00	-14.48	0.00	14.48	2,514.00	613.83	1,955	1,822.28	1.40	-0.12	0.01
112.92	-9.54	-0.92	0.00	-11.73	0.00	11.73	1,856.34	487.80	1,543	1,338.93	1.47	-0.12	0.01
115.00	-9.07	-0.88	0.00	-9.81	0.00	9.81	1,837.80	479.88	1,494	1,303.87	1.53	-0.13	0.01
119.40	-8.89	-0.87	0.00	-5.93	0.00	5.93	1,797.38	463.14	1,391	1,230.39	1.64	-0.13	0.01
119.60	-8.67	-0.85	0.00	-5.76	0.00	5.76	1,795.50	462.38	1,387	1,227.07	1.65	-0.13	0.01
120.00	-6.32	-0.63	0.00	-5.42	0.00	5.42	1,791.74	460.86	1,378	1,220.44	1.66	-0.13	0.01
120.40	-6.10	-0.61	0.00	-5.17	0.00	5.17	1,787.96	459.33	1,368	1,213.81	1.67	-0.13	0.01
121.20	-5.94	-0.60	0.00	-4.68	0.00	4.68	1,780.35	456.29	1,350	1,200.58	1.69	-0.13	0.01
121.40	-5.74	-0.58	0.00	-4.56	0.00	4.56	1,778.44	455.53	1,346	1,197.28	1.70	-0.13	0.01
121.80	-5.48	-0.56	0.00	-4.33	0.00	4.33	1,774.61	454.01	1,337	1,190.68	1.71	-0.13	0.01
123.80	-5.36	-0.54	0.00	-3.22	0.00	3.22	1,755.25	446.40	1,293	1,157.81	1.76	-0.13	0.01
125.00	-5.07	-0.52	0.00	-2.56	0.00	2.56	1,743.46	441.84	1,266	1,138.18	1.79	-0.13	0.01
128.00	-4.67	-0.48	0.00	-1.02	0.00	1.02	1,713.44	430.42	1,202	1,089.46	1.88	-0.13	0.00

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
130.00	-0.31	-0.03	0.00	-0.06	0.00	0.06	1,692.98	422.82	1,160	1,057.27	1.93	-0.13	0.00
132.00	0.00	0.00	0.00	0.00	0.00	0.00	1,672.17	415.21	1,118	1,025.33	1.99	-0.13	0.00
134.00	0.00	0.00	0.00	0.00	0.00	0.00	1,651.00	407.60	1,078	993.65	2.04	-0.13	0.00

ANALYSIS SUMMARY

	Base Reactions						Max Usage	
Load Case	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	29.08	0.00	70.32	0.00	0.00	2841.15	89.00	0.26
0.9D + 1.0W	29.07	0.00	52.74	0.00	0.00	2826.80	89.00	0.26
1.2D + 1.0Di + 1.0Wi	7.62	0.00	89.36	0.00	0.00	725.16	89.00	0.08
1.2D + 1.0Ev + 1.0Eh	2.29	0.00	70.10	0.00	0.00	235.39	89.00	0.03
0.9D - 1.0Ev + 1.0Eh	2.29	0.00	48.14	0.00	0.00	233.92	89.00	0.03
1.0D + 1.0W	6.50	0.00	58.62	0.00	0.00	633.29	89.00	0.06

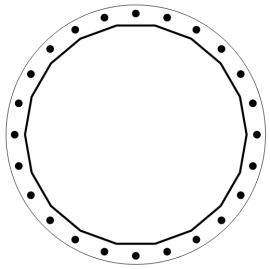
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
2841.15	70.32	29.08

PLATE PARAMETERS (ID# 10193)

Width:	75.5	in
Shape:	Round	
Thickness:	3	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Rod Detail Type:	d	
Clear Distance	3	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	120	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F_y (ksi)	F_u (ksi)	Spacing (in)	Offset (°)
Original [ID#1056]	Radial	24	2.25	70.5	A615-75	75	100	-	-

COMPONENT PROPERTIES

Component	ID	Gross Area (in^2)	Net Area (in^2)	Individual Inertia (in^4)	Moment of Inertia (in^4)	Threads/in
Pole	64"ø x 0.625" (18 Sides)	123.8057	-	-	62172.72	-
Bolt Group	Original (24) 2.25"ø	3.9761	3.2477	0.8393	44906.61	4.5

REACTION DISTRIBUTION

Component	ID	Moment M_u (k-ft)	Axial Load P_u (k)	Shear V_u (k)	Moment Factor
Pole	64"ø x 0.625" (18 Sides)	2841.2	70.32	29.08	1.000
Bolt Group	Original (24) 2.25"ø	2841.2	-	29.08	1.000

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter:	64.12	in	Flat Width:	11.307	in	Neutral Axis:	120	°
Point-to-Point Diameter:	65.11	in	Flat Radians:	0.349	rad	Bend Line Limits:	3.244 to 4.087	rad
Orientation Offset:	-	°						

PLATE PROPERTIES

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in^3)	Applied Moment M_u (k-in)	Moment Capacity ΦM_n (k-in)	Flexure Result $M_u/\Phi M_n$
Flats	36.711	0.00	82.600	282.8	3717.0	7.6%
Corners	34.927	0.00	78.585	157.1	3536.3	4.4%
Circumferential	41.305	0.00	92.937	350.8	4182.2	8.4%

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P_u (k)	Applied Shear Load V_u (k)	Compressive Capacity ΦP_n (k)	Interaction Result
Original	24	2.25	72.1	1.9	243.6	31.1%

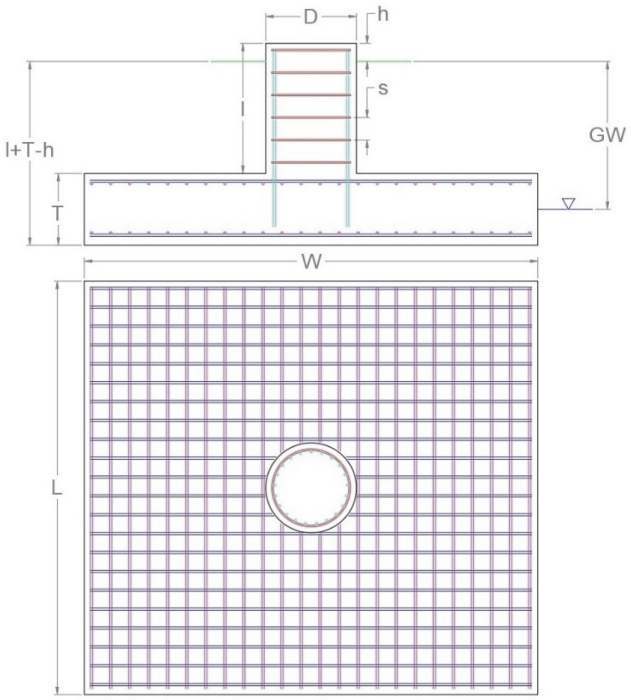
MONOLITHIC MAT & PIER FOUNDATION ANALYSIS

APPLIED GLOBAL REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
2,841.15	70.32	29.08

FOUNDATION PARAMETERS

Mat Length:	L	30	ft
Mat Width:	W	30	ft
Mat Thickness:	T	3.25	ft
Base Depth:	L+T-h	6.5	ft
Pier Shape:		Round	
Pier Diameter:	D	8	ft
Pier Height above Grade:	h	0.5	ft
Concrete Compressive Strength:		4,500	psi
Mat Top Rebar:		(52) #9 bars [60 ksi]	
Mat Bottom Rebar:		(52) #9 bars [60 ksi]	
Pier Vertical Rebar:		(50) #10 bars [60 ksi]	
Pier Rebar Ties:	s	#5 bars @ 6.0" c/c [60 ksi]	
Rebar Clear Cover:		3.0	in
Tower Eccentricity:	ecc	0	ft
Tower Leg Count		1	



SOIL PARAMETERS

Water Table Depth [BGL]:	GW	9	ft
Soil Unit Weight:		115	pcf
Ultimate Skin Friction:			psf
Ultimate Bearing Pressure:		13,700	psf
Bearing Pressure Type:		Gross	
Coefficient of Shear Friction:		0.5	

SOIL STRENGTH ANALYSIS

Soil Strength Reduction Factor, Φ_s	Uplift Strength Reduction Factor, Φ_s	Asset Dead Load Factor	Dead Load Factor
0.75	0.75	0.9	1.2

SOIL OVERTURNING ANALYSIS

Design Moment, $M_{u,Design}$ (k-ft)	Nominal Overturning Capacity, $\Phi_m M_n$ (k-ft)	Soil Overturning Usage, $M_{u,Design} / \Phi_m M_n$	
3,044.71	11,897.88	**25.6%**	✓

SOIL BEARING ANALYSIS

Net Bearing Pressure, $P_{u,Net}$ (psf)	Nominal Bearing Capacity, $\Phi_b P_n$ (k-ft)	Bearing Pressure Controlling Load Direction	Soil Bearing Usage, $P_{u,net} / \Phi_b P_n$	
1,128.00	10,275.00	Parallel to Pad Edge	**11.0%**	✓

SOIL SLIDING SHEAR ANALYSIS

Applied Shear Force, V_u (k)	Friction Resistance (k)	Passive Pressure (psf)	Passive Pressure Resistance (k)	Nominal Shear Capacity, $\Phi_s V_n$ (k)	Soil Sliding Shear Usage, $V_u / \Phi_s V_n$	
29.08	0.00	560.6	54.66	357.20	**8.0%**	✓

MAT REINFORCING STEEL STRENGTH ANALYSIS

Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
29,000	0.9	0.75	0.65

MAT REINFORCING ONE WAY SHEAR ANALYSIS

One Way Design Shear, V_u (k)	Nominal One Way Shear Capacity, $\Phi_c V_n$ (k)	One Way Shear Controlling Load Direction	Mat One Way Shear Usage, $V_u / \Phi_c V_n$	
76.55	1,204.95	Diagonal to Pad Edge	**6.4%**	✓

MAT REINFORCING PUNCHING SHEAR ANALYSIS

Punching Shear Design Stress, v_u (psi)	Nominal Punching Shear Capacity, $\Phi_c v_n$ (psi)	Mat Punching Shear Usage, $v_u / \Phi_c v_n$	
27.2	201.2	**13.5%**	✓

MAT REINFORCING MOMENT TRANSFER ANALYSIS

Moment Transfer Effective Flexural Width, w_f (in)	Neutral Axis Depth (in)	Pier Moment at Joint, M_{ut} (k-in)	Nominal Moment Transfer Capacity, $\Phi M_{sc,f}$ (k-in)	Mat Moment Transfer Usage, $0.6\ M_{ut} / \Phi M_{sc,f}$	
17.75	2.34	0.00	58,063.3	**0.0%**	✓

MAT REINFORCING FLEXURE ANALYSIS – UPPER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Upper Rebar Flexure Usage, $M_u / \Phi M_n$	
1,297.58	7,935.42	Parallel to Pad Edge	**16.4%**	✓

MAT REINFORCING FLEXURE ANALYSIS – LOWER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Lower Rebar Flexure Usage, $M_u / \Phi M_n$	
1,250.80	7,935.42	Parallel to Pad Edge	**15.8%**	✓

PIER REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
87.50	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u/\Phi_b M_n$	
2,950.20	12,224.51	0.009	**24.1%**	✓

PIER REINFORCING COMPRESSION ANALYSIS

Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$	
70.32	14,310.16	**0.5%**	✓

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$	
29.08	1,088.99	**2.7%**	✓

July 8, 2022
December 1, 2022 (Rev.1)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	AT&T Site Number:	CT5100
	FA Number:	10107972
	PACE Number:	MRCTB061024
	PT Number:	2051A13P78
	TEP Project Number:	350614
	Site Name:	BRIDGEPORT EVERGREEN ST
	Site Address:	220 Evergreen Street Bridgeport, CT 06606

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mount to determine its capability of supporting the following additional loading:

- (3) QD8616-7 Antennas (96.0"x22.0"x9.6" – Wt. = 150 lbs. /each)
- (3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)
- (3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)
- (1) DMP65R-BU8DA Antenna (96.0"x20.7"x7.7" – Wt. = 119 lbs. /each)
- (1) MS-MBA-3.2-H4-L4 Antenna (72.0"x24.0"x26.0" – Wt. = 130 lbs. /each)
- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-E2 B29 RRH's (20.4"x18.5"x7.5" – Wt. = 53 lbs. /each)
- (4) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (1) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (1) 4426 B66 RRH's (14.9"x13.2"x5.8" – Wt. = 49 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (6) DBC0051F3V51-2 Diplexers (8.5"x5.0"x4.5" - Wt. = 15 lbs. /each)
- (1) DC6-48-60-0-8C Surge Arrestor (31.4"x10.2" Ø – Wt. = 33 lbs.)
- (3) DC9-48-60-24-8C-EV Surge Arrestor (31.4"x10.2" Ø – Wt. = 33 lbs.)
- **(1) MS-MBA-3.2-H4-L4 Antenna (72.0"x24.0"x26.0" – Wt. = 130 lbs. /each)**
- **(1) 4449 B5/B12 RRH (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(6) DBC0051F3V51-2 Diplexers (8.5"x5.0"x4.5" - Wt. = 15 lbs. /each)**
- **(1) DC6-48-60-0-8C Surge Arrestor (31.4"x10.2" Ø – Wt. = 33 lbs.)**

*Proposed equipment shown in bold.

