



February 12, 2024

Melanie A. Bachman Executive
Director Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Notice of Exempt Modification – Antenna and RRU Swap/Add
Property Address: 142 Fitts Rd Ashford, CT 06278
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to 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).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 167-foot level on an existing 180-foot monopole, owned by SBA Communications.

AT&T desires to modify its existing telecommunications facility by swapping six (6) antennas, nine (9) remote radio units and associated lines. The centerline height of said antennas and remote radio units is and will remain at 167' on the existing antenna mount.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-510j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to The Honorable Cathryn E Silver-Smith, First Selectman, Town of Ashford, Michael D'Amato, Zoning Enforcement Officer Town of Ashford, Connecticut Rivers Council BSA, Property Owner and SBA Communications, Tower Owner.

The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-AT&T-003-160927** – AT&T Mobility, LLC notice of intent to modify an existing telecommunications facility located at 142 Fitts Rd Ashford, Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 167-foot level of the 180-foot Monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require and extension of the site boundary.
3. The proposed modifications will not increase the 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 (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in [Tab 2](#).
5. The proposed modifications will not cause a change or alteration in the physical or environmental



- characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

Carolyn Seeley
Real Estate Specialist
Smartlink on behalf of AT&T
(978) 760-5577
Carolyn.seeley@smartlinkgroup.com

CC w/enclosures:

The Honorable Cathryn E Silver-Smith, First Selectman
Michael D'Amato, Zoning Enforcement Officer
Connecticut Rivers Council BSA,
SBA Communications - Tower Owner

December 2, 2022
November 20, 2023 (Rev.1)



Smartlink, LLC
1997 Annapolis Exchange Pkwy, Suite 200
Annapolis, MD 21401

RE: AT&T Site Number: CT5702 (LTE 3C)
FA Number: 10070913
PACE Number: MRCTB066245
PT Number: 2051A16NVN
TEP Project Number: 317927.747563
AT&T Site Name: ASHFORD SOUTHEAST
Site Address: 142 Fitts Road
Ashford, CT 06278

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by Smartlink, LLC to perform a mount analysis on the existing AT&T antenna/RRH mount to determine its capability of supporting the following additional loading (based on RFDS V3.0 dated 6/16/2023):

- (1) DC6-48-60-18-8F Surge Arrestor (31.4"x10.2"Ø – Wt. = 29 lbs. /each) (Standoff)
- **(6) OPA65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 79 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each) (Standoff)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each) (Standoff)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mount. This office conducted a survey climb and mapping of the existing AT&T antenna mount on November 22, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 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 1.50 in. An escalated ice thickness of 1.76 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 0.181 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.055.
- 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 1.
- 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 a ring mount and threaded rods. TEP NE considers the threaded rods to be the governing connection member.

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

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 3C) Mount Rating	57	LC4	79%	PASS

Reference Documents:

- Mount mapping report prepared by TEP NE dated November 28, 2022.

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

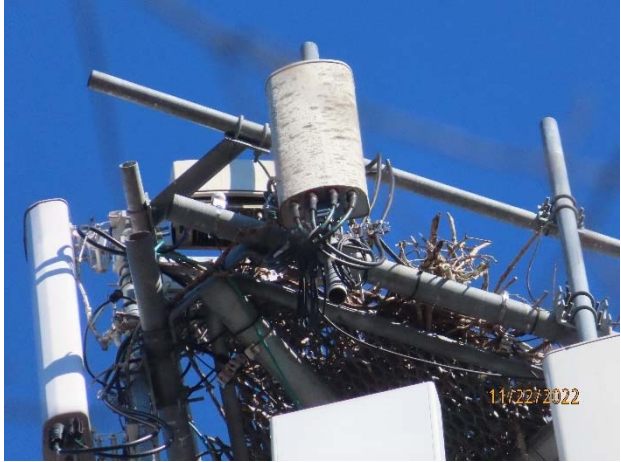


Michael Cabral
Director



Daniel P. Hamm, PE
Vice President

FIELD PHOTOS:



FIELD PHOTOS (CONT.):





Wind & Ice Calculations

Date: 11/16/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$z = 167$ (ft)
 $z_g = 1200$ (ft)
 $\alpha = 7$

$K_z = 1.144$

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

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

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

$K_{zt} = 1$

$K_h = 1$

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

$K_c = 0.9$ (from Table 2-4)

$K_t = 0$ (from Table 2-5)

$f = 0$ (from Table 2-5)

Category = 1

$z = 167$

$z_s = 675$ (Mean elevation of base of structure above sea level)

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

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

$K_e = 0.98$ (from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =

$t_i = 1.50$ in

Importance Factor =

$I = 1.00$ (from Table 2-3)

$K_{iz} = 1.18$ (from Sec. 2.6.10)

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

$t_{iz} = 1.76$ in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

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

$h =$ 180 $G_h =$ 0.85

2.6.9.2 Guyed Masts $G_h =$ 0.85

2.6.9.3 Pole Structures $G_h =$ 1.1

2.6.9 Appurtenances $G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

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

$G_h =$ 1.35 $G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

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

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

$q_z =$	39.10
$q_{z(ice)} =$	6.79
$q_{z(30)} =$	2.44

$K_z =$	1.144 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	0.98 (from 2.6.8)
$K_d =$	0.95 (from Table 2-2)
$V_{max} =$	120 mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

Table 2-2

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

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) ≥ 0.85$	$1.4 - 4.0(r_s) ≥ 0.90$	$2.0 - 6.0(r_s) ≥ 1.25$
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 = **1.76 in** Angle = **0 (deg)** Equivalent Angle = **180 (deg)**

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area</u>	<u>Aspect Ratio</u>	<u>Ca</u>	<u>Force (lbs)</u>	<u>Force (lbs) (w/ Ice)</u>	<u>Force (lbs) (30 mph)</u>
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	699	147	44
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.36	1.20	77	20	5
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	55	16	3
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.20	64	17	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	53	15	3
Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	61	16	4
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	14		
2x2 Angle	2.0	12.0		0.17	0.17	2.00	13		
2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	16		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	16		
Plate 3-1/2x1/2	3.5	12.0		0.29	0.29	2.00	23		

Date: 11/16/2023
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WIND LOADS

Angle = **30** (deg) Ice Thickness = **1.76** in. Equivalent Angle = **210** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	699	318	604
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	71
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	55	77	60
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	61
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	53	64	56

WIND LOADS WITH ICE:

OPA65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.76	4.11	8.86	1.27	1.46	145	77	128
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	19
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	16	20	17
8843 B2/B66A RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	17	15	17
8843 B2/B66A RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	15	17	16

WIND LOADS AT 30 MPH:

OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	44	20	38
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
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	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	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

Date: 11/16/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **60** (deg)

Ice Thickness = **1.76** in.

Equivalent Angle = **240** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	699	318	413
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	60
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	55	77	71
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	56
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	53	64	61

WIND LOADS WITH ICE:

OPA65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.76	4.11	8.86	1.27	1.46	145	77	94
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	17
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	16	20	19
8843 B2/B66A RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	17	15	16
8843 B2/B66A RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	15	17	17

WIND LOADS AT 30 MPH:

OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	44	20	26
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
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	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
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

Date: 11/16/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **90** (deg) Ice Thickness = **1.76** in. Equivalent Angle = **270** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	699	318	318
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	55
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	55	77	77
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	53
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	53	64	64

WIND LOADS WITH ICE:

OPA65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.76	4.11	8.86	1.27	1.46	145	77	77
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	16
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	16	20	20
8843 B2/B66A RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	17	15	15
8843 B2/B66A RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	15	17	17

WIND LOADS AT 30 MPH:

OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	44	20	20
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	3
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	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
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

Date: 11/16/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **120** (deg) Ice Thickness = **1.76** in. Equivalent Angle = **300** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	699	318	413
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	60
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	55	77	71
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	56
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	53	64	61

WIND LOADS WITH ICE:

OPA65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.76	4.11	8.86	1.27	1.46	145	77	94
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	17
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	16	20	19
8843 B2/B66A RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	17	15	16
8843 B2/B66A RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	15	17	17

WIND LOADS AT 30 MPH:

OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	44	20	26
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
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	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
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

Date: 11/16/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = **150** (deg) Ice Thickness = **1.76** in. Equivalent Angle = **330** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	699	318	604
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	77	55	71
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	55	77	60
8843 B2/B66A RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	64	53	61
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	53	64	56

WIND LOADS WITH ICE:

OPA65R-BU8DA Antenna	99.5	24.2	11.2	16.75	7.76	4.11	8.86	1.27	1.46	145	77	128
4449 B5/B12 RRH	21.4	16.7	12.9	2.49	1.92	1.28	1.66	1.20	1.20	20	16	19
4449 B5/B12 RRH (Side)	21.4	12.9	16.7	1.92	2.49	1.66	1.28	1.20	1.20	16	20	17
8843 B2/B66A RRH	18.4	16.7	14.4	2.14	1.85	1.10	1.28	1.20	1.20	17	15	17
8843 B2/B66A RRH (Side)	18.4	14.4	16.7	1.85	2.14	1.28	1.10	1.20	1.20	15	17	16

WIND LOADS AT 30 MPH:

OPA65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	44	20	38
4449 B5/B12 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	5	3	4
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	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	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

Date: 11/20/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.76 in.
 Density of ice: 56 pcf

OPA65R-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: 410 lbs
 Weight of object: 79.0 lbs
Combined weight of ice and object: 489 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: 58 lbs
 Weight of object: 73.0 lbs
Combined weight of ice and object: 131 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: 50 lbs
 Weight of object: 72.0 lbs
Combined weight of ice and object: 122 lbs

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: 67 lbs
 Weight of object: 29 lbs
Combined weight of ice and object: 96 lbs

2" Pipe

Per foot weight of ice:
 diameter (in): 2.38
Per foot weight of ice on object: 9 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: 10 plf

3" Pipe

Per foot weight of ice:
 diameter (in): 3.5
Per foot weight of ice on object: 11 plf

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

Weight of ice based on total radial SF area:
 Height (in): 2.5
 Width (in): 2.5
Per foot weight of ice on object: 11 plf

HSS 4x4

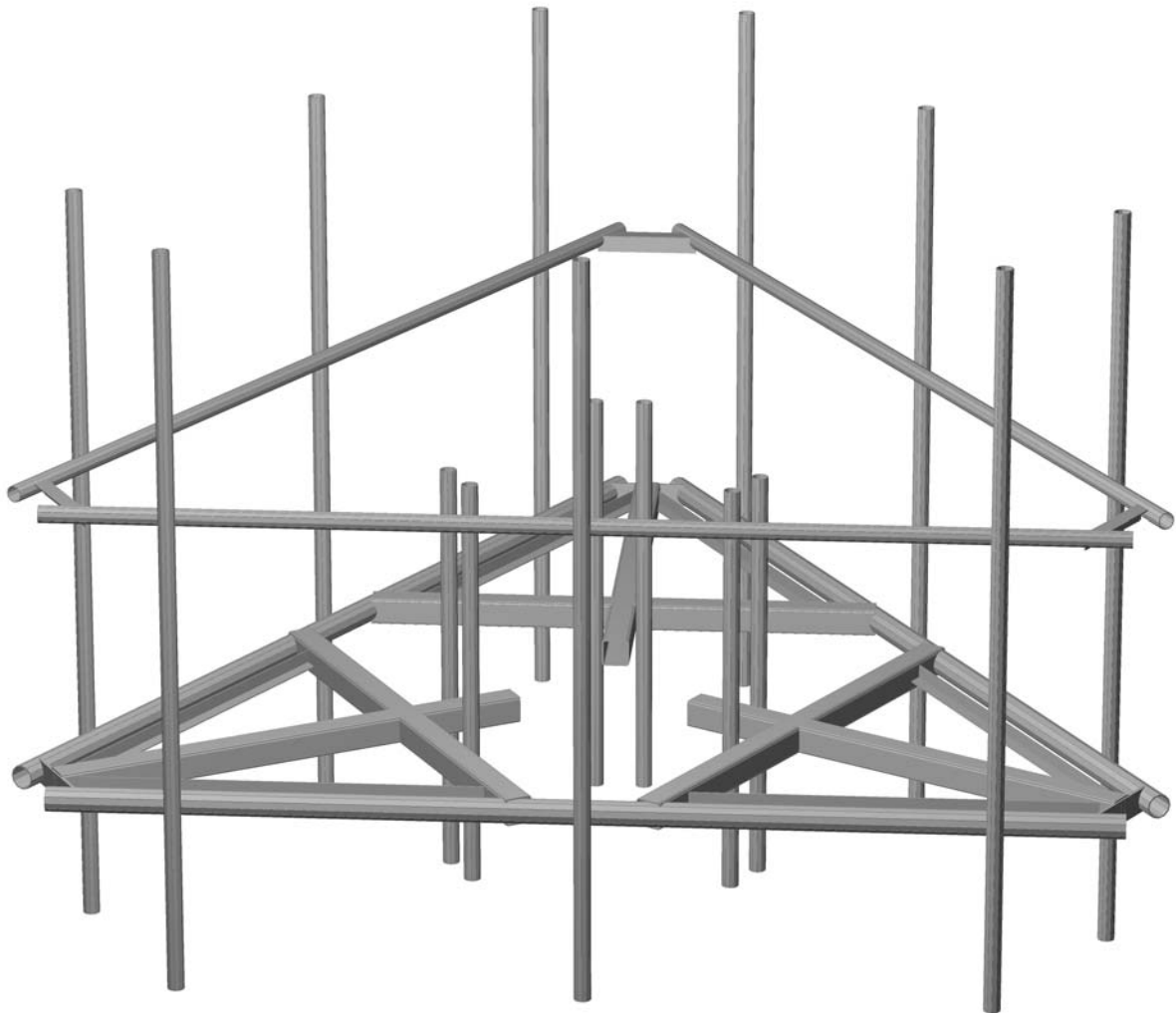
Weight of ice based on total radial SF area:
 Height (in): 4
 Width (in): 4
Per foot weight of ice on object: 16 plf

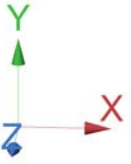
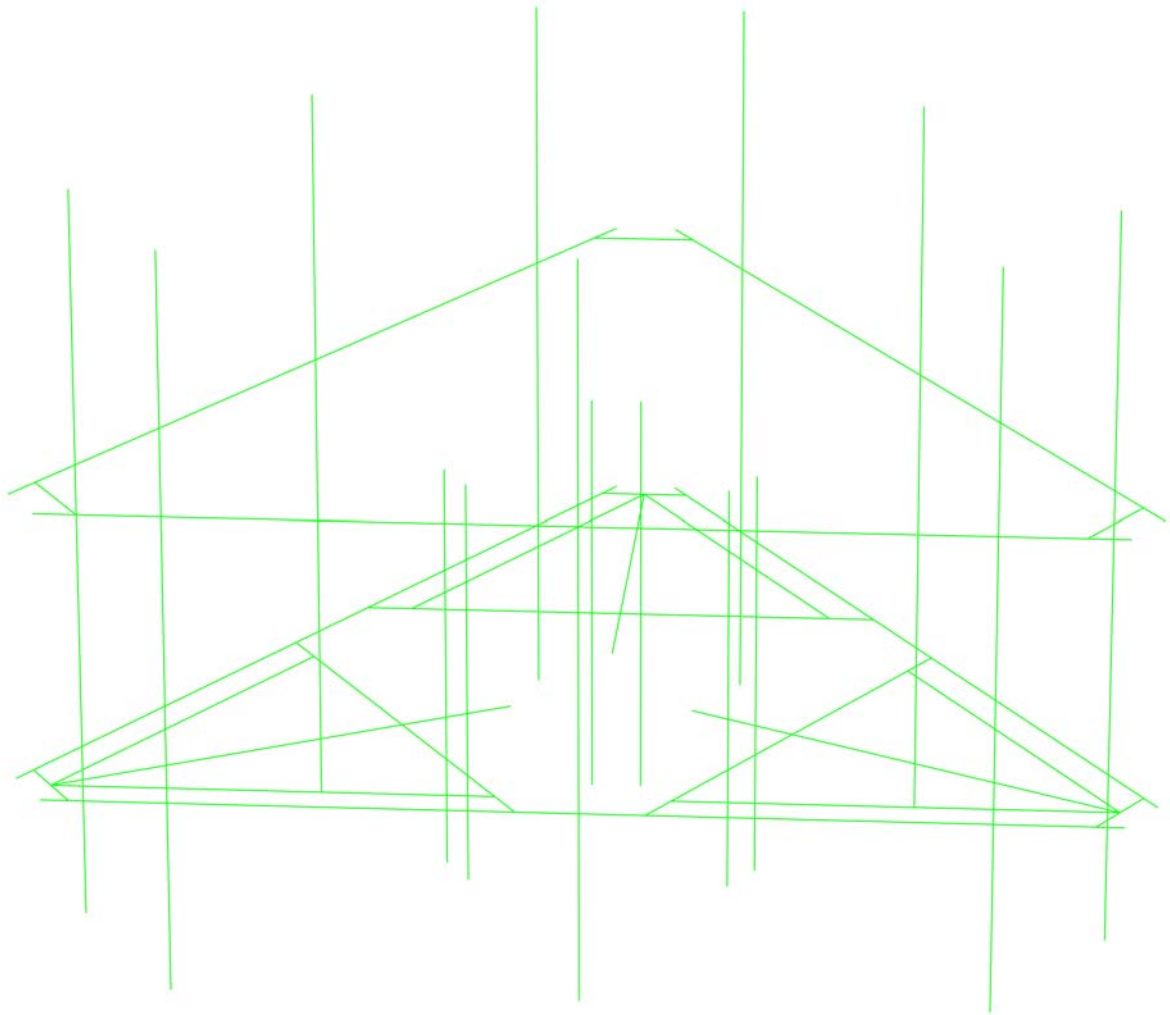
PL 3-1/2x1/2

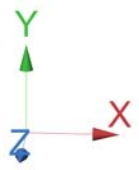
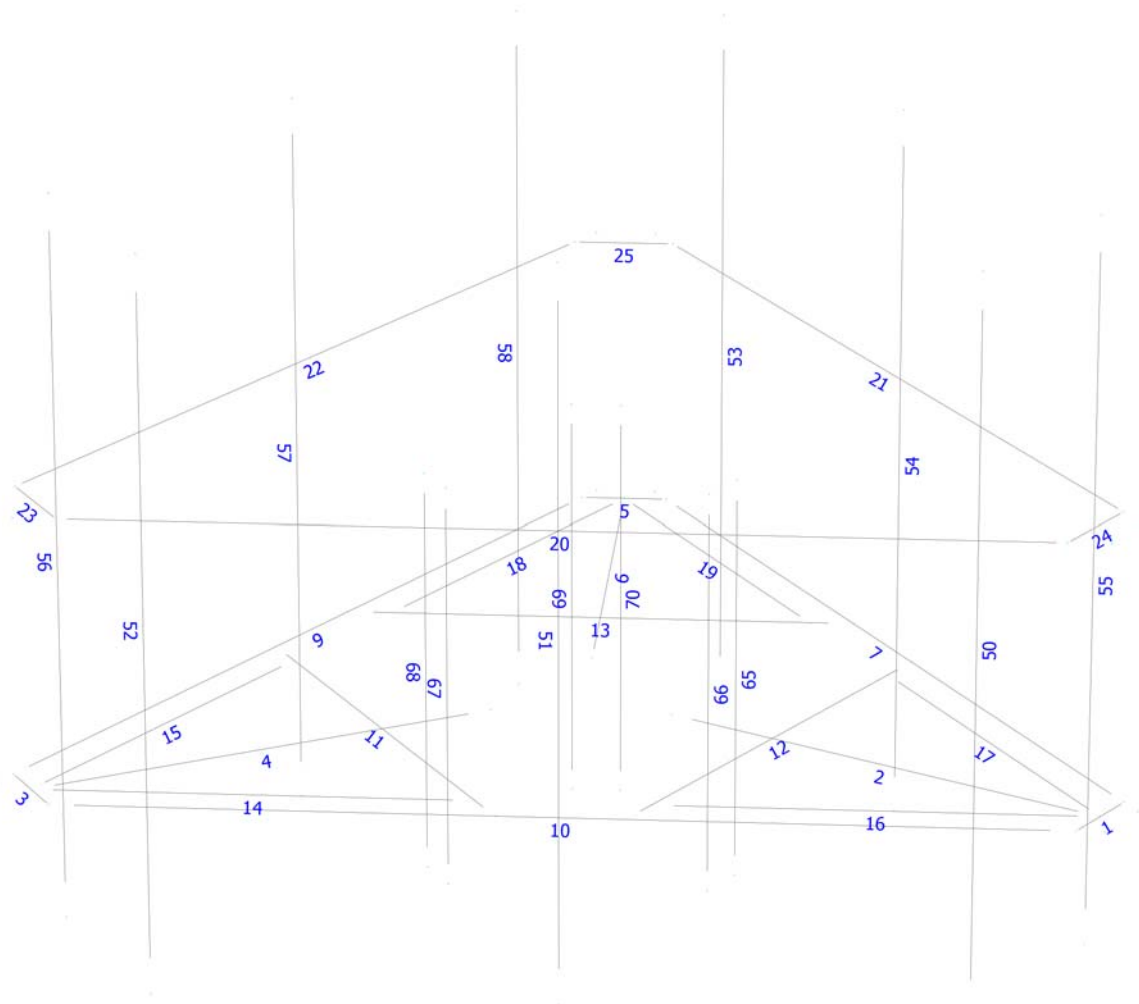
Weight of ice based on total radial SF area:
 Height (in): 3.5
 Width (in): 0.50
Per foot weight of ice on object: 11 plf



**Mount Calculations
(Existing Conditions)**









Load data

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

Distributed force on members

Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	14	y	-0.01	0.00	0.00	No	0.00	No
	15	y	-0.01	0.00	0.00	No	0.00	No
	16	y	-0.01	0.00	0.00	No	0.00	No
	17	y	-0.01	0.00	0.00	No	0.00	No
	18	y	-0.01	0.00	0.00	No	0.00	No
	19	y	-0.01	0.00	0.00	No	0.00	No
W0	1	z	-0.023	0.00	0.00	No	0.00	No
	2	z	-0.016	0.00	0.00	No	0.00	No
	3	z	-0.023	0.00	0.00	No	0.00	No
	4	z	-0.016	0.00	0.00	No	0.00	No
	5	z	-0.023	0.00	0.00	No	0.00	No
	6	z	-0.016	0.00	0.00	No	0.00	No
	7	z	-0.014	0.00	0.00	No	0.00	No
	9	z	-0.014	0.00	0.00	No	0.00	No
	10	z	-0.014	0.00	0.00	No	0.00	No
	11	z	-0.016	0.00	0.00	No	0.00	No
	12	z	-0.016	0.00	0.00	No	0.00	No
	13	z	-0.016	0.00	0.00	No	0.00	No
	14	z	-0.013	0.00	0.00	No	0.00	No
	15	z	-0.013	0.00	0.00	No	0.00	No
	16	z	-0.013	0.00	0.00	No	0.00	No
	17	z	-0.013	0.00	0.00	No	0.00	No
18	z	-0.013	0.00	0.00	No	0.00	No	
19	z	-0.013	0.00	0.00	No	0.00	No	
20	z	-0.009	0.00	0.00	No	0.00	No	
21	z	-0.009	0.00	0.00	No	0.00	No	
22	z	-0.009	0.00	0.00	No	0.00	No	
23	z	-0.016	0.00	0.00	No	0.00	No	
24	z	-0.016	0.00	0.00	No	0.00	No	

	25	z	-0.016	0.00	0.00	No	0.00	No
	52	z	-0.009	0.00	0.00	No	0.00	No
	53	z	-0.009	0.00	0.00	No	0.00	No
	54	z	-0.009	0.00	0.00	No	0.00	No
	55	z	-0.009	0.00	0.00	No	0.00	No
	56	z	-0.009	0.00	0.00	No	0.00	No
	57	z	-0.009	0.00	0.00	No	0.00	No
	58	z	-0.009	0.00	0.00	No	0.00	No
	65	z	-0.009	0.00	0.00	No	0.00	No
	66	z	-0.009	0.00	0.00	No	0.00	No
	67	z	-0.009	0.00	0.00	No	0.00	No
	68	z	-0.009	0.00	0.00	No	0.00	No
	69	z	-0.009	0.00	0.00	No	0.00	No
	70	z	-0.009	0.00	0.00	No	0.00	No
W30	1	x	-0.023	0.00	0.00	No	0.00	No
	2	x	-0.016	0.00	0.00	No	0.00	No
	3	x	-0.023	0.00	0.00	No	0.00	No
	4	x	-0.016	0.00	0.00	No	0.00	No
	5	x	-0.023	0.00	0.00	No	0.00	No
	6	x	-0.016	0.00	0.00	No	0.00	No
	7	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	11	x	-0.016	0.00	0.00	No	0.00	No
	12	x	-0.016	0.00	0.00	No	0.00	No
	13	x	-0.016	0.00	0.00	No	0.00	No
	14	x	-0.013	0.00	0.00	No	0.00	No
	15	x	-0.013	0.00	0.00	No	0.00	No
	16	x	-0.013	0.00	0.00	No	0.00	No
	17	x	-0.013	0.00	0.00	No	0.00	No
	18	x	-0.013	0.00	0.00	No	0.00	No
	19	x	-0.013	0.00	0.00	No	0.00	No
	21	x	-0.009	0.00	0.00	No	0.00	No
	22	x	-0.009	0.00	0.00	No	0.00	No
	23	x	-0.016	0.00	0.00	No	0.00	No
	24	x	-0.016	0.00	0.00	No	0.00	No
	25	x	-0.016	0.00	0.00	No	0.00	No
	50	x	-0.009	0.00	0.00	No	0.00	No
	51	x	-0.009	0.00	0.00	No	0.00	No
	52	x	-0.009	0.00	0.00	No	0.00	No
	53	x	-0.009	0.00	0.00	No	0.00	No
	54	x	-0.009	0.00	0.00	No	0.00	No
	55	x	-0.009	0.00	0.00	No	0.00	No
	56	x	-0.009	0.00	0.00	No	0.00	No
	57	x	-0.009	0.00	0.00	No	0.00	No
	58	x	-0.009	0.00	0.00	No	0.00	No
	65	x	-0.009	0.00	0.00	No	0.00	No
	66	x	-0.009	0.00	0.00	No	0.00	No
	67	x	-0.009	0.00	0.00	No	0.00	No
	68	x	-0.009	0.00	0.00	No	0.00	No
	69	x	-0.009	0.00	0.00	No	0.00	No
	70	x	-0.009	0.00	0.00	No	0.00	No
Di	1	y	-0.011	0.00	0.00	No	0.00	No
	2	y	-0.016	0.00	0.00	No	0.00	No
	3	y	-0.011	0.00	0.00	No	0.00	No
	4	y	-0.016	0.00	0.00	No	0.00	No
	5	y	-0.011	0.00	0.00	No	0.00	No
	6	y	-0.016	0.00	0.00	No	0.00	No
	7	y	-0.011	0.00	0.00	No	0.00	No
	9	y	-0.011	0.00	0.00	No	0.00	No
	10	y	-0.011	0.00	0.00	No	0.00	No
	11	y	-0.016	0.00	0.00	No	0.00	No
	12	y	-0.016	0.00	0.00	No	0.00	No

13	y	-0.016	0.00	0.00	No	0.00	No
14	y	-0.01	0.00	0.00	No	0.00	No
15	y	-0.01	0.00	0.00	No	0.00	No
16	y	-0.01	0.00	0.00	No	0.00	No
17	y	-0.01	0.00	0.00	No	0.00	No
18	y	-0.01	0.00	0.00	No	0.00	No
19	y	-0.01	0.00	0.00	No	0.00	No
20	y	-0.009	0.00	0.00	No	0.00	No
21	y	-0.009	0.00	0.00	No	0.00	No
22	y	-0.009	0.00	0.00	No	0.00	No
23	y	-0.011	0.00	0.00	No	0.00	No
24	y	-0.011	0.00	0.00	No	0.00	No
25	y	-0.011	0.00	0.00	No	0.00	No
50	y	-0.009	0.00	0.00	No	0.00	No
51	y	-0.009	0.00	0.00	No	0.00	No
52	y	-0.009	0.00	0.00	No	0.00	No
53	y	-0.009	0.00	0.00	No	0.00	No
54	y	-0.009	0.00	0.00	No	0.00	No
55	y	-0.009	0.00	0.00	No	0.00	No
56	y	-0.009	0.00	0.00	No	0.00	No
57	y	-0.009	0.00	0.00	No	0.00	No
58	y	-0.009	0.00	0.00	No	0.00	No
65	y	-0.009	0.00	0.00	No	0.00	No
66	y	-0.009	0.00	0.00	No	0.00	No
67	y	-0.009	0.00	0.00	No	0.00	No
68	y	-0.009	0.00	0.00	No	0.00	No
69	y	-0.009	0.00	0.00	No	0.00	No
70	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members

Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	50	y	-0.04	1.00	No
		y	-0.04	8.00	No
	51	y	-0.04	1.00	No
		y	-0.04	8.00	No
	53	y	-0.04	1.00	No
		y	-0.04	8.00	No
	54	y	-0.04	1.00	No
		y	-0.04	8.00	No
	56	y	-0.04	1.00	No
		y	-0.04	8.00	No
	57	y	-0.04	1.00	No
		y	-0.04	8.00	No
	65	y	-0.073	4.00	No
		y	-0.072	4.00	No
	66	y	-0.029	1.00	No
		67	y	-0.073	4.00
69	y		-0.073	4.00	No
	69	y	-0.072	4.00	No
W0		50	z	-0.35	1.00
	z		-0.35	8.00	No
	51	z	-0.35	1.00	No
		z	-0.35	8.00	No
	53	z	-0.207	1.00	No
		z	-0.207	8.00	No

	54	z	-0.207	1.00	No
		z	-0.207	8.00	No
	56	z	-0.207	1.00	No
		z	-0.207	8.00	No
	57	z	-0.207	1.00	No
		z	-0.207	8.00	No
	65	z	-0.071	4.00	No
	66	Z	-0.061	1.00	No
	67	z	-0.071	4.00	No
	69	z	-0.077	4.00	No
W30	50	x	-0.159	1.00	No
		x	-0.159	8.00	No
	51	x	-0.159	1.00	No
		x	-0.159	8.00	No
	53	x	-0.302	1.00	No
		x	-0.302	8.00	No
	54	x	-0.302	1.00	No
		x	-0.302	8.00	No
	56	x	-0.302	1.00	No
		x	-0.302	8.00	No
	57	x	-0.302	1.00	No
		x	-0.302	8.00	No
	65	x	-0.071	4.00	No
	66	x	-0.061	1.00	No
	67	x	-0.071	4.00	No
	69	x	-0.055	4.00	No
Di	50	y	-0.206	1.00	No
		y	-0.206	8.00	No
	51	y	-0.206	1.00	No
		y	-0.206	8.00	No
	53	y	-0.206	1.00	No
		y	-0.206	8.00	No
	54	y	-0.206	1.00	No
		y	-0.206	8.00	No
	56	y	-0.206	1.00	No
		y	-0.206	8.00	No
	57	y	-0.206	1.00	No
		y	-0.206	8.00	No
	65	y	-0.058	4.00	No
		y	-0.05	4.00	No
	66	y	-0.067	1.00	No
	67	y	-0.058	4.00	No
		y	-0.05	4.00	No
	69	y	-0.058	4.00	No
		y	-0.05	4.00	No
Wi0	50	z	-0.074	1.00	No
		z	-0.074	8.00	No
	51	z	-0.074	1.00	No
		z	-0.074	8.00	No
	53	z	-0.047	1.00	No
		z	-0.047	8.00	No
	54	z	-0.047	1.00	No
		z	-0.047	8.00	No
	56	z	-0.047	1.00	No
		z	-0.047	8.00	No
	57	z	-0.047	1.00	No
		z	-0.047	8.00	No
	65	z	-0.019	4.00	No
	66	Z	-0.016	1.00	No
	67	z	-0.019	4.00	No
	69	z	-0.02	4.00	No
Wi30	50	x	-0.039	1.00	No

		x	-0.039	8.00	No
	51	x	-0.039	1.00	No
		x	-0.039	8.00	No
	53	x	-0.064	1.00	No
		x	-0.064	8.00	No
	54	x	-0.064	1.00	No
		x	-0.064	8.00	No
	56	x	-0.064	1.00	No
		x	-0.064	8.00	No
	57	x	-0.064	1.00	No
		x	-0.064	8.00	No
	65	x	-0.019	4.00	No
	66	x	-0.016	1.00	No
	67	x	-0.019	4.00	No
	69	x	-0.016	4.00	No
WLO	50	z	-0.022	1.00	No
		z	-0.022	8.00	No
	51	z	-0.022	1.00	No
		z	-0.022	8.00	No
	53	z	-0.013	1.00	No
		z	-0.013	8.00	No
	54	z	-0.013	1.00	No
		z	-0.013	8.00	No
	56	z	-0.013	1.00	No
		z	-0.013	8.00	No
	57	z	-0.013	1.00	No
		z	-0.013	8.00	No
	65	z	-0.004	4.00	No
	66	z	-0.004	1.00	No
	67	z	-0.004	4.00	No
	69	z	-0.005	4.00	No
WL30	50	x	-0.01	1.00	No
		x	-0.01	8.00	No
	51	x	-0.01	1.00	No
		x	-0.01	8.00	No
	53	x	-0.019	1.00	No
		x	-0.019	8.00	No
	54	x	-0.019	1.00	No
		x	-0.019	8.00	No
	56	x	-0.019	1.00	No
		x	-0.019	8.00	No
	57	x	-0.019	1.00	No
		x	-0.019	8.00	No
	65	x	-0.004	4.00	No
	66	x	-0.004	1.00	No
	67	x	-0.004	4.00	No
	69	x	-0.003	4.00	No
LL1	10	y	-0.25	50.00	Yes
LL2	10	y	-0.25	100.00	Yes
LLa1	50	y	-0.50	50.00	Yes
LLa2	51	y	-0.50	50.00	Yes
LLa3	52	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

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

Glossary

Comb : Indicates if load condition is a load combination



Steel Code Check Summary - Group by member

Load conditions to be included in design :

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

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	2	LC12 at 100.00%	0.32	OK	
		4	LC10 at 100.00%	0.32	OK	
		6	LC1 at 100.00%	0.34	OK	
		11	LC10 at 50.00%	0.16	OK	
		12	LC12 at 50.00%	0.16	OK	
		13	LC9 at 50.00%	0.16	OK	
	L 2-1_2X2-1_2X3_16	23	LC2 at 0.00%	0.42	OK	
		24	LC1 at 0.00%	0.49	OK	
		25	LC2 at 0.00%	0.44	OK	
	L 2X2X3_16	14	LC3 at 100.00%	0.22	OK	
		15	LC2 at 100.00%	0.25	OK	
		16	LC3 at 0.00%	0.24	OK	
		17	LC4 at 0.00%	0.23	OK	
		18	LC1 at 0.00%	0.20	OK	
		19	LC1 at 0.00%	0.21	OK	

