*Filed by:*
*G. Scott Shepherd, Site Development Specialist II - SBA Communications*
*134 Flanders Rd., Suite 125, Westborough, MA 01581*
*508.251.0720 x 3807 - gshepherd@sbasite.com*

May 12, 2021

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

**RE: Notice of Exempt Modification**
**10 Ashpohtag Rd., Norfolk, CT 06058**
**Latitude: 42.002694**
**Longitude: -73.221388**
**Sprint, now a part of T-Mobile USA #: CTNH389A_Sprint Keep**

Dear Ms. Bachman:

**Sprint, now a part of T-Mobile USA, hereinafter referred to as Sprint/T-Mobile,** currently maintains four (4) antennas at the 145-foot level of the existing 148-foot Monopole Tower at 10 Ashpohtag Rd., Norfolk, CT. The 148-foot tower is owned by SBA 2012 TC Assets, LLC. The property is owned by Kevin C. Gundlach. Sprint/T-Mobile now intends to remove four (4) antennas and replace with four (4) new L700/L600/1900/2100 MHz antennas and install two (2) new 2500 MHz antennas for a total of six (6) antennas.

**The new antennas would support 5G services and be installed at the 145-foot level of the tower**.

**Please note:** Per the Connecticut Siting Council Website: CSC COVID 19 Guidelines.
*In order to prevent the spread of Coronavirus and protect the health and safety of our members and staff, as of March 18, 2020, the Connecticut Siting Council shall convert to full remote operations until March 30, 2020. Please be advised that during this time period, all hard copy filing requirements will be waived in lieu of an electronic filing. Please also be advised that the March 26, 2020 regular meeting shall be held via teleconference. The Council's website is not equipped with an on-line filing fee receipt service. Therefore, filing fees and/or direct cost charges associated with matters received electronically during the above-mentioned time period will be directly invoiced at a later date.*

Planned Modifications:

TOWER

Remove:

- (3) T-Arms

Remove and Replace:

- (2) Commscope NNVV-65B-R4 antennas (remove) – (2) Ericsson AIR32 KRD901146-1_B66A_B2A 1900/2100 MHz antennas (replace)
- (2) RFS APXVTM14-C-I20 antennas (remove) – (2) RFS APXVAALL24_43-U-NA20 600/700/1900 MHz antennas (replace)
- (2) ALU 1900MHz RRH (remove) – (2) Ericsson 4415 B25 RRU (replace)
- (2) ALU TD-RRH8x20-25 RRU (remove) – (2) Ericsson 4449 B71 + B85 RRU (replace)

Install New:

- (1) Low Profile platform (SitePro1 RMQP-472) – (replace)
- (2) Ericsson AIR6449 B41 2500 MHz antennas
- (3) 2" Hybrid

Existing Equipment to Remain:

- (1) Site Pro PRK-1245 handrail kit
- (4) RFS ACU-A20-N-RET
- (4) ALU 800 MHz RRH
- (2) ALU 800 MHz Filter

Entitlements:

- (4) 1-1/4" Fiber

GROUND

Remove:

- (3) Existing Sprint cabinets

Install New:

- Equipment inside existing RBS 6201 Equipment cabinet
- (1) AAV Cabinet on Proposed H-Frame
- (1) T-Mobile B160 Battery Cabinet
- (1) T-Mobile 6160 Cabinet
- (4) 2" conduit
- (2) 1" conduit

Remain:

- (1) GPS
- (1) Ice Bridge
- (1) T-Mobile 200A PPC
- 9'x 6' x 18' concrete pad

By its Decision and Order dated July 12, 2004, the Connecticut Siting Council (CSC) granted Sprint Spectrum L.P. a Certificate of Environmental Compatibility and Public Need (Certificate) under Docket No. 287 for the construction, maintenance and operation of a wireless telecommunications facility at 10 Ashpohtag Rd., Norfolk, CT. At a public meeting of the Connecticut Siting Council held on September 14, 2004, the Connecticut Siting Council (Council) considered and approved the Development and Management (D&M) Plan submitted for this project on August 25, 2004. Consistent with the Council's D&O, Sprint will construct a 150-foot monopole tower at the site. The D&O limits the total height, including antennas, to 150-feet. The Antennas, as designed in the D&M, would not extend above the top of the tower and thus would be in compliance with Order No. 1. The total number of antennas would six (two per sector), and they would be located on a platform. Pursuant to Order No. 6 of the Council's D&O, the tower has been designed with a yield point to ensure that the tower setback radius remains within the property boundaries. Initially, the construction plans did not indicate a yield point. However, on September 3, 2004, revised tower drawings including the yield point were received and then mailed to Council members. Sprint will construct a 50-foot x 50-foot tower compound and enclose it by an eight-foot high chain link fence. Access to the site will originate at Ashpohtag Road, follow an existing driveway for approximately 1,080 feet, then follow a new 12-foot wide access driveway for about 200 feet to reach the compound. Utilities will originate from a utility pole on Ashpohtag Road and then continue underground along the access driveway to reach the compound. A 2-foot high silt fence will be used for sediment control. Further, 22 evergreen trees will be planted in a staggered pattern to screen the compound. All of the D&M requirements set forth in the Council's Decision & Order for Docket 287 appear to be in compliance; therefore, Council staff recommends approval of the D&M plan. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Norfolk's First Selectman, Mathew T. Riiska, Building Official, James Clarke and Town Clerk Linda S. Perkins, , as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the 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 structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

G. Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
gshepherd@sbasite.com

Attachments
cc: *Mathew T. Riiska, First Selectman / with attachments*
*Town of Norfolk PO Box 592, Norfolk, CT 06058*
*James Clarke, Building Official / with attachments*
*Town of Norfolk PO Box 592, Norfolk, CT 06058*
*Linda S. Perkins, Town Clerk / with attachments*
*Town of Norfolk PO Box 592, Norfolk, CT 06058*
*Kevin C. Gundlach, Owner / with attachments*
*10 Ashpohtag Road, Norfolk, CT 06058*

**EXHIBIT LIST**

| | | |
|---|---|---|
| Exhibit 1 | Check Copy | To be invoiced at a later date per Covid guidelines |
| Exhibit 2 | Notification Receipts | x |
| Exhibit 3 | Property Card | x |
| Exhibit 4 | Property Map | x |
| Exhibit 5 | Original Zoning Approval | CSC Docket 287 9/14/2004 |
| Exhibit 6 | Construction Drawings | Centerline 3/17/21 |
| Exhibit 7 | Structural Analysis | TES 5/7/21 |
| Exhibit 8 | Mount Analysis | TES 4/14/21 |
| Exhibit 9 | EME Report | EBI Consulting 2/23/21 |