No original structural design documents or fabrication drawings were available for the existing mount. TEP NE's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on September 8, 2019. TEP NE conducted a ground audit of the existing AT&T antenna mount on February 3, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE 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 P of the Connecticut State Building Code, the max basic wind speed for this site is equal to 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.15 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.211 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.054.
- 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. TEP NE considers the threaded rods to be the governing connection member.

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

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	34	LC5	74%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

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

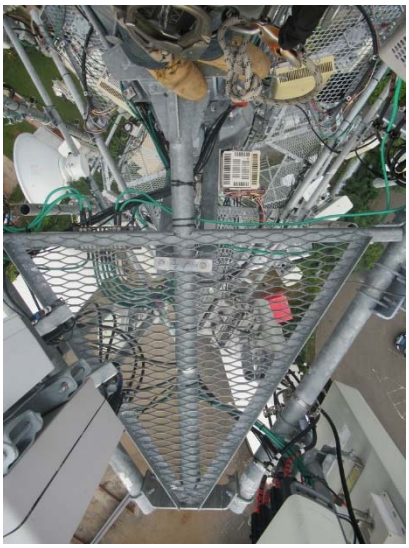
Please feel free to contact our office should you have any questions.

Respectfully Submitted,
TEP Northeast

Michael Cabral
Director

Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:



FIELD PHOTOS (CONT.):

Wind & Ice
Calculations

Date: 11/29/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

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

z=	130.00	(ft)
z_g=	1200	(ft)
α=	7	
K_z=	**1.065**	

Kzmin ≤ Kz ≤ 2.01

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

K_{zt}= 1

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

Category= **1**

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	130	
z_s=	15	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	1.00	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i = 1.00 in
Importance Factor = I= 1.00 (from Table 2-3)
K_{iz} = 1.15 (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.15 in

Date: 11/29/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	135	G_h=	0.85
2.6.9.2 Guyed Masts		G_h=	0.85
2.6.9.3 Pole Structures		G_h=	1.1
2.6.9 Appurtenances		G_h=	1.0

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

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

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.065	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**37.28**	K_e=	1.00	(from 2.6.8)
$q_{z\ (ice)}$=	**6.47**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.33**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 12/1/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM Checked By: MSC

Determine Ca:

Table 2-9

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

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

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

Ice Thickness = **1.15** in **Angle =** **0 (deg)** **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	4.36	1.28	701	138	44
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.93	1.20	156	33	10
AIR6449 Antenna	30.6	15.9	10.6	3.38	1.92	1.20	151	32	9
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	666	132	42
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	3.00	1.22	547	107	34
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	62	16	4
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	47	12	3
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.72	1.21	48	12	3
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	52	13	3
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	50	12	3
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	3.89	1.26	62	16	4
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	2.57	1.20	27	8	2
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	1.70	1.20	13	4	1
DC6-48-60-0-8C Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	58	13	4
DC9-48-60-24-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	58	13	4
Plate 6x3/8	0.4	12.0		0.03	0.03	2.00	2		
C 3x6	1.6	12.0		0.14	0.14	2.00	10		
2x2 Angle	2.0	12.0		0.17	0.17	2.00	12		
3x3 Angle	3.0	12.0		0.25	0.25	2.00	19		
2" Pipe	2.4	12.0		0.20	0.20	1.20	9		
3" Pipe	3.5	12.0		0.29	0.29	1.20	13		

Date: 11/29/2022
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Designed By: KSBM Checked By: MSC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	701	358	616
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	75	135
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	151	102	139
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	666	303	575
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	547	587	557
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	72
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	47	75	54
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	48	117	65
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	58
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	53
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	72
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	27	61	35
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	13	12	13
WIND LOADS WITH ICE:												
QD8616-7 Antenna	98.3	24.3	11.9	16.58	8.12	4.05	8.26	1.27	1.44	136	76	121
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.22	1.82	3.48	1.20	1.24	33	18	29
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	30
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.70	6.82	4.27	9.84	1.28	1.49	130	66	114
MS-MBA-3.2-H4-L4 Antenna	74.3	26.3	28.3	13.57	14.60	2.83	2.63	1.21	1.21	107	114	108
RRUS-32 B30 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
4478 B14 RRH (Side)	20.4	10.6	15.7	1.50	2.22	1.93	1.30	1.20	1.20	12	17	13
RRUS-E2 B29 RRH (Side)	22.7	9.8	20.8	1.54	3.28	2.32	1.09	1.20	1.20	12	25	15
4449 B5/B12 RRH (Side)	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	14
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	13
RRUS-32 B2 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
4426 B66 RRH (Side)	17.2	8.1	15.5	0.97	1.85	2.12	1.11	1.20	1.20	8	14	9
DBC0051F3V51-2 Diplexer	10.8	7.3	6.8	0.55	0.51	1.48	1.59	1.20	1.20	4	4	4
WIND LOADS AT 30 MPH:												
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	44	22	38
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	9
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	42	19	36
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	34	37	35
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	3
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	2
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	1	1	1

Date: 11/29/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	701	358	444
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	75	95
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	151	102	114
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	666	303	394
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	547	587	577
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	92
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	47	75	68
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	48	117	100
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	68
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	58
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	92
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	27	61	53
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	13	12	12

WIND LOADS WITH ICE:

QD8616-7 Antenna	98.3	24.3	11.9	16.58	8.12	4.05	8.26	1.27	1.44	136	76	91
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.22	1.82	3.48	1.20	1.24	33	18	22
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	25
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.70	6.82	4.27	9.84	1.28	1.49	130	66	82
MS-MBA-3.2-H4-L4 Antenna	74.3	26.3	28.3	13.57	14.60	2.83	2.63	1.21	1.21	107	114	112
RRUS-32 B30 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
4478 B14 RRH (Side)	20.4	10.6	15.7	1.50	2.22	1.93	1.30	1.20	1.20	12	17	16
RRUS-E2 B29 RRH (Side)	22.7	9.8	20.8	1.54	3.28	2.32	1.09	1.20	1.20	12	25	22
4449 B5/B12 RRH (Side)	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	16
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	14
RRUS-32 B2 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
4426 B66 RRH (Side)	17.2	8.1	15.5	0.97	1.85	2.12	1.11	1.20	1.20	8	14	13
DBC0051F3V51-2 Diplexer	10.8	7.3	6.8	0.55	0.51	1.48	1.59	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	44	22	28
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	42	19	25
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	34	37	36
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	6
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	3
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	1	1	1

Date: 11/29/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	701	358	358
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	75	75
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	151	102	102
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	666	303	303
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	547	587	587
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	102
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	47	75	75
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	48	117	117
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	73
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	61
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	102
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	27	61	61
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	13	12	12

WIND LOADS WITH ICE:

QD8616-7 Antenna	98.3	24.3	11.9	16.58	8.12	4.05	8.26	1.27	1.44	136	76	76
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.22	1.82	3.48	1.20	1.24	33	18	18
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	23
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.70	6.82	4.27	9.84	1.28	1.49	130	66	66
MS-MBA-3.2-H4-L4 Antenna	74.3	26.3	28.3	13.57	14.60	2.83	2.63	1.21	1.21	107	114	114
RRUS-32 B30 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	23
4478 B14 RRH (Side)	20.4	10.6	15.7	1.50	2.22	1.93	1.30	1.20	1.20	12	17	17
RRUS-E2 B29 RRH (Side)	22.7	9.8	20.8	1.54	3.28	2.32	1.09	1.20	1.20	12	25	25
4449 B5/B12 RRH (Side)	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	17
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	14
RRUS-32 B2 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	23
4426 B66 RRH (Side)	17.2	8.1	15.5	0.97	1.85	2.12	1.11	1.20	1.20	8	14	14
DBC0051F3V51-2 Diplexer	10.8	7.3	6.8	0.55	0.51	1.48	1.59	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	44	22	22
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	5
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	6
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	42	19	19
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	34	37	37
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	7
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	5
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	4
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	1	1	1

Date: 11/29/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	701	358	444
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	75	95
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	151	102	114
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	666	303	394
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	547	587	577
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	92
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	47	75	68
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	48	117	100
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	68
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	58
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	92
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	27	61	53
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	13	12	12

WIND LOADS WITH ICE:

QD8616-7 Antenna	98.3	24.3	11.9	16.58	8.12	4.05	8.26	1.27	1.44	136	76	91
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.22	1.82	3.48	1.20	1.24	33	18	22
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	25
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.70	6.82	4.27	9.84	1.28	1.49	130	66	82
MS-MBA-3.2-H4-L4 Antenna	74.3	26.3	28.3	13.57	14.60	2.83	2.63	1.21	1.21	107	114	112
RRUS-32 B30 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
4478 B14 RRH (Side)	20.4	10.6	15.7	1.50	2.22	1.93	1.30	1.20	1.20	12	17	16
RRUS-E2 B29 RRH (Side)	22.7	9.8	20.8	1.54	3.28	2.32	1.09	1.20	1.20	12	25	22
4449 B5/B12 RRH (Side)	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	16
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	14
RRUS-32 B2 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	21
4426 B66 RRH (Side)	17.2	8.1	15.5	0.97	1.85	2.12	1.11	1.20	1.20	8	14	13
DBC0051F3V51-2 Diplexer	10.8	7.3	6.8	0.55	0.51	1.48	1.59	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	44	22	28
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	6
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	7
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	42	19	25
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	34	37	36
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	6
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	6
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	3
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	1	1	1

Date: 11/29/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM Checked By: MSC

TEP NORTHEAST

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	701	358	616
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	156	75	135
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	151	102	139
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	666	303	575
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	547	587	557
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	72
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	47	75	54
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	48	117	65
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	58
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	53
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	62	102	72
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	27	61	35
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	13	12	13

WIND LOADS WITH ICE:

QD8616-7 Antenna	98.3	24.3	11.9	16.58	8.12	4.05	8.26	1.27	1.44	136	76	121
AIR6419 Antenna	33.4	18.4	9.6	4.27	2.22	1.82	3.48	1.20	1.24	33	18	29
AIR6449 Antenna	32.9	18.2	12.9	4.16	2.95	1.81	2.55	1.20	1.20	32	23	30
DMP65R-BU8DA Antenna	98.3	23.0	10.0	15.70	6.82	4.27	9.84	1.28	1.49	130	66	114
MS-MBA-3.2-H4-L4 Antenna	74.3	26.3	28.3	13.57	14.60	2.83	2.63	1.21	1.21	107	114	108
RRUS-32 B30 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
4478 B14 RRH (Side)	20.4	10.6	15.7	1.50	2.22	1.93	1.30	1.20	1.20	12	17	13
RRUS-E2 B29 RRH (Side)	22.7	9.8	20.8	1.54	3.28	2.32	1.09	1.20	1.20	12	25	15
4449 B5/B12 RRH (Side)	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	13	17	14
8843 B2/B66A RRH (Side)	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	13
RRUS-32 B2 RRH (Side)	29.5	9.3	14.4	1.90	2.95	3.17	2.05	1.23	1.20	15	23	17
4426 B66 RRH (Side)	17.2	8.1	15.5	0.97	1.85	2.12	1.11	1.20	1.20	8	14	9
DBC0051F3V51-2 Diplexer	10.8	7.3	6.8	0.55	0.51	1.48	1.59	1.20	1.20	4	4	4

WIND LOADS AT 30 MPH:

QD8616-7 Antenna	96.0	22.0	9.6	14.67	6.40	4.36	10.00	1.28	1.50	44	22	38
AIR6419 Antenna	31.1	16.1	7.3	3.48	1.58	1.93	4.26	1.20	1.28	10	5	8
AIR6449 Antenna	30.6	15.9	10.6	3.38	2.25	1.92	2.89	1.20	1.22	9	6	9
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	42	19	36
MS-MBA-3.2-H4-L4 Antenna	72.0	24.0	26.0	12.00	13.00	3.00	2.77	1.22	1.21	34	37	35
RRUS-32 B30 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	3
RRUS-E2 B29 RRH (Side)	20.4	7.5	18.5	1.06	2.62	2.72	1.10	1.21	1.20	3	7	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
RRUS-32 B2 RRH (Side)	27.2	7.0	12.1	1.32	2.29	3.89	2.25	1.26	1.20	4	6	5
4426 B66 RRH (Side)	14.9	5.8	13.2	0.60	1.37	2.57	1.13	1.20	1.20	2	4	2
DBC0051F3V51-2 Diplexer	8.5	5.0	4.5	0.30	0.27	1.70	1.89	1.20	1.20	1	1	1

Date: 12/1/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.15 in.
Density of ice: 56 pcf

QD8616-7 Antenna
Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 22.0
Depth (in): 9.6
Total weight of ice on object: 283 lbs
Weight of object: 150.0 lbs
Combined weight of ice and object: 433 lbs

AIR6419 Antenna
Weight of ice based on total radial SF area:
Height (in): 31.1
Width (in): 16.1
Depth (in): 7.3
Total weight of ice on object: 69 lbs
Weight of object: 66.0 lbs
Combined weight of ice and object: 135 lbs

AIR6449 Antenna
Weight of ice based on total radial SF area:
Height (in): 30.6
Width (in): 15.9
Depth (in): 10.6
Total weight of ice on object: 73 lbs
Weight of object: 82.0 lbs
Combined weight of ice and object: 155 lbs

DMP65R-BU8DA Antenna
Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 261 lbs
Weight of object: 119.0 lbs
Combined weight of ice and object: 380 lbs

MS-MBA-3.2-H4-L4 Antenna
Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 24.0
Depth (in): 26.0
Total weight of ice on object: 308 lbs
Weight of object: 132.0 lbs
Combined weight of ice and object: 440 lbs

RRUS-32 B30 RRH
Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 48 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 108 lbs

4478 B14 RRH
Weight of ice based on total radial SF area:
Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3
Total weight of ice on object: 36 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 96 lbs

RRUS-E2 B29 RRH
Weight of ice based on total radial SF area:
Height (in): 20.4
Width (in): 18.5
Depth (in): 7.5
Total weight of ice on object: 50 lbs
Weight of object: 53.0 lbs
Combined weight of ice and object: 103 lbs

4449 B5/B12 RRH
Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.4
Total weight of ice on object: 36 lbs
Weight of object: 73.0 lbs
Combined weight of ice and object: 109 lbs

8843 B2/B66A RRH
Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9
Total weight of ice on object: 32 lbs
Weight of object: 72.0 lbs
Combined weight of ice and object: 104 lbs

RRUS-32 B2 RRH
Weight of ice based on total radial SF area:
Height (in): 27.2
Width (in): 12.1
Depth (in): 7.0
Total weight of ice on object: 48 lbs
Weight of object: 60.0 lbs
Combined weight of ice and object: 108 lbs

4426 B66 RRH
Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 5.8
Total weight of ice on object: 27 lbs
Weight of object: 49.0 lbs
Combined weight of ice and object: 76 lbs

DBC0051F3V51-2 Diplexer
Weight of ice based on total radial SF area:
Height (in): 8.5
Width (in): 5.0
Depth (in): 4.5
Total weight of ice on object: 8 lbs
Weight of object: 15.0 lbs
Combined weight of ice and object: 23 lbs

DC6-48-60-0-8C Surge Arrestor
Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 42 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 75 lbs

DC9-48-60-24-8C-EV Surge Arrestor
Weight of ice based on total radial SF area:
Depth (in): 31.4
Diameter(in): 10.2
Total weight of ice on object: 42 lbs
Weight of object: 29 lbs
Combined weight of ice and object: 71 lbs

PL 6x3/8
Weight of ice based on total radial SF area:
Height (in): 6
Width (in): 0.38
Per foot weight of ice on object: 10 plf

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

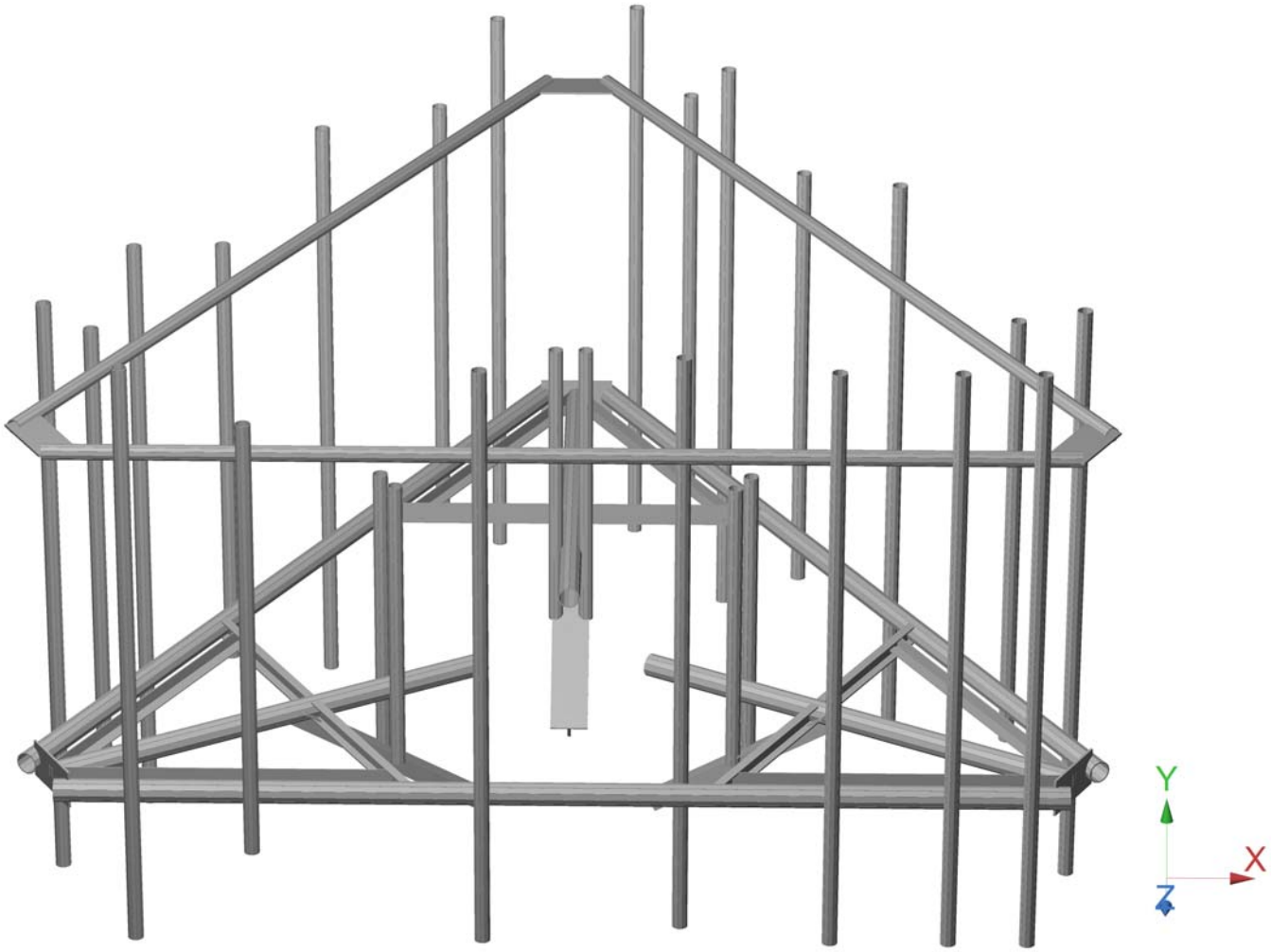
C 3x6
Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 1.625
Per foot weight of ice on object: 6 plf

3" Pipe
Per foot weight of ice:
diameter (in): 3.5
Per foot weight of ice on object: 7 plf

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

L 3x3 Angles
Weight of ice based on total radial SF area:
Height (in): 3
Width (in): 3
Per foot weight of ice on object: 8 plf