Pipe 2STD

20	LC1 at 87.99%	0.52	OK
21	LC2 at 87.99%	0.55	OK
22	LC4 at 87.99%	0.44	OK
50	LC3 at 36.11%	0.49	OK
51	LC1 at 75.00%	0.72	OK
52	LC4 at 75.00%	0.38	OK
53	LC4 at 25.00%	0.53	OK
54	LC2 at 25.00%	0.72	OK
55	LC1 at 36.11%	0.52	OK
56	LC1 at 25.00%	0.43	OK
57	LC4 at 25.00%	0.79	OK
58	LC2 at 75.00%	0.53	OK
65	LC4 at 40.00%	0.14	OK
66	LC4 at 40.00%	0.06	OK
67	LC2 at 40.00%	0.14	OK
68	LC2 at 40.00%	0.03	OK
69	LC1 at 40.00%	0.15	OK
70	LC1 at 40.00%	0.03	OK

Pipe 3STD

7	LC12 at 43.99%	0.18	OK
9	LC2 at 56.01%	0.18	OK
10	LC3 at 56.01%	0.18	OK

PL 3-1/2x1/2

1	LC4 at 50.00%	0.17	OK
3	LC3 at 50.00%	0.17	OK
5	LC2 at 50.00%	0.15	OK



Geometry data

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
2	1.0825	0.00	0.625	0
3	6.1921	0.00	3.575	0
4	6.4631	0.00	3.1056	0
5	5.9211	0.00	4.0444	0
6	-1.0825	0.00	0.625	0
7	-6.1921	0.00	3.575	0
8	-5.9211	0.00	4.0444	0
9	-6.4631	0.00	3.1056	0
10	0.00	0.00	-1.25	0
11	0.00	0.00	-7.15	0
12	-0.542	0.00	-7.15	0
13	0.542	0.00	-7.15	0
14	0.377	0.00	-7.4358	0
15	6.6281	0.00	3.3914	0
18	-6.6281	0.00	3.3914	0
19	-0.377	0.00	-7.4358	0
20	6.2511	0.00	4.0444	0
21	-6.2511	0.00	4.0444	0
22	3.8781	0.00	-1.3717	0
23	3.127	0.00	-2.6726	0
26	-3.127	0.00	-2.6726	0
27	-3.8781	0.00	-1.3717	0
28	-0.7511	0.00	4.0444	0
29	0.7511	0.00	4.0444	0
30	3.6071	0.00	-0.9024	0
31	1.0221	0.00	3.575	0
32	-3.607	0.00	-0.9024	0
33	-1.022	0.00	3.575	0
34	2.585	0.00	-2.6726	0
35	-2.585	0.00	-2.6726	0
36	-6.2511	3.50	4.0444	0
37	6.2511	3.50	4.0444	0
38	6.6281	3.50	3.3914	0
39	0.377	3.50	-7.4358	0
40	-0.377	3.50	-7.4358	0
41	-6.6281	3.50	3.3914	0
42	6.3781	3.50	2.9584	0
43	0.627	3.50	-7.0028	0
44	-5.7511	3.50	4.0444	0
45	5.7511	3.50	4.0444	0
46	-0.627	3.50	-7.0028	0
47	-6.3781	3.50	2.9584	0
96	4.75	-2.25	4.2444	0
97	0.00	-2.25	4.2444	0
98	-4.75	-2.25	4.2444	0
99	-4.75	6.75	4.2444	0
100	0.00	6.75	4.2444	0
101	4.75	6.75	4.2444	0
102	6.0507	-2.25	1.9914	0
103	3.6757	-2.25	-2.1222	0

104	1.3007	-2.25	-6.2358	0
105	-1.3007	-2.25	-6.2358	0
106	-3.6757	-2.25	-2.1222	0
107	-6.0507	-2.25	1.9914	0
108	6.0507	6.75	1.9914	0
109	3.6757	6.75	-2.1222	0
110	1.3007	6.75	-6.2358	0
111	-1.3007	6.75	-6.2358	0
112	-3.6757	6.75	-2.1222	0
113	-6.0507	6.75	1.9914	0
126	1.8486	-2.00	0.7209	0
127	1.5486	-2.00	1.2405	0
128	-1.5485	-2.00	1.2405	0
129	-1.8485	-2.00	0.7208	0
130	-0.30	-2.00	-1.9613	0
131	0.30	-2.00	-1.9613	0
132	1.8486	3.00	0.7209	0
133	1.5486	3.00	1.2405	0
134	-1.5485	3.00	1.2405	0
135	-1.8485	3.00	0.7208	0
136	-0.30	3.00	-1.9613	0
137	0.30	3.00	-1.9613	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
6	1	1	1	1	1	1
10	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	5	4		PL 3-1/2x1/2	A36	0.00	0.00	0.00
2	3	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
3	9	8		PL 3-1/2x1/2	A36	0.00	0.00	0.00
4	7	6		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
5	13	12		PL 3-1/2x1/2	A36	0.00	0.00	0.00
6	11	10		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
7	15	14		Pipe 3STD	A53 GrB	0.00	0.00	0.00
9	19	18		Pipe 3STD	A53 GrB	0.00	0.00	0.00
10	21	20		Pipe 3STD	A53 GrB	0.00	0.00	0.00
11	28	27		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
12	29	22		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
13	23	26		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
14	7	33		L 2X2X3_16	A36	0.00	0.00	0.00
15	7	32		L 2X2X3_16	A36	0.00	0.00	0.00
16	31	3		L 2X2X3_16	A36	0.00	0.00	0.00
17	30	3		L 2X2X3_16	A36	0.00	0.00	0.00
18	35	11		L 2X2X3_16	A36	0.00	0.00	0.00
19	34	11		L 2X2X3_16	A36	0.00	0.00	0.00
20	36	37		Pipe 2STD	A53 GrB	0.00	0.00	0.00
21	38	39		Pipe 2STD	A53 GrB	0.00	0.00	0.00

22	40	41	Pipe 2STD	A53 GrB	0.00	0.00	0.00
23	44	47	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
24	45	42	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
25	43	46	L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
50	101	96	Pipe 2STD	A53 GrB	0.00	0.00	0.00
51	100	97	Pipe 2STD	A53 GrB	0.00	0.00	0.00
52	99	98	Pipe 2STD	A53 GrB	0.00	0.00	0.00
53	104	110	Pipe 2STD	A53 GrB	0.00	0.00	0.00
54	103	109	Pipe 2STD	A53 GrB	0.00	0.00	0.00
55	108	102	Pipe 2STD	A53 GrB	0.00	0.00	0.00
56	107	113	Pipe 2STD	A53 GrB	0.00	0.00	0.00
57	106	112	Pipe 2STD	A53 GrB	0.00	0.00	0.00
58	111	105	Pipe 2STD	A53 GrB	0.00	0.00	0.00
65	126	132	Pipe 2STD	A53 GrB	0.00	0.00	0.00
66	127	133	Pipe 2STD	A53 GrB	0.00	0.00	0.00
67	128	134	Pipe 2STD	A53 GrB	0.00	0.00	0.00
68	129	135	Pipe 2STD	A53 GrB	0.00	0.00	0.00
69	130	136	Pipe 2STD	A53 GrB	0.00	0.00	0.00
70	131	137	Pipe 2STD	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
14	270.00	0	0.00	0.00	0.00
16	270.00	0	0.00	0.00	0.00
19	270.00	0	0.00	0.00	0.00
23	180.00	0	0.00	0.00	0.00
24	90.00	0	0.00	0.00	0.00
25	90.00	0	0.00	0.00	0.00
50	0.00	2	-1.00	0.00	0.00
51	0.00	2	-1.00	0.00	0.00
52	0.00	2	-1.00	0.00	0.00
53	0.00	2	-1.00	0.00	0.00
54	0.00	2	-1.00	0.00	0.00
55	0.00	2	-1.00	0.00	0.00
56	0.00	2	-1.00	0.00	0.00
57	0.00	2	-1.00	0.00	0.00
58	0.00	2	-1.00	0.00	0.00
65	0.00	2	-0.50	0.00	0.866
66	0.00	2	-0.50	0.00	0.866
67	0.00	2	-0.50	0.00	0.866
68	0.00	2	-0.50	0.00	0.866
69	0.00	2	-0.50	0.00	0.866
70	0.00	2	-0.50	0.00	0.866

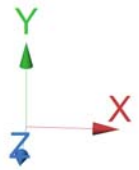
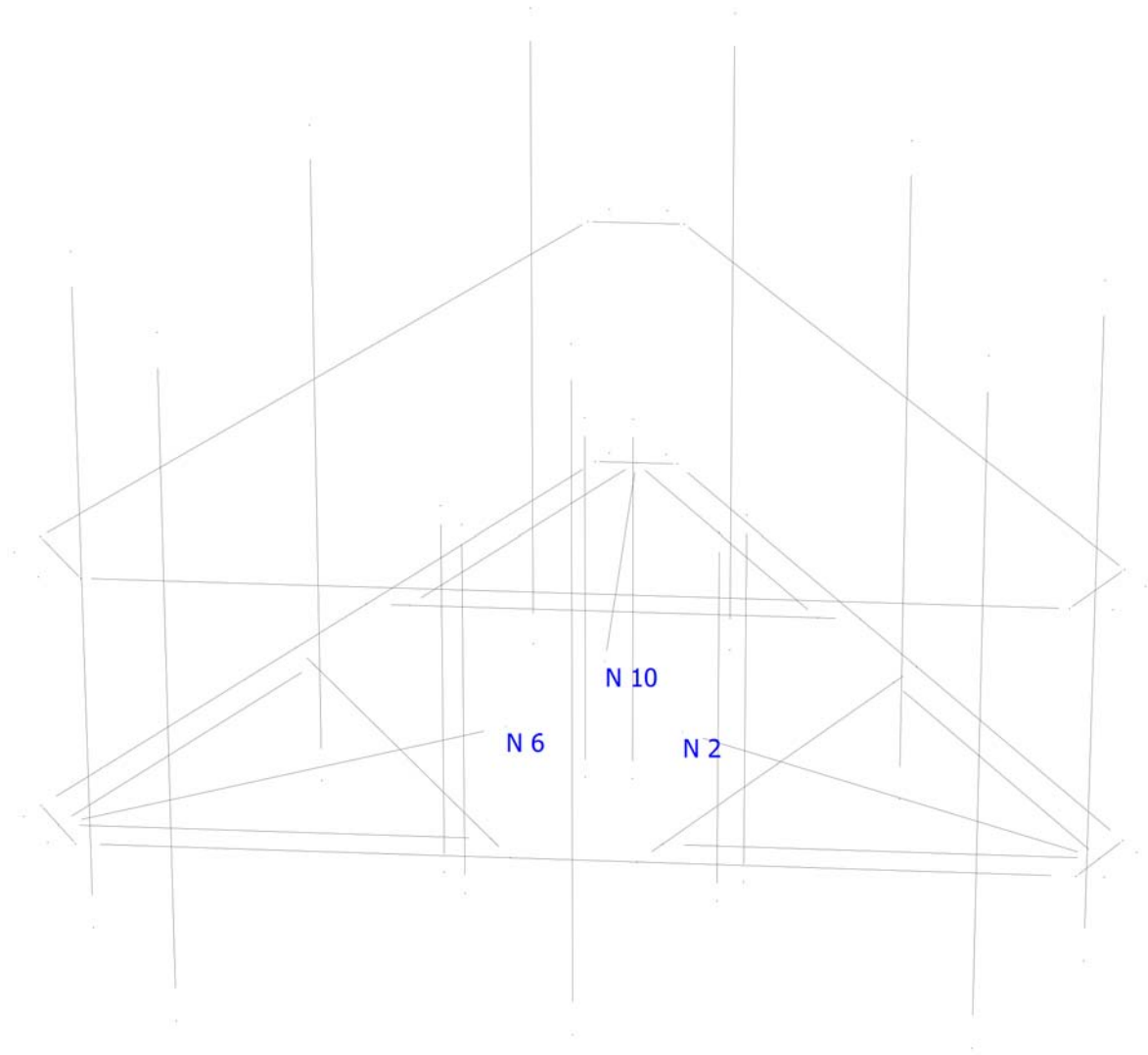
Glossary

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
I_g 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



Connection Check



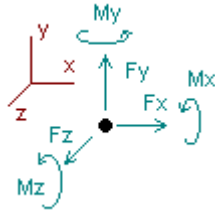


Analysis result

Nodes

Envelope for nodal reactions

Note.- I_c is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

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

Node		Forces						Moments					
		Fx [Kip]	lc	Fy [Kip]	lc	Fz [Kip]	lc	Mx [Kip*ft]	lc	My [Kip*ft]	lc	Mz [Kip*ft]	lc
2	Max	1.719	LC2	2.817	LC12	1.904	LC1	1.17562	LC5	1.31412	LC7	4.54201	LC12
	Min	-1.693	LC8	-0.352	LC6	-1.891	LC7	-2.71573	LC3	-1.31325	LC5	-1.78467	LC6
6	Max	1.782	LC6	2.721	LC10	1.487	LC1	1.11980	LC5	0.91088	LC5	1.93423	LC8
	Min	-1.806	LC4	-0.394	LC8	-1.472	LC7	-2.69115	LC3	-0.90910	LC7	-4.57666	LC2
10	Max	1.983	LC6	2.746	LC9	2.083	LC5	5.30731	LC1	1.85839	LC8	1.28598	LC8
	Min	-1.984	LC8	-0.533	LC7	-2.112	LC3	-2.23883	LC7	-1.85641	LC6	-1.32225	LC2

Date: 11/20/2023
 Project Name: ASHFORD SOUTHEAST
 Project Number: CT5702
 Designed By: KSBM Checked By: MSC



CHECK THRU BOLT CONNECTION CAPACITY → STANDOFF

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

Bolt Type = A325 5/8" Bolt

Allowable Tensile Load =

$F_{Tall} = 13806$ lbs.

Allowable Shear Load =

$F_{vall} = 8283$ lbs.

CONNECTION PLATE CONFIGURATION (4-BOLTS)

$N_{BOLT\ ROWS} = 2$ rows $d_y = 7$ in
 $N_{BOLTS} = 2$ bolts/row $d_x = 7$ in

TENSILE FORCES

Moment in X axis: 2716 lb-ft. (See Bentley Output)
 Couple Reaction from M_x : 4656 lbs.
 Moment in Y axis: 1314 lb-ft. (See Bentley Output)
 Couple Reaction from M_z : 2253 lbs.
 Reaction in Z direction: 1904 lbs. (See Bentley Output)

Resultant per bolt: 3931 lbs.

SHEAR FORCES

Moment in Z axis: 4542 lb-ft. (See Bentley Output)
 Couple Reaction from M_y : 7787 lbs.
 Reaction in X direction: 1719 lbs. (See Bentley Output)
 Reaction in Y direction: 2817 lbs. (See Bentley Output)

Resultant per bolt: 4719 lbs.

Tension Design Load /Bolts =

$f_t = 3930.50$ lbs. < 13806 lbs. Therefore, OK !

Shear Design Load / Bolts=

$f_v = 4718.52$ lbs. < 8283.5 lbs. Therefore, OK !

CHECK COMBINED TENSION AND SHEAR

$f_t / F_T + f_v / F_v \leq 1.0$
 0.285 + 0.570 = 0.854 < 1.0 Therefore, OK !

Date: 11/16/2023
 Project Name: ASHFORD SOUTHEAST
 Project No.: CT5702
 Designed By: KSBM Checked By: MSC



CHECK CONNECTION CAPACITY → Ring Mount

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

Reactions in Z direction: **2113** lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: **1984** lbs. (See Bentley Output)

Reactions in Y direction: **2746** lbs. (See Bentley Output)

Resultant: **3388** lbs.

No. of Supports = **1**

No. of Bolts / Support = **3**

Tension Design Load /Bolts =

f_t = **704.33** lbs. **<** **6673** lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = **1129.25** lbs. **<** **4004** lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{rclclcl}
 f_t / F_T & + & f_v / F_V & \leq & 1.0 & \\
 0.106 & + & 0.282 & = & 0.388 & < 1.0 \text{ Therefore, OK !}
 \end{array}$$



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

T + 561 995 7670
F + 561 995 7626

sbsite.com

Structural Analysis Report

Client: AT&T

Client Site ID / Name: CTL05702 / ASHFORD SOUTHEAST
Application #: 222182, v3

SBA Site ID / Name: CT13611-A / BSA

176 ft Monopole

229-231 Ashford Center Rd
Ashford, CT 06278
Lat: 41.880444, Long: -72.128499

Project number: CT13611-ATT-051523

Analysis Results

Tower	78.6%	Pass
Foundation	51.0%	Pass

Change in tower stress due to mount modification / replacement	N/A
--	-----

Prepared by:

Elizabeth Zubeldia
Manager, Tower Research & Improvement
561-322-7936
ezubeldia@sbsite.com

Reviewed by:

Anantha (Shan) Shanubhogue, P. E.
Senior Manager, Structural Engineering
(561) 981-7390
SShanubhogue@sbsite.com

May 15, 2023



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Introduction

The purpose of this report is to summarize the analysis results on the 176 ft Monopole to support the proposed antennas and transmissions lines in addition to those currently installed.

Table 1 List of Documents Used

Item	Document
Tower design/drawings	EEl, Job No. 11863-E01, 8/21/2003
Foundation drawings	EEl, Job No. 11863-E01, 8/21/2003
Geotechnical report	Jaworski Geotech, Inc., Project # 02130G, 2/7/2002
Modification drawings	N/A
Latest SA	TES Project Number: 112067, dated 8/3/2021
Mount Analysis	TEP NE, Project # 2051A16NVN, 12/2/2022

Analysis Criteria

Table 2 Code Related Data

Jurisdiction (State/County/City)	Connecticut/Windham/Ashford
Governing Codes	ANSI/TIA/EIA 222-H, 2021 IBC, 2022 Connecticut State Building Code
Ultimate Wind Speed (3-Sec gust)	120.0 mph
Wind Speed with Ice (3-Sec gust)	50 mph
Service Wind Speed (3-Sec gust)	60 mph
Ice Thickness	1.50"
Risk Category	II
Exposure Category	C
Topographic Category	1
Crest Height	0 ft
Ground Elevation	715.1 ft
Seismic Parameter S_s	0.181
Seismic Parameter S_1	0.055

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

Appurtenance Loading

Existing Loading:

Table 3 Existing Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	167.0	6	Powerwave - 7770.00 - Panel	Low Profile Platform w/handrail	(12) 1 5/8" (2) 3/4" DC Power* (1) 7/16" Fiber* (1) 3" conduit	AT&T
2		3	KMW - AM-X-CD-17-65-00T-RET - Panel			
3		6	Powerwave LGP21401 - TMA			
4		3	Ericsson RRUS-12			
4		3	Ericsson RRUS-11			
5		6	Ericsson LGP 21901 Diplexer			
6		1	Raycap DC6-48-60-18-8F - DC Surge Suppress			
7	157.0	3	RFS APX16DWV-16DWVS-E-A20 - Panel	Low Profile Platform w/handrail [SitePro1 RMQP-4096-HK]	(3) 1.99" Hybrid - 6x24	T-Mobile
8		3	RFS APXVAALL24-43-U-NA20 - Panel			
9		3	Ericsson AIR6449 B41 - Panel			
10		3	Ericsson 4460 B25 + B66			
11		3	Ericsson 4480 B71 + B85			

*3 lines (2) 3/4" DC and (1) 7/16" Fiber housed in 3" conduit.

Note: AT&T loading includes FirstNET equipment

Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the Application #: 222182, v3 from AT&T and is listed in Table 4.

Table 4 Proposed Appurtenances

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	167.0	6	Cci OPA65R-BU8DA - Panel	Low Profile Platform w/handrail	(6) 1 5/8" (2) 3/4" DC Power* (1) 7/16" Fiber* (2) 7/8" DC Power (1) 3/8" Fiber	AT&T
2		3	Ericsson 4449 - RRU			
3		3	Ericsson 8843 B2/B66A - RRU			
4		2	Raycap DC6-48-60-18-8F DC Surge Suppress			

Note: AT&T loading includes FirstNET equipment

Analysis Results

Tower

The results of the structural analysis are shown below in table 5. Additional information for the tower analysis is provided within the Appendix.

Table 5 Tower Analysis Summary

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	66.5%	53.2%	78.6%
Pass/Fail	Pass	Pass	Pass

Foundation

The results of the foundation analysis are shown below in table 6. Additional information for the foundation analysis is provided within the Appendix.

Table 6 Foundation Analysis Summary

Structural Component	Max Usage (%)	Analysis Result
Foundation	51.0%	Pass

Conclusions

Based on the analysis results, the existing tower and foundation were found to be **sufficient** to safely support the equipment listed in this analysis. No modification to the tower and foundation is needed at this time.

Installation Requirements

This analysis was performed under the assumption that the carrier will place the proposed equipment and feed lines at the installation height listed in Table 4 and in accordance with the coax layout shown. TMAs and RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met the carrier must notify SBA Communications Corporation engineers for approval of an alternative placement.

Assumptions and Limitations

Assumptions

This analysis was completed based on the following assumptions:

- Tower and foundation were built in accordance to manufacturer specifications.
- Tower and foundation has been properly maintained in accordance with the manufacturer's specifications
- All existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion
- Welds and bolts are assumed able to carry their intended original design loads.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Table 3 and 4.
- This analysis may be affected if any assumptions are not valid or have been made in error. SBA should be notified to determine the effect on the structural integrity of the tower.

Limitations

The computer generated analysis performed by the tower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

Appendix

Usage Diagram - Max Ratio 66.48% at 0.0ft

Structure: CT13611-A
Site Name: BSA
Height: 176.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-H
Exposure: C
Gh: 1.1

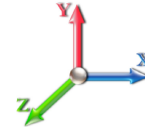
5/15/2023



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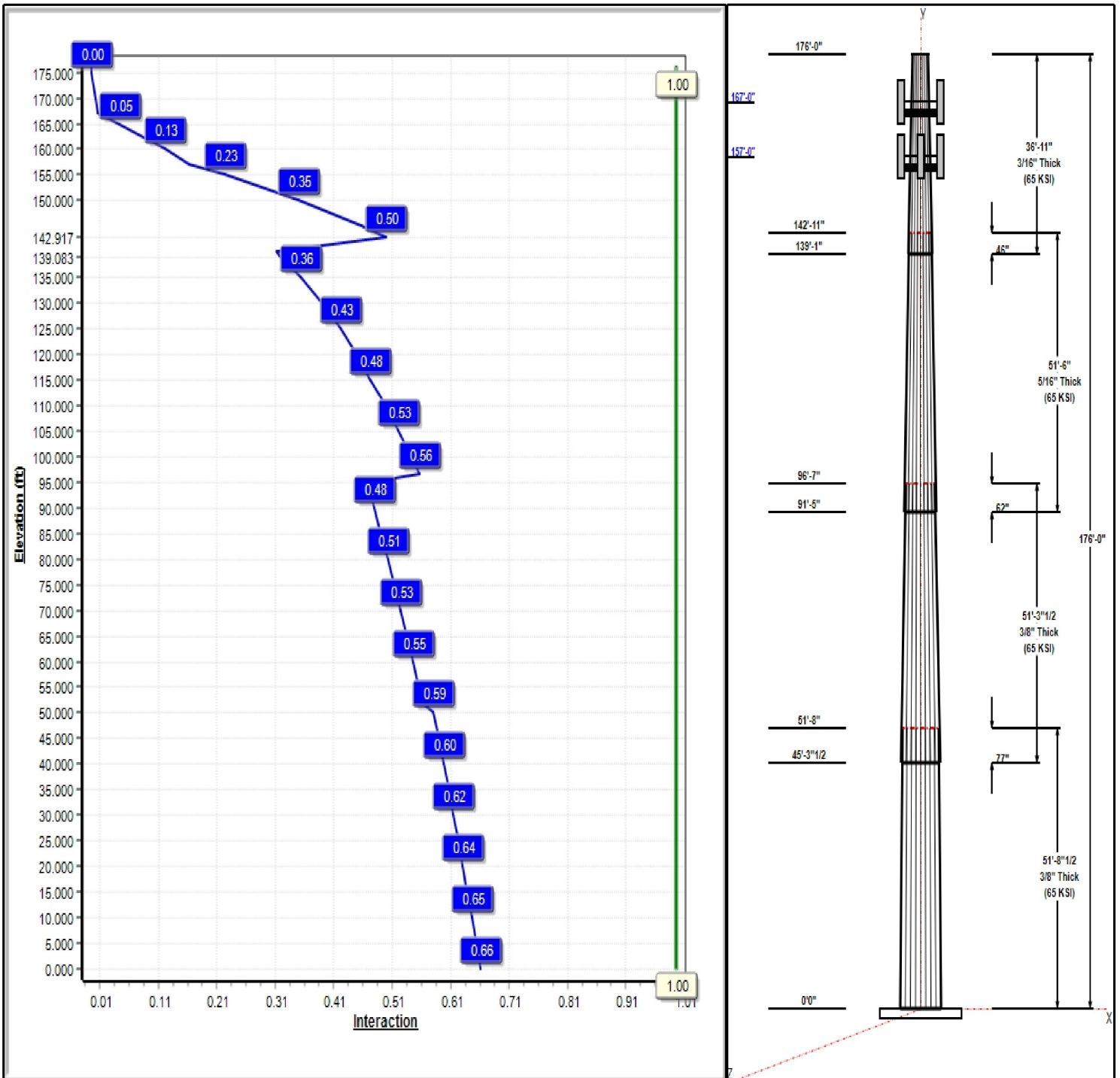
Dead Load Factor: 1.20
Wind Load Factor: 1.00

Load Case : 1.2D + 1.0W 120 mph Wind



Iterations: 27

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Structure: CT13611-A

Type: Tapered
Site Name: BSA
Height: 176.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23153

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Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	51.71	44.53	56.50	0.375		0.23153	65
2	51.29	34.89	46.76	0.375	Slip	0.23153	65
3	51.50	24.78	36.71	0.313	Slip	0.23153	65
4	36.92	17.50	26.05	0.188	Slip	0.23153	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
167.00	167.00	2	Raycap DC6-48-60-18-8F	AT&T
167.00	167.00	1	Low Profile Platform	AT&T
167.00	167.00	6	Cci OPA65R-BU8DA	AT&T
167.00	167.00	3	Ericsson 4449	AT&T
167.00	167.00	3	Ericsson 8843 B2/B66A	AT&T
157.00	157.00	3	RFS	T-Mobile
157.00	157.00	3	RFS	T-Mobile
157.00	157.00	3	Ericsson AIR6449 B41	T-Mobile
157.00	157.00	1	SitePro1 RMQP-4096-HK	T-Mobile
157.00	157.00	3	Ericsson 4460 B25 + B66	T-Mobile
157.00	157.00	3	Ericsson 4480 B71 + B85	T-Mobile

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	176.00	Outside	Safety Cable	
0.00	176.00	Outside	Step bolts (ladder)	
0.00	167.00	Inside	1 5/8" Coax	AT&T
0.00	167.00	Inside	3" Conduit	AT&T
0.00	167.00	Inside	3/4" DC Power	AT&T
0.00	167.00	Inside	3/8" Fiber	AT&T
0.00	167.00	Inside	7/16" Fiber	AT&T
0.00	167.00	Inside	7/8" DC Power	AT&T
0.00	157.00	Inside	1.99" Hybrid - 6x24	T-Mobile

Anchor Bolts

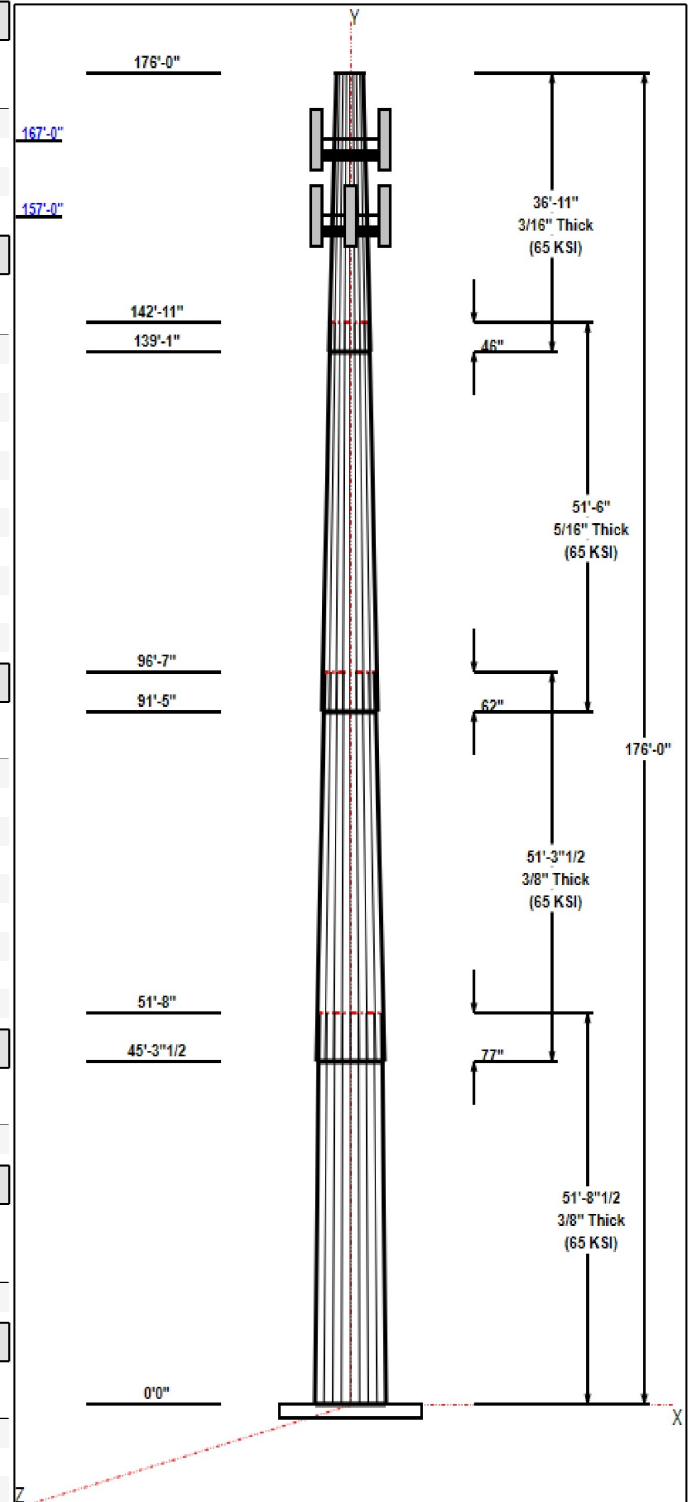
Qty	Specifications	Grade (ksi)	Arrangement
18	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	72.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.0W 120 mph Wind	3267.3	27.9	41.7
0.9D + 1.0W 120 mph Wind	3228.5	27.9	31.2
1.2D + 1.0Di + 1.0Wi 50 mph Wind	914.1	7.9	57.5
1.2D + 1.0Ev + 1.0Eh	93.7	0.6	43.1
0.9D + 1.0Ev + 1.0Eh	92.6	0.6	32.6
1.0D + 1.0W 60 mph Wind	726.2	6.2	34.8



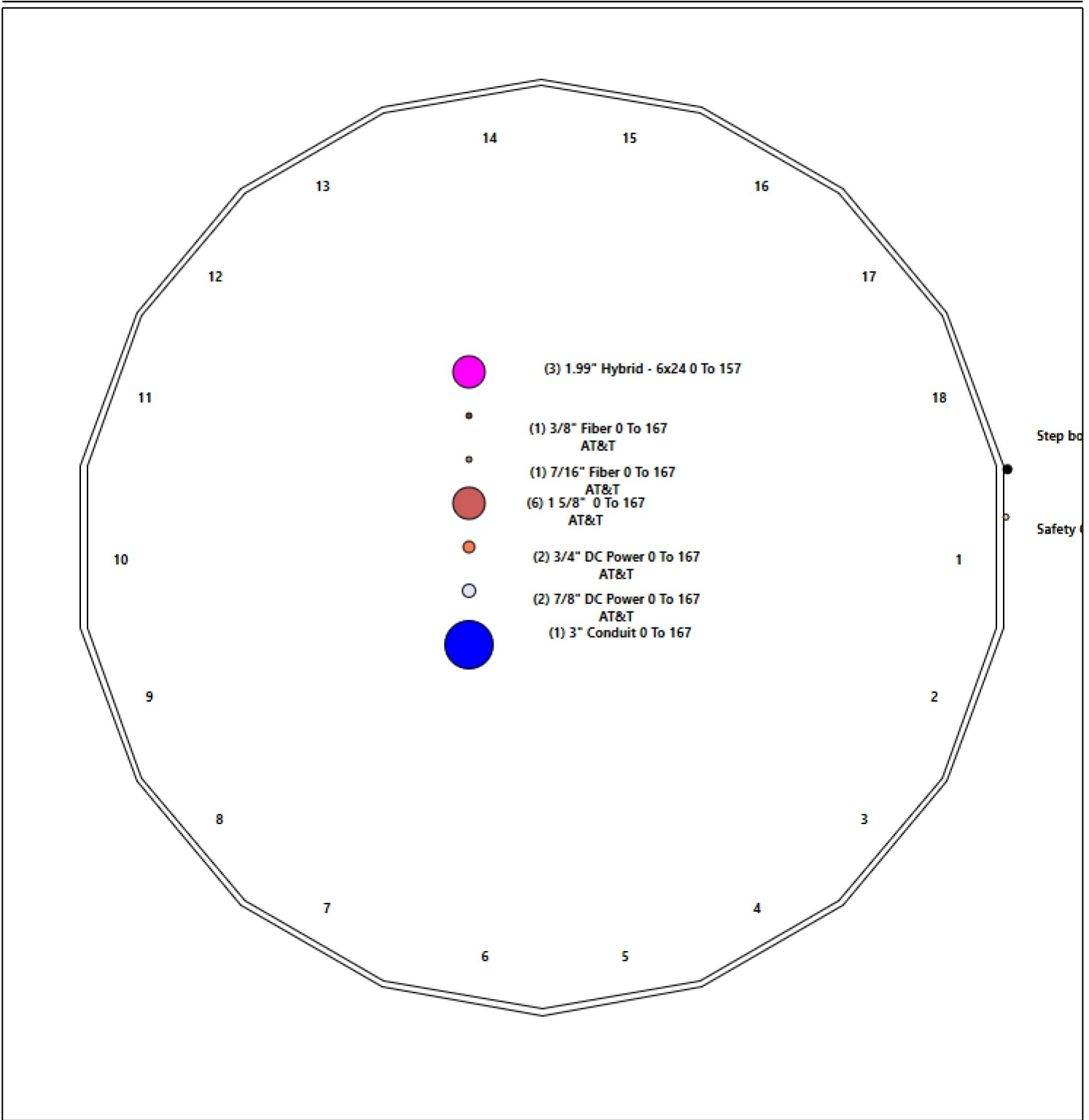
Structure: CT13611-A - Coax Line Placement