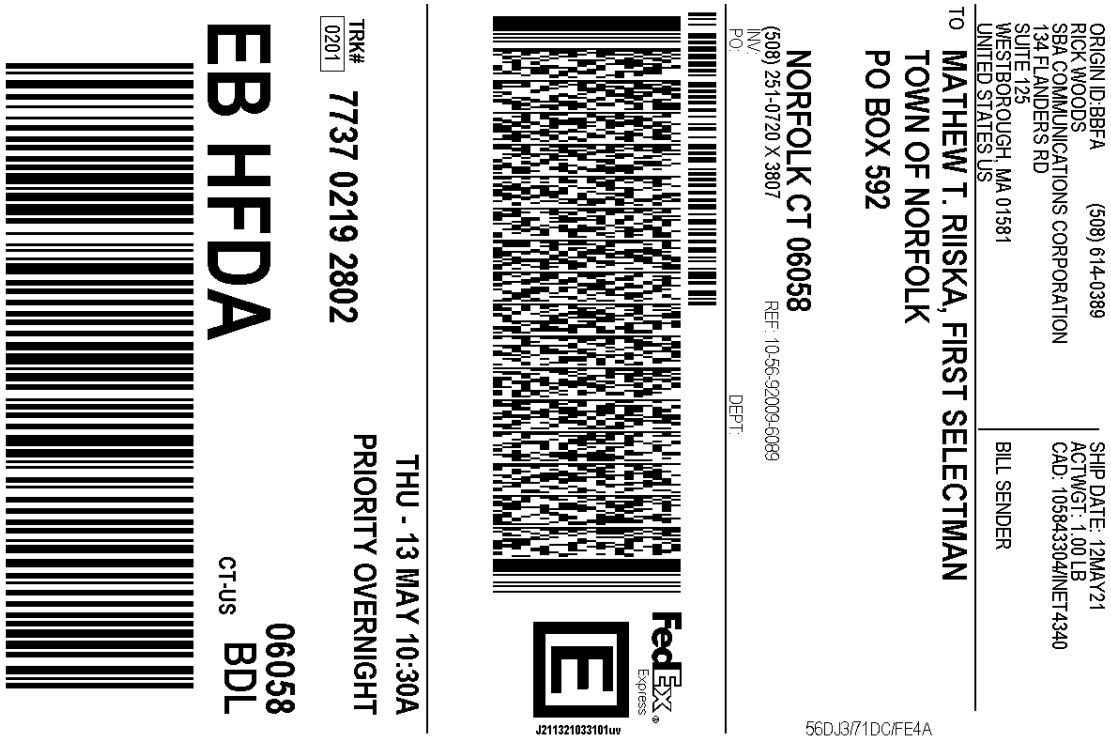
EXHIBIT 1

Normally, Exhibit 1 would contain a copy of the check for the filing fee.

# EXHIBIT 2


**After printing this label**:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning**: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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# EXHIBIT 3

# qPublic.net™ Town of Norfolk, CT

## Summary

| | |
|---|---|
| **Account Number** | 000171 |
| **Parcel ID** | 1140 |
| **Property Address** | 10 ASHPOHTAG RD |
| **Use Class/Description** | 1-1 RESIDENTIAL LOT |
| **Map/Block/Block Cut** | 8-14/34// |
| **Zoning** | RU |
| **Acres** | 13.01 |

View Map

## Owner

GUNDLACH KEVIN C
10 ASHPOHTAG RD
NORFOLK, CT 06058

## Valuation

| **Assessed Year** | **2020** | **2019** |
|---|---|---|
| Appraised Building Value | $72,260.00 | $72,260.00 |
| Appraised XF/OB Value | $3,250.00 | $940,050.00 |
| Appraised Land Value | $87,230.00 | $87,230.00 |
| **Appraised Total Value** | **$162,740.00** | **$1,099,540.00** |
| Assessed Building Value | $50,580.00 | $50,580.00 |
| Assessed XF/OB Value | $2,280.00 | $658,040.00 |
| Assessed Land Value | $61,060.00 | $61,060.00 |
| **Assessed Total Value** | **$113,920.00** | **$769,680.00** |

## Land

| | | | |
|---|---|---|---|
| **Building Number** | 1 | **Land Units** | 2 AC |
| **Land Use** | 1-1 - RESIDENTIAL LOT | **Value** | 52,000 |

| | | | |
|---|---|---|---|
| **Building Number** | 1 | **Land Units** | 11.01 AC |
| **Land Use** | 1-2 - EXCESS LAND | **Value** | 35,230 |