Mount Calculations
(Existing Conditions)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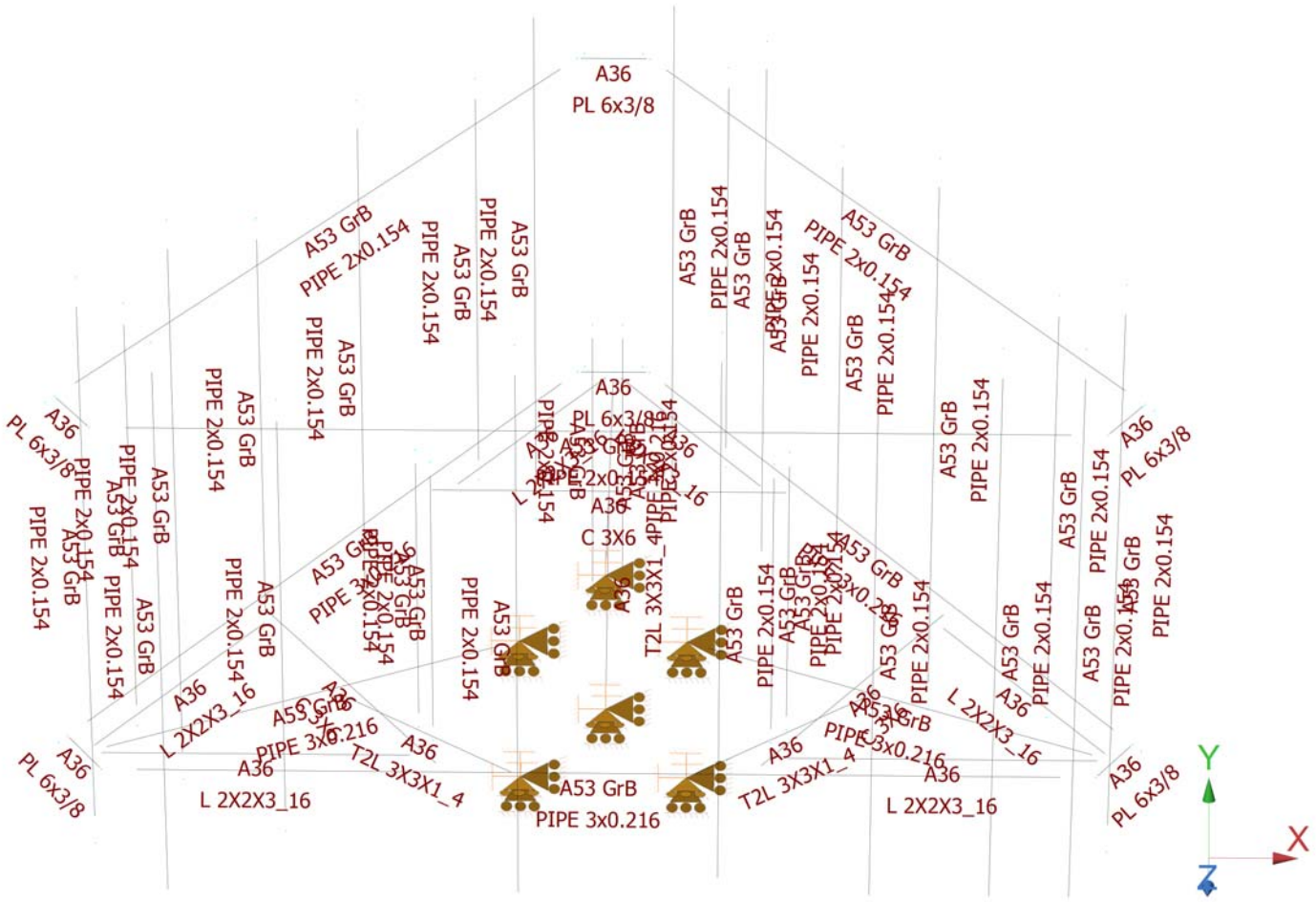
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C 3X6
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Y
X
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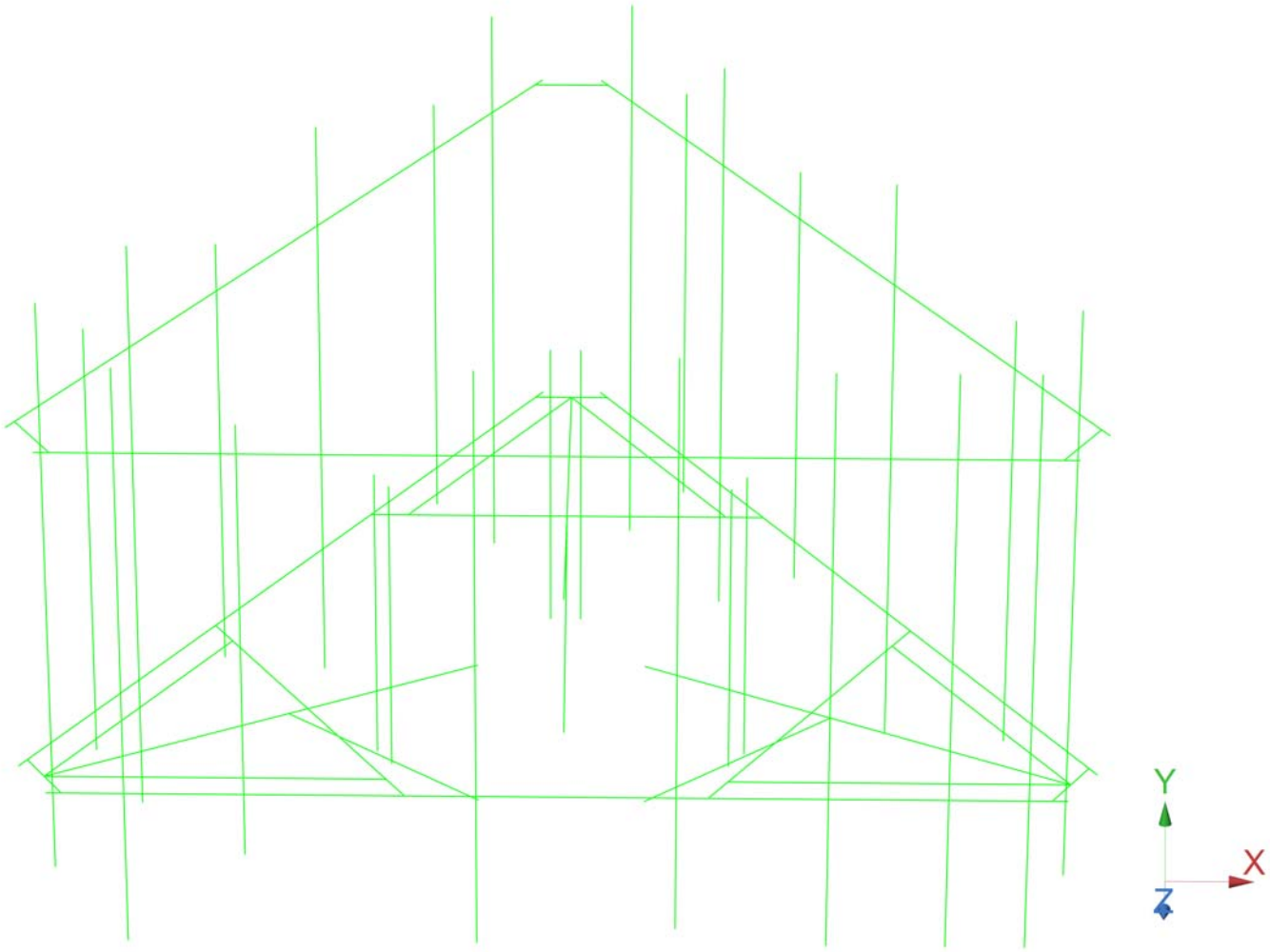
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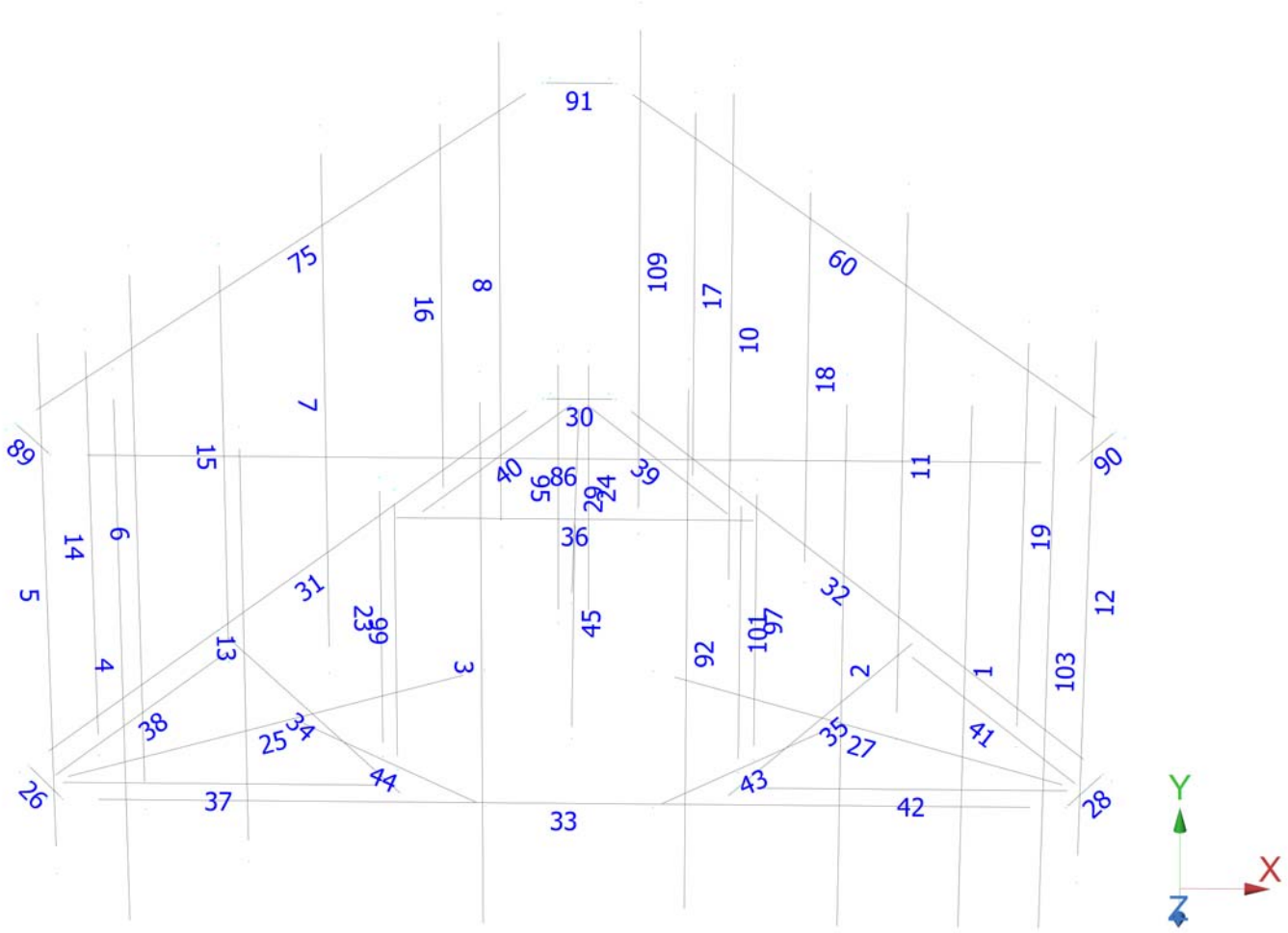
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101
97
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103
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Z

RAM® Elements
CONNECT Edition

Current Date: 12/1/2022 1:53 PM
Units system: English

Load data

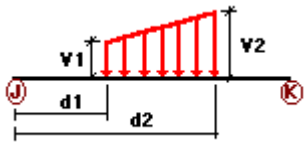
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL
LLa3	500 lb Live Load Antenna 3	No	LL
LLa4	500 lb Live Load Antenna 4	No	LL

Distributed force on members



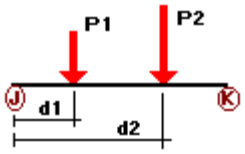
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	34	y	-0.01	-0.01	10.00	Yes	90.00	Yes
	35	y	-0.01	-0.01	10.00	Yes	90.00	Yes
	36	y	-0.01	-0.01	10.00	Yes	90.00	Yes
	37	y	-0.01	-0.01	0.00	No	100.00	Yes
	38	y	-0.01	-0.01	0.00	No	100.00	Yes
	39	y	-0.01	-0.01	0.00	No	100.00	Yes
	40	y	-0.01	-0.01	0.00	No	100.00	Yes
	41	y	-0.01	-0.01	0.00	No	100.00	Yes
	42	y	-0.01	-0.01	0.00	No	100.00	Yes
W0	1	z	-0.009	0.00	0.00	No	0.00	No
	5	z	-0.009	0.00	0.00	No	0.00	No
	6	z	-0.009	0.00	0.00	No	0.00	No
	7	z	-0.009	0.00	0.00	No	0.00	No
	8	z	-0.009	0.00	0.00	No	0.00	No
	10	z	-0.009	0.00	0.00	No	0.00	No
	11	z	-0.009	0.00	0.00	No	0.00	No

	12	z	-0.009	0.00	0.00	No	0.00	No
	13	z	-0.009	0.00	0.00	No	0.00	No
	14	z	-0.009	0.00	0.00	No	0.00	No
	15	z	-0.009	0.00	0.00	No	0.00	No
	16	z	-0.009	0.00	0.00	No	0.00	No
	17	z	-0.009	0.00	0.00	No	0.00	No
	18	z	-0.009	0.00	0.00	No	0.00	No
	19	z	-0.009	0.00	0.00	No	0.00	No
	23	z	-0.009	0.00	0.00	No	0.00	No
	24	z	-0.009	0.00	0.00	No	0.00	No
	60	z	-0.009	0.00	0.00	No	0.00	No
	75	z	-0.009	0.00	0.00	No	0.00	No
	86	z	-0.009	0.00	0.00	No	0.00	No
	25	z	-0.013	0.00	0.00	No	0.00	No
	27	z	-0.013	0.00	0.00	No	0.00	No
	29	z	-0.013	0.00	0.00	No	0.00	No
	31	z	-0.013	0.00	0.00	No	0.00	No
	32	z	-0.013	0.00	0.00	No	0.00	No
	33	z	-0.013	0.00	0.00	No	0.00	No
	34	z	-0.01	0.00	0.00	No	0.00	No
	35	z	-0.01	0.00	0.00	No	0.00	No
	36	z	-0.01	0.00	0.00	No	0.00	No
	37	z	-0.012	0.00	0.00	No	0.00	No
	38	z	-0.012	0.00	0.00	No	0.00	No
	39	z	-0.012	0.00	0.00	No	0.00	No
	40	z	-0.012	0.00	0.00	No	0.00	No
	41	z	-0.012	0.00	0.00	No	0.00	No
	42	z	-0.012	0.00	0.00	No	0.00	No
	43	z	-0.019	0.00	0.00	No	0.00	No
	44	z	-0.019	0.00	0.00	No	0.00	No
	45	z	-0.019	0.00	0.00	No	0.00	No
	28	z	-0.002	0.00	0.00	No	0.00	No
	26	z	-0.002	0.00	0.00	No	0.00	No
	30	z	-0.002	0.00	0.00	No	0.00	No
	89	z	-0.002	0.00	0.00	No	0.00	No
	90	z	-0.002	0.00	0.00	No	0.00	No
	91	z	-0.002	0.00	0.00	No	0.00	No
	92	z	-0.009	0.00	0.00	No	0.00	No
	95	z	-0.009	0.00	0.00	No	0.00	No
	97	z	-0.009	0.00	0.00	No	0.00	No
	99	z	-0.009	0.00	0.00	No	0.00	No
	101	z	-0.009	0.00	0.00	No	0.00	No
	103	z	-0.009	0.00	0.00	No	0.00	No
	109	z	-0.009	0.00	0.00	No	0.00	No
W30	1	x	-0.009	0.00	0.00	No	0.00	No
	2	x	-0.009	0.00	0.00	No	0.00	No
	3	x	-0.009	0.00	0.00	No	0.00	No
	4	x	-0.009	0.00	0.00	No	0.00	No
	5	x	-0.009	0.00	0.00	No	0.00	No
	6	x	-0.009	0.00	0.00	No	0.00	No
	7	x	-0.009	0.00	0.00	No	0.00	No
	8	x	-0.009	0.00	0.00	No	0.00	No
	10	x	-0.009	0.00	0.00	No	0.00	No
	11	x	-0.009	0.00	0.00	No	0.00	No
	12	x	-0.009	0.00	0.00	No	0.00	No
	13	x	-0.009	0.00	0.00	No	0.00	No
	14	x	-0.009	0.00	0.00	No	0.00	No
	15	x	-0.009	0.00	0.00	No	0.00	No
	16	x	-0.009	0.00	0.00	No	0.00	No
	17	x	-0.009	0.00	0.00	No	0.00	No