Type: Monopole
Site Name: BSA
Height: 176.00 (ft)

5/15/2023



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Shaft Properties

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 4



Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	51.710	0.3750	65		0.00	10,500
2	18	51.290	0.3750	65	Slip	77.00	8,403
3	18	51.500	0.3125	65	Slip	62.00	5,290
4	18	36.917	0.1875	65	Slip	46.00	1,614
Total Shaft Weight:							25,807

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	56.50	0.00	66.80	26585.49	25.16	150.67	44.53	51.71	52.55	12943.0	19.53	118.7	0.231534
2	46.76	45.29	55.21	15010.46	20.58	124.70	34.89	96.58	41.08	6181.75	14.99	93.03	0.231534
3	36.71	91.42	36.10	6041.86	19.30	117.47	24.78	142.92	24.27	1836.64	12.57	79.31	0.231534
4	26.05	139.0	15.39	1300.26	23.08	138.92	17.50	176.00	10.30	390.14	15.05	93.33	0.231534

Load Summary

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 5



Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	167.00	Raycap DC6-48-60-18-8F ("Squid")	2	31.80	0.92	1.00	94.29	1.363	1.00	0.00	0.00
2	167.00	Low Profile Platform w/handrail	1	1700.00	25.00	1.00	3199.44	46.169	1.00	0.00	0.00
3	167.00	Cci OPA65R-BU8DA	6	65.00	18.09	0.73	468.48	19.903	0.74	0.00	0.00
4	167.00	Ericsson 4449	3	75.00	1.65	0.89	122.95	2.168	0.90	0.00	0.00
5	167.00	Ericsson 8843 B2/B66A	3	72.00	1.64	0.78	120.26	2.156	0.80	0.00	0.00
6	157.00	RFS APX16DWV-16DWVS-E-A20	3	40.70	6.61	0.62	158.29	8.798	0.62	0.00	0.00
7	157.00	RFS APXVAALL24-43-U-NA20	3	143.30	20.24	0.72	599.64	22.128	0.75	0.00	0.00
8	157.00	Ericsson AIR6449 B41	3	103.00	5.65	0.71	240.75	6.605	0.75	0.00	0.00
9	157.00	SitePro1 RMQP-4096-HK	1	2449.00	48.00	1.00	5025.14	81.661	1.00	0.00	0.00
10	157.00	Ericsson 4460 B25 + B66	3	104.00	2.85	0.67	172.92	3.527	0.67	0.00	0.00
11	157.00	Ericsson 4480 B71 + B85	3	93.00	2.85	0.67	165.26	3.527	0.67	0.00	0.00
Totals:			31	6,495.60			15,964.25				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	176.00	(1) Safety Cable	0.27	Outside
0.00	176.00	(1) Step bolts (ladder)	1.04	Outside
0.00	167.00	(6) 1 5/8" Coax	0.00	Inside
0.00	167.00	(1) 3" Conduit	0.00	Inside
0.00	167.00	(2) 3/4" DC Power	0.00	Inside
0.00	167.00	(1) 3/8" Fiber	0.00	Inside
0.00	167.00	(1) 7/16" Fiber	0.00	Inside
0.00	167.00	(2) 7/8" DC Power	0.00	Inside
0.00	157.00	(3) 1.99" Hybrid - 6x24	0.00	Inside

Shaft Section Properties

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	56.500	66.800	26585.5	25.16	150.67	71.8	926.8	0.0
5.00		0.3750	55.342	65.423	24974.1	24.61	147.58	72.5	888.8	1124.8
10.00		0.3750	54.185	64.045	23429.1	24.07	144.49	73.1	851.7	1101.4
15.00		0.3750	53.027	62.667	21949.3	23.52	141.41	73.7	815.3	1077.9
20.00		0.3750	51.869	61.289	20533.1	22.98	138.32	74.4	779.7	1054.5
25.00		0.3750	50.712	59.911	19179.1	22.43	135.23	75.0	744.9	1031.0
30.00		0.3750	49.554	58.533	17886.0	21.89	132.14	75.7	710.9	1007.6
35.00		0.3750	48.396	57.155	16652.4	21.35	129.06	76.3	677.7	984.2
40.00		0.3750	47.239	55.777	15476.9	20.80	125.97	76.9	645.3	960.7
45.00		0.3750	46.081	54.400	14358.0	20.26	122.88	77.6	613.7	937.3
45.29	Bot - Section 2	0.3750	46.013	54.319	14294.1	20.22	122.70	77.6	611.9	54.3
50.00		0.3750	44.923	53.022	13294.4	19.71	119.80	78.2	582.9	1733.4
51.71	Top - Section 1	0.3750	45.277	53.443	13613.9	19.88	120.74	0.0	0.0	619.5
55.00		0.3750	44.516	52.536	12932.8	19.52	118.71	78.4	572.2	593.2
60.00		0.3750	43.358	51.159	11941.7	18.98	115.62	79.1	542.5	882.1
65.00		0.3750	42.200	49.781	11002.5	18.43	112.53	79.7	513.5	858.7
70.00		0.3750	41.043	48.403	10114.0	17.89	109.45	80.4	485.4	835.2
75.00		0.3750	39.885	47.025	9274.6	17.34	106.36	81.0	458.0	811.8
80.00		0.3750	38.727	45.647	8483.0	16.80	103.27	81.6	431.4	788.4
85.00		0.3750	37.570	44.269	7737.8	16.25	100.19	82.3	405.7	764.9
90.00		0.3750	36.412	42.891	7037.5	15.71	97.10	82.5	380.7	741.5
91.42	Bot - Section 3	0.3750	36.084	42.501	6847.1	15.56	96.22	82.5	373.7	205.8
95.00		0.3750	35.254	41.514	6380.8	15.17	94.01	82.5	356.5	947.4
96.58	Top - Section 2	0.3125	35.513	34.913	5465.5	18.63	113.64	0.0	0.0	411.6
100.00		0.3125	34.722	34.128	5105.2	18.18	111.11	80.0	289.6	401.3
105.00		0.3125	33.564	32.980	4607.1	17.53	107.40	80.8	270.4	570.9
110.00		0.3125	32.406	31.832	4142.4	16.87	103.70	81.6	251.8	551.4
115.00		0.3125	31.249	30.684	3710.1	16.22	100.00	82.3	233.9	531.8
120.00		0.3125	30.091	29.535	3309.0	15.57	96.29	82.5	216.6	512.3
125.00		0.3125	28.933	28.387	2937.9	14.91	92.59	82.5	200.0	492.7
130.00		0.3125	27.776	27.239	2595.6	14.26	88.88	82.5	184.1	473.2
135.00		0.3125	26.618	26.091	2281.0	13.61	85.18	82.5	168.8	453.7
139.08	Bot - Section 4	0.3125	25.672	25.153	2043.8	13.07	82.15	82.5	156.8	356.0
140.00		0.3125	25.460	24.943	1992.9	12.96	81.47	82.5	154.2	125.9
142.92	Top - Section 3	0.1875	25.160	14.861	1170.9	22.25	134.19	0.0	0.0	393.7
145.00		0.1875	24.678	14.574	1104.4	21.80	131.61	75.8	88.1	104.3
150.00		0.1875	23.520	13.885	955.0	20.71	125.44	77.0	80.0	242.1
155.00		0.1875	22.362	13.196	819.8	19.62	119.27	78.3	72.2	230.4
157.00		0.1875	21.899	12.921	769.5	19.18	116.80	78.8	69.2	88.9
160.00		0.1875	21.205	12.507	698.0	18.53	113.09	79.6	64.8	129.8
165.00		0.1875	20.047	11.818	588.9	17.44	106.92	80.9	57.9	206.9
167.00		0.1875	19.584	11.543	548.7	17.01	104.45	81.4	55.2	79.5
170.00		0.1875	18.889	11.129	491.8	16.35	100.74	82.2	51.3	115.7
175.00		0.1875	17.732	10.441	406.0	15.26	94.57	82.5	45.1	183.5
176.00		0.1875	17.500	10.303	390.1	15.05	93.33	82.5	43.9	35.3

25806.5

Wind Loading - Shaft

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0W 120 mph Wind	Iterations 27
Dead Load Factor 1.20	
Wind Load Factor 1.00	

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	29.007	31.91	522.14	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	29.007	31.91	511.44	0.730	0.000	5.00	23.660	17.27	551.1	0.0	1349.8
10.00		1.00	0.85	29.007	31.91	500.74	0.730	0.000	5.00	23.170	16.91	539.7	0.0	1321.6
15.00		1.00	0.85	29.007	31.91	490.04	0.730	0.000	5.00	22.680	16.56	528.3	0.0	1293.5
20.00		1.00	0.90	30.778	33.86	493.76	0.730	0.000	5.00	22.191	16.20	548.4	0.0	1265.4
25.00		1.00	0.95	32.258	35.48	494.21	0.730	0.000	5.00	21.701	15.84	562.1	0.0	1237.2
30.00		1.00	0.98	33.520	36.87	492.29	0.730	0.000	5.00	21.211	15.48	570.9	0.0	1209.1
35.00		1.00	1.01	34.626	38.09	488.65	0.730	0.000	5.00	20.721	15.13	576.1	0.0	1181.0
40.00		1.00	1.04	35.613	39.17	483.71	0.730	0.000	5.00	20.231	14.77	578.6	0.0	1152.9
45.00		1.00	1.07	36.507	40.16	477.75	0.730	0.000	5.00	19.742	14.41	578.7	0.0	1124.7
45.29	Bot - Section 2	1.00	1.07	36.557	40.21	477.37	0.730	0.000	0.29	1.143	0.83	33.6	0.0	65.1
50.00		1.00	1.09	37.326	41.06	470.94	0.730	0.000	4.71	18.407	13.44	551.7	0.0	2080.1
51.71	Top - Section 1	1.00	1.10	37.591	41.35	468.44	0.730	0.000	1.71	6.580	4.80	198.6	0.0	743.4
55.00		1.00	1.12	38.083	41.89	471.37	0.730	0.000	3.29	12.499	9.12	382.2	0.0	711.9
60.00		1.00	1.14	38.787	42.67	463.34	0.730	0.000	5.00	18.589	13.57	579.0	0.0	1058.6
65.00		1.00	1.16	39.446	43.39	454.78	0.730	0.000	5.00	18.100	13.21	573.3	0.0	1030.4
70.00		1.00	1.17	40.066	44.07	445.77	0.730	0.000	5.00	17.610	12.86	566.6	0.0	1002.3
75.00		1.00	1.19	40.652	44.72	436.35	0.730	0.000	5.00	17.120	12.50	558.9	0.0	974.2
80.00		1.00	1.21	41.208	45.33	426.57	0.730	0.000	5.00	16.630	12.14	550.3	0.0	946.0
85.00		1.00	1.22	41.738	45.91	416.47	0.730	0.000	5.00	16.140	11.78	541.0	0.0	917.9
90.00		1.00	1.24	42.243	46.47	406.08	0.730	0.000	5.00	15.651	11.42	530.9	0.0	889.8
91.42	Bot - Section 3	1.00	1.24	42.382	46.62	403.08	0.730	0.000	1.42	4.345	3.17	147.9	0.0	247.0
95.00		1.00	1.25	42.727	47.00	395.41	0.730	0.000	3.58	11.005	8.03	377.6	0.0	1136.8
96.58	Top - Section 2	1.00	1.26	42.875	47.16	391.98	0.730	0.000	1.58	4.783	3.49	164.7	0.0	493.9
100.00		1.00	1.27	43.190	47.51	391.54	0.730	0.000	3.42	10.153	7.41	352.1	0.0	481.6
105.00		1.00	1.28	43.636	48.00	380.44	0.730	0.000	5.00	14.446	10.55	506.2	0.0	685.1
110.00		1.00	1.29	44.066	48.47	369.12	0.730	0.000	5.00	13.956	10.19	493.8	0.0	661.6
115.00		1.00	1.30	44.480	48.93	357.60	0.730	0.000	5.00	13.466	9.83	481.0	0.0	638.2
120.00		1.00	1.32	44.880	49.37	345.90	0.730	0.000	5.00	12.976	9.47	467.6	0.0	614.7
125.00		1.00	1.33	45.268	49.79	334.02	0.730	0.000	5.00	12.486	9.12	453.9	0.0	591.3
130.00		1.00	1.34	45.643	50.21	321.99	0.730	0.000	5.00	11.997	8.76	439.7	0.0	567.8
135.00		1.00	1.35	46.007	50.61	309.79	0.730	0.000	5.00	11.507	8.40	425.1	0.0	544.4
139.08	Bot - Section 4	1.00	1.36	46.297	50.93	299.73	0.730	0.000	4.08	9.034	6.59	335.8	0.0	427.2
140.00		1.00	1.36	46.361	51.00	297.46	0.730	0.000	0.92	2.012	1.47	74.9	0.0	151.1
142.92	Top - Section 3	1.00	1.36	46.563	51.22	290.20	0.730	0.000	2.92	6.293	4.59	235.3	0.0	472.5
145.00		1.00	1.37	46.705	51.38	289.38	0.730	0.000	2.08	4.393	3.21	164.8	0.0	125.2
150.00		1.00	1.38	47.039	51.74	276.79	0.730	0.000	5.00	10.196	7.44	385.1	0.0	290.5
155.00		1.00	1.39	47.365	52.10	264.08	0.730	0.000	5.00	9.706	7.09	369.2	0.0	276.5
157.00	Appurtenance(s)	1.00	1.39	47.493	52.24	258.96	0.730	0.000	2.00	3.745	2.73	142.8	0.0	106.6
160.00		1.00	1.40	47.683	52.45	251.24	0.730	0.000	3.00	5.471	3.99	209.5	0.0	155.7
165.00		1.00	1.41	47.993	52.79	238.30	0.730	0.000	5.00	8.727	6.37	336.3	0.0	248.3
167.00	Appurtenance(s)	1.00	1.41	48.114	52.93	233.09	0.730	0.000	2.00	3.354	2.45	129.6	0.0	95.4
170.00		1.00	1.42	48.295	53.12	225.24	0.730	0.000	3.00	4.883	3.56	189.4	0.0	138.9
175.00		1.00	1.42	48.591	53.45	212.08	0.730	0.000	5.00	7.747	5.66	302.3	0.0	220.2
176.00		1.00	1.43	48.649	53.51	209.44	0.730	0.000	1.00	1.491	1.09	58.2	0.0	42.4
Totals:									176.00			17,342.7		30,967.8

Discrete Appurtenance Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0W 120 mph Wind	Iterations 27
Dead Load Factor 1.20	
Wind Load Factor 1.00	

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	48.114	52.926	0.75	0.75	1.38	76.32	0.000	0.000	73.04	0.00	0.00
2	167.00	Ericsson 4449	3	48.114	52.926	0.67	0.75	3.30	270.00	0.000	0.000	174.87	0.00	0.00
3	167.00	Cci OPA65R-BU8DA	6	48.114	52.926	0.55	0.75	59.43	468.00	0.000	0.000	3145.15	0.00	0.00
4	167.00	Low Profile Platform	1	48.114	52.926	1.00	1.00	25.00	2040.00	0.000	0.000	1323.15	0.00	0.00
5	167.00	Ericsson 8843 B2/B66A	3	48.114	52.926	0.58	0.75	2.88	259.20	0.000	0.000	152.33	0.00	0.00
6	157.00	RFS	3	47.493	52.242	0.46	0.75	9.22	146.52	0.000	0.000	481.72	0.00	0.00
7	157.00	Ericsson 4480 B71 + B85	3	47.493	52.242	0.50	0.75	4.30	334.80	0.000	0.000	224.45	0.00	0.00
8	157.00	Ericsson 4460 B25 + B66	3	47.493	52.242	0.50	0.75	4.30	374.40	0.000	0.000	224.45	0.00	0.00
9	157.00	SitePro1 RMQP-4096-HK	1	47.493	52.242	1.00	1.00	48.00	2938.80	0.000	0.000	2507.63	0.00	0.00
10	157.00	Ericsson AIR6449 B41	3	47.493	52.242	0.53	0.75	9.03	370.80	0.000	0.000	471.53	0.00	0.00
11	157.00	RFS	3	47.493	52.242	0.54	0.75	32.79	515.88	0.000	0.000	1712.96	0.00	0.00
Totals:									7,794.72			10,491.30		

Total Applied Force Summary

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

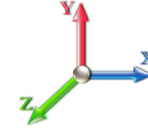


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Load Case: 1.2D + 1.0W 120 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		551.10	1438.77	0.00	0.00
10.00		539.69	1410.64	0.00	0.00
15.00		528.29	1382.51	0.00	0.00
20.00		548.43	1354.38	0.00	0.00
25.00		562.12	1326.25	0.00	0.00
30.00		570.93	1298.12	0.00	0.00
35.00		576.14	1269.98	0.00	0.00
40.00		578.56	1241.85	0.00	0.00
45.00		578.73	1213.72	0.00	0.00
45.29		33.55	70.33	0.00	0.00
50.00		551.72	2163.90	0.00	0.00
51.71		198.63	773.83	0.00	0.00
55.00		382.22	770.43	0.00	0.00
60.00		578.98	1147.55	0.00	0.00
65.00		573.30	1119.42	0.00	0.00
70.00		566.56	1091.29	0.00	0.00
75.00		558.86	1063.16	0.00	0.00
80.00		550.30	1035.03	0.00	0.00
85.00		540.95	1006.89	0.00	0.00
90.00		530.89	978.76	0.00	0.00
91.42		147.88	272.20	0.00	0.00
95.00		377.58	1200.61	0.00	0.00
96.58		164.66	522.07	0.00	0.00
100.00		352.12	542.43	0.00	0.00
105.00		506.17	774.06	0.00	0.00
110.00		493.82	750.62	0.00	0.00
115.00		480.97	727.18	0.00	0.00
120.00		467.65	703.73	0.00	0.00
125.00		453.88	680.29	0.00	0.00
130.00		439.69	656.85	0.00	0.00
135.00		425.10	633.41	0.00	0.00
139.08		335.85	499.89	0.00	0.00
140.00		74.91	167.44	0.00	0.00
142.92		235.29	524.37	0.00	0.00
145.00		164.75	162.28	0.00	0.00
150.00		385.13	379.52	0.00	0.00
155.00		369.17	365.45	0.00	0.00
157.00	(16) attachments	5765.59	4823.44	0.00	0.00
160.00		209.48	197.27	0.00	0.00
165.00		336.31	317.52	0.00	0.00
167.00	(15) attachments	4998.11	3236.59	0.00	0.00
170.00		189.38	143.59	0.00	0.00
175.00		302.28	228.07	0.00	0.00
176.00		58.23	43.93	0.00	0.00
Totals:		27,833.97	41,709.64	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

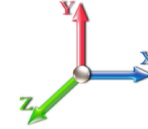
Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
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Load Case: 1.2D + 1.0W 120 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.023	0.000	29.007	0.00	1.64
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.023	0.000	29.007	0.00	6.24
10.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.024	0.000	29.007	0.00	1.64
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.024	0.000	29.007	0.00	6.24
15.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.024	0.000	29.007	0.00	1.64
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.024	0.000	29.007	0.00	6.24
20.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.025	0.000	30.778	0.00	1.64
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.025	0.000	30.778	0.00	6.24
25.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.025	0.000	32.258	0.00	1.64
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.025	0.000	32.258	0.00	6.24
30.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.026	0.000	33.520	0.00	1.64
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.026	0.000	33.520	0.00	6.24
35.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.026	0.000	34.626	0.00	1.64
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.026	0.000	34.626	0.00	6.24
40.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.027	0.000	35.613	0.00	1.64
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.027	0.000	35.613	0.00	6.24
45.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.028	0.000	36.507	0.00	1.64
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.028	0.000	36.507	0.00	6.24
45.29	Safety Cable	Yes	0.29	0.000	0.27	0.01	0.00	0.028	0.000	36.557	0.00	0.10
45.29	Step bolts (ladder)	Yes	0.29	0.000	1.04	0.03	0.00	0.028	0.000	36.557	0.00	0.37
50.00	Safety Cable	Yes	4.71	0.000	0.27	0.11	0.00	0.028	0.000	37.326	0.00	1.54
50.00	Step bolts (ladder)	Yes	4.71	0.000	1.04	0.41	0.00	0.028	0.000	37.326	0.00	5.87
51.71	Safety Cable	Yes	1.71	0.000	0.27	0.04	0.00	0.029	0.000	37.591	0.00	0.56
51.71	Step bolts (ladder)	Yes	1.71	0.000	1.04	0.15	0.00	0.029	0.000	37.591	0.00	2.13
55.00	Safety Cable	Yes	3.29	0.000	0.27	0.07	0.00	0.029	0.000	38.083	0.00	1.08
55.00	Step bolts (ladder)	Yes	3.29	0.000	1.04	0.29	0.00	0.029	0.000	38.083	0.00	4.11
60.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.029	0.000	38.787	0.00	1.64
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.029	0.000	38.787	0.00	6.24
65.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.030	0.000	39.446	0.00	1.64
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.030	0.000	39.446	0.00	6.24
70.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.031	0.000	40.066	0.00	1.64
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.031	0.000	40.066	0.00	6.24
75.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.032	0.000	40.652	0.00	1.64
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.032	0.000	40.652	0.00	6.24
80.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.033	0.000	41.208	0.00	1.64
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.033	0.000	41.208	0.00	6.24
85.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.034	0.000	41.738	0.00	1.64
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.034	0.000	41.738	0.00	6.24
90.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.035	0.000	42.243	0.00	1.64
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.035	0.000	42.243	0.00	6.24
91.42	Safety Cable	Yes	1.42	0.000	0.27	0.03	0.00	0.036	0.000	42.382	0.00	0.46
91.42	Step bolts (ladder)	Yes	1.42	0.000	1.04	0.12	0.00	0.036	0.000	42.382	0.00	1.77
95.00	Safety Cable	Yes	3.58	0.000	0.27	0.08	0.00	0.036	0.000	42.727	0.00	1.17
95.00	Step bolts (ladder)	Yes	3.58	0.000	1.04	0.31	0.00	0.036	0.000	42.727	0.00	4.47
96.58	Safety Cable	Yes	1.58	0.000	0.27	0.04	0.00	0.037	0.000	42.875	0.00	0.52
96.58	Step bolts (ladder)	Yes	1.58	0.000	1.04	0.14	0.00	0.037	0.000	42.875	0.00	1.98
100.00	Safety Cable	Yes	3.42	0.000	0.27	0.08	0.00	0.037	0.000	43.190	0.00	1.12

Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0W 120 mph Wind		Iterations 27
Dead Load Factor 1.20		
Wind Load Factor 1.00		

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	3.42	0.000	1.04	0.30	0.00	0.037	0.000	43.190	0.00	4.26
105.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.038	0.000	43.636	0.00	1.64
105.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.038	0.000	43.636	0.00	6.24
110.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.039	0.000	44.066	0.00	1.64
110.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.039	0.000	44.066	0.00	6.24
115.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.041	0.000	44.480	0.00	1.64
115.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.041	0.000	44.480	0.00	6.24
120.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.042	0.000	44.880	0.00	1.64
120.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.042	0.000	44.880	0.00	6.24
125.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.044	0.000	45.268	0.00	1.64
125.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.044	0.000	45.268	0.00	6.24
130.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.045	0.000	45.643	0.00	1.64
130.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.045	0.000	45.643	0.00	6.24
135.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.047	0.000	46.007	0.00	1.64
135.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.047	0.000	46.007	0.00	6.24
139.08	Safety Cable	Yes	4.08	0.000	0.27	0.09	0.00	0.049	0.000	46.297	0.00	1.34
139.08	Step bolts (ladder)	Yes	4.08	0.000	1.04	0.35	0.00	0.049	0.000	46.297	0.00	5.10
140.00	Safety Cable	Yes	0.92	0.000	0.27	0.02	0.00	0.050	0.000	46.361	0.00	0.30
140.00	Step bolts (ladder)	Yes	0.92	0.000	1.04	0.08	0.00	0.050	0.000	46.361	0.00	1.14
142.92	Safety Cable	Yes	2.92	0.000	0.27	0.07	0.00	0.051	0.000	46.563	0.00	0.96
142.92	Step bolts (ladder)	Yes	2.92	0.000	1.04	0.25	0.00	0.051	0.000	46.563	0.00	3.64
145.00	Safety Cable	Yes	2.08	0.000	0.27	0.05	0.00	0.052	0.000	46.705	0.00	0.68
145.00	Step bolts (ladder)	Yes	2.08	0.000	1.04	0.18	0.00	0.052	0.000	46.705	0.00	2.60
150.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.054	0.000	47.039	0.00	1.64
150.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.054	0.000	47.039	0.00	6.24
155.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.056	0.000	47.365	0.00	1.64
155.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.056	0.000	47.365	0.00	6.24
157.00	Safety Cable	Yes	2.00	0.000	0.27	0.05	0.00	0.058	0.000	47.493	0.00	0.66
157.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.17	0.00	0.058	0.000	47.493	0.00	2.50
160.00	Safety Cable	Yes	3.00	0.000	0.27	0.07	0.00	0.060	0.000	47.683	0.00	0.98
160.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	0.26	0.00	0.060	0.000	47.683	0.00	3.74
165.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.063	0.000	47.993	0.00	1.64
165.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.063	0.000	47.993	0.00	6.24
167.00	Safety Cable	Yes	2.00	0.000	0.27	0.05	0.00	0.065	0.000	48.114	0.00	0.66
167.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.17	0.00	0.065	0.000	48.114	0.00	2.50
170.00	Safety Cable	Yes	3.00	0.000	0.27	0.07	0.00	0.067	0.000	48.295	0.00	0.98
170.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	0.26	0.00	0.067	0.000	48.295	0.00	3.74
175.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.070	0.000	48.591	0.00	1.64
175.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.070	0.000	48.591	0.00	6.24
176.00	Safety Cable	Yes	1.00	0.000	0.27	0.02	0.00	0.073	0.000	48.649	0.00	0.33
176.00	Step bolts (ladder)	Yes	1.00	0.000	1.04	0.09	0.00	0.073	0.000	48.649	0.00	1.25
Totals:											0.0	277.3

Calculated Forces

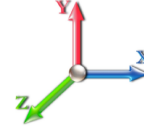
Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.0W 120 mph Wind

Iterations 27

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.67	-27.90	0.00	-3267.3	0.00	3267.30	4317.41	1172.35	5459.17	4991.62	0.00	0.000	0.000	0.665
5.00	-40.15	-27.46	0.00	-3127.8	0.00	3127.82	4266.06	1148.16	5236.29	4829.83	0.09	-0.171	0.000	0.658
10.00	-38.66	-27.04	0.00	-2990.5	0.00	2990.50	4213.11	1123.98	5018.05	4668.75	0.36	-0.345	0.000	0.650
15.00	-37.19	-26.61	0.00	-2855.3	0.00	2855.32	4158.58	1099.80	4804.45	4508.49	0.82	-0.523	0.000	0.643
20.00	-35.76	-26.17	0.00	-2722.2	0.00	2722.24	4102.46	1075.62	4595.50	4349.16	1.47	-0.704	0.000	0.635
25.00	-34.36	-25.70	0.00	-2591.4	0.00	2591.42	4044.75	1051.44	4391.20	4190.89	2.30	-0.888	0.000	0.627
30.00	-32.99	-25.21	0.00	-2462.9	0.00	2462.94	3985.45	1027.26	4191.54	4033.77	3.33	-1.075	0.000	0.619
35.00	-31.65	-24.72	0.00	-2336.8	0.00	2336.88	3924.57	1003.08	3996.52	3877.94	4.56	-1.266	0.000	0.611
40.00	-30.34	-24.21	0.00	-2213.2	0.00	2213.29	3862.10	978.89	3806.15	3723.50	5.99	-1.460	0.000	0.603
45.00	-29.10	-23.65	0.00	-2092.2	0.00	2092.23	3798.04	954.71	3620.43	3570.56	7.63	-1.658	0.000	0.594
45.29	-28.99	-23.67	0.00	-2085.2	0.00	2085.29	3794.23	953.29	3609.68	3561.64	7.73	-1.670	0.000	0.594
50.00	-26.79	-23.11	0.00	-1973.8	0.00	1973.88	3732.39	930.53	3439.35	3419.25	9.47	-1.860	0.000	0.585
51.71	-25.98	-22.94	0.00	-1934.3	0.00	1934.36	3752.64	937.93	3494.24	3465.35	10.15	-1.932	0.000	0.566
55.00	-25.16	-22.60	0.00	-1858.9	0.00	1858.90	3708.89	922.02	3376.69	3366.37	11.53	-2.069	0.000	0.560
60.00	-23.96	-22.06	0.00	-1745.8	0.00	1745.89	3641.10	897.83	3201.89	3217.43	13.80	-2.267	0.000	0.550
65.00	-22.78	-21.53	0.00	-1635.5	0.00	1635.58	3571.72	873.65	3031.74	3070.38	16.28	-2.469	0.000	0.540
70.00	-21.64	-20.99	0.00	-1527.9	0.00	1527.95	3500.75	849.47	2866.23	2925.34	18.98	-2.673	0.000	0.529
75.00	-20.53	-20.45	0.00	-1423.0	0.00	1423.01	3428.19	825.29	2705.37	2782.41	21.89	-2.881	0.000	0.518
80.00	-19.46	-19.92	0.00	-1320.7	0.00	1320.75	3354.04	801.11	2549.16	2641.72	25.02	-3.091	0.000	0.506
85.00	-18.41	-19.39	0.00	-1221.1	0.00	1221.14	3278.31	776.93	2397.59	2503.38	28.37	-3.304	0.000	0.494
90.00	-17.42	-18.85	0.00	-1124.1	0.00	1124.17	3186.62	752.74	2250.66	2356.87	31.94	-3.520	0.000	0.483
91.42	-17.12	-18.72	0.00	-1097.4	0.00	1097.46	3157.61	745.89	2209.88	2313.94	33.00	-3.583	0.000	0.480
95.00	-15.91	-18.30	0.00	-1030.3	0.00	1030.39	3084.25	728.56	2108.38	2207.12	35.74	-3.742	0.000	0.473
96.58	-15.36	-18.13	0.00	-1001.4	0.00	1001.42	2497.75	612.72	1789.46	1807.21	37.00	-3.814	0.000	0.561
100.00	-14.78	-17.79	0.00	-939.49	0.00	939.49	2457.75	598.95	1709.93	1737.95	39.78	-3.966	0.000	0.547
105.00	-13.97	-17.29	0.00	-850.53	0.00	850.53	2397.86	578.80	1596.81	1638.04	44.06	-4.216	0.000	0.526
110.00	-13.19	-16.80	0.00	-764.07	0.00	764.07	2336.39	558.65	1487.56	1539.96	48.61	-4.465	0.000	0.503
115.00	-12.43	-16.32	0.00	-680.07	0.00	680.07	2273.33	538.50	1382.18	1443.83	53.41	-4.713	0.000	0.477
120.00	-11.70	-15.84	0.00	-598.48	0.00	598.48	2194.33	518.35	1280.67	1340.98	58.48	-4.958	0.000	0.453
125.00	-11.00	-15.37	0.00	-519.28	0.00	519.28	2109.02	498.19	1183.03	1238.23	63.79	-5.198	0.000	0.426
130.00	-10.33	-14.92	0.00	-442.41	0.00	442.41	2023.72	478.04	1089.26	1139.56	69.36	-5.431	0.000	0.394
135.00	-9.69	-14.47	0.00	-367.82	0.00	367.82	1938.41	457.89	999.36	1045.00	75.16	-5.653	0.000	0.358
139.08	-9.20	-14.10	0.00	-308.75	0.00	308.75	1868.74	441.44	928.82	970.81	80.06	-5.825	0.000	0.324
140.00	-9.02	-14.02	0.00	-295.83	0.00	295.83	1853.10	437.74	913.34	954.53	81.18	-5.864	0.000	0.316
142.92	-8.50	-13.75	0.00	-254.94	0.00	254.94	1006.21	260.81	540.39	517.20	84.79	-5.979	0.000	0.504
145.00	-8.32	-13.59	0.00	-226.31	0.00	226.31	993.78	255.78	519.71	500.86	87.42	-6.056	0.000	0.463
150.00	-7.93	-13.20	0.00	-158.36	0.00	158.36	962.80	243.69	471.74	462.14	93.89	-6.304	0.000	0.354
155.00	-7.58	-12.80	0.00	-92.38	0.00	92.38	930.24	231.59	426.09	424.18	100.58	-6.491	0.000	0.229
157.00	-3.44	-6.53	0.00	-66.78	0.00	66.78	916.77	226.76	408.48	409.23	103.31	-6.546	0.000	0.168
160.00	-3.26	-6.30	0.00	-47.18	0.00	47.18	896.09	219.50	382.76	387.10	107.44	-6.609	0.000	0.126
165.00	-2.98	-5.93	0.00	-15.66	0.00	15.66	860.35	207.41	341.76	351.00	114.38	-6.673	0.000	0.049
167.00	-0.35	-0.59	0.00	-3.79	0.00	3.79	845.61	202.58	326.00	336.87	117.18	-6.683	0.000	0.012
170.00	-0.23	-0.39	0.00	-2.01	0.00	2.01	823.02	195.32	303.07	316.02	121.37	-6.687	0.000	0.007
175.00	-0.04	-0.06	0.00	-0.06	0.00	0.06	775.68	183.23	266.71	279.22	128.36	-6.690	0.000	0.000
176.00	0.00	-0.06	0.00	0.00	0.00	0.00	765.44	180.81	259.72	271.86	129.75	-6.690	0.000	0.000

Wind Loading - Shaft

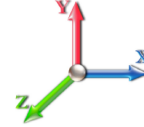
Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 13