	18	x	-0.009	0.00	0.00	No	0.00	No
	19	x	-0.009	0.00	0.00	No	0.00	No
	23	x	-0.009	0.00	0.00	No	0.00	No
	24	x	-0.009	0.00	0.00	No	0.00	No
	60	x	-0.009	0.00	0.00	No	0.00	No
	75	x	-0.009	0.00	0.00	No	0.00	No
	25	x	-0.013	0.00	0.00	No	0.00	No
	27	x	-0.013	0.00	0.00	No	0.00	No
	29	x	-0.013	0.00	0.00	No	0.00	No
	31	x	-0.013	0.00	0.00	No	0.00	No
	32	x	-0.013	0.00	0.00	No	0.00	No
	34	x	-0.01	0.00	0.00	No	0.00	No
	35	x	-0.01	0.00	0.00	No	0.00	No
	36	x	-0.01	0.00	0.00	No	0.00	No
	37	x	-0.012	0.00	0.00	No	0.00	No
	38	x	-0.012	0.00	0.00	No	0.00	No
	39	x	-0.012	0.00	0.00	No	0.00	No
	40	x	-0.012	0.00	0.00	No	0.00	No
	41	x	-0.012	0.00	0.00	No	0.00	No
	42	x	-0.012	0.00	0.00	No	0.00	No
	43	x	-0.019	0.00	0.00	No	0.00	No
	44	x	-0.019	0.00	0.00	No	0.00	No
	45	x	-0.019	0.00	0.00	No	0.00	No
	28	x	-0.002	0.00	0.00	No	0.00	No
	26	x	-0.002	0.00	0.00	No	0.00	No
	30	x	-0.002	0.00	0.00	No	0.00	No
	89	x	-0.002	0.00	0.00	No	0.00	No
	90	x	-0.002	0.00	0.00	No	0.00	No
	91	x	-0.002	0.00	0.00	No	0.00	No
	92	x	-0.009	0.00	0.00	No	0.00	No
	95	x	-0.009	0.00	0.00	No	0.00	No
	97	x	-0.009	0.00	0.00	No	0.00	No
	99	x	-0.009	0.00	0.00	No	0.00	No
	101	x	-0.009	0.00	0.00	No	0.00	No
	103	x	-0.009	0.00	0.00	No	0.00	No
	109	x	-0.009	0.00	0.00	No	0.00	No
Di	1	y	-0.005	0.00	0.00	No	0.00	No
	2	y	-0.005	0.00	0.00	No	0.00	No
	3	y	-0.005	0.00	0.00	No	0.00	No
	4	y	-0.005	0.00	0.00	No	0.00	No
	5	y	-0.005	0.00	0.00	No	0.00	No
	6	y	-0.005	0.00	0.00	No	0.00	No
	7	y	-0.005	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	10	y	-0.005	0.00	0.00	No	0.00	No
	11	y	-0.005	0.00	0.00	No	0.00	No
	12	y	-0.005	0.00	0.00	No	0.00	No
	13	y	-0.005	0.00	0.00	No	0.00	No
	14	y	-0.005	0.00	0.00	No	0.00	No
	15	y	-0.005	0.00	0.00	No	0.00	No
	16	y	-0.005	0.00	0.00	No	0.00	No
	17	y	-0.005	0.00	0.00	No	0.00	No
	18	y	-0.005	0.00	0.00	No	0.00	No
	19	y	-0.005	0.00	0.00	No	0.00	No
	23	y	-0.005	0.00	0.00	No	0.00	No
	24	y	-0.005	0.00	0.00	No	0.00	No
	60	y	-0.005	0.00	0.00	No	0.00	No
	75	y	-0.005	0.00	0.00	No	0.00	No
	86	y	-0.005	0.00	0.00	No	0.00	No
	25	y	-0.007	0.00	0.00	No	0.00	No

27	y	-0.007	0.00	0.00	No	0.00	No
29	y	-0.007	0.00	0.00	No	0.00	No
31	y	-0.007	0.00	0.00	No	0.00	No
32	y	-0.007	0.00	0.00	No	0.00	No
33	y	-0.007	0.00	0.00	No	0.00	No
34	y	-0.006	0.00	0.00	No	0.00	No
35	y	-0.006	0.00	0.00	No	0.00	No
36	y	-0.006	0.00	0.00	No	0.00	No
37	y	-0.006	0.00	0.00	No	0.00	No
38	y	-0.006	0.00	0.00	No	0.00	No
39	y	-0.006	0.00	0.00	No	0.00	No
40	y	-0.006	0.00	0.00	No	0.00	No
41	y	-0.006	0.00	0.00	No	0.00	No
42	y	-0.006	0.00	0.00	No	0.00	No
43	y	-0.016	0.00	0.00	No	0.00	No
44	y	-0.016	0.00	0.00	No	0.00	No
45	y	-0.016	0.00	0.00	No	0.00	No
28	y	-0.01	0.00	0.00	No	0.00	No
26	y	-0.01	0.00	0.00	No	0.00	No
30	y	-0.01	0.00	0.00	No	0.00	No
89	y	-0.01	0.00	0.00	No	0.00	No
90	y	-0.01	0.00	0.00	No	0.00	No
91	y	-0.01	0.00	0.00	No	0.00	No
92	y	-0.005	0.00	0.00	No	0.00	No
95	y	-0.005	0.00	0.00	No	0.00	No
97	y	-0.005	0.00	0.00	No	0.00	No
99	y	-0.005	0.00	0.00	No	0.00	No
101	y	-0.005	0.00	0.00	No	0.00	No
103	y	-0.005	0.00	0.00	No	0.00	No
109	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	1	y	-0.06	4.00	No
	2	y	-0.075	0.50	No
		y	-0.075	7.50	No
	3	y	-0.033	1.00	No
		y	-0.033	2.75	No
		y	-0.041	4.75	No
		y	-0.041	6.50	No
	4	y	-0.065	1.50	No
		y	-0.065	6.50	No
		y	-0.015	2.00	No
		y	-0.015	2.00	No
		y	-0.015	3.00	No
		y	-0.015	3.00	No
		y	-0.015	4.00	No
		y	-0.015	4.00	No

	6	y	-0.075	0.50	No
		y	-0.075	7.50	No
	7	y	-0.033	1.00	No
		y	-0.033	2.75	No
		y	-0.041	4.75	No
		y	-0.041	6.50	No
	8	y	-0.06	0.50	No
		y	-0.06	7.50	No
	10	y	-0.075	0.50	No
		y	-0.075	7.50	No
	11	y	-0.033	1.00	No
		y	-0.033	2.75	No
		y	-0.041	4.75	No
		y	-0.041	6.50	No
	12	y	-0.065	1.50	No
		y	-0.065	6.50	No
		y	-0.015	2.00	No
		y	-0.015	2.00	No
		y	-0.015	3.00	No
		y	-0.015	3.00	No
		y	-0.015	4.00	No
		y	-0.015	4.00	No
	13	y	-0.072	2.00	No
		y	-0.072	2.00	No
		y	-0.072	4.00	No
	14	y	-0.06	4.00	No
		y	-0.049	4.00	No
	15	y	-0.06	4.00	No
		y	-0.053	4.00	No
	16	y	-0.073	4.00	No
		y	-0.06	4.00	No
	17	y	-0.06	4.00	No
	18	y	-0.06	4.00	No
		y	-0.053	4.00	No
	19	y	-0.072	2.00	No
		y	-0.072	2.00	No
		y	-0.072	4.00	No
	23	y	-0.073	2.00	No
		y	-0.029	3.50	No
	24	y	-0.029	3.50	No
	92	y	-0.06	4.00	No
		y	-0.053	4.00	No
	97	y	-0.073	2.00	No
		y	-0.033	3.50	No
	99	y	-0.073	2.00	No
		y	-0.033	3.50	No
	101	y	-0.073	2.00	No
		y	-0.029	3.50	No
W0	1	z	-0.062	4.00	No
	2	z	-0.351	0.50	No
		z	-0.351	7.50	No
	3	z	-0.078	1.00	No
		z	-0.078	2.75	No
		z	-0.076	4.75	No
		z	-0.076	6.50	No
	4	z	-0.274	1.50	No
		z	-0.274	6.50	No
	6	z	-0.222	0.50	No
		z	-0.222	7.50	No
	7	z	-0.048	1.00	No

		z	-0.048	2.75	No
		z	-0.058	4.75	No
		z	-0.058	6.50	No
	8	z	-0.197	0.50	No
		z	-0.197	7.50	No
	10	z	-0.222	0.50	No
		z	-0.222	7.50	No
	11	z	-0.048	1.00	No
		z	-0.048	2.75	No
		z	-0.058	4.75	No
		z	-0.058	6.50	No
	12	z	-0.289	1.50	No
		z	-0.289	6.50	No
		z	-0.012	2.00	No
		z	-0.012	3.00	No
		z	-0.012	4.00	No
	13	z	-0.05	2.00	No
		z	-0.05	2.00	No
		z	-0.05	4.00	No
	14	z	-0.074	4.00	No
	15	z	-0.10	4.00	No
	16	z	-0.092	4.00	No
	17	z	-0.092	4.00	No
	18	z	-0.10	4.00	No
	19	z	-0.058	2.00	No
		z	-0.058	4.00	No
	23	z	-0.052	2.00	No
		z	-0.058	3.50	No
	24	z	-0.058	3.50	No
	92	z	-0.047	4.00	No
		z	-0.048	4.00	No
	97	z	-0.057	2.00	No
		z	-0.058	3.50	No
	99	z	-0.052	2.00	No
		z	-0.058	3.50	No
	101	z	-0.057	2.00	No
		z	-0.058	3.50	No
W30	1	x	-0.111	4.00	No
	2	x	-0.179	0.50	No
		x	-0.179	7.50	No
	3	x	-0.038	1.00	No
		x	-0.038	2.75	No
		x	-0.052	4.75	No
		x	-0.052	6.50	No
	4	x	-0.294	1.50	No
		x	-0.294	6.50	No
		x	-0.012	2.00	No
		x	-0.012	3.00	No
		x	-0.012	4.00	No
	6	x	-0.308	0.50	No
		x	-0.308	7.50	No
	7	x	-0.068	1.00	No
		x	-0.068	2.75	No
		x	-0.07	4.75	No
		x	-0.07	6.50	No
	8	x	-0.288	0.50	No
		x	-0.288	7.50	No
	10	x	-0.308	0.50	No
		x	-0.308	7.50	No
	11	x	-0.068	1.00	No

		x	-0.068	2.75	No
		x	-0.07	4.75	No
		x	-0.07	6.50	No
	12	x	-0.279	1.50	No
		x	-0.279	6.50	No
	13	x	-0.066	2.00	No
		x	-0.066	4.00	No
	14	x	-0.058	4.00	No
		x	-0.038	4.00	No
	15	x	-0.078	4.00	No
		x	-0.071	4.00	No
	16	x	-0.078	4.00	No
		x	-0.062	4.00	No
	17	x	-0.078	4.00	No
	18	x	-0.071	4.00	No
		x	-0.058	4.00	No
	19	x	-0.058	2.00	No
		x	-0.058	2.00	No
		x	-0.058	4.00	No
	23	x	-0.08	2.00	No
		x	-0.063	3.50	No
	24	x	-0.063	3.50	No
	92	x	-0.127	4.00	No
	95	x	-0.063	3.50	No
	97	x	-0.08	2.00	No
		x	-0.063	3.50	No
	99	x	-0.08	2.00	No
		x	-0.063	3.50	No
	101	x	-0.08	2.00	No
		x	-0.063	3.50	No
Di	1	y	-0.048	4.00	No
	2	y	-0.142	0.50	No
		y	-0.142	7.50	No
	3	y	-0.035	1.00	No
		y	-0.035	2.75	No
		y	-0.037	4.75	No
		y	-0.037	6.50	No
	4	y	-0.154	1.50	No
		y	-0.154	6.50	No
		y	-0.008	2.00	No
		y	-0.008	2.00	No
		y	-0.008	3.00	No
		y	-0.008	3.00	No
		y	-0.008	4.00	No
		y	-0.008	4.00	No
	6	y	-0.142	0.50	No
		y	-0.142	7.50	No
	7	y	-0.035	1.00	No
		y	-0.035	2.75	No
		y	-0.037	4.75	No
		y	-0.037	6.50	No
	8	y	-0.048	0.50	No
		y	-0.048	7.50	No
	10	y	-0.142	0.50	No
		y	-0.142	7.50	No
	11	y	-0.035	1.00	No
		y	-0.035	2.75	No
		y	-0.037	4.75	No
		y	-0.037	6.50	No
	12	y	-0.154	1.50	No