Load Case: 0.9D + 1.0W 120 mph Wind

Iterations 27

Dead Load Factor 0.90
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	29.007	31.91	522.14	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	29.007	31.91	511.44	0.730	0.000	5.00	23.660	17.27	551.1	0.0	1012.3
10.00		1.00	0.85	29.007	31.91	500.74	0.730	0.000	5.00	23.170	16.91	539.7	0.0	991.2
15.00		1.00	0.85	29.007	31.91	490.04	0.730	0.000	5.00	22.680	16.56	528.3	0.0	970.1
20.00		1.00	0.90	30.778	33.86	493.76	0.730	0.000	5.00	22.191	16.20	548.4	0.0	949.0
25.00		1.00	0.95	32.258	35.48	494.21	0.730	0.000	5.00	21.701	15.84	562.1	0.0	927.9
30.00		1.00	0.98	33.520	36.87	492.29	0.730	0.000	5.00	21.211	15.48	570.9	0.0	906.8
35.00		1.00	1.01	34.626	38.09	488.65	0.730	0.000	5.00	20.721	15.13	576.1	0.0	885.7
40.00		1.00	1.04	35.613	39.17	483.71	0.730	0.000	5.00	20.231	14.77	578.6	0.0	864.6
45.00		1.00	1.07	36.507	40.16	477.75	0.730	0.000	5.00	19.742	14.41	578.7	0.0	843.5
45.29 Bot - Section 2		1.00	1.07	36.557	40.21	477.37	0.730	0.000	0.29	1.143	0.83	33.6	0.0	48.8
50.00		1.00	1.09	37.326	41.06	470.94	0.730	0.000	4.71	18.407	13.44	551.7	0.0	1560.1
51.71 Top - Section 1		1.00	1.10	37.591	41.35	468.44	0.730	0.000	1.71	6.580	4.80	198.6	0.0	557.5
55.00		1.00	1.12	38.083	41.89	471.37	0.730	0.000	3.29	12.499	9.12	382.2	0.0	533.9
60.00		1.00	1.14	38.787	42.67	463.34	0.730	0.000	5.00	18.589	13.57	579.0	0.0	793.9
65.00		1.00	1.16	39.446	43.39	454.78	0.730	0.000	5.00	18.100	13.21	573.3	0.0	772.8
70.00		1.00	1.17	40.066	44.07	445.77	0.730	0.000	5.00	17.610	12.86	566.6	0.0	751.7
75.00		1.00	1.19	40.652	44.72	436.35	0.730	0.000	5.00	17.120	12.50	558.9	0.0	730.6
80.00		1.00	1.21	41.208	45.33	426.57	0.730	0.000	5.00	16.630	12.14	550.3	0.0	709.5
85.00		1.00	1.22	41.738	45.91	416.47	0.730	0.000	5.00	16.140	11.78	541.0	0.0	688.4
90.00		1.00	1.24	42.243	46.47	406.08	0.730	0.000	5.00	15.651	11.42	530.9	0.0	667.3
91.42 Bot - Section 3		1.00	1.24	42.382	46.62	403.08	0.730	0.000	1.42	4.345	3.17	147.9	0.0	185.2
95.00		1.00	1.25	42.727	47.00	395.41	0.730	0.000	3.58	11.005	8.03	377.6	0.0	852.6
96.58 Top - Section 2		1.00	1.26	42.875	47.16	391.98	0.730	0.000	1.58	4.783	3.49	164.7	0.0	370.4
100.00		1.00	1.27	43.190	47.51	391.54	0.730	0.000	3.42	10.153	7.41	352.1	0.0	361.2
105.00		1.00	1.28	43.636	48.00	380.44	0.730	0.000	5.00	14.446	10.55	506.2	0.0	513.8
110.00		1.00	1.29	44.066	48.47	369.12	0.730	0.000	5.00	13.956	10.19	493.8	0.0	496.2
115.00		1.00	1.30	44.480	48.93	357.60	0.730	0.000	5.00	13.466	9.83	481.0	0.0	478.6
120.00		1.00	1.32	44.880	49.37	345.90	0.730	0.000	5.00	12.976	9.47	467.6	0.0	461.1
125.00		1.00	1.33	45.268	49.79	334.02	0.730	0.000	5.00	12.486	9.12	453.9	0.0	443.5
130.00		1.00	1.34	45.643	50.21	321.99	0.730	0.000	5.00	11.997	8.76	439.7	0.0	425.9
135.00		1.00	1.35	46.007	50.61	309.79	0.730	0.000	5.00	11.507	8.40	425.1	0.0	408.3
139.08 Bot - Section 4		1.00	1.36	46.297	50.93	299.73	0.730	0.000	4.08	9.034	6.59	335.8	0.0	320.4
140.00		1.00	1.36	46.361	51.00	297.46	0.730	0.000	0.92	2.012	1.47	74.9	0.0	113.3
142.92 Top - Section 3		1.00	1.36	46.563	51.22	290.20	0.730	0.000	2.92	6.293	4.59	235.3	0.0	354.3
145.00		1.00	1.37	46.705	51.38	289.38	0.730	0.000	2.08	4.393	3.21	164.8	0.0	93.9
150.00		1.00	1.38	47.039	51.74	276.79	0.730	0.000	5.00	10.196	7.44	385.1	0.0	217.9
155.00		1.00	1.39	47.365	52.10	264.08	0.730	0.000	5.00	9.706	7.09	369.2	0.0	207.3
157.00 Appurtenance(s)		1.00	1.39	47.493	52.24	258.96	0.730	0.000	2.00	3.745	2.73	142.8	0.0	80.0
160.00		1.00	1.40	47.683	52.45	251.24	0.730	0.000	3.00	5.471	3.99	209.5	0.0	116.8
165.00		1.00	1.41	47.993	52.79	238.30	0.730	0.000	5.00	8.727	6.37	336.3	0.0	186.2
167.00 Appurtenance(s)		1.00	1.41	48.114	52.93	233.09	0.730	0.000	2.00	3.354	2.45	129.6	0.0	71.5
170.00		1.00	1.42	48.295	53.12	225.24	0.730	0.000	3.00	4.883	3.56	189.4	0.0	104.2
175.00		1.00	1.42	48.591	53.45	212.08	0.730	0.000	5.00	7.747	5.66	302.3	0.0	165.1
176.00		1.00	1.43	48.649	53.51	209.44	0.730	0.000	1.00	1.491	1.09	58.2	0.0	31.8
Totals:									176.00			17,342.7		23,225.9

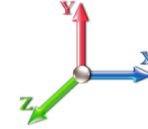
Discrete Appurtenance Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 14



Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.00



Iterations 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	48.114	52.926	0.75	0.75	1.38	57.24	0.000	0.000	73.04	0.00	0.00
2	167.00	Ericsson 4449	3	48.114	52.926	0.67	0.75	3.30	202.50	0.000	0.000	174.87	0.00	0.00
3	167.00	Cci OPA65R-BU8DA	6	48.114	52.926	0.55	0.75	59.43	351.00	0.000	0.000	3145.15	0.00	0.00
4	167.00	Low Profile Platform	1	48.114	52.926	1.00	1.00	25.00	1530.00	0.000	0.000	1323.15	0.00	0.00
5	167.00	Ericsson 8843 B2/B66A	3	48.114	52.926	0.58	0.75	2.88	194.40	0.000	0.000	152.33	0.00	0.00
6	157.00	RFS	3	47.493	52.242	0.46	0.75	9.22	109.89	0.000	0.000	481.72	0.00	0.00
7	157.00	Ericsson 4480 B71 + B85	3	47.493	52.242	0.50	0.75	4.30	251.10	0.000	0.000	224.45	0.00	0.00
8	157.00	Ericsson 4460 B25 + B66	3	47.493	52.242	0.50	0.75	4.30	280.80	0.000	0.000	224.45	0.00	0.00
9	157.00	SitePro1 RMQP-4096-HK	1	47.493	52.242	1.00	1.00	48.00	2204.10	0.000	0.000	2507.63	0.00	0.00
10	157.00	Ericsson AIR6449 B41	3	47.493	52.242	0.53	0.75	9.03	278.10	0.000	0.000	471.53	0.00	0.00
11	157.00	RFS	3	47.493	52.242	0.54	0.75	32.79	386.91	0.000	0.000	1712.96	0.00	0.00
Totals:									5,846.04			10,491.30		

Total Applied Force Summary

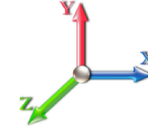
Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 15



Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		551.10	1079.08	0.00	0.00
10.00		539.69	1057.98	0.00	0.00
15.00		528.29	1036.88	0.00	0.00
20.00		548.43	1015.78	0.00	0.00
25.00		562.12	994.69	0.00	0.00
30.00		570.93	973.59	0.00	0.00
35.00		576.14	952.49	0.00	0.00
40.00		578.56	931.39	0.00	0.00
45.00		578.73	910.29	0.00	0.00
45.29		33.55	52.75	0.00	0.00
50.00		551.72	1622.92	0.00	0.00
51.71		198.63	580.37	0.00	0.00
55.00		382.22	577.83	0.00	0.00
60.00		578.98	860.66	0.00	0.00
65.00		573.30	839.57	0.00	0.00
70.00		566.56	818.47	0.00	0.00
75.00		558.86	797.37	0.00	0.00
80.00		550.30	776.27	0.00	0.00
85.00		540.95	755.17	0.00	0.00
90.00		530.89	734.07	0.00	0.00
91.42		147.88	204.15	0.00	0.00
95.00		377.58	900.46	0.00	0.00
96.58		164.66	391.55	0.00	0.00
100.00		352.12	406.82	0.00	0.00
105.00		506.17	580.55	0.00	0.00
110.00		493.82	562.96	0.00	0.00
115.00		480.97	545.38	0.00	0.00
120.00		467.65	527.80	0.00	0.00
125.00		453.88	510.22	0.00	0.00
130.00		439.69	492.64	0.00	0.00
135.00		425.10	475.05	0.00	0.00
139.08		335.85	374.92	0.00	0.00
140.00		74.91	125.58	0.00	0.00
142.92		235.29	393.28	0.00	0.00
145.00		164.75	121.71	0.00	0.00
150.00		385.13	284.64	0.00	0.00
155.00		369.17	274.09	0.00	0.00
157.00	(16) attachments	5765.59	3617.58	0.00	0.00
160.00		209.48	147.95	0.00	0.00
165.00		336.31	238.14	0.00	0.00
167.00	(15) attachments	4998.11	2427.44	0.00	0.00
170.00		189.38	107.70	0.00	0.00
175.00		302.28	171.05	0.00	0.00
176.00		58.23	32.94	0.00	0.00
Totals:		27,833.97	31,282.23	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 16



Load Case: 0.9D + 1.0W 120 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.00



Iterations 27

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.023	0.000	29.007	0.00	1.23
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.023	0.000	29.007	0.00	4.68
10.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.024	0.000	29.007	0.00	1.23
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.024	0.000	29.007	0.00	4.68
15.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.024	0.000	29.007	0.00	1.23
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.024	0.000	29.007	0.00	4.68
20.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.025	0.000	30.778	0.00	1.23
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.025	0.000	30.778	0.00	4.68
25.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.025	0.000	32.258	0.00	1.23
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.025	0.000	32.258	0.00	4.68
30.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.026	0.000	33.520	0.00	1.23
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.026	0.000	33.520	0.00	4.68
35.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.026	0.000	34.626	0.00	1.23
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.026	0.000	34.626	0.00	4.68
40.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.027	0.000	35.613	0.00	1.23
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.027	0.000	35.613	0.00	4.68
45.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.028	0.000	36.507	0.00	1.23
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.028	0.000	36.507	0.00	4.68
45.29	Safety Cable	Yes	0.29	0.000	0.27	0.01	0.00	0.028	0.000	36.557	0.00	0.07
45.29	Step bolts (ladder)	Yes	0.29	0.000	1.04	0.03	0.00	0.028	0.000	36.557	0.00	0.27
50.00	Safety Cable	Yes	4.71	0.000	0.27	0.11	0.00	0.028	0.000	37.326	0.00	1.16
50.00	Step bolts (ladder)	Yes	4.71	0.000	1.04	0.41	0.00	0.028	0.000	37.326	0.00	4.41
51.71	Safety Cable	Yes	1.71	0.000	0.27	0.04	0.00	0.029	0.000	37.591	0.00	0.42
51.71	Step bolts (ladder)	Yes	1.71	0.000	1.04	0.15	0.00	0.029	0.000	37.591	0.00	1.60
55.00	Safety Cable	Yes	3.29	0.000	0.27	0.07	0.00	0.029	0.000	38.083	0.00	0.81
55.00	Step bolts (ladder)	Yes	3.29	0.000	1.04	0.29	0.00	0.029	0.000	38.083	0.00	3.08
60.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.029	0.000	38.787	0.00	1.23
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.029	0.000	38.787	0.00	4.68
65.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.030	0.000	39.446	0.00	1.23
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.030	0.000	39.446	0.00	4.68
70.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.031	0.000	40.066	0.00	1.23
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.031	0.000	40.066	0.00	4.68
75.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.032	0.000	40.652	0.00	1.23
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.032	0.000	40.652	0.00	4.68
80.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.033	0.000	41.208	0.00	1.23
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.033	0.000	41.208	0.00	4.68
85.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.034	0.000	41.738	0.00	1.23
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.034	0.000	41.738	0.00	4.68
90.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.035	0.000	42.243	0.00	1.23
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.035	0.000	42.243	0.00	4.68
91.42	Safety Cable	Yes	1.42	0.000	0.27	0.03	0.00	0.036	0.000	42.382	0.00	0.35
91.42	Step bolts (ladder)	Yes	1.42	0.000	1.04	0.12	0.00	0.036	0.000	42.382	0.00	1.33
95.00	Safety Cable	Yes	3.58	0.000	0.27	0.08	0.00	0.036	0.000	42.727	0.00	0.88
95.00	Step bolts (ladder)	Yes	3.58	0.000	1.04	0.31	0.00	0.036	0.000	42.727	0.00	3.35
96.58	Safety Cable	Yes	1.58	0.000	0.27	0.04	0.00	0.037	0.000	42.875	0.00	0.39
96.58	Step bolts (ladder)	Yes	1.58	0.000	1.04	0.14	0.00	0.037	0.000	42.875	0.00	1.48
100.00	Safety Cable	Yes	3.42	0.000	0.27	0.08	0.00	0.037	0.000	43.190	0.00	0.84

Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0W 120 mph Wind	Iterations 27
Dead Load Factor 0.90	
Wind Load Factor 1.00	

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	3.42	0.000	1.04	0.30	0.00	0.037	0.000	43.190	0.00	3.20
105.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.038	0.000	43.636	0.00	1.23
105.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.038	0.000	43.636	0.00	4.68
110.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.039	0.000	44.066	0.00	1.23
110.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.039	0.000	44.066	0.00	4.68
115.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.041	0.000	44.480	0.00	1.23
115.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.041	0.000	44.480	0.00	4.68
120.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.042	0.000	44.880	0.00	1.23
120.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.042	0.000	44.880	0.00	4.68
125.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.044	0.000	45.268	0.00	1.23
125.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.044	0.000	45.268	0.00	4.68
130.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.045	0.000	45.643	0.00	1.23
130.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.045	0.000	45.643	0.00	4.68
135.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.047	0.000	46.007	0.00	1.23
135.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.047	0.000	46.007	0.00	4.68
139.08	Safety Cable	Yes	4.08	0.000	0.27	0.09	0.00	0.049	0.000	46.297	0.00	1.00
139.08	Step bolts (ladder)	Yes	4.08	0.000	1.04	0.35	0.00	0.049	0.000	46.297	0.00	3.82
140.00	Safety Cable	Yes	0.92	0.000	0.27	0.02	0.00	0.050	0.000	46.361	0.00	0.23
140.00	Step bolts (ladder)	Yes	0.92	0.000	1.04	0.08	0.00	0.050	0.000	46.361	0.00	0.86
142.92	Safety Cable	Yes	2.92	0.000	0.27	0.07	0.00	0.051	0.000	46.563	0.00	0.72
142.92	Step bolts (ladder)	Yes	2.92	0.000	1.04	0.25	0.00	0.051	0.000	46.563	0.00	2.73
145.00	Safety Cable	Yes	2.08	0.000	0.27	0.05	0.00	0.052	0.000	46.705	0.00	0.51
145.00	Step bolts (ladder)	Yes	2.08	0.000	1.04	0.18	0.00	0.052	0.000	46.705	0.00	1.95
150.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.054	0.000	47.039	0.00	1.23
150.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.054	0.000	47.039	0.00	4.68
155.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.056	0.000	47.365	0.00	1.23
155.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.056	0.000	47.365	0.00	4.68
157.00	Safety Cable	Yes	2.00	0.000	0.27	0.05	0.00	0.058	0.000	47.493	0.00	0.49
157.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.17	0.00	0.058	0.000	47.493	0.00	1.87
160.00	Safety Cable	Yes	3.00	0.000	0.27	0.07	0.00	0.060	0.000	47.683	0.00	0.74
160.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	0.26	0.00	0.060	0.000	47.683	0.00	2.81
165.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.063	0.000	47.993	0.00	1.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.063	0.000	47.993	0.00	4.68
167.00	Safety Cable	Yes	2.00	0.000	0.27	0.05	0.00	0.065	0.000	48.114	0.00	0.49
167.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.17	0.00	0.065	0.000	48.114	0.00	1.87
170.00	Safety Cable	Yes	3.00	0.000	0.27	0.07	0.00	0.067	0.000	48.295	0.00	0.74
170.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	0.26	0.00	0.067	0.000	48.295	0.00	2.81
175.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.070	0.000	48.591	0.00	1.23
175.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.070	0.000	48.591	0.00	4.68
176.00	Safety Cable	Yes	1.00	0.000	0.27	0.02	0.00	0.073	0.000	48.649	0.00	0.25
176.00	Step bolts (ladder)	Yes	1.00	0.000	1.04	0.09	0.00	0.073	0.000	48.649	0.00	0.94
Totals:											0.0	208.0

Calculated Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

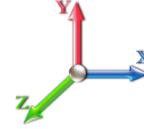


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Load Case: 0.9D + 1.0W 120 mph Wind

Iterations 27

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-31.24	-27.88	0.00	-3228.5	0.00	3228.52	4317.41	1172.35	5459.17	4991.62	0.00	0.000	0.000	0.655
5.00	-30.08	-27.42	0.00	-3089.1	0.00	3089.12	4266.06	1148.16	5236.29	4829.83	0.09	-0.169	0.000	0.647
10.00	-28.94	-26.96	0.00	-2952.0	0.00	2952.04	4213.11	1123.98	5018.05	4668.75	0.36	-0.341	0.000	0.640
15.00	-27.83	-26.51	0.00	-2817.2	0.00	2817.24	4158.58	1099.80	4804.45	4508.49	0.81	-0.516	0.000	0.632
20.00	-26.74	-26.04	0.00	-2684.6	0.00	2684.69	4102.46	1075.62	4595.50	4349.16	1.45	-0.695	0.000	0.624
25.00	-25.67	-25.54	0.00	-2554.5	0.00	2554.51	4044.75	1051.44	4391.20	4190.89	2.27	-0.876	0.000	0.616
30.00	-24.62	-25.03	0.00	-2426.8	0.00	2426.81	3985.45	1027.26	4191.54	4033.77	3.29	-1.061	0.000	0.608
35.00	-23.60	-24.52	0.00	-2301.6	0.00	2301.64	3924.57	1003.08	3996.52	3877.94	4.50	-1.249	0.000	0.600
40.00	-22.60	-23.99	0.00	-2179.0	0.00	2179.05	3862.10	978.89	3806.15	3723.50	5.91	-1.440	0.000	0.592
45.00	-21.67	-23.43	0.00	-2059.0	0.00	2059.08	3798.04	954.71	3620.43	3570.56	7.52	-1.635	0.000	0.583
45.29	-21.57	-23.43	0.00	-2052.2	0.00	2052.21	3794.23	953.29	3609.68	3561.64	7.63	-1.647	0.000	0.582
50.00	-19.92	-22.88	0.00	-1941.9	0.00	1941.92	3732.39	930.53	3439.35	3419.25	9.34	-1.834	0.000	0.574
51.71	-19.30	-22.69	0.00	-1902.8	0.00	1902.81	3752.64	937.93	3494.24	3465.35	10.01	-1.904	0.000	0.555
55.00	-18.68	-22.35	0.00	-1828.1	0.00	1828.15	3708.89	922.02	3376.69	3366.37	11.37	-2.039	0.000	0.549
60.00	-17.76	-21.80	0.00	-1716.4	0.00	1716.42	3641.10	897.83	3201.89	3217.43	13.61	-2.234	0.000	0.539
65.00	-16.87	-21.25	0.00	-1607.4	0.00	1607.44	3571.72	873.65	3031.74	3070.38	16.06	-2.432	0.000	0.529
70.00	-16.01	-20.70	0.00	-1501.2	0.00	1501.21	3500.75	849.47	2866.23	2925.34	18.71	-2.633	0.000	0.518
75.00	-15.16	-20.16	0.00	-1397.7	0.00	1397.70	3428.19	825.29	2705.37	2782.41	21.58	-2.837	0.000	0.507
80.00	-14.35	-19.62	0.00	-1296.9	0.00	1296.90	3354.04	801.11	2549.16	2641.72	24.66	-3.044	0.000	0.496
85.00	-13.55	-19.09	0.00	-1198.7	0.00	1198.78	3278.31	776.93	2397.59	2503.38	27.96	-3.253	0.000	0.484
90.00	-12.81	-18.55	0.00	-1103.3	0.00	1103.33	3186.62	752.74	2250.66	2356.87	31.48	-3.464	0.000	0.473
91.42	-12.58	-18.41	0.00	-1077.0	0.00	1077.05	3157.61	745.89	2209.88	2313.94	32.51	-3.527	0.000	0.470
95.00	-11.67	-18.00	0.00	-1011.0	0.00	1011.07	3084.25	728.56	2108.38	2207.12	35.22	-3.682	0.000	0.462
96.58	-11.25	-17.83	0.00	-982.57	0.00	982.57	2497.75	612.72	1789.46	1807.21	36.45	-3.753	0.000	0.549
100.00	-10.81	-17.49	0.00	-921.63	0.00	921.63	2457.75	598.95	1709.93	1737.95	39.19	-3.902	0.000	0.536
105.00	-10.19	-16.99	0.00	-834.17	0.00	834.17	2397.86	578.80	1596.81	1638.04	43.40	-4.147	0.000	0.514
110.00	-9.60	-16.50	0.00	-749.21	0.00	749.21	2336.39	558.65	1487.56	1539.96	47.88	-4.391	0.000	0.491
115.00	-9.03	-16.01	0.00	-666.72	0.00	666.72	2273.33	538.50	1382.18	1443.83	52.60	-4.635	0.000	0.467
120.00	-8.47	-15.54	0.00	-586.65	0.00	586.65	2194.33	518.35	1280.67	1340.98	57.58	-4.875	0.000	0.442
125.00	-7.94	-15.08	0.00	-508.96	0.00	508.96	2109.02	498.19	1183.03	1238.23	62.81	-5.110	0.000	0.416
130.00	-7.44	-14.62	0.00	-433.58	0.00	433.58	2023.72	478.04	1089.26	1139.56	68.27	-5.339	0.000	0.385
135.00	-6.96	-14.18	0.00	-360.47	0.00	360.47	1938.41	457.89	999.36	1045.00	73.98	-5.556	0.000	0.349
139.08	-6.59	-13.82	0.00	-302.59	0.00	302.59	1868.74	441.44	928.82	970.81	78.80	-5.725	0.000	0.316
140.00	-6.46	-13.74	0.00	-289.92	0.00	289.92	1853.10	437.74	913.34	954.53	79.90	-5.763	0.000	0.308
142.92	-6.07	-13.47	0.00	-249.85	0.00	249.85	1006.21	260.81	540.39	517.20	83.45	-5.875	0.000	0.492
145.00	-5.92	-13.32	0.00	-221.78	0.00	221.78	993.78	255.78	519.71	500.86	86.03	-5.951	0.000	0.451
150.00	-5.63	-12.92	0.00	-155.20	0.00	155.20	962.80	243.69	471.74	462.14	92.38	-6.194	0.000	0.344
155.00	-5.38	-12.54	0.00	-90.58	0.00	90.58	930.24	231.59	426.09	424.18	98.96	-6.377	0.000	0.222
157.00	-2.42	-6.41	0.00	-65.50	0.00	65.50	916.77	226.76	408.48	409.23	101.64	-6.431	0.000	0.164
160.00	-2.29	-6.18	0.00	-46.28	0.00	46.28	896.09	219.50	382.76	387.10	105.70	-6.493	0.000	0.123
165.00	-2.09	-5.82	0.00	-15.36	0.00	15.36	860.35	207.41	341.76	351.00	112.52	-6.556	0.000	0.047
167.00	-0.25	-0.58	0.00	-3.71	0.00	3.71	845.61	202.58	326.00	336.87	115.27	-6.565	0.000	0.011
170.00	-0.16	-0.38	0.00	-1.97	0.00	1.97	823.02	195.32	303.07	316.02	119.38	-6.570	0.000	0.006
175.00	-0.03	-0.06	0.00	-0.06	0.00	0.06	775.68	183.23	266.71	279.22	126.25	-6.573	0.000	0.000
176.00	0.00	-0.06	0.00	0.00	0.00	0.00	765.44	180.81	259.72	271.86	127.62	-6.573	0.000	0.000

Wind Loading - Shaft

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 19



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

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.036	5.54	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.036	5.54	0.00	1.200	1.242	5.00	24.695	29.63	164.2	440.3	1790.1
10.00		1.00	0.85	5.036	5.54	0.00	1.200	1.331	5.00	24.279	29.14	161.4	462.9	1784.6
15.00		1.00	0.85	5.036	5.54	0.00	1.200	1.386	5.00	23.836	28.60	158.4	472.5	1766.0
20.00		1.00	0.90	5.343	5.88	0.00	1.200	1.427	5.00	23.379	28.06	164.9	476.3	1741.7
25.00		1.00	0.95	5.600	6.16	0.00	1.200	1.459	5.00	22.916	27.50	169.4	476.8	1714.0
30.00		1.00	0.98	5.819	6.40	0.00	1.200	1.486	5.00	22.449	26.94	172.4	475.0	1684.1
35.00		1.00	1.01	6.011	6.61	0.00	1.200	1.509	5.00	21.978	26.37	174.4	471.7	1652.6
40.00		1.00	1.04	6.183	6.80	0.00	1.200	1.529	5.00	21.506	25.81	175.5	467.1	1620.0
45.00		1.00	1.07	6.338	6.97	0.00	1.200	1.547	5.00	21.031	25.24	175.9	461.6	1586.3
45.29	Bot - Section 2	1.00	1.07	6.347	6.98	0.00	1.200	1.548	0.29	1.219	1.46	10.2	27.1	92.2
50.00		1.00	1.09	6.480	7.13	0.00	1.200	1.564	4.71	19.634	23.56	167.9	435.5	2515.6
51.71	Top - Section 1	1.00	1.10	6.526	7.18	0.00	1.200	1.569	1.71	7.027	8.43	60.5	157.4	900.8
55.00		1.00	1.12	6.612	7.27	0.00	1.200	1.579	3.29	13.365	16.04	116.6	299.9	1011.8
60.00		1.00	1.14	6.734	7.41	0.00	1.200	1.592	5.00	19.916	23.90	177.0	448.3	1506.9
65.00		1.00	1.16	6.848	7.53	0.00	1.200	1.605	5.00	19.437	23.32	175.7	440.4	1470.8
70.00		1.00	1.17	6.956	7.65	0.00	1.200	1.617	5.00	18.957	22.75	174.1	432.1	1434.4
75.00		1.00	1.19	7.058	7.76	0.00	1.200	1.628	5.00	18.477	22.17	172.1	423.4	1397.5
80.00		1.00	1.21	7.154	7.87	0.00	1.200	1.639	5.00	17.996	21.60	169.9	414.3	1360.3
85.00		1.00	1.22	7.246	7.97	0.00	1.200	1.649	5.00	17.514	21.02	167.5	405.0	1322.9
90.00		1.00	1.24	7.334	8.07	0.00	1.200	1.658	5.00	17.033	20.44	164.9	395.4	1285.1
91.42	Bot - Section 3	1.00	1.24	7.358	8.09	0.00	1.200	1.661	1.42	4.737	5.68	46.0	111.2	358.2
95.00		1.00	1.25	7.418	8.16	0.00	1.200	1.667	3.58	12.001	14.40	117.5	281.0	1417.8
96.58	Top - Section 2	1.00	1.26	7.444	8.19	0.00	1.200	1.670	1.58	5.223	6.27	51.3	123.1	617.0
100.00		1.00	1.27	7.498	8.25	0.00	1.200	1.676	3.42	11.107	13.33	109.9	261.0	742.6
105.00		1.00	1.28	7.576	8.33	0.00	1.200	1.684	5.00	15.849	19.02	158.5	371.7	1056.8
110.00		1.00	1.29	7.650	8.42	0.00	1.200	1.692	5.00	15.366	18.44	155.2	361.3	1022.9
115.00		1.00	1.30	7.722	8.49	0.00	1.200	1.699	5.00	14.882	17.86	151.7	350.6	988.8
120.00		1.00	1.32	7.792	8.57	0.00	1.200	1.707	5.00	14.398	17.28	148.1	339.8	954.5
125.00		1.00	1.33	7.859	8.64	0.00	1.200	1.714	5.00	13.914	16.70	144.3	328.8	920.1
130.00		1.00	1.34	7.924	8.72	0.00	1.200	1.720	5.00	13.430	16.12	140.5	317.7	885.6
135.00		1.00	1.35	7.987	8.79	0.00	1.200	1.727	5.00	12.946	15.54	136.5	306.5	850.9
139.08	Bot - Section 4	1.00	1.36	8.038	8.84	0.00	1.200	1.732	4.08	10.213	12.26	108.4	242.7	669.9
140.00		1.00	1.36	8.049	8.85	0.00	1.200	1.733	0.92	2.277	2.73	24.2	54.8	206.0
142.92	Top - Section 3	1.00	1.36	8.084	8.89	0.00	1.200	1.737	2.92	7.137	8.56	76.2	170.6	643.1
145.00		1.00	1.37	8.108	8.92	0.00	1.200	1.739	2.08	4.997	6.00	53.5	119.9	245.1
150.00		1.00	1.38	8.167	8.98	0.00	1.200	1.745	5.00	11.650	13.98	125.6	276.0	566.5
155.00		1.00	1.39	8.223	9.05	0.00	1.200	1.751	5.00	11.165	13.40	121.2	264.3	540.7
157.00	Appurtenance(s)	1.00	1.39	8.245	9.07	0.00	1.200	1.753	2.00	4.330	5.20	47.1	103.8	210.5
160.00		1.00	1.40	8.278	9.11	0.00	1.200	1.757	3.00	6.349	7.62	69.4	151.5	307.2
165.00		1.00	1.41	8.332	9.17	0.00	1.200	1.762	5.00	10.195	12.23	112.1	240.5	488.8
167.00	Appurtenance(s)	1.00	1.41	8.353	9.19	0.00	1.200	1.764	2.00	3.942	4.73	43.5	94.3	189.7
170.00		1.00	1.42	8.385	9.22	0.00	1.200	1.767	3.00	5.767	6.92	63.8	137.1	275.9
175.00		1.00	1.42	8.436	9.28	0.00	1.200	1.772	5.00	9.224	11.07	102.7	216.3	436.5
176.00		1.00	1.43	8.446	9.29	0.00	1.200	1.773	1.00	1.786	2.14	19.9	42.8	85.1
Totals:									176.00			5,400.3		44,318.0

Discrete Appurtenance Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 20

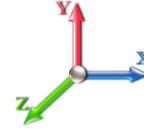


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 26

Dead Load Factor 1.20

Wind Load Factor 1.00



No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	8.353	9.189	0.75	0.75	2.04	165.90	0.000	0.000	18.78	0.00	0.00
2	167.00	Ericsson 4449	3	8.353	9.189	0.68	0.75	4.39	-3861.16	0.000	0.000	40.34	0.00	0.00
3	167.00	Cci OPA65R-BU8DA	6	8.353	9.189	0.55	0.75	66.28	-5721.13	0.000	0.000	608.97	0.00	0.00
4	167.00	Low Profile Platform	1	8.353	9.189	1.00	1.00	46.17	3739.44	0.000	0.000	424.22	0.00	0.00
5	167.00	Ericsson 8843 B2/B66A	3	8.353	9.189	0.60	0.75	3.88	-3880.01	0.000	0.000	35.66	0.00	0.00
6	157.00	RFS	3	8.245	9.070	0.46	0.75	12.27	398.80	0.000	0.000	111.32	0.00	0.00
7	157.00	Ericsson 4480 B71 + B85	3	8.245	9.070	0.50	0.75	5.32	500.59	0.000	0.000	48.23	0.00	0.00
8	157.00	Ericsson 4460 B25 + B66	3	8.245	9.070	0.50	0.75	5.32	515.16	0.000	0.000	48.23	0.00	0.00
9	157.00	SitePro1 RMQP-4096-HK	1	8.245	9.070	1.00	1.00	81.66	4724.94	0.000	0.000	740.66	0.00	0.00
10	157.00	Ericsson AIR6449 B41	3	8.245	9.070	0.56	0.75	11.15	688.94	0.000	0.000	101.09	0.00	0.00
11	157.00	RFS	3	8.245	9.070	0.56	0.75	37.34	2314.80	0.000	0.000	338.67	0.00	0.00
Totals:									-413.72	2,516.18				

Total Applied Force Summary

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 21

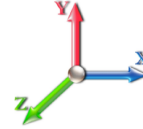


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 26

Dead Load Factor 1.20

Wind Load Factor 1.00



Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		164.16	1902.95	0.00	0.00
10.00		161.40	1900.64	0.00	0.00
15.00		158.45	1884.12	0.00	0.00
20.00		164.90	1861.34	0.00	0.00
25.00		169.41	1834.92	0.00	0.00
30.00		172.45	1806.10	0.00	0.00
35.00		174.40	1775.55	0.00	0.00
40.00		175.51	1743.69	0.00	0.00
45.00		175.95	1710.79	0.00	0.00
45.29		10.21	99.47	0.00	0.00
50.00		167.95	2633.44	0.00	0.00
51.71		60.54	943.71	0.00	0.00
55.00		116.64	1094.54	0.00	0.00
60.00		177.03	1633.27	0.00	0.00
65.00		175.71	1597.77	0.00	0.00
70.00		174.06	1561.82	0.00	0.00
75.00		172.13	1525.47	0.00	0.00
80.00		169.95	1488.75	0.00	0.00
85.00		167.52	1451.72	0.00	0.00
90.00		164.89	1414.40	0.00	0.00
91.42		46.01	394.88	0.00	0.00
95.00		117.51	1510.72	0.00	0.00
96.58		51.32	658.13	0.00	0.00
100.00		109.94	831.50	0.00	0.00
105.00		158.49	1187.20	0.00	0.00
110.00		155.17	1153.65	0.00	0.00
115.00		151.70	1119.91	0.00	0.00
120.00		148.09	1085.99	0.00	0.00
125.00		144.35	1051.90	0.00	0.00
130.00		140.48	1017.64	0.00	0.00
135.00		136.49	983.24	0.00	0.00
139.08		108.35	778.20	0.00	0.00
140.00		24.19	230.29	0.00	0.00
142.92		76.16	720.54	0.00	0.00
145.00		53.48	300.45	0.00	0.00
150.00		125.59	699.77	0.00	0.00
155.00		121.19	674.23	0.00	0.00
157.00	(16) attachments	1435.32	9407.13	0.00	0.00
160.00		69.38	375.58	0.00	0.00
165.00		112.13	603.03	0.00	0.00
167.00	(15) attachments	1171.44	-9321.56	0.00	0.00
170.00		63.83	307.82	0.00	0.00
175.00		102.71	489.88	0.00	0.00
176.00		19.91	95.81	0.00	0.00
Totals:		7,916.48	48,220.36	0.00	0.00

Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 22

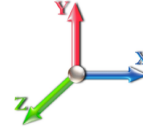


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 26

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.27	1.15	0.00	0.023	0.000	5.036	0.00	12.93
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.47	0.00	0.023	0.000	5.036	0.00	18.85
10.00	Safety Cable	Yes	5.00	0.000	0.27	1.22	0.00	0.024	0.000	5.036	0.00	14.46
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.54	0.00	0.024	0.000	5.036	0.00	20.46
15.00	Safety Cable	Yes	5.00	0.000	0.27	1.27	0.00	0.024	0.000	5.036	0.00	15.46
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.59	0.00	0.024	0.000	5.036	0.00	21.51
20.00	Safety Cable	Yes	5.00	0.000	0.27	1.30	0.00	0.025	0.000	5.343	0.00	16.21
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.62	0.00	0.025	0.000	5.343	0.00	22.31
25.00	Safety Cable	Yes	5.00	0.000	0.27	1.33	0.00	0.025	0.000	5.600	0.00	16.83
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.65	0.00	0.025	0.000	5.600	0.00	22.95
30.00	Safety Cable	Yes	5.00	0.000	0.27	1.35	0.00	0.026	0.000	5.819	0.00	17.35
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.67	0.00	0.026	0.000	5.819	0.00	23.50
35.00	Safety Cable	Yes	5.00	0.000	0.27	1.37	0.00	0.026	0.000	6.011	0.00	17.80
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.69	0.00	0.026	0.000	6.011	0.00	23.98
40.00	Safety Cable	Yes	5.00	0.000	0.27	1.39	0.00	0.027	0.000	6.183	0.00	18.21
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.71	0.00	0.027	0.000	6.183	0.00	24.40
45.00	Safety Cable	Yes	5.00	0.000	0.27	1.40	0.00	0.028	0.000	6.338	0.00	18.58
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.72	0.00	0.028	0.000	6.338	0.00	24.79
45.29	Safety Cable	Yes	0.29	0.000	0.27	0.08	0.00	0.028	0.000	6.347	0.00	1.09
45.29	Step bolts (ladder)	Yes	0.29	0.000	1.04	0.10	0.00	0.028	0.000	6.347	0.00	1.46
50.00	Safety Cable	Yes	4.71	0.000	0.27	1.33	0.00	0.028	0.000	6.480	0.00	17.80
50.00	Step bolts (ladder)	Yes	4.71	0.000	1.04	1.63	0.00	0.028	0.000	6.480	0.00	23.66
51.71	Safety Cable	Yes	1.71	0.000	0.27	0.49	0.00	0.029	0.000	6.526	0.00	6.51
51.71	Step bolts (ladder)	Yes	1.71	0.000	1.04	0.60	0.00	0.029	0.000	6.526	0.00	8.64
55.00	Safety Cable	Yes	3.29	0.000	0.27	0.94	0.00	0.029	0.000	6.612	0.00	12.65
55.00	Step bolts (ladder)	Yes	3.29	0.000	1.04	1.15	0.00	0.029	0.000	6.612	0.00	16.75
60.00	Safety Cable	Yes	5.00	0.000	0.27	1.44	0.00	0.029	0.000	6.734	0.00	19.51
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.76	0.00	0.029	0.000	6.734	0.00	25.76
65.00	Safety Cable	Yes	5.00	0.000	0.27	1.45	0.00	0.030	0.000	6.848	0.00	19.78
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.77	0.00	0.030	0.000	6.848	0.00	26.04
70.00	Safety Cable	Yes	5.00	0.000	0.27	1.46	0.00	0.031	0.000	6.956	0.00	20.03
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.78	0.00	0.031	0.000	6.956	0.00	26.31
75.00	Safety Cable	Yes	5.00	0.000	0.27	1.47	0.00	0.032	0.000	7.058	0.00	20.27
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.79	0.00	0.032	0.000	7.058	0.00	26.56
80.00	Safety Cable	Yes	5.00	0.000	0.27	1.48	0.00	0.033	0.000	7.154	0.00	20.49
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.80	0.00	0.033	0.000	7.154	0.00	26.79
85.00	Safety Cable	Yes	5.00	0.000	0.27	1.49	0.00	0.034	0.000	7.246	0.00	20.71
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.81	0.00	0.034	0.000	7.246	0.00	27.02
90.00	Safety Cable	Yes	5.00	0.000	0.27	1.49	0.00	0.035	0.000	7.334	0.00	20.91
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.82	0.00	0.035	0.000	7.334	0.00	27.23
91.42	Safety Cable	Yes	1.42	0.000	0.27	0.42	0.00	0.036	0.000	7.358	0.00	5.94
91.42	Step bolts (ladder)	Yes	1.42	0.000	1.04	0.51	0.00	0.036	0.000	7.358	0.00	7.73
95.00	Safety Cable	Yes	3.58	0.000	0.27	1.08	0.00	0.036	0.000	7.418	0.00	15.13
95.00	Step bolts (ladder)	Yes	3.58	0.000	1.04	1.31	0.00	0.036	0.000	7.418	0.00	19.66
96.58	Safety Cable	Yes	1.58	0.000	0.27	0.48	0.00	0.037	0.000	7.444	0.00	6.70
96.58	Step bolts (ladder)	Yes	1.58	0.000	1.04	0.58	0.00	0.037	0.000	7.444	0.00	8.71
100.00	Safety Cable	Yes	3.42	0.000	0.27	1.03	0.00	0.037	0.000	7.498	0.00	14.55

Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Page: 23
	Struct Class: II	

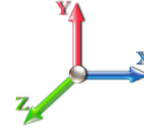


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 26

Dead Load Factor 1.20

Wind Load Factor 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	3.42	0.000	1.04	1.25	0.00	0.037	0.000	7.498	0.00	18.88
105.00	Safety Cable	Yes	5.00	0.000	0.27	1.52	0.00	0.038	0.000	7.576	0.00	21.48
105.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.84	0.00	0.038	0.000	7.576	0.00	27.82
110.00	Safety Cable	Yes	5.00	0.000	0.27	1.52	0.00	0.039	0.000	7.650	0.00	21.65
110.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.84	0.00	0.039	0.000	7.650	0.00	28.00
115.00	Safety Cable	Yes	5.00	0.000	0.27	1.53	0.00	0.041	0.000	7.722	0.00	21.82
115.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.85	0.00	0.041	0.000	7.722	0.00	28.18
120.00	Safety Cable	Yes	5.00	0.000	0.27	1.53	0.00	0.042	0.000	7.792	0.00	21.98
120.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.86	0.00	0.042	0.000	7.792	0.00	28.34
125.00	Safety Cable	Yes	5.00	0.000	0.27	1.54	0.00	0.044	0.000	7.859	0.00	22.14
125.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.86	0.00	0.044	0.000	7.859	0.00	28.51
130.00	Safety Cable	Yes	5.00	0.000	0.27	1.55	0.00	0.045	0.000	7.924	0.00	22.29
130.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.87	0.00	0.045	0.000	7.924	0.00	28.67
135.00	Safety Cable	Yes	5.00	0.000	0.27	1.55	0.00	0.047	0.000	7.987	0.00	22.43
135.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.87	0.00	0.047	0.000	7.987	0.00	28.82
139.08	Safety Cable	Yes	4.08	0.000	0.27	1.27	0.00	0.049	0.000	8.038	0.00	18.42
139.08	Step bolts (ladder)	Yes	4.08	0.000	1.04	1.53	0.00	0.049	0.000	8.038	0.00	23.63
140.00	Safety Cable	Yes	0.92	0.000	0.27	0.29	0.00	0.050	0.000	8.049	0.00	4.14
140.00	Step bolts (ladder)	Yes	0.92	0.000	1.04	0.34	0.00	0.050	0.000	8.049	0.00	5.31
142.92	Safety Cable	Yes	2.92	0.000	0.27	0.91	0.00	0.051	0.000	8.084	0.00	13.22
142.92	Step bolts (ladder)	Yes	2.92	0.000	1.04	1.10	0.00	0.051	0.000	8.084	0.00	16.95
145.00	Safety Cable	Yes	2.08	0.000	0.27	0.65	0.00	0.052	0.000	8.108	0.00	9.46
145.00	Step bolts (ladder)	Yes	2.08	0.000	1.04	0.78	0.00	0.052	0.000	8.108	0.00	12.13
150.00	Safety Cable	Yes	5.00	0.000	0.27	1.57	0.00	0.054	0.000	8.167	0.00	22.85
150.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.89	0.00	0.054	0.000	8.167	0.00	29.25
155.00	Safety Cable	Yes	5.00	0.000	0.27	1.57	0.00	0.056	0.000	8.223	0.00	22.98
155.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.89	0.00	0.056	0.000	8.223	0.00	29.39
157.00	Safety Cable	Yes	2.00	0.000	0.27	0.63	0.00	0.058	0.000	8.245	0.00	9.21
157.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.76	0.00	0.058	0.000	8.245	0.00	11.78
160.00	Safety Cable	Yes	3.00	0.000	0.27	0.95	0.00	0.060	0.000	8.278	0.00	13.86
160.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	1.14	0.00	0.060	0.000	8.278	0.00	17.71
165.00	Safety Cable	Yes	5.00	0.000	0.27	1.58	0.00	0.063	0.000	8.332	0.00	23.23
165.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.90	0.00	0.063	0.000	8.332	0.00	29.65
167.00	Safety Cable	Yes	2.00	0.000	0.27	0.63	0.00	0.065	0.000	8.353	0.00	9.31
167.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.76	0.00	0.065	0.000	8.353	0.00	11.88
170.00	Safety Cable	Yes	3.00	0.000	0.27	0.95	0.00	0.067	0.000	8.385	0.00	14.01
170.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	1.14	0.00	0.067	0.000	8.385	0.00	17.87
175.00	Safety Cable	Yes	5.00	0.000	0.27	1.59	0.00	0.070	0.000	8.436	0.00	23.47
175.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	1.91	0.00	0.070	0.000	8.436	0.00	29.90
176.00	Safety Cable	Yes	1.00	0.000	0.27	0.32	0.00	0.073	0.000	8.446	0.00	4.70
176.00	Step bolts (ladder)	Yes	1.00	0.000	1.04	0.38	0.00	0.073	0.000	8.446	0.00	5.98
Totals:											0.0	1,646.3

Calculated Forces

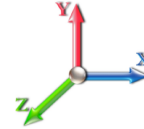
Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 24



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

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.00



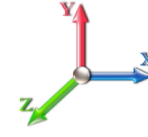
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-57.54	-7.94	0.00	-914.13	0.00	914.13	4317.41	1172.35	5459.17	4991.62	0.00	0.000	0.000	0.197
5.00	-55.63	-7.82	0.00	-874.43	0.00	874.43	4266.06	1148.16	5236.29	4829.83	0.03	-0.048	0.000	0.194
10.00	-53.72	-7.70	0.00	-835.33	0.00	835.33	4213.11	1123.98	5018.05	4668.75	0.10	-0.097	0.000	0.192
15.00	-51.83	-7.59	0.00	-796.81	0.00	796.81	4158.58	1099.80	4804.45	4508.49	0.23	-0.146	0.000	0.189
20.00	-49.96	-7.46	0.00	-758.87	0.00	758.87	4102.46	1075.62	4595.50	4349.16	0.41	-0.197	0.000	0.187
25.00	-48.12	-7.33	0.00	-721.57	0.00	721.57	4044.75	1051.44	4391.20	4190.89	0.64	-0.248	0.000	0.184
30.00	-46.31	-7.19	0.00	-684.93	0.00	684.93	3985.45	1027.26	4191.54	4033.77	0.93	-0.300	0.000	0.181
35.00	-44.53	-7.05	0.00	-648.99	0.00	648.99	3924.57	1003.08	3996.52	3877.94	1.27	-0.353	0.000	0.179
40.00	-42.78	-6.90	0.00	-613.76	0.00	613.76	3862.10	978.89	3806.15	3723.50	1.67	-0.407	0.000	0.176
45.00	-41.07	-6.73	0.00	-579.26	0.00	579.26	3798.04	954.71	3620.43	3570.56	2.13	-0.462	0.000	0.173
45.29	-40.97	-6.74	0.00	-577.28	0.00	577.28	3794.23	953.29	3609.68	3561.64	2.16	-0.465	0.000	0.173
50.00	-38.33	-6.57	0.00	-545.56	0.00	545.56	3732.39	930.53	3439.35	3419.25	2.64	-0.518	0.000	0.170
51.71	-37.38	-6.52	0.00	-534.32	0.00	534.32	3752.64	937.93	3494.24	3465.35	2.83	-0.537	0.000	0.164
55.00	-36.29	-6.43	0.00	-512.85	0.00	512.85	3708.89	922.02	3376.69	3366.37	3.21	-0.575	0.000	0.162
60.00	-34.65	-6.27	0.00	-480.73	0.00	480.73	3641.10	897.83	3201.89	3217.43	3.85	-0.630	0.000	0.159
65.00	-33.05	-6.10	0.00	-449.40	0.00	449.40	3571.72	873.65	3031.74	3070.38	4.54	-0.685	0.000	0.156
70.00	-31.48	-5.94	0.00	-418.89	0.00	418.89	3500.75	849.47	2866.23	2925.34	5.28	-0.742	0.000	0.152
75.00	-29.95	-5.78	0.00	-389.18	0.00	389.18	3428.19	825.29	2705.37	2782.41	6.09	-0.798	0.000	0.149
80.00	-28.46	-5.62	0.00	-360.30	0.00	360.30	3354.04	801.11	2549.16	2641.72	6.96	-0.856	0.000	0.145
85.00	-27.01	-5.45	0.00	-332.22	0.00	332.22	3278.31	776.93	2397.59	2503.38	7.88	-0.914	0.000	0.141
90.00	-25.59	-5.28	0.00	-304.96	0.00	304.96	3186.62	752.74	2250.66	2356.87	8.87	-0.972	0.000	0.137
91.42	-25.19	-5.24	0.00	-297.48	0.00	297.48	3157.61	745.89	2209.88	2313.94	9.16	-0.990	0.000	0.137
95.00	-23.68	-5.11	0.00	-278.69	0.00	278.69	3084.25	728.56	2108.38	2207.12	9.92	-1.033	0.000	0.134
96.58	-23.02	-5.06	0.00	-270.60	0.00	270.60	2497.75	612.72	1789.46	1807.21	10.27	-1.052	0.000	0.159
100.00	-22.19	-4.96	0.00	-253.31	0.00	253.31	2457.75	598.95	1709.93	1737.95	11.04	-1.093	0.000	0.155
105.00	-21.00	-4.80	0.00	-228.54	0.00	228.54	2397.86	578.80	1596.81	1638.04	12.22	-1.160	0.000	0.148
110.00	-19.84	-4.64	0.00	-204.55	0.00	204.55	2336.39	558.65	1487.56	1539.96	13.47	-1.227	0.000	0.141
115.00	-18.72	-4.49	0.00	-181.34	0.00	181.34	2273.33	538.50	1382.18	1443.83	14.79	-1.293	0.000	0.134
120.00	-17.64	-4.33	0.00	-158.90	0.00	158.90	2194.33	518.35	1280.67	1340.98	16.18	-1.359	0.000	0.127
125.00	-16.58	-4.18	0.00	-137.24	0.00	137.24	2109.02	498.19	1183.03	1238.23	17.64	-1.422	0.000	0.119
130.00	-15.56	-4.03	0.00	-116.33	0.00	116.33	2023.72	478.04	1089.26	1139.56	19.16	-1.484	0.000	0.110
135.00	-14.58	-3.88	0.00	-96.17	0.00	96.17	1938.41	457.89	999.36	1045.00	20.75	-1.542	0.000	0.100
139.08	-13.81	-3.76	0.00	-80.31	0.00	80.31	1868.74	441.44	928.82	970.81	22.09	-1.587	0.000	0.090
140.00	-13.57	-3.73	0.00	-76.87	0.00	76.87	1853.10	437.74	913.34	954.53	22.39	-1.597	0.000	0.088
142.92	-12.85	-3.64	0.00	-65.97	0.00	65.97	1006.21	260.81	540.39	517.20	23.38	-1.627	0.000	0.141
145.00	-12.55	-3.59	0.00	-58.38	0.00	58.38	993.78	255.78	519.71	500.86	24.09	-1.647	0.000	0.129
150.00	-11.85	-3.46	0.00	-40.43	0.00	40.43	962.80	243.69	471.74	462.14	25.85	-1.710	0.000	0.100
155.00	-11.18	-3.32	0.00	-23.15	0.00	23.15	930.24	231.59	426.09	424.18	27.67	-1.758	0.000	0.067
157.00	-1.82	-1.60	0.00	-16.51	0.00	16.51	916.77	226.76	408.48	409.23	28.41	-1.771	0.000	0.042
160.00	-1.45	-1.52	0.00	-11.72	0.00	11.72	896.09	219.50	382.76	387.10	29.53	-1.787	0.000	0.032
165.00	-0.85	-1.39	0.00	-4.14	0.00	4.14	860.35	207.41	341.76	351.00	31.41	-1.803	0.000	0.013
167.00	-0.89	-0.21	0.00	-1.37	0.00	1.37	845.61	202.58	326.00	336.87	32.17	-1.806	0.000	0.005
170.00	-0.58	-0.14	0.00	-0.73	0.00	0.73	823.02	195.32	303.07	316.02	33.30	-1.808	0.000	0.003
175.00	-0.10	-0.02	0.00	-0.02	0.00	0.02	775.68	183.23	266.71	279.22	35.19	-1.809	0.000	0.000
176.00	0.00	-0.02	0.00	0.00	0.00	0.00	765.44	180.81	259.72	271.86	35.57	-1.809	0.000	0.000

Seismic Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 25



Load Case: 1.2D + 1.0Ev + 1.0Eh						Iterations 24
Gust Response Factor	1.10			Sds 0.19		Ss 0.18
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1 0.09		S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.31	SA 0.03	Seismic Importance Factor	1.00



Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	
0.00		0.00	0.00	0.00	0.00	
5.00		1213.8	2.50	46.87	0.01	
10.00		1190.3	7.50	45.96	0.07	
15.00		1166.9	12.50	45.06	0.18	
20.00		1143.4	17.50	44.15	0.33	
25.00		1120.0	22.50	43.25	0.53	
30.00		1096.6	27.50	42.34	0.76	
35.00		1073.1	32.50	41.44	1.01	
40.00		1049.7	37.50	40.53	1.29	
45.00		1026.2	42.50	39.63	1.59	
45.29	Bot - Section 2	59.48	45.15	2.30	0.01	
50.00		1817.2	47.65	70.17	6.25	
51.71	Top - Section 1	649.93	50.86	25.10	0.91	
55.00		651.79	53.36	25.17	1.01	
60.00		971.13	57.50	37.50	2.60	
65.00		947.68	62.50	36.59	2.93	
70.00		924.24	67.50	35.69	3.25	
75.00		900.80	72.50	34.78	3.56	
80.00		877.35	77.50	33.88	3.86	
85.00		853.91	82.50	32.97	4.14	
90.00		830.47	87.50	32.07	4.40	
91.42	Bot - Section 3	231.04	90.71	8.92	0.37	
95.00		1011.1	93.21	39.04	7.41	
96.58	Top - Section 2	439.75	95.79	16.98	1.48	
100.00		462.16	98.29	17.85	1.72	
105.00		659.89	102.50	25.48	3.82	
110.00		640.35	107.50	24.73	3.95	
115.00		620.81	112.50	23.97	4.07	
120.00		601.28	117.50	23.22	4.16	
125.00		581.74	122.50	22.46	4.24	
130.00		562.21	127.50	21.71	4.29	
135.00		542.67	132.50	20.95	4.31	
139.08	Bot - Section 4	428.69	137.04	16.55	2.88	
140.00		142.25	139.54	5.49	0.33	
142.92	Top - Section 3	445.63	141.46	17.21	3.31	
145.00		141.42	143.96	5.46	0.35	
150.00		331.10	147.50	12.78	1.99	
155.00		319.38	152.50	12.33	1.98	
157.00	Appurtenance(s)	4025.4	156.00	155.44	328.90	
160.00		171.31	158.50	6.61	0.61	
165.00		276.14	162.50	10.66	1.68	
167.00	Appurtenance(s)	2701.7	166.00	104.32	167.76	
170.00		120.45	168.50	4.65	0.34	
175.00		191.37	172.50	7.39	0.91	
176.00		36.87	175.50	1.42	0.03	
Totals:		35,249.2		1,361.1	589.6	Total Wind: 27,834.0

Seismic Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

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Calculated Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 27



Load Case: 1.2D + 1.0Ev + 1.0Eh

Iterations 24

Gust Response Factor 1.10

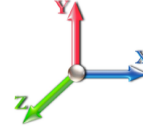
Sds 0.19

Ss 0.18

Dead Load Factor 1.20 **Seismic Load Factor** 1.00 **Sd1** 0.09

S1 0.06

Wind Load Factor 0.00 **Structure Frequency (f1)** 0.31 **SA** 0.03 **Seismic Importance Factor** 1.00



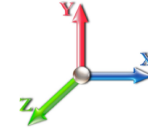
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-43.07	-0.59	0.00	-93.68	0.00	93.68	4317.41	1172.35	5459.17	4991.62	0.00	0.00	0.00	0.029
5.00	-41.59	-0.59	0.00	-90.72	0.00	90.72	4266.06	1148.16	5236.29	4829.83	0.00	0.00	0.00	0.029
10.00	-40.13	-0.60	0.00	-87.75	0.00	87.75	4213.11	1123.98	5018.05	4668.75	0.01	-0.01	0.00	0.028
15.00	-38.70	-0.60	0.00	-84.77	0.00	84.77	4158.58	1099.80	4804.45	4508.49	0.02	-0.02	0.00	0.028
20.00	-37.30	-0.60	0.00	-81.76	0.00	81.76	4102.46	1075.62	4595.50	4349.16	0.04	-0.02	0.00	0.028
25.00	-35.93	-0.61	0.00	-78.75	0.00	78.75	4044.75	1051.44	4391.20	4190.89	0.07	-0.03	0.00	0.028
30.00	-34.59	-0.61	0.00	-75.72	0.00	75.72	3985.45	1027.26	4191.54	4033.77	0.10	-0.03	0.00	0.027
35.00	-33.28	-0.61	0.00	-72.68	0.00	72.68	3924.57	1003.08	3996.52	3877.94	0.13	-0.04	0.00	0.027
40.00	-32.00	-0.61	0.00	-69.63	0.00	69.63	3862.10	978.89	3806.15	3723.50	0.18	-0.04	0.00	0.027
45.00	-30.74	-0.61	0.00	-66.58	0.00	66.58	3798.04	954.71	3620.43	3570.56	0.23	-0.05	0.00	0.027
45.29	-30.67	-0.61	0.00	-66.40	0.00	66.40	3794.23	953.29	3609.68	3561.64	0.23	-0.05	0.00	0.027
50.00	-28.44	-0.61	0.00	-63.52	0.00	63.52	3732.39	930.53	3439.35	3419.25	0.28	-0.06	0.00	0.026
51.71	-27.64	-0.61	0.00	-62.48	0.00	62.48	3752.64	937.93	3494.24	3465.35	0.30	-0.06	0.00	0.025
55.00	-26.84	-0.61	0.00	-60.49	0.00	60.49	3708.89	922.02	3376.69	3366.37	0.35	-0.06	0.00	0.025
60.00	-25.66	-0.60	0.00	-57.46	0.00	57.46	3641.10	897.83	3201.89	3217.43	0.42	-0.07	0.00	0.025
65.00	-24.50	-0.60	0.00	-54.44	0.00	54.44	3571.72	873.65	3031.74	3070.38	0.49	-0.08	0.00	0.025
70.00	-23.38	-0.60	0.00	-51.42	0.00	51.42	3500.75	849.47	2866.23	2925.34	0.58	-0.08	0.00	0.024
75.00	-22.28	-0.60	0.00	-48.41	0.00	48.41	3428.19	825.29	2705.37	2782.41	0.67	-0.09	0.00	0.024
80.00	-21.21	-0.60	0.00	-45.42	0.00	45.42	3354.04	801.11	2549.16	2641.72	0.77	-0.10	0.00	0.024
85.00	-20.17	-0.59	0.00	-42.44	0.00	42.44	3278.31	776.93	2397.59	2503.38	0.87	-0.10	0.00	0.023
90.00	-19.16	-0.59	0.00	-39.47	0.00	39.47	3186.62	752.74	2250.66	2356.87	0.99	-0.11	0.00	0.023
91.42	-18.88	-0.59	0.00	-38.64	0.00	38.64	3157.61	745.89	2209.88	2313.94	1.02	-0.11	0.00	0.023
95.00	-17.64	-0.58	0.00	-36.53	0.00	36.53	3084.25	728.56	2108.38	2207.12	1.11	-0.12	0.00	0.022
96.58	-17.10	-0.58	0.00	-35.61	0.00	35.61	2497.75	612.72	1789.46	1807.21	1.15	-0.12	0.00	0.027
100.00	-16.54	-0.58	0.00	-33.64	0.00	33.64	2457.75	598.95	1709.93	1737.95	1.24	-0.13	0.00	0.026
105.00	-15.74	-0.57	0.00	-30.75	0.00	30.75	2397.86	578.80	1596.81	1638.04	1.38	-0.14	0.00	0.025
110.00	-14.96	-0.57	0.00	-27.88	0.00	27.88	2336.39	558.65	1487.56	1539.96	1.53	-0.15	0.00	0.025
115.00	-14.21	-0.57	0.00	-25.02	0.00	25.02	2273.33	538.50	1382.18	1443.83	1.68	-0.16	0.00	0.024
120.00	-13.48	-0.56	0.00	-22.19	0.00	22.19	2194.33	518.35	1280.67	1340.98	1.85	-0.16	0.00	0.023
125.00	-12.78	-0.56	0.00	-19.37	0.00	19.37	2109.02	498.19	1183.03	1238.23	2.03	-0.17	0.00	0.022
130.00	-12.10	-0.55	0.00	-16.58	0.00	16.58	2023.72	478.04	1089.26	1139.56	2.22	-0.18	0.00	0.021
135.00	-11.45	-0.55	0.00	-13.81	0.00	13.81	1938.41	457.89	999.36	1045.00	2.41	-0.19	0.00	0.019
139.08	-10.93	-0.55	0.00	-11.57	0.00	11.57	1868.74	441.44	928.82	970.81	2.58	-0.20	0.00	0.018
140.00	-10.76	-0.55	0.00	-11.07	0.00	11.07	1853.10	437.74	913.34	954.53	2.61	-0.20	0.00	0.017
142.92	-10.22	-0.54	0.00	-9.48	0.00	9.48	1006.21	260.81	540.39	517.20	2.74	-0.20	0.00	0.028
145.00	-10.05	-0.54	0.00	-8.35	0.00	8.35	993.78	255.78	519.71	500.86	2.83	-0.21	0.00	0.027
150.00	-9.66	-0.54	0.00	-5.65	0.00	5.65	962.80	243.69	471.74	462.14	3.05	-0.21	0.00	0.022
155.00	-9.28	-0.54	0.00	-2.95	0.00	2.95	930.24	231.59	426.09	424.18	3.27	-0.22	0.00	0.017
157.00	-4.30	-0.19	0.00	-1.88	0.00	1.88	916.77	226.76	408.48	409.23	3.37	-0.22	0.00	0.009
160.00	-4.10	-0.19	0.00	-1.32	0.00	1.32	896.09	219.50	382.76	387.10	3.51	-0.22	0.00	0.008
165.00	-3.77	-0.18	0.00	-0.39	0.00	0.39	860.35	207.41	341.76	351.00	3.74	-0.23	0.00	0.005
167.00	-0.43	0.00	0.00	-0.02	0.00	0.02	845.61	202.58	326.00	336.87	3.84	-0.23	0.00	0.001
170.00	-0.28	0.00	0.00	-0.01	0.00	0.01	823.02	195.32	303.07	316.02	3.98	-0.23	0.00	0.000
175.00	-0.05	0.00	0.00	0.00	0.00	0.00	775.68	183.23	266.71	279.22	4.22	-0.23	0.00	0.000
176.00	0.00	0.00	0.00	0.00	0.00	0.00	765.44	180.81	259.72	271.86	4.27	-0.23	0.00	0.000

Seismic Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0Ev + 1.0Eh						Iterations 24
Gust Response Factor	1.10			Sds	0.19	Ss 0.18
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.09	S1 0.06
Wind Load Factor	0.00	Structure Frequency (f1)	0.31	SA	0.03	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	Hz (lb)	Vertical Ev (lb)	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	
5.00		1191.5	2.50	46.01	0.01	
10.00		1168.1	7.50	45.10	0.06	
15.00		1144.6	12.50	44.20	0.17	
20.00		1121.2	17.50	43.29	0.33	
25.00		1097.7	22.50	42.39	0.52	
30.00		1074.3	27.50	41.48	0.74	
35.00		1050.9	32.50	40.58	0.99	
40.00		1027.4	37.50	39.67	1.25	
45.00		1004.0	42.50	38.77	1.54	
45.29	Bot - Section 2	58.17	45.15	2.25	0.01	
50.00		1796.2	47.65	69.36	6.19	
51.71	Top - Section 1	642.32	50.86	24.80	0.90	
55.00		637.15	53.36	24.60	0.98	
60.00		948.88	57.50	36.64	2.52	
65.00		925.43	62.50	35.73	2.83	
70.00		901.99	67.50	34.83	3.13	
75.00		878.55	72.50	33.92	3.43	
80.00		855.11	77.50	33.02	3.71	
85.00		831.66	82.50	32.11	3.98	
90.00		808.22	87.50	31.21	4.23	
91.42	Bot - Section 3	224.73	90.71	8.68	0.35	
95.00		995.20	93.21	38.43	7.27	
96.58	Top - Section 2	432.71	95.79	16.71	1.45	
100.00		446.95	98.29	17.26	1.63	
105.00		637.64	102.50	24.62	3.61	
110.00		618.10	107.50	23.87	3.73	
115.00		598.56	112.50	23.11	3.83	
120.00		579.03	117.50	22.36	3.91	
125.00		559.49	122.50	21.60	3.97	
130.00		539.96	127.50	20.85	4.01	
135.00		520.42	132.50	20.10	4.02	
139.08	Bot - Section 4	410.52	137.04	15.85	2.68	
140.00		138.17	139.54	5.34	0.31	
142.92	Top - Section 3	432.65	141.46	16.71	3.17	
145.00		132.15	143.96	5.10	0.31	
150.00		308.85	147.50	11.93	1.75	
155.00		297.13	152.50	11.47	1.74	
157.00	Appurtenance(s)	4016.5	156.00	155.09	331.85	
160.00		160.93	158.50	6.21	0.55	
165.00		258.84	162.50	9.99	1.50	
167.00	Appurtenance(s)	2694.8	166.00	104.06	169.15	
170.00		119.27	168.50	4.61	0.34	
175.00		189.40	172.50	7.31	0.90	
176.00		36.47	175.50	1.41	0.03	
Totals:		34,512.4		1,332.6	589.6	Total Wind: 27,834.0

Seismic Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Calculated Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0Ev + 1.0Eh



Iterations 24

Gust Response Factor 1.10	Sds 0.19	Ss 0.18
Dead Load Factor 0.90	Seismic Load Factor 1.00	Sd1 0.09
Wind Load Factor 0.00	Structure Frequency (f1) 0.31	SA 0.03
		Seismic Importance Factor 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-32.61	-0.59	0.00	-92.64	0.00	92.64	4317.41	1172.35	5459.17	4991.62	0.00	0.00	0.00	0.026
5.00	-31.49	-0.59	0.00	-89.69	0.00	89.69	4266.06	1148.16	5236.29	4829.83	0.00	0.00	0.00	0.026
10.00	-30.39	-0.60	0.00	-86.73	0.00	86.73	4213.11	1123.98	5018.05	4668.75	0.01	-0.01	0.00	0.026
15.00	-29.31	-0.60	0.00	-83.75	0.00	83.75	4158.58	1099.80	4804.45	4508.49	0.02	-0.02	0.00	0.026
20.00	-28.25	-0.60	0.00	-80.77	0.00	80.77	4102.46	1075.62	4595.50	4349.16	0.04	-0.02	0.00	0.025
25.00	-27.21	-0.60	0.00	-77.77	0.00	77.77	4044.75	1051.44	4391.20	4190.89	0.07	-0.03	0.00	0.025
30.00	-26.19	-0.60	0.00	-74.76	0.00	74.76	3985.45	1027.26	4191.54	4033.77	0.10	-0.03	0.00	0.025
35.00	-25.20	-0.60	0.00	-71.75	0.00	71.75	3924.57	1003.08	3996.52	3877.94	0.13	-0.04	0.00	0.025
40.00	-24.23	-0.60	0.00	-68.73	0.00	68.73	3862.10	978.89	3806.15	3723.50	0.18	-0.04	0.00	0.025
45.00	-23.28	-0.60	0.00	-65.71	0.00	65.71	3798.04	954.71	3620.43	3570.56	0.22	-0.05	0.00	0.025
45.29	-23.23	-0.60	0.00	-65.53	0.00	65.53	3794.23	953.29	3609.68	3561.64	0.23	-0.05	0.00	0.025
50.00	-21.53	-0.60	0.00	-62.68	0.00	62.68	3732.39	930.53	3439.35	3419.25	0.28	-0.06	0.00	0.024
51.71	-20.93	-0.60	0.00	-61.66	0.00	61.66	3752.64	937.93	3494.24	3465.35	0.30	-0.06	0.00	0.023
55.00	-20.33	-0.60	0.00	-59.69	0.00	59.69	3708.89	922.02	3376.69	3366.37	0.34	-0.06	0.00	0.023
60.00	-19.43	-0.60	0.00	-56.70	0.00	56.70	3641.10	897.83	3201.89	3217.43	0.41	-0.07	0.00	0.023
65.00	-18.55	-0.60	0.00	-53.72	0.00	53.72	3571.72	873.65	3031.74	3070.38	0.49	-0.08	0.00	0.023
70.00	-17.70	-0.59	0.00	-50.74	0.00	50.74	3500.75	849.47	2866.23	2925.34	0.57	-0.08	0.00	0.022
75.00	-16.87	-0.59	0.00	-47.77	0.00	47.77	3428.19	825.29	2705.37	2782.41	0.66	-0.09	0.00	0.022
80.00	-16.06	-0.59	0.00	-44.82	0.00	44.82	3354.04	801.11	2549.16	2641.72	0.76	-0.10	0.00	0.022
85.00	-15.27	-0.58	0.00	-41.88	0.00	41.88	3278.31	776.93	2397.59	2503.38	0.86	-0.10	0.00	0.021
90.00	-14.51	-0.58	0.00	-38.96	0.00	38.96	3186.62	752.74	2250.66	2356.87	0.97	-0.11	0.00	0.021
91.42	-14.29	-0.58	0.00	-38.14	0.00	38.14	3157.61	745.89	2209.88	2313.94	1.01	-0.11	0.00	0.021
95.00	-13.35	-0.57	0.00	-36.06	0.00	36.06	3084.25	728.56	2108.38	2207.12	1.09	-0.12	0.00	0.021
96.58	-12.95	-0.57	0.00	-35.16	0.00	35.16	2497.75	612.72	1789.46	1807.21	1.13	-0.12	0.00	0.025
100.00	-12.52	-0.57	0.00	-33.21	0.00	33.21	2457.75	598.95	1709.93	1737.95	1.22	-0.13	0.00	0.024
105.00	-11.92	-0.57	0.00	-30.36	0.00	30.36	2397.86	578.80	1596.81	1638.04	1.36	-0.14	0.00	0.024
110.00	-11.33	-0.56	0.00	-27.53	0.00	27.53	2336.39	558.65	1487.56	1539.96	1.51	-0.14	0.00	0.023
115.00	-10.76	-0.56	0.00	-24.72	0.00	24.72	2273.33	538.50	1382.18	1443.83	1.66	-0.15	0.00	0.022
120.00	-10.21	-0.56	0.00	-21.92	0.00	21.92	2194.33	518.35	1280.67	1340.98	1.83	-0.16	0.00	0.021
125.00	-9.68	-0.55	0.00	-19.14	0.00	19.14	2109.02	498.19	1183.03	1238.23	2.00	-0.17	0.00	0.020
130.00	-9.17	-0.55	0.00	-16.39	0.00	16.39	2023.72	478.04	1089.26	1139.56	2.19	-0.18	0.00	0.019
135.00	-8.67	-0.54	0.00	-13.65	0.00	13.65	1938.41	457.89	999.36	1045.00	2.38	-0.19	0.00	0.018
139.08	-8.28	-0.54	0.00	-11.43	0.00	11.43	1868.74	441.44	928.82	970.81	2.54	-0.19	0.00	0.016
140.00	-8.15	-0.54	0.00	-10.94	0.00	10.94	1853.10	437.74	913.34	954.53	2.58	-0.20	0.00	0.016
142.92	-7.74	-0.53	0.00	-9.37	0.00	9.37	1006.21	260.81	540.39	517.20	2.70	-0.20	0.00	0.026
145.00	-7.61	-0.54	0.00	-8.25	0.00	8.25	993.78	255.78	519.71	500.86	2.79	-0.20	0.00	0.024
150.00	-7.32	-0.53	0.00	-5.58	0.00	5.58	962.80	243.69	471.74	462.14	3.01	-0.21	0.00	0.020
155.00	-7.03	-0.53	0.00	-2.91	0.00	2.91	930.24	231.59	426.09	424.18	3.23	-0.22	0.00	0.014
157.00	-3.26	-0.18	0.00	-1.85	0.00	1.85	916.77	226.76	408.48	409.23	3.33	-0.22	0.00	0.008
160.00	-3.10	-0.18	0.00	-1.30	0.00	1.30	896.09	219.50	382.76	387.10	3.46	-0.22	0.00	0.007
165.00	-2.86	-0.18	0.00	-0.38	0.00	0.38	860.35	207.41	341.76	351.00	3.70	-0.22	0.00	0.004
167.00	-0.33	0.00	0.00	-0.02	0.00	0.02	845.61	202.58	326.00	336.87	3.79	-0.22	0.00	0.000
170.00	-0.21	0.00	0.00	-0.01	0.00	0.01	823.02	195.32	303.07	316.02	3.93	-0.22	0.00	0.000
175.00	-0.03	0.00	0.00	0.00	0.00	0.00	775.68	183.23	266.71	279.22	4.17	-0.22	0.00	0.000
176.00	0.00	0.00	0.00	0.00	0.00	0.00	765.44	180.81	259.72	271.86	4.21	-0.22	0.00	0.000

Wind Loading - Shaft

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

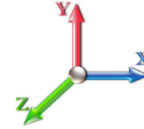


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 26

Dead Load Factor 1.00
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	6.488	7.14	261.07	0.730	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	6.488	7.14	255.72	0.730	0.000	5.00	23.660	17.27	123.3	0.0	1124.8
10.00		1.00	0.85	6.488	7.14	250.37	0.730	0.000	5.00	23.170	16.91	120.7	0.0	1101.4
15.00		1.00	0.85	6.488	7.14	245.02	0.730	0.000	5.00	22.680	16.56	118.2	0.0	1077.9
20.00		1.00	0.90	6.884	7.57	246.88	0.730	0.000	5.00	22.191	16.20	122.7	0.0	1054.5
25.00		1.00	0.95	7.216	7.94	247.11	0.730	0.000	5.00	21.701	15.84	125.7	0.0	1031.0
30.00		1.00	0.98	7.498	8.25	246.14	0.730	0.000	5.00	21.211	15.48	127.7	0.0	1007.6
35.00		1.00	1.01	7.745	8.52	244.33	0.730	0.000	5.00	20.721	15.13	128.9	0.0	984.2
40.00		1.00	1.04	7.966	8.76	241.86	0.730	0.000	5.00	20.231	14.77	129.4	0.0	960.7
45.00		1.00	1.07	8.166	8.98	238.87	0.730	0.000	5.00	19.742	14.41	129.5	0.0	937.3
45.29	Bot - Section 2	1.00	1.07	8.177	9.00	238.68	0.730	0.000	0.29	1.143	0.83	7.5	0.0	54.3
50.00		1.00	1.09	8.349	9.18	235.47	0.730	0.000	4.71	18.407	13.44	123.4	0.0	1733.4
51.71	Top - Section 1	1.00	1.10	8.409	9.25	234.22	0.730	0.000	1.71	6.580	4.80	44.4	0.0	619.5
55.00		1.00	1.12	8.518	9.37	235.68	0.730	0.000	3.29	12.499	9.12	85.5	0.0	593.2
60.00		1.00	1.14	8.676	9.54	231.67	0.730	0.000	5.00	18.589	13.57	129.5	0.0	882.1
65.00		1.00	1.16	8.823	9.71	227.39	0.730	0.000	5.00	18.100	13.21	128.2	0.0	858.7
70.00		1.00	1.17	8.962	9.86	222.88	0.730	0.000	5.00	17.610	12.86	126.7	0.0	835.2
75.00		1.00	1.19	9.093	10.00	218.18	0.730	0.000	5.00	17.120	12.50	125.0	0.0	811.8
80.00		1.00	1.21	9.218	10.14	213.29	0.730	0.000	5.00	16.630	12.14	123.1	0.0	788.4
85.00		1.00	1.22	9.336	10.27	208.24	0.730	0.000	5.00	16.140	11.78	121.0	0.0	764.9
90.00		1.00	1.24	9.449	10.39	203.04	0.730	0.000	5.00	15.651	11.42	118.8	0.0	741.5
91.42	Bot - Section 3	1.00	1.24	9.480	10.43	201.54	0.730	0.000	1.42	4.345	3.17	33.1	0.0	205.8
95.00		1.00	1.25	9.557	10.51	197.70	0.730	0.000	3.58	11.005	8.03	84.5	0.0	947.4
96.58	Top - Section 2	1.00	1.26	9.591	10.55	195.99	0.730	0.000	1.58	4.783	3.49	36.8	0.0	411.6
100.00		1.00	1.27	9.661	10.63	195.77	0.730	0.000	3.42	10.153	7.41	78.8	0.0	401.3
105.00		1.00	1.28	9.761	10.74	190.22	0.730	0.000	5.00	14.446	10.55	113.2	0.0	570.9
110.00		1.00	1.29	9.857	10.84	184.56	0.730	0.000	5.00	13.956	10.19	110.5	0.0	551.4
115.00		1.00	1.30	9.950	10.94	178.80	0.730	0.000	5.00	13.466	9.83	107.6	0.0	531.8
120.00		1.00	1.32	10.039	11.04	172.95	0.730	0.000	5.00	12.976	9.47	104.6	0.0	512.3
125.00		1.00	1.33	10.126	11.14	167.01	0.730	0.000	5.00	12.486	9.12	101.5	0.0	492.7
130.00		1.00	1.34	10.210	11.23	160.99	0.730	0.000	5.00	11.997	8.76	98.4	0.0	473.2
135.00		1.00	1.35	10.291	11.32	154.90	0.730	0.000	5.00	11.507	8.40	95.1	0.0	453.7
139.08	Bot - Section 4	1.00	1.36	10.356	11.39	149.86	0.730	0.000	4.08	9.034	6.59	75.1	0.0	356.0
140.00		1.00	1.36	10.370	11.41	148.73	0.730	0.000	0.92	2.012	1.47	16.8	0.0	125.9
142.92	Top - Section 3	1.00	1.36	10.415	11.46	145.10	0.730	0.000	2.92	6.293	4.59	52.6	0.0	393.7
145.00		1.00	1.37	10.447	11.49	144.69	0.730	0.000	2.08	4.393	3.21	36.9	0.0	104.3
150.00		1.00	1.38	10.522	11.57	138.40	0.730	0.000	5.00	10.196	7.44	86.1	0.0	242.1
155.00		1.00	1.39	10.595	11.65	132.04	0.730	0.000	5.00	9.706	7.09	82.6	0.0	230.4
157.00	Appurtenance(s)	1.00	1.39	10.623	11.69	129.48	0.730	0.000	2.00	3.745	2.73	32.0	0.0	88.9
160.00		1.00	1.40	10.666	11.73	125.62	0.730	0.000	3.00	5.471	3.99	46.9	0.0	129.8
165.00		1.00	1.41	10.735	11.81	119.15	0.730	0.000	5.00	8.727	6.37	75.2	0.0	206.9
167.00	Appurtenance(s)	1.00	1.41	10.762	11.84	116.54	0.730	0.000	2.00	3.354	2.45	29.0	0.0	79.5
170.00		1.00	1.42	10.803	11.88	112.62	0.730	0.000	3.00	4.883	3.56	42.4	0.0	115.7
175.00		1.00	1.42	10.869	11.96	106.04	0.730	0.000	5.00	7.747	5.66	67.6	0.0	183.5
176.00		1.00	1.43	10.882	11.97	104.72	0.730	0.000	1.00	1.491	1.09	13.0	0.0	35.3
Totals:									176.00			3,879.3		25,806.5

Discrete Appurtenance Forces

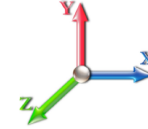
Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	167.00	Raycap DC6-48-60-18-8F	2	10.762	11.839	0.75	0.75	1.38	63.60	0.000	0.000	16.34	0.00	0.00
2	167.00	Ericsson 4449	3	10.762	11.839	0.67	0.75	3.30	225.00	0.000	0.000	39.12	0.00	0.00
3	167.00	Cci OPA65R-BU8DA	6	10.762	11.839	0.55	0.75	59.43	390.00	0.000	0.000	703.52	0.00	0.00
4	167.00	Low Profile Platform	1	10.762	11.839	1.00	1.00	25.00	1700.00	0.000	0.000	295.97	0.00	0.00
5	167.00	Ericsson 8843 B2/B66A	3	10.762	11.839	0.58	0.75	2.88	216.00	0.000	0.000	34.07	0.00	0.00
6	157.00	RFS	3	10.623	11.686	0.46	0.75	9.22	122.10	0.000	0.000	107.75	0.00	0.00
7	157.00	Ericsson 4480 B71 + B85	3	10.623	11.686	0.50	0.75	4.30	279.00	0.000	0.000	50.21	0.00	0.00
8	157.00	Ericsson 4460 B25 + B66	3	10.623	11.686	0.50	0.75	4.30	312.00	0.000	0.000	50.21	0.00	0.00
9	157.00	SitePro1 RMQP-4096-HK	1	10.623	11.686	1.00	1.00	48.00	2449.00	0.000	0.000	560.92	0.00	0.00
10	157.00	Ericsson AIR6449 B41	3	10.623	11.686	0.53	0.75	9.03	309.00	0.000	0.000	105.47	0.00	0.00
11	157.00	RFS	3	10.623	11.686	0.54	0.75	32.79	429.90	0.000	0.000	383.16	0.00	0.00
Totals:									6,495.60			2,346.74		

Total Applied Force Summary

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II

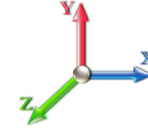


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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		123.27	1198.98	0.00	0.00
10.00		120.72	1175.53	0.00	0.00
15.00		118.17	1152.09	0.00	0.00
20.00		122.67	1128.65	0.00	0.00
25.00		125.74	1105.21	0.00	0.00
30.00		127.71	1081.76	0.00	0.00
35.00		128.87	1058.32	0.00	0.00
40.00		129.42	1034.88	0.00	0.00
45.00		129.45	1011.43	0.00	0.00
45.29		7.51	58.61	0.00	0.00
50.00		123.41	1803.25	0.00	0.00
51.71		44.43	644.86	0.00	0.00
55.00		85.50	642.03	0.00	0.00
60.00		129.51	956.29	0.00	0.00
65.00		128.24	932.85	0.00	0.00
70.00		126.73	909.41	0.00	0.00
75.00		125.01	885.96	0.00	0.00
80.00		123.09	862.52	0.00	0.00
85.00		121.00	839.08	0.00	0.00
90.00		118.75	815.64	0.00	0.00
91.42		33.08	226.83	0.00	0.00
95.00		84.46	1000.51	0.00	0.00
96.58		36.83	435.05	0.00	0.00
100.00		78.76	452.02	0.00	0.00
105.00		113.22	645.05	0.00	0.00
110.00		110.46	625.52	0.00	0.00
115.00		107.59	605.98	0.00	0.00
120.00		104.61	586.44	0.00	0.00
125.00		101.53	566.91	0.00	0.00
130.00		98.35	547.37	0.00	0.00
135.00		95.09	527.84	0.00	0.00
139.08		75.12	416.58	0.00	0.00
140.00		16.76	139.53	0.00	0.00
142.92		52.63	436.98	0.00	0.00
145.00		36.85	135.24	0.00	0.00
150.00		86.15	316.27	0.00	0.00
155.00		82.58	304.55	0.00	0.00
157.00	(16) attachments	1289.67	4019.54	0.00	0.00
160.00		46.86	164.39	0.00	0.00
165.00		75.23	264.60	0.00	0.00
167.00	(15) attachments	1118.00	2697.16	0.00	0.00
170.00		42.36	119.66	0.00	0.00
175.00		67.61	190.06	0.00	0.00
176.00		13.03	36.61	0.00	0.00
Totals:		6,226.02	34,758.03	0.00	0.00

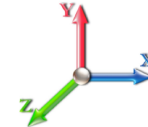
Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 26
Dead Load Factor 1.00	
Wind Load Factor 1.00	



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.023	0.000	6.488	0.00	1.37
5.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.023	0.000	6.488	0.00	5.20
10.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.024	0.000	6.488	0.00	1.37
10.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.024	0.000	6.488	0.00	5.20
15.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.024	0.000	6.488	0.00	1.37
15.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.024	0.000	6.488	0.00	5.20
20.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.025	0.000	6.884	0.00	1.37
20.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.025	0.000	6.884	0.00	5.20
25.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.025	0.000	7.216	0.00	1.37
25.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.025	0.000	7.216	0.00	5.20
30.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.026	0.000	7.498	0.00	1.37
30.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.026	0.000	7.498	0.00	5.20
35.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.026	0.000	7.745	0.00	1.37
35.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.026	0.000	7.745	0.00	5.20
40.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.027	0.000	7.966	0.00	1.37
40.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.027	0.000	7.966	0.00	5.20
45.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.028	0.000	8.166	0.00	1.37
45.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.028	0.000	8.166	0.00	5.20
45.29	Safety Cable	Yes	0.29	0.000	0.27	0.01	0.00	0.028	0.000	8.177	0.00	0.08
45.29	Step bolts (ladder)	Yes	0.29	0.000	1.04	0.03	0.00	0.028	0.000	8.177	0.00	0.31
50.00	Safety Cable	Yes	4.71	0.000	0.27	0.11	0.00	0.028	0.000	8.349	0.00	1.28
50.00	Step bolts (ladder)	Yes	4.71	0.000	1.04	0.41	0.00	0.028	0.000	8.349	0.00	4.89
51.71	Safety Cable	Yes	1.71	0.000	0.27	0.04	0.00	0.029	0.000	8.409	0.00	0.47
51.71	Step bolts (ladder)	Yes	1.71	0.000	1.04	0.15	0.00	0.029	0.000	8.409	0.00	1.78
55.00	Safety Cable	Yes	3.29	0.000	0.27	0.07	0.00	0.029	0.000	8.518	0.00	0.90
55.00	Step bolts (ladder)	Yes	3.29	0.000	1.04	0.29	0.00	0.029	0.000	8.518	0.00	3.42
60.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.029	0.000	8.676	0.00	1.37
60.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.029	0.000	8.676	0.00	5.20
65.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.030	0.000	8.823	0.00	1.37
65.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.030	0.000	8.823	0.00	5.20
70.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.031	0.000	8.962	0.00	1.37
70.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.031	0.000	8.962	0.00	5.20
75.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.032	0.000	9.093	0.00	1.37
75.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.032	0.000	9.093	0.00	5.20
80.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.033	0.000	9.218	0.00	1.37
80.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.033	0.000	9.218	0.00	5.20
85.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.034	0.000	9.336	0.00	1.37
85.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.034	0.000	9.336	0.00	5.20
90.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.035	0.000	9.449	0.00	1.37
90.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.035	0.000	9.449	0.00	5.20
91.42	Safety Cable	Yes	1.42	0.000	0.27	0.03	0.00	0.036	0.000	9.480	0.00	0.39
91.42	Step bolts (ladder)	Yes	1.42	0.000	1.04	0.12	0.00	0.036	0.000	9.480	0.00	1.47
95.00	Safety Cable	Yes	3.58	0.000	0.27	0.08	0.00	0.036	0.000	9.557	0.00	0.98
95.00	Step bolts (ladder)	Yes	3.58	0.000	1.04	0.31	0.00	0.036	0.000	9.557	0.00	3.73
96.58	Safety Cable	Yes	1.58	0.000	0.27	0.04	0.00	0.037	0.000	9.591	0.00	0.43
96.58	Step bolts (ladder)	Yes	1.58	0.000	1.04	0.14	0.00	0.037	0.000	9.591	0.00	1.65
100.00	Safety Cable	Yes	3.42	0.000	0.27	0.08	0.00	0.037	0.000	9.661	0.00	0.93

Linear Appurtenance Segment Forces (Factored)

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind	Iterations 26
Dead Load Factor 1.00	
Wind Load Factor 1.00	

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
100.00	Step bolts (ladder)	Yes	3.42	0.000	1.04	0.30	0.00	0.037	0.000	9.661	0.00	3.55
105.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.038	0.000	9.761	0.00	1.37
105.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.038	0.000	9.761	0.00	5.20
110.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.039	0.000	9.857	0.00	1.37
110.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.039	0.000	9.857	0.00	5.20
115.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.041	0.000	9.950	0.00	1.37
115.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.041	0.000	9.950	0.00	5.20
120.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.042	0.000	10.039	0.00	1.37
120.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.042	0.000	10.039	0.00	5.20
125.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.044	0.000	10.126	0.00	1.37
125.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.044	0.000	10.126	0.00	5.20
130.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.045	0.000	10.210	0.00	1.37
130.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.045	0.000	10.210	0.00	5.20
135.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.047	0.000	10.291	0.00	1.37
135.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.047	0.000	10.291	0.00	5.20
139.08	Safety Cable	Yes	4.08	0.000	0.27	0.09	0.00	0.049	0.000	10.356	0.00	1.11
139.08	Step bolts (ladder)	Yes	4.08	0.000	1.04	0.35	0.00	0.049	0.000	10.356	0.00	4.25
140.00	Safety Cable	Yes	0.92	0.000	0.27	0.02	0.00	0.050	0.000	10.370	0.00	0.25
140.00	Step bolts (ladder)	Yes	0.92	0.000	1.04	0.08	0.00	0.050	0.000	10.370	0.00	0.95
142.92	Safety Cable	Yes	2.92	0.000	0.27	0.07	0.00	0.051	0.000	10.415	0.00	0.80
142.92	Step bolts (ladder)	Yes	2.92	0.000	1.04	0.25	0.00	0.051	0.000	10.415	0.00	3.03
145.00	Safety Cable	Yes	2.08	0.000	0.27	0.05	0.00	0.052	0.000	10.447	0.00	0.57
145.00	Step bolts (ladder)	Yes	2.08	0.000	1.04	0.18	0.00	0.052	0.000	10.447	0.00	2.17
150.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.054	0.000	10.522	0.00	1.37
150.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.054	0.000	10.522	0.00	5.20
155.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.056	0.000	10.595	0.00	1.37
155.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.056	0.000	10.595	0.00	5.20
157.00	Safety Cable	Yes	2.00	0.000	0.27	0.05	0.00	0.058	0.000	10.623	0.00	0.55
157.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.17	0.00	0.058	0.000	10.623	0.00	2.08
160.00	Safety Cable	Yes	3.00	0.000	0.27	0.07	0.00	0.060	0.000	10.666	0.00	0.82
160.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	0.26	0.00	0.060	0.000	10.666	0.00	3.12
165.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.063	0.000	10.735	0.00	1.37
165.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.063	0.000	10.735	0.00	5.20
167.00	Safety Cable	Yes	2.00	0.000	0.27	0.05	0.00	0.065	0.000	10.762	0.00	0.55
167.00	Step bolts (ladder)	Yes	2.00	0.000	1.04	0.17	0.00	0.065	0.000	10.762	0.00	2.08
170.00	Safety Cable	Yes	3.00	0.000	0.27	0.07	0.00	0.067	0.000	10.803	0.00	0.82
170.00	Step bolts (ladder)	Yes	3.00	0.000	1.04	0.26	0.00	0.067	0.000	10.803	0.00	3.12
175.00	Safety Cable	Yes	5.00	0.000	0.27	0.11	0.00	0.070	0.000	10.869	0.00	1.37
175.00	Step bolts (ladder)	Yes	5.00	0.000	1.04	0.43	0.00	0.070	0.000	10.869	0.00	5.20
176.00	Safety Cable	Yes	1.00	0.000	0.27	0.02	0.00	0.073	0.000	10.882	0.00	0.27
176.00	Step bolts (ladder)	Yes	1.00	0.000	1.04	0.09	0.00	0.073	0.000	10.882	0.00	1.04
Totals:											0.0	231.1

Calculated Forces

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 36

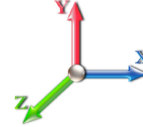


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 26

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 Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-34.76	-6.24	0.00	-726.17	0.00	726.17	4317.41	1172.35	5459.17	4991.62	0.00	0.000	0.000	0.154
5.00	-33.55	-6.14	0.00	-694.99	0.00	694.99	4266.06	1148.16	5236.29	4829.83	0.02	-0.038	0.000	0.152
10.00	-32.37	-6.04	0.00	-664.31	0.00	664.31	4213.11	1123.98	5018.05	4668.75	0.08	-0.077	0.000	0.150
15.00	-31.22	-5.94	0.00	-634.13	0.00	634.13	4158.58	1099.80	4804.45	4508.49	0.18	-0.116	0.000	0.148
20.00	-30.08	-5.83	0.00	-604.44	0.00	604.44	4102.46	1075.62	4595.50	4349.16	0.33	-0.156	0.000	0.146
25.00	-28.98	-5.73	0.00	-575.27	0.00	575.27	4044.75	1051.44	4391.20	4190.89	0.51	-0.197	0.000	0.144
30.00	-27.89	-5.61	0.00	-546.65	0.00	546.65	3985.45	1027.26	4191.54	4033.77	0.74	-0.239	0.000	0.143
35.00	-26.83	-5.50	0.00	-518.58	0.00	518.58	3924.57	1003.08	3996.52	3877.94	1.01	-0.281	0.000	0.141
40.00	-25.79	-5.38	0.00	-491.08	0.00	491.08	3862.10	978.89	3806.15	3723.50	1.33	-0.324	0.000	0.139
45.00	-24.78	-5.26	0.00	-464.15	0.00	464.15	3798.04	954.71	3620.43	3570.56	1.69	-0.368	0.000	0.137
45.29	-24.72	-5.26	0.00	-462.61	0.00	462.61	3794.23	953.29	3609.68	3561.64	1.72	-0.371	0.000	0.136
50.00	-22.91	-5.14	0.00	-437.85	0.00	437.85	3732.39	930.53	3439.35	3419.25	2.10	-0.413	0.000	0.134
51.71	-22.27	-5.10	0.00	-429.06	0.00	429.06	3752.64	937.93	3494.24	3465.35	2.25	-0.429	0.000	0.130
55.00	-21.62	-5.02	0.00	-412.30	0.00	412.30	3708.89	922.02	3376.69	3366.37	2.56	-0.459	0.000	0.128
60.00	-20.66	-4.90	0.00	-387.19	0.00	387.19	3641.10	897.83	3201.89	3217.43	3.07	-0.503	0.000	0.126
65.00	-19.73	-4.78	0.00	-362.70	0.00	362.70	3571.72	873.65	3031.74	3070.38	3.62	-0.548	0.000	0.124
70.00	-18.81	-4.66	0.00	-338.81	0.00	338.81	3500.75	849.47	2866.23	2925.34	4.21	-0.593	0.000	0.121
75.00	-17.93	-4.54	0.00	-315.53	0.00	315.53	3428.19	825.29	2705.37	2782.41	4.86	-0.639	0.000	0.119
80.00	-17.06	-4.42	0.00	-292.85	0.00	292.85	3354.04	801.11	2549.16	2641.72	5.56	-0.686	0.000	0.116
85.00	-16.22	-4.30	0.00	-270.76	0.00	270.76	3278.31	776.93	2397.59	2503.38	6.30	-0.733	0.000	0.113
90.00	-15.40	-4.18	0.00	-249.26	0.00	249.26	3186.62	752.74	2250.66	2356.87	7.09	-0.781	0.000	0.111
91.42	-15.18	-4.15	0.00	-243.34	0.00	243.34	3157.61	745.89	2209.88	2313.94	7.33	-0.795	0.000	0.110
95.00	-14.18	-4.06	0.00	-228.47	0.00	228.47	3084.25	728.56	2108.38	2207.12	7.94	-0.830	0.000	0.108
96.58	-13.74	-4.02	0.00	-222.05	0.00	222.05	2497.75	612.72	1789.46	1807.21	8.21	-0.846	0.000	0.128
100.00	-13.29	-3.94	0.00	-208.32	0.00	208.32	2457.75	598.95	1709.93	1737.95	8.83	-0.880	0.000	0.125
105.00	-12.64	-3.83	0.00	-188.60	0.00	188.60	2397.86	578.80	1596.81	1638.04	9.78	-0.935	0.000	0.120
110.00	-12.01	-3.72	0.00	-169.43	0.00	169.43	2336.39	558.65	1487.56	1539.96	10.79	-0.991	0.000	0.115
115.00	-11.40	-3.62	0.00	-150.81	0.00	150.81	2273.33	538.50	1382.18	1443.83	11.86	-1.046	0.000	0.110
120.00	-10.82	-3.51	0.00	-132.73	0.00	132.73	2194.33	518.35	1280.67	1340.98	12.98	-1.100	0.000	0.104
125.00	-10.25	-3.41	0.00	-115.18	0.00	115.18	2109.02	498.19	1183.03	1238.23	14.17	-1.153	0.000	0.098
130.00	-9.70	-3.31	0.00	-98.14	0.00	98.14	2023.72	478.04	1089.26	1139.56	15.40	-1.205	0.000	0.091
135.00	-9.17	-3.21	0.00	-81.61	0.00	81.61	1938.41	457.89	999.36	1045.00	16.69	-1.254	0.000	0.083
139.08	-8.76	-3.13	0.00	-68.51	0.00	68.51	1868.74	441.44	928.82	970.81	17.78	-1.292	0.000	0.075
140.00	-8.62	-3.11	0.00	-65.65	0.00	65.65	1853.10	437.74	913.34	954.53	18.03	-1.301	0.000	0.073
142.92	-8.18	-3.05	0.00	-56.58	0.00	56.58	1006.21	260.81	540.39	517.20	18.83	-1.326	0.000	0.118
145.00	-8.04	-3.01	0.00	-50.23	0.00	50.23	993.78	255.78	519.71	500.86	19.41	-1.344	0.000	0.109
150.00	-7.73	-2.93	0.00	-35.15	0.00	35.15	962.80	243.69	471.74	462.14	20.85	-1.399	0.000	0.084
155.00	-7.42	-2.84	0.00	-20.52	0.00	20.52	930.24	231.59	426.09	424.18	22.34	-1.440	0.000	0.056
157.00	-3.44	-1.45	0.00	-14.84	0.00	14.84	916.77	226.76	408.48	409.23	22.95	-1.452	0.000	0.040
160.00	-3.27	-1.40	0.00	-10.48	0.00	10.48	896.09	219.50	382.76	387.10	23.86	-1.466	0.000	0.031
165.00	-3.01	-1.32	0.00	-3.48	0.00	3.48	860.35	207.41	341.76	351.00	25.41	-1.481	0.000	0.013
167.00	-0.34	-0.13	0.00	-0.84	0.00	0.84	845.61	202.58	326.00	336.87	26.03	-1.483	0.000	0.003
170.00	-0.22	-0.09	0.00	-0.45	0.00	0.45	823.02	195.32	303.07	316.02	26.96	-1.484	0.000	0.002
175.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	775.68	183.23	266.71	279.22	28.52	-1.484	0.000	0.000
176.00	0.00	-0.01	0.00	0.00	0.00	0.00	765.44	180.81	259.72	271.86	28.83	-1.484	0.000	0.000

Final Analysis Summary

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 37



Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.0W 120 mph Wind	27.9	0.00	41.67	0.00	0.00	3267.30
0.9D + 1.0W 120 mph Wind	27.9	0.00	31.24	0.00	0.00	3228.52
1.2D + 1.0Di + 1.0Wi 50 mph Wind	7.9	0.00	57.54	0.00	0.00	914.13
1.2D + 1.0Ev + 1.0Eh	0.6	0.00	43.07	0.00	0.00	93.68
0.9D + 1.0Ev + 1.0Eh	0.6	0.00	32.61	0.00	0.00	92.64
1.0D + 1.0W 60 mph Wind	6.2	0.00	34.76	0.00	0.00	726.17

Max Stresses


Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.0W 120 mph Wind	-41.67	-27.90	0.00	-3267.3	0.00	-3267.3	4317.41	1172.3	5459.17	4991.62	0.00	0.665
0.9D + 1.0W 120 mph Wind	-31.24	-27.88	0.00	-3228.5	0.00	-3228.5	4317.41	1172.3	5459.17	4991.62	0.00	0.655
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-57.54	-7.94	0.00	-914.13	0.00	-914.13	4317.41	1172.3	5459.17	4991.62	0.00	0.197
1.2D + 1.0Ev + 1.0Eh	-43.07	-0.59	0.00	-93.68	0.00	-93.68	4317.41	1172.3	5459.17	4991.62	0.00	0.029
0.9D + 1.0Ev + 1.0Eh	-32.61	-0.59	0.00	-92.64	0.00	-92.64	4317.41	1172.3	5459.17	4991.62	0.00	0.026
1.0D + 1.0W 60 mph Wind	-34.76	-6.24	0.00	-726.17	0.00	-726.17	4317.41	1172.3	5459.17	4991.62	0.00	0.154

Base Plate Summary

Structure: CT13611-A	Code: TIA-222-H	5/15/2023
Site Name: BSA	Exposure: C	
Height: 176.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II
		Page: 38



Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 66.00
Moment (kip-ft): 3414.00	Width (in): 72.00	Number Bolts: 18.00
Axial (kip): 35.50	Style: Round	Bolt Type: 2.25" 18J
Shear (kip): 26.50	Polygon Sides: 0.00	Bolt Diameter (in): 2.25
Analysis (1.2D + 1.0W)	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 3267.30	Effective Len (in): 15.03	Ultimate (ksi): 100.00
Axial (kip): 41.67	Moment (kip-in): 638.05	Arrangement: Radial
Shear (kip): 27.90	Allow Stress (ksi): 81.00	Cluster Dist (in): 0.00
	Applied Stress (ksi): 63.99	Start Angle (deg): 0.00
	Stress Ratio: 0.79	Compression
		Force (kip): 134.33
		Allowable (kip): 268.39
		Ratio: 0.50
		Tension
		Force (kip): 129.70
		Allowable (kip): 243.75
		Ratio: 0.53

	Monopole Mat Foundation Design			Date
				5/15/2023
	Customer Name:	AT&T	TIA Standard:	TIA-222-H
	Site Name:		Structure Height (Ft.):	176
	Site Number:	CT13611-A	Engineer Name:	SBA Engineer
Engr. Number:		Engineer Login ID:		

Foundation Info Obtained from:

Drawings/Calculations
Monopole
Analysis

Structure Type:

Analysis or Design?