		y	-0.154	6.50	No
		y	-0.008	2.00	No
		y	-0.008	2.00	No
		y	-0.008	3.00	No
		y	-0.008	3.00	No
		y	-0.008	4.00	No
		y	-0.008	4.00	No
	13	y	-0.032	2.00	No
		y	-0.032	2.00	No
		y	-0.032	4.00	No
	14	y	-0.036	4.00	No
		y	-0.027	4.00	No
	15	y	-0.048	4.00	No
		y	-0.05	4.00	No
	16	y	-0.036	4.00	No
		y	-0.048	4.00	No
	17	y	-0.048	4.00	No
	18	y	-0.036	4.00	No
		y	-0.05	4.00	No
	19	y	-0.032	2.00	No
		y	-0.032	2.00	No
		y	-0.032	4.00	No
	23	y	-0.036	2.00	No
		y	-0.042	3.50	No
	24	y	-0.029	3.50	No
	92	y	-0.036	4.00	No
		y	-0.05	4.00	No
	95	y	-0.032	2.00	No
	97	y	-0.036	2.00	No
		y	-0.042	3.50	No
	99	y	-0.036	2.00	No
		y	-0.042	3.50	No
	101	y	-0.036	2.00	No
		y	-0.042	3.50	No
Wi0	1	z	-0.016	4.00	No
	2	z	-0.069	0.50	No
		z	-0.069	7.50	No
	3	z	-0.017	1.00	No
		z	-0.017	2.75	No
		z	-0.017	4.75	No
		z	-0.017	6.50	No
	4	z	-0.054	1.50	No
		z	-0.054	6.50	No
	6	z	-0.046	0.50	No
		z	-0.046	7.50	No
	7	z	-0.011	1.00	No
		z	-0.011	2.75	No
		z	-0.013	4.75	No
		z	-0.013	6.50	No
	8	z	-0.041	0.50	No
		z	-0.041	7.50	No
	10	z	-0.046	0.50	No
		z	-0.046	7.50	No
	11	z	-0.011	1.00	No
		z	-0.011	2.75	No
		z	-0.013	4.75	No
		z	-0.013	6.50	No
	12	z	-0.057	1.50	No
		z	-0.057	6.50	No
		z	-0.004	2.00	No

		z	-0.004	3.00	No
		z	-0.004	4.00	No
	13	z	-0.012	2.00	No
		z	-0.012	2.00	No
		z	-0.012	4.00	No
	14	z	-0.016	4.00	No
	15	z	-0.022	4.00	No
	16	z	-0.021	4.00	No
	17	z	-0.021	4.00	No
	18	z	-0.022	4.00	No
	19	z	-0.014	2.00	No
		z	-0.014	4.00	No
	23	z	-0.013	2.00	No
		z	-0.013	3.50	No
	24	z	-0.013	3.50	No
	92	z	-0.012	4.00	No
		z	-0.012	4.00	No
	95	z	-0.013	3.50	No
	97	z	-0.013	2.00	No
		z	-0.013	3.50	No
	99	z	-0.013	2.00	No
		z	-0.013	3.50	No
	101	z	-0.013	2.00	No
		z	-0.013	3.50	No
Wi30	1	x	-0.023	4.00	No
	2	x	-0.038	0.50	No
		x	-0.038	7.50	No
	3	x	-0.009	1.00	No
		x	-0.009	2.75	No
		x	-0.012	4.75	No
		x	-0.012	6.50	No
	4	x	-0.057	1.50	No
		x	-0.057	6.50	No
		x	-0.004	2.00	No
		x	-0.004	3.00	No
		x	-0.004	4.00	No
	6	x	-0.061	0.50	No
		x	-0.061	7.50	No
	7	x	-0.015	1.00	No
		x	-0.015	2.75	No
		x	-0.015	4.75	No
		x	-0.015	6.50	No
	8	x	-0.057	0.50	No
		x	-0.057	7.50	No
	10	x	-0.061	0.50	No
		x	-0.061	7.50	No
	11	x	-0.015	1.00	No
		x	-0.015	2.75	No
		x	-0.015	4.75	No
		x	-0.015	6.50	No
	12	x	-0.055	1.50	No
		x	-0.055	6.50	No
	13	x	-0.014	2.00	No
		x	-0.014	4.00	No
	14	x	-0.013	4.00	No
		x	-0.009	4.00	No
	15	x	-0.017	4.00	No
		x	-0.015	4.00	No
	16	x	-0.017	4.00	No
		x	-0.014	4.00	No

	17	x	-0.017	4.00	No
	18	x	-0.015	4.00	No
		x	-0.013	4.00	No
	19	x	-0.013	2.00	No
		x	-0.013	2.00	No
		x	-0.013	4.00	No
	23	x	-0.017	2.00	No
		x	-0.013	3.50	No
	24	x	-0.013	3.50	No
	92	x	-0.025	4.00	No
	95	x	-0.013	3.50	No
	97	x	-0.017	2.00	No
		x	-0.013	3.50	No
	99	x	-0.017	2.00	No
		x	-0.013	3.50	No
	101	x	-0.017	2.00	No
		x	-0.013	3.50	No
WL0	1	z	-0.004	4.00	No
	2	z	-0.022	0.50	No
		z	-0.022	7.50	No
	3	z	-0.005	1.00	No
		z	-0.005	2.75	No
		z	-0.005	4.75	No
		z	-0.005	6.50	No
	4	z	-0.018	1.50	No
		z	-0.018	6.50	No
	6	z	-0.014	0.50	No
		z	-0.014	7.50	No
	7	z	-0.003	1.00	No
		z	-0.003	2.75	No
		z	-0.004	4.75	No
		z	-0.004	6.50	No
	8	z	-0.013	0.50	No
		z	-0.013	7.50	No
	10	z	-0.014	0.50	No
		z	-0.014	7.50	No
	11	z	-0.003	1.00	No
		z	-0.003	2.75	No
		z	-0.004	4.75	No
		z	-0.004	6.50	No
	12	z	-0.019	1.50	No
		z	-0.019	6.50	No
		z	-0.001	2.00	No
		z	-0.001	3.00	No
		z	-0.001	4.00	No
	13	z	-0.003	2.00	No
		z	-0.003	2.00	No
		z	-0.003	4.00	No
	14	z	-0.004	4.00	No
	15	z	-0.006	4.00	No
	16	z	-0.006	4.00	No
	17	z	-0.006	4.00	No
	18	z	-0.006	4.00	No
	19	z	-0.004	2.00	No
		z	-0.004	4.00	No
	23	z	-0.003	2.00	No
		z	-0.004	3.50	No
	24	z	-0.004	3.50	No
	92	z	-0.003	4.00	No
		z	-0.003	4.00	No

	95	z	-0.004	3.50	No
	97	z	-0.003	2.00	No
		z	-0.004	3.50	No
	99	z	-0.003	2.00	No
		z	-0.004	3.50	No
	101	z	-0.003	2.00	No
		z	-0.004	3.50	No
WL30	1	x	-0.006	4.00	No
	2	x	-0.012	0.50	No
		x	-0.012	7.50	No
	3	x	-0.003	1.00	No
		x	-0.003	2.75	No
		x	-0.004	4.75	No
		x	-0.004	6.50	No
	4	x	-0.019	1.50	No
		x	-0.019	6.50	No
		x	-0.001	2.00	No
		x	-0.001	3.00	No
		x	-0.001	4.00	No
	6	x	-0.02	0.50	No
		x	-0.02	7.50	No
	7	x	-0.005	1.00	No
		x	-0.005	2.75	No
		x	-0.005	4.75	No
		x	-0.005	6.50	No
	8	x	-0.018	0.50	No
		x	-0.018	7.50	No
	10	x	-0.02	0.50	No
		x	-0.02	7.50	No
	11	x	-0.005	1.00	No
		x	-0.005	2.75	No
		x	-0.005	4.75	No
		x	-0.005	6.50	No
	12	x	-0.018	1.50	No
		x	-0.018	6.50	No
	13	x	-0.004	2.00	No
		x	-0.004	4.00	No
	14	x	-0.005	4.00	No
		x	-0.002	4.00	No
	15	x	-0.005	4.00	No
		x	-0.004	4.00	No
	16	x	-0.004	4.00	No
		x	-0.005	4.00	No
	17	x	-0.005	4.00	No
	18	x	-0.003	4.00	No
		x	-0.004	4.00	No
	19	x	-0.003	2.00	No
		x	-0.003	2.00	No
		x	-0.003	4.00	No
	23	x	-0.004	2.00	No
		x	-0.004	3.50	No
	24	x	-0.004	3.50	No
	92	x	-0.007	4.00	No
	95	x	-0.004	3.50	No
	97	x	-0.004	2.00	No
	99	x	-0.003	2.00	No
	101	x	-0.003	2.00	No
		x	-0.004	3.50	No
LL1	86	y	-0.25	50.00	Yes
LL2	86	y	-0.25	0.00	Yes

LLa1	1	y	-0.50	50.00	Yes
LLa2	2	y	-0.50	50.00	Yes
LLa3	3	y	-0.50	50.00	Yes
LLa4	4	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

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

RAM® Elements
CONNECT Edition

Current Date: 12/1/2022 1:54 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

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

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	C 3X6	**34**	LC5 at 0.00%	**0.74**	**OK**	
		35	LC2 at 0.00%	0.74	OK	
		36	LC3 at 0.00%	0.62	OK	
	L 2X2X3_16	**37**	LC3 at 100.00%	0.39	OK	
		38	LC3 at 0.00%	**0.39**	**OK**	
		39	LC2 at 0.00%	0.38	OK	
		40	LC2 at 100.00%	0.39	OK	
		41	LC5 at 100.00%	0.39	OK	
		42	LC5 at 0.00%	0.39	OK	
	PIPE 2x0.154	**1**	LC3 at 72.92%	0.37	OK	
		2	LC3 at 72.92%	0.47	OK	
		3	LC5 at 72.92%	**0.61**	**OK**	
		4	LC5 at 72.92%	0.42	OK	
		5	LC2 at 72.92%	0.24	OK	
		6	LC5 at 72.92%	0.44	OK	
		7	LC5 at 72.92%	0.55	OK	
		8	LC4 at 72.92%	0.36	OK	

	10	LC3 at 72.92%	0.45	OK
	11	LC4 at 72.92%	0.58	OK
	12	LC2 at 72.92%	0.34	OK
	13	LC5 at 85.42%	0.50	OK
	14	LC5 at 85.42%	0.32	OK
	15	LC4 at 85.42%	0.52	OK
	16	LC5 at 85.42%	0.40	OK
	17	LC4 at 85.42%	0.33	OK
	18	LC3 at 85.42%	0.56	OK
	19	LC3 at 85.42%	0.41	OK
	23	LC3 at 71.88%	0.08	OK
	24	LC5 at 71.88%	0.03	OK
	60	LC4 at 92.50%	0.35	OK
	75	LC5 at 92.50%	0.36	OK
	86	LC5 at 4.38%	0.37	OK
	92	LC3 at 72.92%	0.56	OK
	95	LC5 at 71.88%	0.03	OK
	97	LC5 at 71.88%	0.08	OK
	99	LC3 at 71.88%	0.08	OK
	101	LC5 at 71.88%	0.08	OK
	103	LC3 at 72.92%	0.29	OK
	109	LC4 at 72.92%	0.25	OK
PIPE 3x0.216	**25**	LC3 at 45.31%	**0.60**	**OK**
	27	LC5 at 45.31%	0.59	OK
	29	LC2 at 45.31%	0.52	OK
	31	LC2 at 65.10%	0.26	OK
	32	LC3 at 34.90%	0.24	OK
	33	LC3 at 65.10%	0.30	OK
PL 6x3/8	**28**	LC5 at 50.00%	0.31	OK
	26	LC3 at 50.00%	0.30	OK
	30	LC2 at 50.00%	**0.33**	**OK**
	89	LC4 at 0.00%	0.17	OK
	90	LC4 at 0.00%	0.23	OK
	91	LC5 at 100.00%	0.30	OK
T2L 3X3X1_4	**43**	LC5 at 100.00%	**0.37**	**OK**
	44	LC3 at 100.00%	0.30	OK
	45	LC2 at 100.00%	0.31	OK

RAM® Elements
CONNECT Edition

Current Date: 12/1/2022 1:43 PM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	-1.0825	0.00	0.625	0
3	-6.4519	0.00	3.725	0
4	-6.7019	0.00	3.292	0
5	-6.2019	0.00	4.158	0
10	1.0825	0.00	0.625	0
11	6.4519	0.00	3.725	0
12	6.2019	0.00	4.158	0
13	6.7019	0.00	3.292	0
14	0.00	0.00	-1.25	0
15	0.00	0.00	-7.45	0
16	0.50	0.00	-7.45	0
17	-0.50	0.00	-7.45	0
19	-6.8009	0.00	3.4636	0
20	-0.4009	0.00	-7.6216	0
21	-1.90	0.00	4.158	0
28	-4.5509	0.00	-0.4336	0
29	0.4009	0.00	-7.6216	0
30	6.8009	0.00	3.4636	0
33	6.40	0.00	4.158	0
34	-6.40	0.00	4.158	0
35	-2.15	0.00	3.725	0
36	-4.3009	0.00	-0.0005	0
41	4.5509	0.00	-0.4336	0

42	1.90	0.00	4.158	0
43	4.3009	0.00	-0.0005	0
44	2.15	0.00	3.725	0
45	-2.6509	0.00	-3.7245	0
46	2.6509	0.00	-3.7245	0
47	-2.1509	0.00	-3.7245	0
48	2.1509	0.00	-3.7245	0
49	1.0825	-2.00	0.625	0
50	3.4641	0.00	2.00	0
53	-1.0825	-2.00	0.625	0
54	-3.4641	0.00	2.00	0
55	0.00	-2.00	-1.25	0
56	0.00	0.00	-4.00	0
85	0.4009	4.75	-7.6216	0
86	6.8009	4.75	3.4636	0
145	-6.8009	4.75	3.4636	0
146	-0.4009	4.75	-7.6216	0
175	6.40	4.75	4.158	0
176	-6.40	4.75	4.158	0
177	-5.40	-2.00	4.358	0
178	-1.00	-2.00	4.358	0
179	3.40	-2.00	4.358	0
180	4.90	-2.00	4.358	0
181	-1.0741	-2.00	-6.8555	0
182	-3.2741	-2.00	-3.045	0
183	-5.4741	-2.00	0.7655	0
184	-6.4741	-2.00	2.4975	0
186	2.0741	-2.00	-5.1235	0
187	4.2741	-2.00	-1.313	0
188	6.4741	-2.00	2.4975	0
190	2.0741	6.00	-5.1235	0
191	4.2741	6.00	-1.313	0
192	6.4741	6.00	2.4975	0
193	-1.0741	6.00	-6.8555	0
194	-3.2741	6.00	-3.045	0
195	-5.4741	6.00	0.7655	0
196	-6.4741	6.00	2.4975	0
197	-5.40	6.00	4.358	0
198	-1.00	6.00	4.358	0
199	3.40	6.00	4.358	0
200	4.90	6.00	4.358	0
203	-3.90	-0.75	4.358	0
204	-5.9741	-0.75	1.6315	0
205	-4.4741	-0.75	-0.9666	0
206	-1.8241	-0.75	-5.5565	0
207	1.5741	-0.75	-5.9895	0
208	3.0741	-0.75	-3.3914	0
209	5.7241	-0.75	1.1985	0
210	1.5741	5.25	-5.9895	0
211	-1.8241	5.25	-5.5565	0
212	3.0741	5.25	-3.3914	0
213	5.7241	5.25	1.1985	0
216	-3.90	5.25	4.358	0
217	-4.4741	5.25	-0.9666	0
218	-5.9741	5.25	1.6315	0
221	-2.3733	-1.00	1.1393	0
222	-2.3733	3.00	1.1393	0
227	0.20	-1.00	-2.625	0
228	0.20	3.00	-2.625	0
231	-6.7019	4.75	3.292	0

232	-6.2019	4.75	4.158	0
233	6.2019	4.75	4.158	0
234	6.7019	4.75	3.292	0
235	0.50	4.75	-7.45	0
236	-0.50	4.75	-7.45	0
250	1.50	-2.00	3.958	0
251	1.50	6.00	3.958	0
252	-0.20	-1.00	-2.625	0
253	-0.20	3.00	-2.625	0
255	2.3733	3.00	1.1393	0
256	-2.1733	3.00	1.4857	0
259	2.3733	-1.00	1.1393	0
260	-2.1733	-1.00	1.4857	0
262	2.1733	-1.00	1.4857	0
263	2.1733	3.00	1.4857	0
269	5.90	-2.00	4.358	0
270	5.90	6.00	4.358	0
280	0.8241	-2.00	-7.2886	0
282	0.8241	6.00	-7.2886	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
10	1	1	1	1	1	1
14	1	1	1	1	1	1
49	1	1	1	1	1	1
53	1	1	1	1	1	1
55	1	1	1	1	1	1

Members

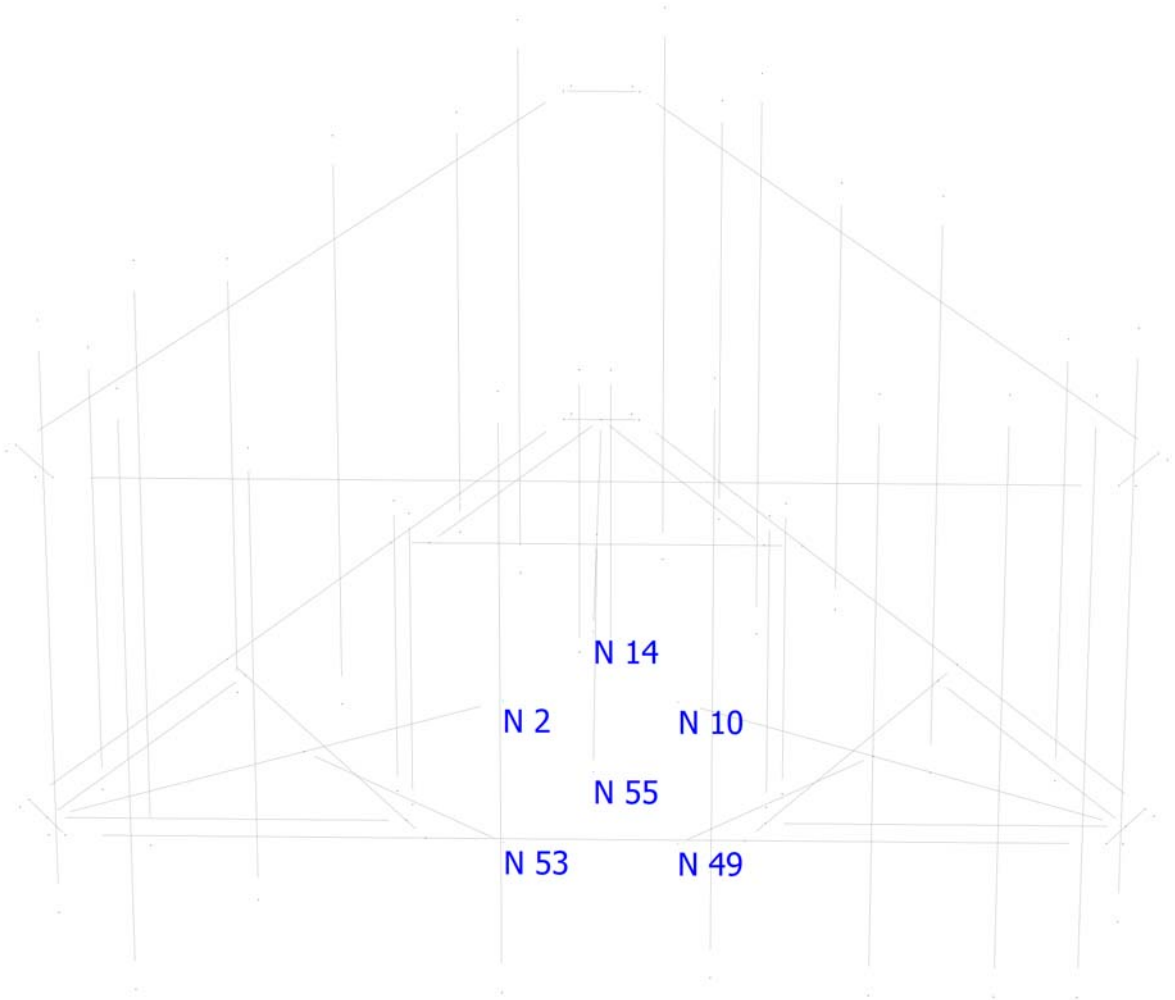
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	200	180		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
2	199	179		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
3	198	178		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
4	197	177		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
5	196	184		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
6	195	183		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	194	182		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	193	181		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	190	186		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	191	187		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	192	188		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
13	216	203		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
14	218	204		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
15	217	205		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
16	211	206		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
17	210	207		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
18	212	208		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

19	213	209	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
23	222	221	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
24	228	227	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
60	85	86	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
75	145	146	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
86	175	176	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
25	2	3	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
27	10	11	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
29	14	15	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
31	19	20	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
32	29	30	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
33	33	34	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
34	28	21	C 3X6	A36	0.00	0.00	0.00
35	42	41	C 3X6	A36	0.00	0.00	0.00
36	46	45	C 3X6	A36	0.00	0.00	0.00
37	35	3	L 2X2X3_16	A36	0.00	0.00	0.00
38	3	36	L 2X2X3_16	A36	0.00	0.00	0.00
39	15	48	L 2X2X3_16	A36	0.00	0.00	0.00
40	47	15	L 2X2X3_16	A36	0.00	0.00	0.00
41	43	11	L 2X2X3_16	A36	0.00	0.00	0.00
42	11	44	L 2X2X3_16	A36	0.00	0.00	0.00
43	49	50	T2L 3X3X1_4	A36	0.00	0.00	0.00
44	53	54	T2L 3X3X1_4	A36	0.00	0.00	0.00
45	55	56	T2L 3X3X1_4	A36	0.00	0.00	0.00
28	12	13	PL 6x3/8	A36	0.00	0.00	0.00
26	4	5	PL 6x3/8	A36	0.00	0.00	0.00
30	16	17	PL 6x3/8	A36	0.00	0.00	0.00
89	231	232	PL 6x3/8	A36	0.00	0.00	0.00
90	233	234	PL 6x3/8	A36	0.00	0.00	0.00
91	235	236	PL 6x3/8	A36	0.00	0.00	0.00
92	251	250	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
95	253	252	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
97	255	259	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
99	256	260	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
101	263	262	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
103	270	269	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
109	282	280	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
1	315.00	0	0.00	0.00	0.00
2	315.00	0	0.00	0.00	0.00
3	315.00	0	0.00	0.00	0.00
4	315.00	0	0.00	0.00	0.00
5	315.00	0	0.00	0.00	0.00
6	315.00	0	0.00	0.00	0.00
7	315.00	0	0.00	0.00	0.00
8	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00
12	315.00	0	0.00	0.00	0.00
13	315.00	0	0.00	0.00	0.00
14	315.00	0	0.00	0.00	0.00
15	315.00	0	0.00	0.00	0.00

16	315.00	0	0.00	0.00	0.00
17	315.00	0	0.00	0.00	0.00
18	315.00	0	0.00	0.00	0.00
19	315.00	0	0.00	0.00	0.00
23	315.00	0	0.00	0.00	0.00
24	315.00	0	0.00	0.00	0.00
89	90.00	0	0.00	0.00	0.00
90	90.00	0	0.00	0.00	0.00
91	90.00	0	0.00	0.00	0.00
92	315.00	0	0.00	0.00	0.00
95	315.00	0	0.00	0.00	0.00
97	315.00	0	0.00	0.00	0.00
99	315.00	0	0.00	0.00	0.00
101	315.00	0	0.00	0.00	0.00
103	315.00	0	0.00	0.00	0.00
109	315.00	0	0.00	0.00	0.00