Base Reactions (Factored):

Axial Load (Kips):	41.7	Shear Force (Kips):	27.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3267.3

Allowable overstress %: 5.0%

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	8.0	Depth of Base BG (ft.):	7.0
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	3.00
Length of Pad (ft.):	24.5	Width of Pad (ft.):	24.5

Final Length of pad (ft)	24.5	Final width of pad (ft):	24.5
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Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	6.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	4	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	37	Qty. of Rebar in Pad (W):	37
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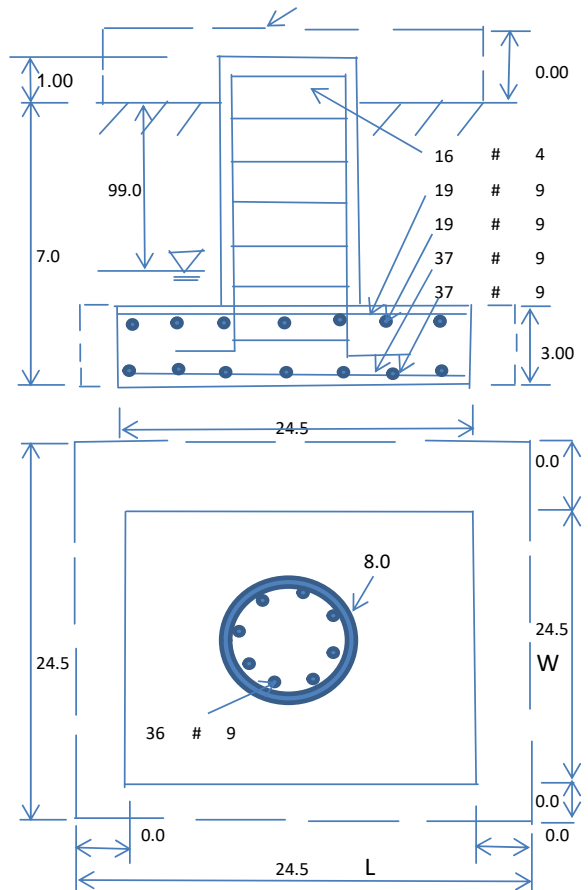
Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	19	Qty. of Rebar in Pad (W):	19
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Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	47.6	Pcf
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	14000	Ultimate Skin Friction:	0	Psf
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No	
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00	
		Angle from Top of Pad:	30	
		Angle from Bottm of Pad:	25	
		Angle from Bottm of Pad:	25	



Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2199.94	Total Dry Soil Weight (Kips):	263.99
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	263.99	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2052.08	Total Dry Concrete Weight (Kips):	307.81
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	307.81	Total Vertical Load on Base (Kips):	613.50

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	2582	<	Allowable Factored Soil Bearing (psf):	10500	0.25	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	6815.0	>	Design Factored Momont (kips-ft):	3491	0.51	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.95					OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Load/
Capacity
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	7016.1	>	Design Factored Moment (Mu, Kips-Ft)	3406.8	0.49 OK!
Calculated Shear Capacity (Kips):	993.9	>	Design Factored Shear (Kips):	27.9	0.03 OK!
Calculated Tension Capacity (Tn, Kips):	1944.0	>	Design Factored Tension (Tu Kips):	0.0	0.00 OK!
Calculated Compression Capacity (Pn, Kips):	12733.5	>	Design Factored Axial Load (Pu Kips):	41.7	0.00 OK!
Moment & Axial Strength Combination:	0.49	OK!	Check Tie Spacing (Design/Required):	0.5	OK!
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI		

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	876.8	>	One-Way Factored Shear (L-D. Kips):	208.3	0.24 OK!
One-Way Design Shear Capacity (W-Direction, Kips):	876.8	>	One-Way Factored Shear (W-D., Kips)	208.3	0.24 OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	766.2	>	One-Way Factored Shear (C-C, Kips):	198.8	0.26 OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0040	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0040	
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5049.5	>	Moment at Bottom (L-Dir. K-Ft):	1089.5	0.22 OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5049.5	>	Moment at Bottom (W-Dir. K-Ft):	1089.5	0.22 OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	7062.5	>	Moment at Bottom (C-C Dir. K-Ft):	1540.8	0.22 OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0021	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0021	
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	2639.2	>	Moment at the top (L-Dir K-Ft):	476.6	0.18 OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	2639.2	>	Moment at the top (W-Dir K-Ft):	476.6	0.18 OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	3711.6	>	Moment at the top (C-C Dir. K-Ft):	450.7	0.12 OK!

(3).Check Punching Shear Capacity due to Moment in the Pier:

Moment transferred by punching shear:	1306.9	k-ft.	Max. factored shear stress v_{u_CD} :	2.2	Psi
Max. factored shear stress v_{u_AB} :	7.5	Psi	Factored shear Strength ϕv_n :	189.7	Psi
Max. factored shear stress v_u :	7.5	Psi	Check Usage of Punching Shear Capacity:	0.04	OK!

(4).Check Bending Capacity of the Pad Within the Effective Slab Width:

Overturning moment to be transferred by flexure:	980.2	k-ft.	Effective Width for resisting OT moment:	17.0	ft.
Calculated number of Rebar in Effective width:	14		Actual number of Rebar in Effective width:	14	
Steel Pad Moment Capacity (L-Direc. Kips-ft):	1942.4	k-ft.	Check Usage of the Flexure Capacity:	0.50	OK!

PROJECT INFORMATION

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

- INSTALL ANTENNA (OPA65R-BU8DA) @ POS. 1 & 2 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- INSTALL RRUS-4449 B5/B12 (700/850) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (ADD "Y" CABLE).
- INSTALL RRUS-8843 B2/B66A (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (ADD "Y" CABLE).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (3) -48V RECTIFIERS INSIDE EXISTING DC POWER PLANT.
- ADD 1x6651+XCEDE CABLE, FINAL CONFIG: 1x5216/1x6651+XCEDE.
- INSTALL RRUS-4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3) MOUNTED ON ICE BRIDGE POST WITH SURGE ARRESTORS (TSXDC-4310FM) (TYP. OF 4 PER SECTOR, TOTAL OF 12).

ITEMS TO BE REMOVED:

- DECOMMISSION EXISTING ANTENNA: 7770 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- DECOMMISSION EXISTING ANTENNA: AM-X-CD-17-65-OOT-RET (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING RRUS-11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- DECOMMISSION EXISTING RRUS-12 B2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO REMAIN:

- (3) ANTENNAS, (1) SURGE ARRESTORS, (12) 1-5/8"Ø COAX (2) DC POWER & (1) FIBER.

RFDS: FINAL APPROVED V3.00 RFDS DATED 06/16/23

SITE ADDRESS: 142 FITTS ROAD
ASHFORD, CT 06278

LATITUDE: 41.878792° N, 41° 52' 43.65" N
LONGITUDE: 72.130498° W, 72° 7' 49.80" W

TYPE OF SITE: MONOPOLE / OUTDOOR EQUIPMENT

STRUCTURE HEIGHT: 180'-0"±
RAD CENTER: 167'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

- TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.



SITE NUMBER: CTL05702

SITE NAME: ASHFORD SOUTHEAST

FA CODE: 10070913

PACE ID: MRCTB066203, MRCTB066200, MRCTB06193, MRCTB066201, MRCTB066245

PROJECT: ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE

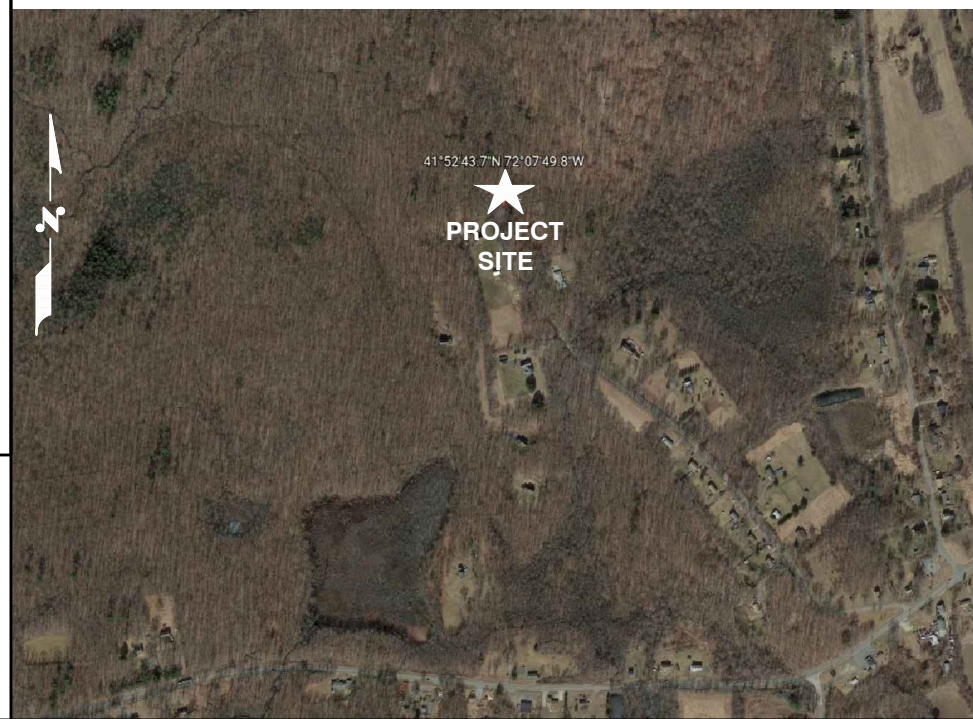
DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLANS	2
A-2	ANTENNA LAYOUTS	2
A-3	ELEVATION	2
A-4	DETAILS	2
A-5	DETAILS	2
G-1	GROUNDING DETAILS	2
RF-1	RF PLUMBING DIAGRAM	2

VICINITY MAP

DIRECTIONS TO SITE: (FROM AT&T ADDRESS)

HEAD SOUTHWEST, TURN RIGHT TOWARD LEGGATT MCCALL CONN, TURN LEFT ONTO LEGGATT MCCALL CONN, CONTINUE ONTO BURR ST, TURN LEFT ONTO COCHITUATE RD, USE THE RIGHT LANE TO TAKE THE I-90 W/MASS PIKE RAMP TO BOSTON TOLL ROAD, MERGE WITH I-90 W TOLL ROAD, FOLLOW I-90 W TO I-84. FOLLOW I-84 TO CT-89 S. TAKE EXIT 72 FROM I-84. CONTINUE ONTO CT-89 S. DRIVE TO ROUTE 44 (ASHFORD CENTER RD). FOLLOW ASHFORD CENTER RD TO FITTS RD. TURN LEFT ONTO FITTS RD. FOLLOW TO END AND THE SITE IS LOCATED 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.

SBA SITE I.D. #: CT13611
FCC #: 1248714

72 HOURS



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



UNDERGROUND SERVICE ALERT



SITE NUMBER: CTL05702
SITE NAME: ASHFORD SOUTHEAST
SBA SITE I.D.: CT13611

142 FITTS ROAD
ASHFORD, CT 06278
WINDHAM COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	12/13/23	ISSUED FOR CONSTRUCTION	SE	AT	DPH
1	02/20/23	ISSUED FOR CONSTRUCTION	MJ	AT	DPH
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: MJ

SITE NUMBER	DRAWING NUMBER	REV
CTL05702	T-1	2

AT&T

TITLE SHEET
ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE

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) LIGHTNING 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 – SMARTLINK
 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 70-2020)**

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	REFER		



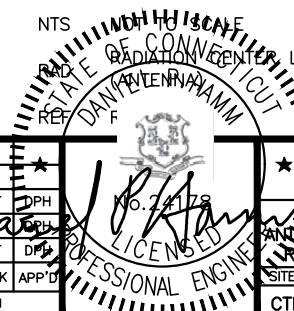
**SITE NUMBER: CTL05702
 SITE NAME: ASHFORD SOUTHEAST
 SBA SITE I.D.: CT13611**

142 FITTS ROAD
 ASHFORD, CT 06278
 WINDHAM COUNTY



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

NO.		DATE	REVISIONS	BY	CHK	APP'D	AT&T	
2	12/13/23		ISSUED FOR CONSTRUCTION	SE	AT	DPH	GENERAL NOTES	
1	02/20/23		ISSUED FOR CONSTRUCTION	MS	AT	DPH	ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR	
0	11/15/22		ISSUED FOR REVIEW	MJ	AT	DPH	RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE	
SCALE:		DESIGNED BY:		DRAWN BY:		SITE NUMBER		
AS SHOWN		AT		MJ		CTL05702		
						DRAWING NUMBER		
						GN-1		
						REV		
						2		

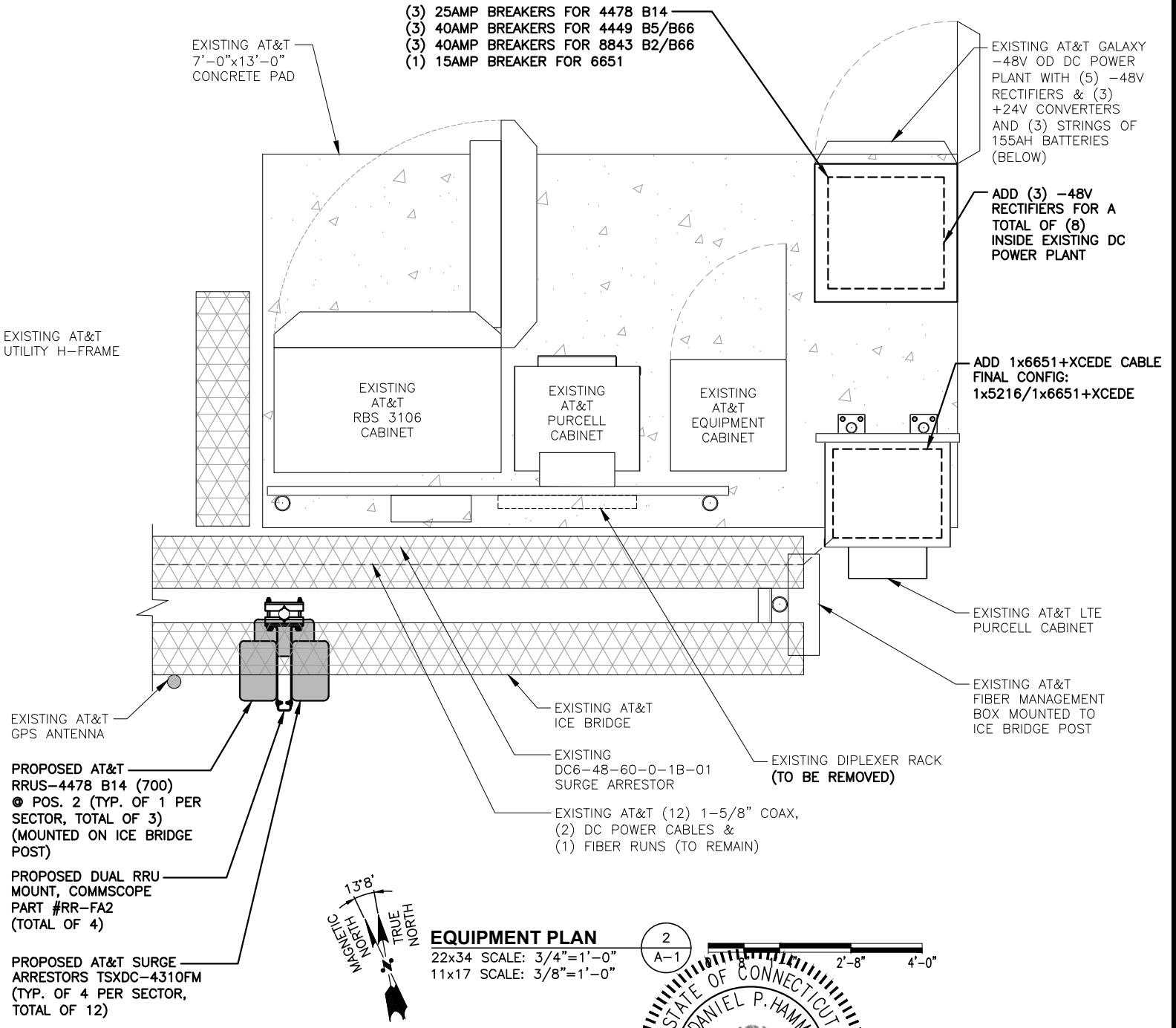
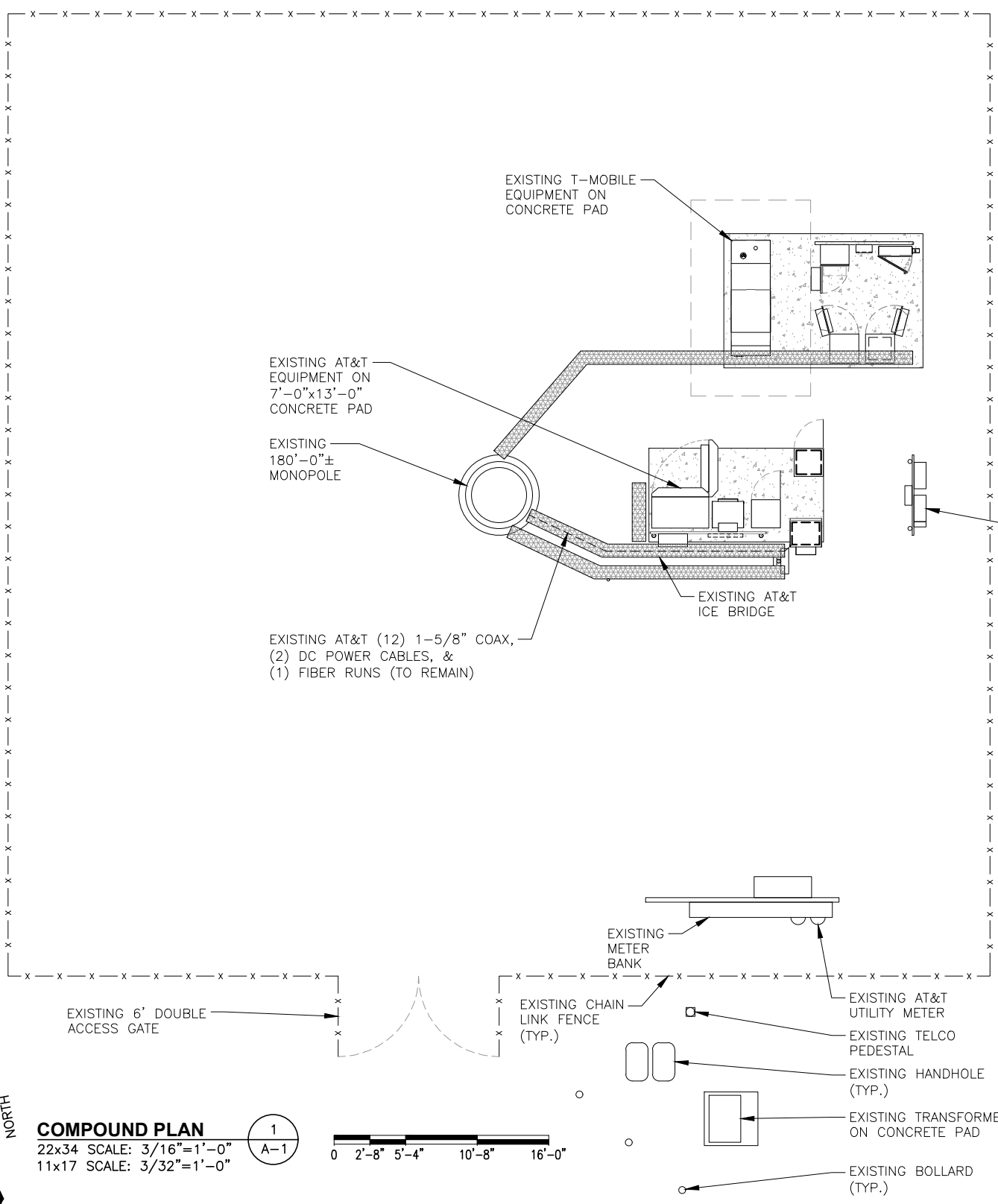


NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

- TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

NOTE:
REFER TO FINAL APPROVED V3.00 RFDS DATED 06/16/23

NOTE:
REFER TO MOUNT STRUCTURAL ANALYSIS, BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: NOVEMBER 20, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

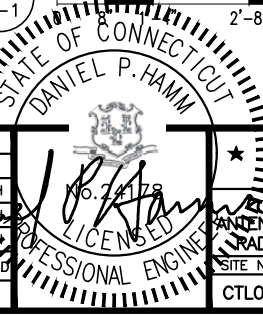


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SITE NAME: ASHFORD SOUTHEAST
SBA SITE I.D.: CT13611

142 FITTS ROAD
ASHFORD, CT 06278
WINDHAM COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	12/13/23	ISSUED FOR CONSTRUCTION	SE	AT	DPH
1	02/20/23	ISSUED FOR CONSTRUCTION	MS	AT	DPH
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: MJ		



AT&T	
COMPOUND & EQUIPMENT PLANS ANTENNA MODS, 4T4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE	
SITE NUMBER	DRAWING NUMBER
CTL05702	A-1
REV	
2	

NOTE:

- 1.) 3' MINIMUM SEPARATION BETWEEN ALL ANTENNAS.
- 2.) 6' MINIMUM SEPARATION BETWEEN 700BC & 700 DE.
- 3.) 12" VERTICAL SEPARATION BETWEEN DOD & C-BAND ANTENNA.
- 4.) USE "Y" CABLE FOR DUAL BAND RRHS.

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

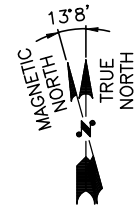
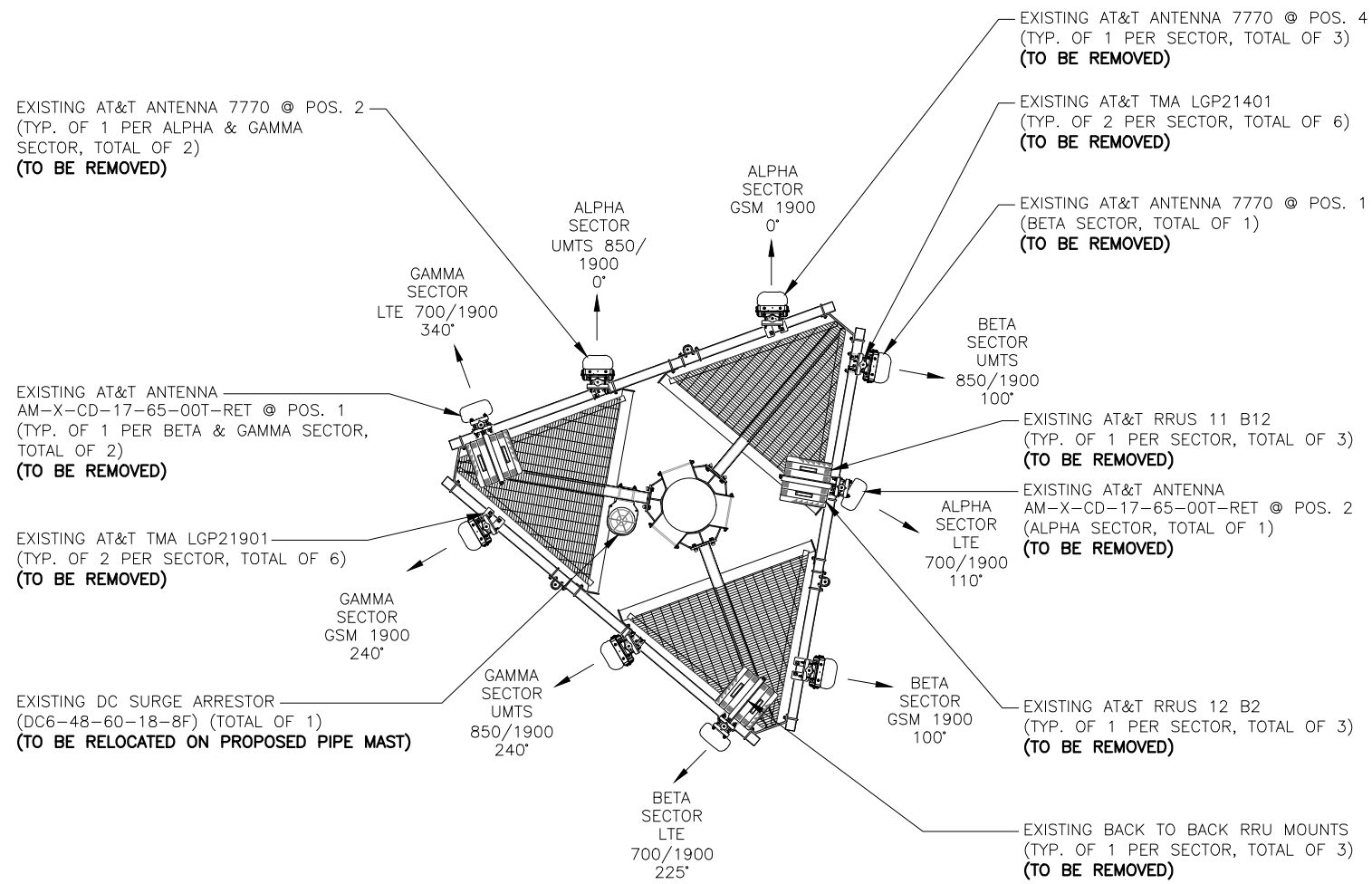
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NOTE:

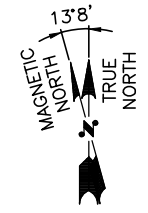
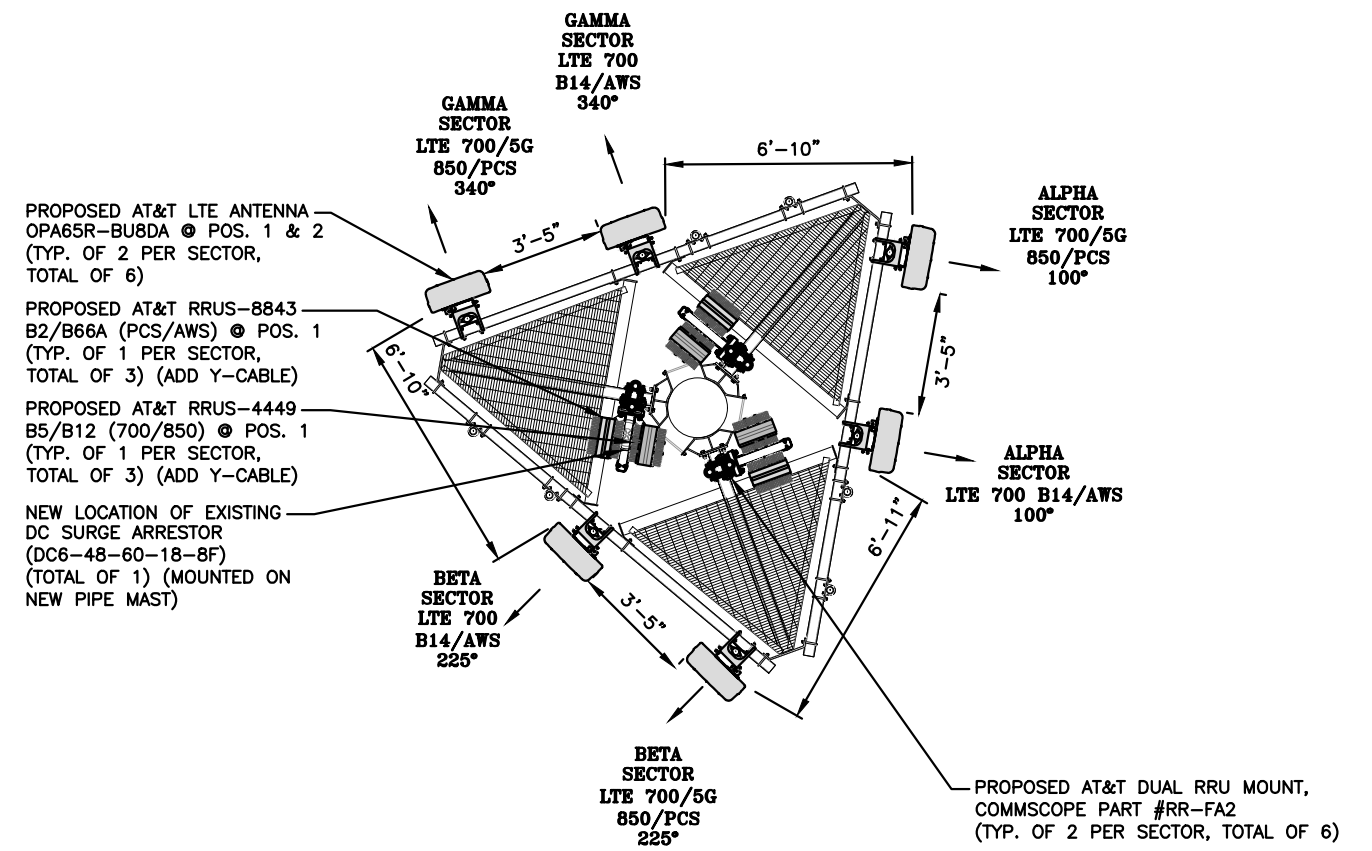
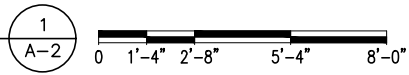
REFER TO MOUNT STRUCTURAL ANALYSIS, BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: NOVEMBER 20, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

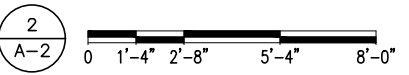
REFER TO FINAL APPROVED V3.00 RFDS DATED 06/16/23



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



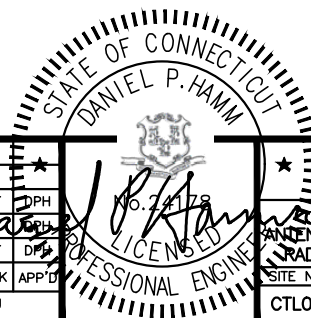
PROPOSED ANTENNA LAYOUT 2
 22x34 SCALE: 3/8"=1'-0"
 11x17 SCALE: 3/16"=1'-0"



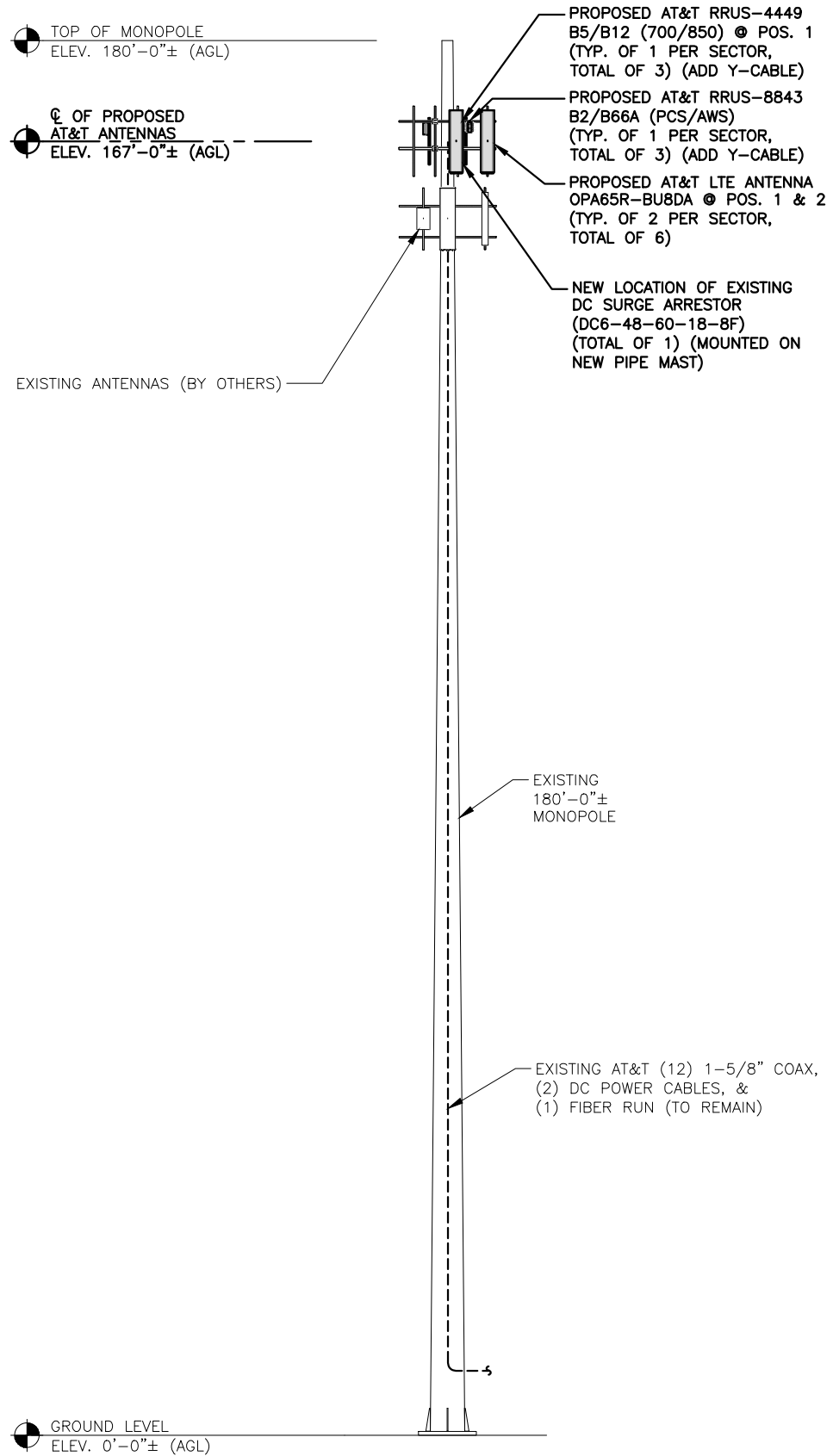
SITE NUMBER: CTL05702
SITE NAME: ASHFORD SOUTHEAST
SBA SITE I.D.: CT13611
 142 FITTS ROAD
 ASHFORD, CT 06278
 WINDHAM COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	12/13/23	ISSUED FOR CONSTRUCTION	SE	AT	DPH
1	02/20/23	ISSUED FOR CONSTRUCTION	MS	AT	DPH
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: MJ		



AT&T	
SITE NUMBER	CTL05702
DRAWING NUMBER	A-2
REV	2

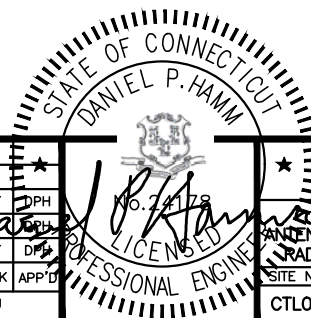
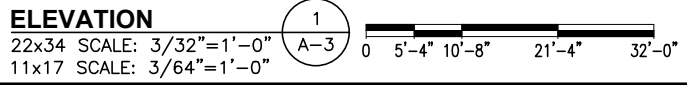


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NOTE:
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NOTE:
REFER TO MOUNT STRUCTURAL ANALYSIS, BY: TEP NORTHEAST (TEP OPCO, LLC.) DATED: NOVEMBER 20, 2023 (REV.1), FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



SITE NUMBER: CTL05702
SITE NAME: ASHFORD SOUTHEAST
SBA SITE I.D.: CT13611

142 FITTS ROAD
ASHFORD, CT 06278
WINDHAM COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	12/13/23	ISSUED FOR CONSTRUCTION	SE	AT	DPH
1	02/20/23	ISSUED FOR CONSTRUCTION	MS	AT	DPH
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: MJ

SITE NUMBER	DRAWING NUMBER	REV
CTL05702	A-3	2

AT&T

ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE

ANTENNA SCHEDULE

FINAL APPROVED V3.00 RFDS DATED 06/16/23

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ϕ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	PROPOSED	LTE 700/ 5G 850/PCS	OPA65R-BU8DA	96"x21"x7.8"	167'-0"±	100°	-	(P)(1) 4449 B5/B12 (700/850) (P)(1) 8843 B2/B66A (PCS/AWS)	17.9"x13.2"x9.4" 14.9"x13.2"x10.9"	(P)(1) Y-CABLE (P)(1) Y-CABLE	(E) (1) RAYCAP DC6-48-60-18-8F
A2	PROPOSED	LTE 700 B14/ AWS	OPA65R-BU8DA	96"x21"x7.8"	167'-0"±	100°	-	(P)(G)(1) 4478 B14 (700)	18.1"x13.4"x8.3"	(E)(2) DC POWER & (E)(1) FIBER	
A3	-	-	-	-	-	-	-	-	-	-	
A4	-	-	-	-	-	-	-	-	-	-	
B1	PROPOSED	LTE 700/ 5G 850/PCS	OPA65R-BU8DA	96"x21"x7.8"	167'-0"±	225°	-	(P)(1) 4449 B5/B12 (700/850) (P)(1) 8843 B2/B66A (PCS/AWS)	17.9"x13.2"x9.4" 14.9"x13.2"x10.9"	(P)(1) Y-CABLE (P)(1) Y-CABLE	SHARED
B2	PROPOSED	LTE 700 B14/ AWS	OPA65R-BU8DA	96"x21"x7.8"	167'-0"±	225°	-	(P)(G)(1) 4478 B14 (700)	18.1"x13.4"x8.3"	(E)(4) 1 5/8" ϕ COAX	
B3	-	-	-	-	-	-	-	-	-	-	
B4	-	-	-	-	-	-	-	-	-	-	
C1	PROPOSED	LTE 700/ 5G 850/PCS	OPA65R-BU8DA	96"x21"x7.8"	167'-0"±	340°	-	(P)(1) 4449 B5/B12 (700/850) (P)(1) 8843 B2/B66A (PCS/AWS)	17.9"x13.2"x9.4" 14.9"x13.2"x10.9"	(P)(1) Y-CABLE (P)(1) Y-CABLE	SHARED
C2	PROPOSED	LTE 700 B14/ AWS	OPA65R-BU8DA	96"x21"x7.8"	167'-0"±	340°	-	(P)(G)(1) 4478 B14 (700)	18.1"x13.4"x8.3"	(E)(4) 1 5/8" ϕ COAX	
C3	-	-	-	-	-	-	-	-	-	-	
C4	-	-	-	-	-	-	-	-	-	-	

NOTE:
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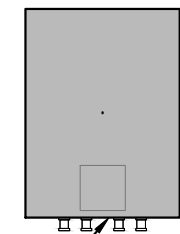
NOTE:
REFER TO FINAL APPROVED V3.00 RFDS DATED 06/16/23

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
P(3)	4478 B14 (700)	18.1"x13.4"x8.3"
P(3)	8843 B2/B66A (PCS/AWS)	14.9"x13.2"x10.9"
P(3)	4449 B5/B12 (700/850)	17.9"x13.2"x9.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

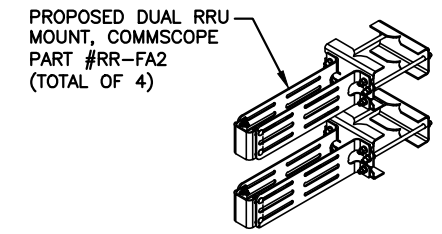
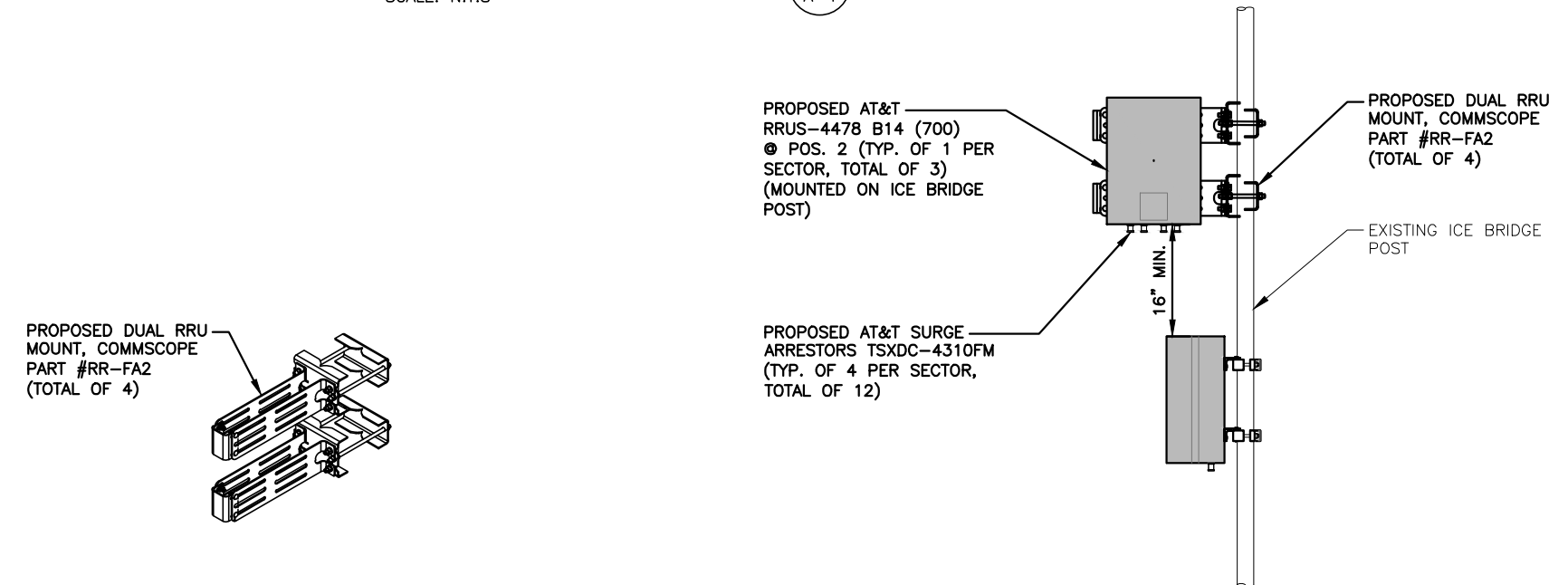


PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL 2
SCALE: N.T.S

FINAL ANTENNA CONFIGURATION 1
SCALE: N.T.S



PROPOSED BACK TO BACK MOUNT COMMSCOPE (RR-FA2) 3
SCALE: N.T.S

GROUND MOUNTED RRH DETAIL 4
SCALE: N.T.S

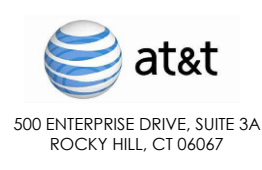
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SITE NUMBER: CTL05702
SITE NAME: ASHFORD SOUTHEAST
SBA SITE I.D.: CT13611

142 FITTS ROAD
ASHFORD, CT 06278
WINDHAM COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	12/13/23	ISSUED FOR CONSTRUCTION	SE	AT	DPH
1	02/20/23	ISSUED FOR CONSTRUCTION	MJ	AT	DPH
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: MJ

AT&T

DETAILS

ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE

SITE NUMBER: CTL05702 DRAWING NUMBER: A-4 REV: 2

NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

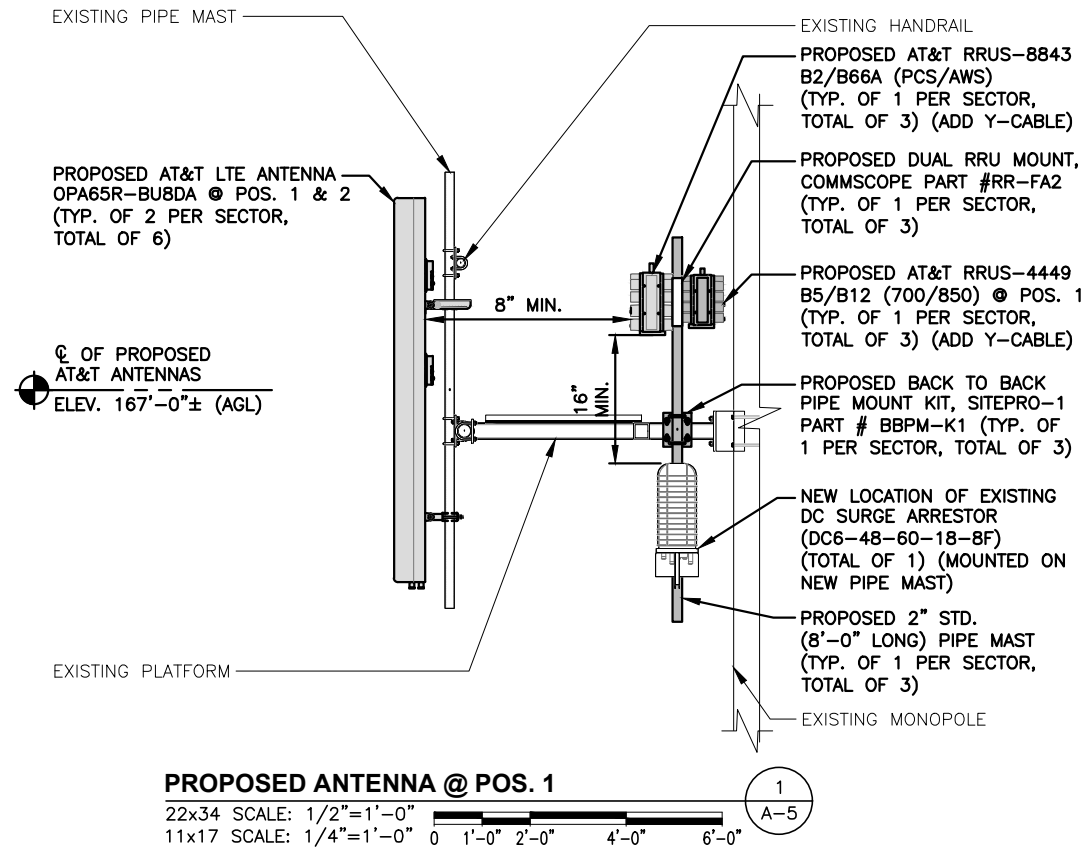
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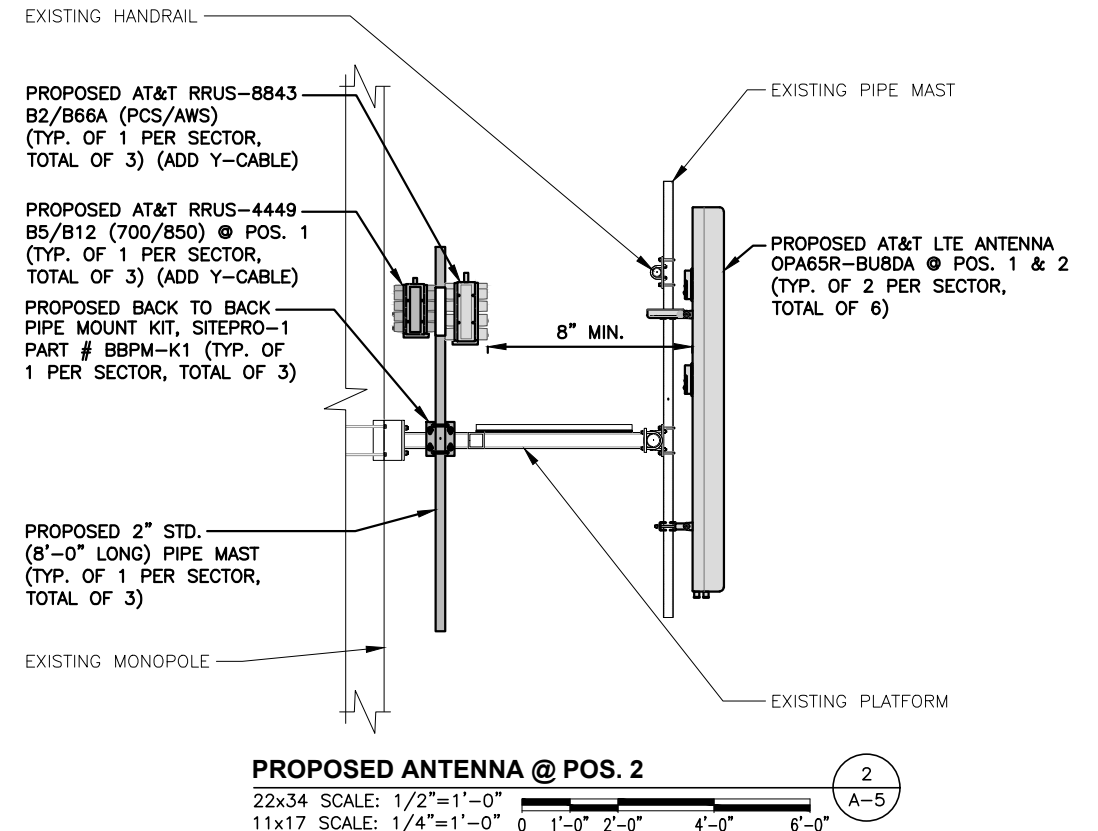
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NOTE:

REFER TO FINAL APPROVED V3.00 RFDS DATED 06/16/23



PROPOSED ANTENNA @ POS. 1
 22x34 SCALE: 1/2"=1'-0"
 11x17 SCALE: 1/4"=1'-0" 0 1'-0" 2'-0" 4'-0" 6'-0" 1 A-5



PROPOSED ANTENNA @ POS. 2
 22x34 SCALE: 1/2"=1'-0"
 11x17 SCALE: 1/4"=1'-0" 0 1'-0" 2'-0" 4'-0" 6'-0" 2 A-5



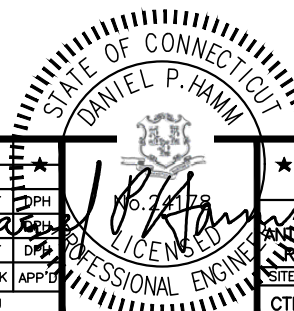
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142 FITTS ROAD
 ASHFORD, CT 06278
 WINDHAM COUNTY

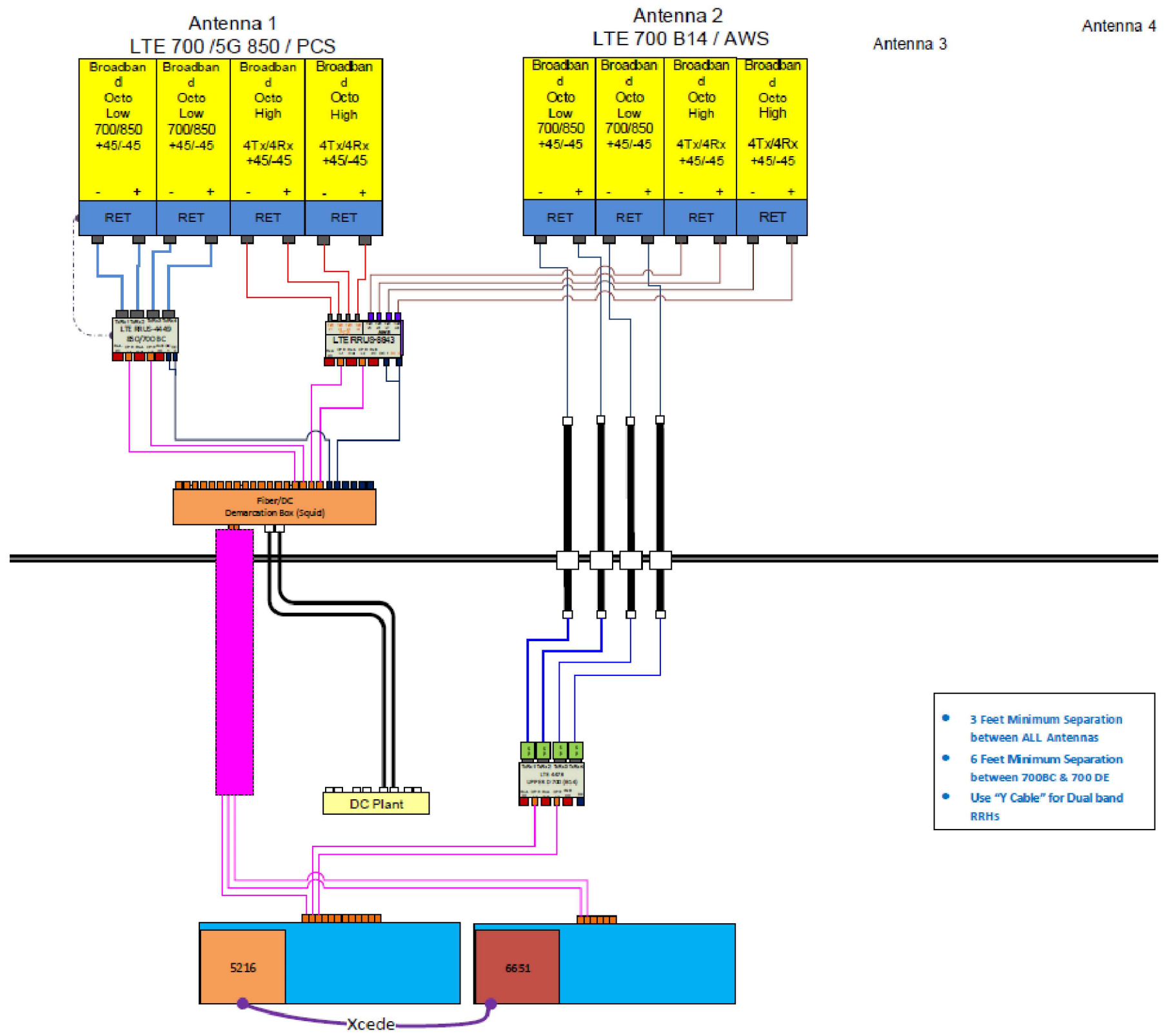


500 ENTERPRISE DRIVE, SUITE 3A
 ROCKY HILL, CT 06067

										AT&T	
2	12/13/23	ISSUED FOR CONSTRUCTION	SE	AT	DPH					ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE	
1	02/20/23	ISSUED FOR CONSTRUCTION	MJ	AT	DPH					DETAILS	
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH					DRAWING NUMBER	
NO.	DATE	REVISIONS	BY	CHK	APP'D					REV	
SCALE: AS SHOWN		DESIGNED BY: AT		DRAWN BY: MJ						CTL05702 A-5 2	



FINAL APPROVED V3.00 RFDS DATED 06/16/23



- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- Use "Y Cable" for Dual band RRHs

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

NOTE:
 REFER TO FINAL APPROVED V3.00 RFDS DATED 06/16/23

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



SITE NUMBER: CTL05702
SITE NAME: ASHFORD SOUTHEAST
SBA SITE I.D.: CT13611
 142 FITTS ROAD
 ASHFORD, CT 06278
 WINDHAM COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
2	12/13/23	ISSUED FOR CONSTRUCTION	SG	AT	DPH
1	02/20/23	ISSUED FOR CONSTRUCTION	JS	AT	DPH
0	11/15/22	ISSUED FOR REVIEW	MJ	AT	DPH

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: MJ

AT&T		
RF PLUMBING DIAGRAM		
ANTENNA MODS, 4TX4RX SOFTWARE RETROFIT, 5G NR RADIO, 5G NR 1DR-1, LTE 3C, 2023 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CTL05702	RF-1	2

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS



Site Name:	ASHFORD SOUTHEAST
AT&T Mobility FA#	10070913
Site ID:	CTL05702
Project Name:	LTE
Address:	142 FITTS ROAD, ASHFORD, CT 06278
County:	WINDHAM
Latitude:	41.8787919
Longitude:	-72.1304989
Structure Type:	MONOPOLE
Property Owner:	NA
Property Contact:	NA

AT&T Existing Facility

Report Information

Report Writer:	Monti Kumar	Report Generated Date:	04-11-2023
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Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	0.1014%

April 11, 2023

Emissions Analysis for Site: **CTL05702– ASHFORD SOUTHEAST**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **142 FITTS ROAD, ASHFORD, CT 06278**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). The number of mW/cm^2 or $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately $0.467 mW/cm^2$ and $0.567 mW/cm^2$ respectively or $466.667 \mu W/cm^2$ and $566.667 \mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3540 MHz (DoD Band) and 3840 MHz (C-Band) bands is $1 mW/cm^2$ or $1000 \mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

1. Theoretical Calculations: Methods and Procedures

MobileComm Professionals, Inc has performed theoretical modeling of the site using a software tool, RoofMaster® Version 40.12.23.2022, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.

The following table details the antennas and operating parameters for the AT&T antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at ground level (0-6' spatial average). The results from highest cumulative sample point at ground level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table. The cumulative power density and cumulative % MPE are displayed at the bottom of the table.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated MPE%
A	1	AT&T	CCI	OPA65R-BU8D	Panel	700	LTE(B12)	100	75	13.55	8	4	40.00	3229.39	5298.10	167.00	0.033792	466.67	0.007241
A	1	AT&T	CCI	OPA65R-BU8D	Panel	850	5G	100	63	14.45	8	4	40.00	3973.01	6518.08	167.00	0.053452	566.67	0.009433
A	1	AT&T	CCI	OPA65R-BU8D	Panel	1900	LTE/5G	100	67	15.75	8	4	40.00	5359.45	8792.65	167.00	0.038643	1000.00	0.003864
A	2	AT&T	CCI	OPA65R-BU8D	Panel	700	LTE(FN)	100	75	13.55	8	4	40.00	3229.39	5298.10	167.00	0.034496	466.67	0.007392
A	2	AT&T	CCI	OPA65R-BU8D	Panel	2100	LTE/5G	100	69	16.05	8	4	40.00	5742.75	9421.50	167.00	0.027154	1000.00	0.002715
B	3	AT&T	CCI	OPA65R-BU8D	Panel	700	LTE(B12)	225	75	13.55	8	4	40.00	3229.39	5298.10	167.00	0.000001	466.67	0.000000
B	3	AT&T	CCI	OPA65R-BU8D	Panel	850	5G	225	63	14.45	8	4	40.00	3973.01	6518.08	167.00	0.000006	566.67	0.000001
B	3	AT&T	CCI	OPA65R-BU8D	Panel	1900	LTE/5G	225	67	15.75	8	4	40.00	5359.45	8792.65	167.00	0.000023	1000.00	0.000002
B	4	AT&T	CCI	OPA65R-BU8D	Panel	700	LTE(FN)	225	75	13.55	8	4	40.00	3229.39	5298.10	167.00	0.000029	466.67	0.000006
B	4	AT&T	CCI	OPA65R-BU8D	Panel	2100	LTE/5G	225	69	16.05	8	4	40.00	5742.75	9421.50	167.00	0.000010	1000.00	0.000001
C	5	AT&T	CCI	OPA65R-BU8D	Panel	700	LTE(B12)	340	75	13.55	8	4	40.00	3229.39	5298.10	167.00	0.041183	466.67	0.008825
C	5	AT&T	CCI	OPA65R-BU8D	Panel	850	5G	340	63	14.45	8	4	40.00	3973.01	6518.08	167.00	0.039161	566.67	0.006911
C	5	AT&T	CCI	OPA65R-BU8D	Panel	1900	LTE/5G	340	67	15.75	8	4	40.00	5359.45	8792.65	167.00	0.038457	1000.00	0.003846
C	6	AT&T	CCI	OPA65R-BU8D	Panel	700	LTE(FN)	340	75	13.55	8	4	40.00	3229.39	5298.10	167.00	0.015288	466.67	0.003276
C	6	AT&T	CCI	OPA65R-BU8D	Panel	2100	LTE/5G	340	69	16.05	8	4	40.00	5742.75	9421.50	167.00	0.017475	1000.00	0.001747

Table 2.1: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (°)	H B W (°)	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power Per Channel (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated MPE%
A	7	Unknown	Generic	Generic	Panel	600	LTE	0	64	12.62269	6	2	60.00	978.18	1604.80	157.00	0.010149	400.00	0.002537
A	7	Unknown	Generic	Generic	Panel	600	5G	0	64	12.62269	6	2	60.00	978.18	1604.80	157.00	0.010149	400.00	0.002537
A	7	Unknown	Generic	Generic	Panel	700	LTE	0	64	12.62269	6	2	30.00	978.18	1604.80	157.00	0.010149	466.67	0.002175
A	7	Unknown	Generic	Generic	Panel	1900	GSM	0	61	15.71957	6	4	30.00	3991.52	6548.44	157.00	0.015816	1000.00	0.001582
A	7	Unknown	Generic	Generic	Panel	2100	UMTS	0	58	15.9394	6	2	30.00	2099.38	3444.22	157.00	0.005300	1000.00	0.000530
A	8	Unknown	Generic	Generic	Panel	1900	LTE	0	61	15.71957	6	1	120.00	3991.52	6548.44	157.00	0.004447	1000.00	0.000445
A	8	Unknown	Generic	Generic	Panel	2100	LTE	0	58	15.9394	6	1	120.00	4198.76	6888.44	157.00	0.003778	1000.00	0.000378
A	9	Unknown	Generic	Generic	Panel	2500	LTE	0	65	22.65	2.75	1	67.78	11119.26	18242.15	157.00	0.278111	1000.00	0.027811
B	10	Unknown	Generic	Generic	Panel	600	LTE	120	64	12.62269	6	2	60.00	978.18	1604.80	157.00	0.006330	400.00	0.001583
B	10	Unknown	Generic	Generic	Panel	600	5G	120	64	12.62269	6	2	60.00	978.18	1604.80	157.00	0.006330	400.00	0.001583
B	10	Unknown	Generic	Generic	Panel	700	LTE	120	64	12.62269	6	2	30.00	978.18	1604.80	157.00	0.006330	466.67	0.001357
B	10	Unknown	Generic	Generic	Panel	1900	GSM	120	61	15.71957	6	4	30.00	3991.52	6548.44	157.00	0.008037	1000.00	0.000804
B	10	Unknown	Generic	Generic	Panel	2100	UMTS	120	58	15.9394	6	2	30.00	2099.38	3444.22	157.00	0.005264	1000.00	0.000526
B	11	Unknown	Generic	Generic	Panel	1900	LTE	120	61	15.71957	6	1	120.00	3991.52	6548.44	157.00	0.006223	1000.00	0.000622
B	11	Unknown	Generic	Generic	Panel	2100	LTE	120	58	15.9394	6	1	120.00	4198.76	6888.44	157.00	0.007537	1000.00	0.000754
B	12	Unknown	Generic	Generic	Panel	2500	5G	120	65	22.65	2.75	1	67.78	11119.26	18242.15	157.00	0.008819	1000.00	0.000882
C	13	Unknown	Generic	Generic	Panel	600	LTE	240	64	12.62269	6	2	60.00	978.18	1604.80	157.00	0.000025	400.00	0.000006
C	13	Unknown	Generic	Generic	Panel	600	5G	240	64	12.62269	6	2	60.00	978.18	1604.80	157.00	0.000025	400.00	0.000006
C	13	Unknown	Generic	Generic	Panel	700	LTE	240	64	12.62269	6	2	30.00	978.18	1604.80	157.00	0.000025	466.67	0.000005
C	13	Unknown	Generic	Generic	Panel	1900	GSM	240	61	15.71957	6	4	30.00	3991.52	6548.44	157.00	0.000066	1000.00	0.000007
C	13	Unknown	Generic	Generic	Panel	2100	UMTS	240	58	15.9394	6	2	30.00	2099.38	3444.22	157.00	0.000005	1000.00	0.000000
C	14	Unknown	Generic	Generic	Panel	1900	LTE	240	61	15.71957	6	1	120.00	3991.52	6548.44	157.00	0.000089	1000.00	0.000009
C	14	Unknown	Generic	Generic	Panel	2100	LTE	240	58	15.9394	6	1	120.00	4198.76	6888.44	157.00	0.000042	1000.00	0.000004
C	15	Unknown	Generic	Generic	Panel	2500	5G	240	65	22.65	2.75	1	67.78	11119.26	18242.15	157.00	0.000216	1000.00	0.000022
																Calculated Power Density ($\mu\text{W}/\text{cm}^2$)	0.732432%	Calculated MPE%	0.1014%

Table 2.2: Antenna Inventory & Power Data

*NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6449 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6449 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6449 due to its similarity.

3. Compliance Summary

The theoretical calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated composite MPE value for this site assuming all carriers present is 0.1014% of the allowable FCC established general public limit sampled at the ground level.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were within the allowable 100% threshold standard per the federal government.



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Friday

2/16/24 at 1:06 PM

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DELIVERY STATUS

Delivered



TRACKING ID

775144214424

FROM

Smartlink LLC
Carolyn Seeley
6 Jasmine Rd
Oxford, MA US 01540
9787605577

Label Created
2/11/24 6:29 PM

WE HAVE YOUR PACKAGE

WEST BOYLSTON, MA
2/13/24 3:07 PM

ON THE WAY

NORWICH, CT
2/16/24 8:04 AM

OUT FOR DELIVERY

NORWICH, CT
2/16/24 9:15 AM

DELIVERED

Michael D'Amato
Town of Ashford
5 TOWN HALL RD
ASHFORD, CT US 06278



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Shipment facts



Shipment overview

TRACKING NUMBER 775144214424

DELIVERED TO Receptionist/Front Desk

SHIPPER REFERENCE CTL05702

SHIP DATE 2/13/24

STANDARD TRANSIT 2/16/24 before 5:00 PM

ACTUAL DELIVERY 2/16/24 at 1:06 PM



Services

SERVICE FedEx 2Day

TERMS Shipper

SPECIAL HANDLING SECTION Deliver Weekday



Package details

WEIGHT 2 lbs / 0.91 kgs

TOTAL PIECES 1

TOTAL SHIPMENT WEIGHT 2 lbs / 0.91 kgs

PACKAGING FedEx Envelope



Travel history

Ascending



Local Scan Time



Sunday, 2/11/24

- 6:29 PM
Shipment information sent to FedEx

Tuesday, 2/13/24

- 3:07 PM
Picked up
WEST BOYLSTON, MA
- 3:08 PM
Shipment arriving On-Time
WEST BOYLSTON, MA
- 7:02 PM
Left FedEx origin facility
WEST BOYLSTON, MA

Wednesday, 2/14/24

- 10:23 AM
Arrived at FedEx hub
MEMPHIS, TN
- 3:13 PM
Departed FedEx hub
MEMPHIS, TN
- 6:26 PM
At destination sort facility
EAST GRANBY, CT



- 6:43 AM
At local FedEx facility
NORWICH, CT
- 8:55 AM
Delay
Business closed - No delivery attempt
NORWICH, CT
- 8:56 AM
Shipment arriving On-Time
NORWICH, CT
- 5:56 PM
At local FedEx facility
NORWICH, CT

Friday, 2/16/24

- 8:04 AM
At local FedEx facility
NORWICH, CT
- 9:15 AM
On FedEx vehicle for delivery
NORWICH, CT

- ☑ 1:06 PM
Delivered
ASHFORD, CT

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SHOP NOW

DELIVERED

Wednesday

2/14/24 at 11:09 AM

Signed for by: C.SILVER SMIT

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DELIVERY STATUS

Delivered



TRACKING ID

775144214928

FROM

Smartlink LLC
Carolyn Seeley
6 Jasmine Rd
Oxford, MA US 01540
9787605577

Label Created
2/11/24 6:29 PM

WE HAVE YOUR PACKAGE

WEST BOYLSTON, MA
2/12/24 3:25 PM

ON THE WAY

NORWICH, CT
2/14/24 9:06 AM

OUT FOR DELIVERY

NORWICH, CT
2/14/24 9:45 AM

DELIVERED

Cathryn E. Silver-Smith
Town of Ashford
5 TOWN HALL RD
ASHFORD, CT US 06278



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Shipment facts



Shipment overview

TRACKING NUMBER 775144214928

DELIVERED TO Receptionist/Front Desk

SHIPPER REFERENCE CTL05702

SHIP DATE 2/12/24

STANDARD TRANSIT 2/14/24 before 5:00 PM

ACTUAL DELIVERY 2/14/24 at 11:09 AM

Services

SERVICE FedEx 2Day

TERMS Shipper

SPECIAL HANDLING SECTION Deliver Weekday

Package details

WEIGHT 2 lbs / 0.91 kgs

TOTAL PIECES 1

TOTAL SHIPMENT WEIGHT 2 lbs / 0.91 kgs

PACKAGING FedEx Envelope



Travel history

Ascending



Local Scan Time



Sunday, 2/11/24

- 6:29 PM
Shipment information sent to FedEx

Monday, 2/12/24

- 3:25 PM
Picked up
WEST BOYLSTON, MA
- 3:26 PM
Shipment arriving On-Time
WEST BOYLSTON, MA
- 7:38 PM
Left FedEx origin facility
WEST BOYLSTON, MA

Tuesday, 2/13/24

- 10:27 AM
Arrived at FedEx hub
MEMPHIS, TN
- 3:51 PM
Departed FedEx hub
MEMPHIS, TN
- 7:08 PM
At destination sort facility
EAST GRANBY, CT

Wednesday, 2/14/24

- 9:06 AM
At local FedEx facility
NORWICH, CT
- 9:45 AM
On FedEx vehicle for delivery
NORWICH, CT
- 11:09 AM
Delivered
ASHFORD, CT

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The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2021. A plus sign (+) at the end of a Map Block Lot (e.g., 23 52 7+) means three or more lots have been merged.



Ashford, Connecticut

Information on the Property Records for the Municipality of Ashford was last updated on 2/9/2024.



Parcel Information

Location:	142 FITTS RD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	00909113	Map Block Lot:	31 A 40	Acres:	1.0000
490 Acres:	0.00	Zone:	RA	Volume / Page:	210/ 607
Developers Map / Lot:		Census:			

Value Information

	Appraised Value	Assessed Value
Land	144,400	101,080
Buildings	0	0
Detached Outbuildings	80,800	56,560

	Appraised Value	Assessed Value
Total	225,200	157,640

Owner's Information

Owner's Data
<p>CONNECTICUT RIVERS COUNCIL INC BSA C/O TPA VII LLC CT13611-A 1170 PEACHTREE ST SUITE 1650 ATLANTA, GA 30309</p>

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
8 Ft Chain Fence	2007	0.00	0.00	300
Cell Tower	2007	0.00	0.00	180

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
CONNECTICUT RIVERS COUNCIL INC BSA	0210	0607	01/08/2024	Other	\$425,000
CONNECTICUT RIVERS COUNCIL INC BSA	0141	0868	03/01/2004		\$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
23-80B	Commercial	05/16/2023	AT&T PROPOSES THE FOLLOWING MODIFICATIONS TO THEIR EXISTING TELECOMMUNICATIONS SITE BY; REMOVING AND
16-151B	Electrical	10/14/2016	NEW ANTENNAS ON CELL TOWER
15774	Electrical	12/30/2013	50KW DIESEL GENERATOR 508-930

Permit Number	Permit Type	Date Opened	Reason
15450	Commercial	11/14/2012	ATT 3 ANTENNAS 781-715-5532

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