N 14
N 2
N 10
N 55
N 53
N 49
Y
X
Z

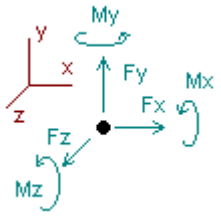
RAM® Elements
CONNECT Edition

Current Date: 12/1/2022 1:54 PM
Units system: English

Analysis result

Envelope for nodal reactions

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



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2DL
LC2=1.2DL+W0
LC3=1.2DL+W30
LC4=1.2DL-W0
LC5=1.2DL-W30
LC6=0.9DL+W0
LC7=0.9DL+W30
LC8=0.9DL-W0
LC9=0.9DL-W30
LC10=1.2DL+Di+Wi0
LC11=1.2DL+Di+Wi30
LC12=1.2DL+Di-Wi0
LC13=1.2DL+Di-Wi30
LC14=1.4DL
LC15=1.2DL+1.6LL1
LC16=1.2DL+1.6LL2
LC17=1.2DL+WL0+1.6LLa1
LC18=1.2DL+WL30+1.6LLa1
LC19=1.2DL-WL0+1.6LLa1
LC20=1.2DL-WL30+1.6LLa1
LC21=1.2DL+WL0+1.6LLa2
LC22=1.2DL+WL30+1.6LLa2
LC23=1.2DL-WL0+1.6LLa2
LC24=1.2DL-WL30+1.6LLa2
LC25=1.2DL+WL0+1.6LLa3
LC26=1.2DL+WL30+1.6LLa3
LC27=1.2DL-WL0+1.6LLa3
LC28=1.2DL-WL30+1.6LLa3
LC29=1.2DL+WL0+1.6LLa4
LC30=1.2DL+WL30+1.6LLa4
LC31=1.2DL-WL0+1.6LLa4
LC32=1.2DL-WL30+1.6LLa4

		Forces						Moments					
Node		**Fx** [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
2	Max	8.617	LC3	0.493	LC5	1.786	LC9	0.32161	LC7	1.32945	LC6	0.37801	LC8
	Min	-4.355	LC9	-0.487	LC3	-4.273	LC3	-0.38394	LC5	-1.35829	LC4	-0.42370	LC2
10	Max	4.346	LC7	0.542	LC3	1.878	LC6	0.44737	LC9	1.80245	LC8	0.38265	LC2
	Min	-8.637	LC5	-0.522	LC9	-4.348	LC4	-0.47415	LC3	-1.81955	LC2	-0.30282	LC8

14	Max	1.475	LC7	0.437	LC8	9.100	LC2	0.29719	LC8	2.17446	LC5	0.51401	LC5
	Min	-1.493	LC5	-0.548	LC2	-5.314	LC8	-0.31839	LC2	-2.15660	LC7	-0.47881	LC7
49	Max	5.583	LC5	4.152	LC5	3.139	LC5	0.52119	LC2	0.85853	LC4	0.35243	LC6
	Min	-0.826	LC7	-0.415	LC7	-0.424	LC7	-0.44141	LC8	-0.84745	LC6	-0.50882	LC4
53	Max	0.673	LC9	4.097	LC3	3.229	LC3	0.33799	LC3	0.43839	LC2	0.38136	LC4
	Min	-5.403	LC3	-0.370	LC9	-0.475	LC9	-0.23937	LC9	-0.41820	LC8	-0.22905	LC6
55	Max	0.326	LC3	3.754	LC2	1.508	LC8	0.22125	LC8	1.00472	LC9	0.73371	LC9
	Min	-0.308	LC9	-0.804	LC8	-5.820	LC2	-0.35823	LC2	-1.01983	LC3	-0.74448	LC3

Connection Check

Date: 12/1/2022
Project Name: BRIDGEPORT EVERGREEN ST
Project No.: CT5100
Designed By: KSBM **Checked By:** MSC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A36 5/8" (Threaded Rod)

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall}= 4004 lbs.

TENSILE FORCES

Reaction **F =** 4348 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 8637 lbs. (See Bentley Output)
Reactions in Y direction: 542 lbs. (See Bentley Output)

Resultant: 8654 lbs.

No. of Supports = 1
No. of Bolts / Support = 4

Tension Design Load /Bolts =

f_t= 1087.00 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 2163.50 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.163	+	0.540	=	0.703	<	1.0	**Therefore, OK !**

220 EVERGREEN ST

Location	220 EVERGREEN ST	**Mblu**	53/ 1527/ 2/ /
Acct#	R--0048990	**Owner**	CHAPIN & BANGS COMPANY
Assessment	$215,420	**Appraisal**	$307,740
PID	13578	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$2,250	$305,490	$307,740
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$1,580	$213,840	$215,420

Owner of Record

Owner	CHAPIN & BANGS COMPANY	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	PO BOX 1117 BRIDGEPORT, CT 06601	**Book & Page**	2291/0054
		Sale Date	05/12/1987
		Instrument	

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
CHAPIN & BANGS COMPANY	$0		2291/0054		05/12/1987

Building Information

Building 1 : Section 1

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

Building Attributes	
Field	**Description**
Style:	Vacant Land
Model	
Grade:	
Stories:	
Occupancy:	
Exterior Wall 1:	
Exterior Wall 2:	
Roof Structure:	
Roof Cover:	
Interior Wall 1:	
Interior Wall 2:	
Interior Flr 1:	
Interior Flr 2	
Heat Fuel:	
Heat Type:	
AC Type:	
Total Bedrooms	
Total Full Baths	
Total Half Baths	
Total Xtra Fixtrs:	
Total Rooms	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplaces	
Fin Bsmt Area	
Fin Bsmt Quality	
Num Park	
Bsmt Garages	
.	
Fndtn Cndtn	
Basement	

Building Photo

(https://images.vgsi.com/photos2/BridgeportCTPhotos//\0113\IMG_0024_1

Building Layout

(ParcelSketch.ashx?pid=13578&bid=13578)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	399
Description	Vac Ind Lnd
Zone	ILI
Neighborhood	IND
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1.00
Frontage	0
Depth	0
Assessed Value	$213,840
Appraised Value	$305,490

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN2	Fence, WD	4	4 ft	150.00 LF	$2,250	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$2,250	$305,490	$307,740
2021	$2,250	$305,490	$307,740
2020	$2,250	$305,490	$307,740

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$1,580	$213,840	$215,420
2021	$1,580	$213,840	$215,420
2020	$1,580	$213,840	$215,420

Search...

Parcels (1)

☆ **Site Address: 220 EVERGREEN ST**

CHAPIN & BANGS COMPANY
Field Card
Zoom to Feature
Buffer Feature

Displaying 1 - 1 (Total: 1)

Page 1 of 1

Home Layers Parcels (1)

Basemaps

0 30 60ft

DOCKET NO. 464 – Blue Sky Towers, LLC and New Cingular Wireless PCS, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at Bridgeport Tax Assessor Map 53, Block 1527, Lot 2, 220 Evergreen Street, Bridgeport, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		April 14, 2016

Decision and Order

Pursuant to Connecticut General Statutes §16-50p and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Blue Sky Towers, LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at the proposed site located at 220 Evergreen Street, Bridgeport, Connecticut.

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

1. The tower shall be constructed as a monopole at a height of 135 feet above ground level to provide the proposed wireless services, sufficient to accommodate the antennas of New Cingular Wireless PCS, LLC (AT&T) and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission.

2. 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 Connecticut State Agencies. The D&M Plan shall be served on the City of Bridgeport (City) for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) final site plan(s) for development of the facility to include specifications for the tower, tower foundation, antennas, equipment compound including, but not limited to, fence with less than two inch mesh, radio equipment, access road, utility line, transformer, emergency backup generator, space for a future shared generator, flood elevation mitigation plan for equipment, and landscaping that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and taking into account inundation risk;
    b) the tower designed with a yield point to ensure that the tower setback radius remains within the boundaries of the subject property;
    c) location of emergency generator and equipment shelter with air conditioning units and evidence of compliance with noise regulations;
    d) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; and
    e) hours of construction.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

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

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

7. Any request for extension of the time period referred to in Condition 6 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the City of Bridgeport.

8. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.

9. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

10. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

11. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

13. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

14. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated December 3, 2015, and notice of issuance published in the Connecticut Post.

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

AMERICAN TOWER®
CORPORATION

LETTER OF AUTHORIZATION FOR PERMITTING

ATC SITE#/NAME/PROJECT: 210747 / EVERGREEN STREET CT / OAA780085
SITE ADDRESS: 220 EVERGRREN ST, BRIDGEPORT, CT 06606
APN: BRID M:53 B:1527 L:2
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 24th day of August, 2022

NOTARY SEAL

MELISSA ANN METZLER
Notary Public
Commonwealth of Massachusetts
My Commission Expires March 14, 2025

Notary Public
My Commission Expires: March 14, 2025

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

Mayor & Dir-OPED Copies

From: auto-reply@usps.com
To: Hollis Redding
Subject: USPS® Expected Delivery by Thursday, March 2, 2023 arriving by 9:00pm 9405503699300489658906
Date: Tuesday, February 28, 2023 2:58:42 PM

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 2:43 pm on February 28, 2023 in MERIDEN, CT 06450.

Tracking Number:
9405503699300489658906

Expected Delivery By

2
Mar

By 9:00pm

By 9:00pm

From: auto-reply@usps.com
To: Hollis Redding
Subject: USPS® Expected Delivery by Thursday, March 2, 2023 arriving by 9:00pm 9405503699300489658937
Date: Tuesday, February 28, 2023 2:58:32 PM

Property Owner Copy

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 2:43 pm on February 28, 2023 in MERIDEN, CT 06450.

Tracking Number:
9405503699300489658937

Expected Delivery By

2
Mar

By 9:00pm

By 9:00pm

Tower Owner Copy

From: auto-reply@usps.com
To: Hollis Redding
Subject: USPS® Expected Delivery by Thursday, March 2, 2023 arriving by 9:00pm 9405503699300489658968
Date: Tuesday, February 28, 2023 2:58:42 PM

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 2:43 pm on February 28, 2023 in MERIDEN, CT 06450.

Tracking Number:
9405503699300489658968

Expected Delivery By

2
Mar

By 9:00pm

By 9:00pm

UNITED STATES POSTAL SERVICE® **Click-N-Ship®**

P

usps.com
$9.65
US POSTAGE
Flat Rate Env

9405 5036 9930 0489 6589 06 0096 5000 0020 6604

U.S. POSTAGE PAID
Click-N-Ship®

03/01/2023 Mailed from 03079 986764605158913

PRIORITY MAIL®

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

Expected Delivery Date: 03/03/23
Ref#: CT5100
0000

C013

HON. JOSEPH GANIM, MAYOR THOMAS GILL
CITY OF BRIDGEPORT
999 BROAD ST
BRIDGEPORT CT 06604-4320

USPS TRACKING #

9405 5036 9930 0489 6589 06

Electronic Rate Approved #038555749

Cut on dotted line.

UNITED STATES POSTAL SERVICE® **Click-N-Ship®**

P

usps.com
$9.65
US POSTAGE
Flat Rate Env

9405 5036 9930 0489 6589 37 0096 5000 0020 6601

U.S. POSTAGE PAID
Click-N-Ship®

03/01/2023 Mailed from 03079 986764605156075

PRIORITY MAIL®

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

Expected Delivery Date: 03/03/23
Ref#: CT5100
0000

B019

CHAPIN & BANGS COMPANY
PO BOX 1117
BRIDGEPORT CT 06601-1117

USPS TRACKING #

9405 5036 9930 0489 6589 37

Electronic Rate Approved #038555749

UNITED STATES POSTAL SERVICE® **Click-N-Ship®**

P

usps.com
$9.65
US POSTAGE
Flat Rate Env

9405 5036 9930 0489 6589 68 0096 5000 0010 1801

U.S. POSTAGE PAID
Click-N-Ship®

03/01/2023 Mailed from 03079 986764605153000

PRIORITY MAIL®

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

Expected Delivery Date: 03/02/23
Ref#: CT5100
0000

C046

AMERICAN TOWER CORP
10 PRESIDENTIAL WAY
WOBURN MA 01801-1053

USPS TRACKING

9405 5036 9930 0489 6589 68

Electronic Rate Approved #038555749

Cut on dotted line.

UNITED STATES POSTAL SERVICE® **Click-N-Ship®**

P

usps.com
$9.95
US POSTAGE
Legal Flat Rt Env

9405 5036 9930 0489 6590 02 0099 5000 0020 6051

U.S. POSTAGE PAID
Click-N-Ship®

03/01/2023 Mailed from 03079 986764605149996

PRIORITY MAIL®

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

Expected Delivery Date: 03/03/23
Ref#: CT5100
0000

C006

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

USPS TRACKING

9405 5036 9930 0489 6590 02

Electronic Rate Approved #038555749