## Building Information

| | | | |
|---|---|---|---|
| **Building #** | 1 | **Notes** | |
| **Style** | Ranch | | EO= CELL TOWER LOCATION |
| **Occupancy** | 1 | | DWL FIRE DAMAGED |
| **Actual Year Built** | 1988 | | DWL/LAND TO OWNER |
| **Effective Year Built** | 1996 | | TOWER/FENCE/FR3 TO SBA2012 TC ASSETS LLC |
| **Living Area** | 1,248 | | CELL TOWER SITE NOT SPLIT OR SEPARATE |
| **Stories** | 1 | | PARCEL |
| **Grade** | 03 C | **Fireplaces** | |
| **Condition** | F | **Roof Cover** | Asphalt |
| **Exterior Wall** | Vinyl Siding | **Roof Structure** | Gable/Hip |
| **Interior Wall** | Drywall/Sheet | **Floor Type** | Hardwood |
| | | **Heat Type** | Forced Air-Duc |
| | | **Fuel Type** | Oil |
| | | **AC** | None |
| | | **Bdrms/Full Bth/Hlf Bth/Ttl Rm** | 03/2/0/6 |
| | | **Basement Finished Area** | |
| | | **Basement Sq. Ft.** | 1,248 |

| **Code** | **Description** | **Living Area** | **Gross Area** | **Effective Area** |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| BAS | First Floor | 1,248 | 1,248 | 1,248 |
| UBM | Basement, Unfinished | 0 | 1,248 | 250 |
| | **Totals** | **1,248** | **2,496** | **1,498** |

## Out Buildings\Extra Features

**Description** FIREPLACE C
**Sub Description**
**Area** 1 UNITS
**Year Built** 1996
**Value** $1,250

**Description** BASEMENT GAR
**Sub Description**
**Area** 2 UNITS
**Year Built** 1996
**Value** $2,000

## Sales History

| Sales Date | Instrument Type | Grantor | Grantee | Book/Page | Sale Validity | Amount |
|---|---|---|---|---|---|---|
| 2/21/2018 | Unqualified Sale - Nonspecific | STOP SIGN REALTY LLC | GUNDLACH KEVIN C | 0122-0392 | U | $115,000.00 |
| 9/29/2016 | Unqualified Sale - Nonspecific | ASHNER HELEN | STOP SIGN REALTY LLC | 0120-0638 | U | $42,000.00 |
| 8/29/2014 | Unqualified Sale - Nonspecific | FEDERAL NATIONAL MORTGAGE ASSOC | ASHNER HELEN | 0118-0115 | U | $55,000.00 |
| 8/5/2014 | No Consideration Sale | ONE WEST BANK FSB | FEDERAL NATIONAL MORTGAGE ASSOC | 0118-0004 | U | $0.00 |
| 8/5/2014 | Foreclosure | FEDERAL NATIONAL MORTGAGE ASSOC | ONE WEST BANK FSB | 0118-0001 | U | $0.00 |
| 10/23/2012 | Foreclosure | ONEWEST BANK FSB | FEDERAL NATIONAL MORTGAGE ASSOC | 0115-0573 | U | $0.00 |
| 10/23/2012 | Foreclosure | CAMMILLETTI LOUIS | ONEWEST BANK FSB | 0115-0570 | U | $0.00 |
| 9/13/2006 | Family Sale | CAMMILLETTI LOUIS ET AL | CAMMILLETTI LOUIS | 0105-0178 | U | $0.00 |
| 5/22/2006 | Partial Sale | CAMMILLETTI LOUIS | CAMMILLETTI LOUIS ET AL | 0104-0228 | U | $0.00 |
| 12/29/2004 | | CAMMILLETTI LOUIS | CAMMILLETTI LOUIS | 0100-0195 | U | $0.00 |
| 12/19/2001 | | GRISWOLD SANDRA M | CAMMILLETTI LOUIS | 0091-0457 | U | $0.00 |
| 12/19/2001 | | CAMMILLETTI LOUIS | GRISWOLD SANDRA M | 0091-0455 | U | $0.00 |
| 8/20/2001 | | CAMMILLETTI LOUIS + NORMA AVIS | CAMMILLETTI LOUIS | 0090-0616 | Q | $0.00 |
| 2/18/1982 | | | CAMMILLETTI LOUIS + NORMA AVIS | 0061-0657 | U | $0.00 |

## Recent Sales In Area

**Sale date range:**

**From:** 03/25/2011

**To:** 03/25/2021

Sales by Neighborhood

1500

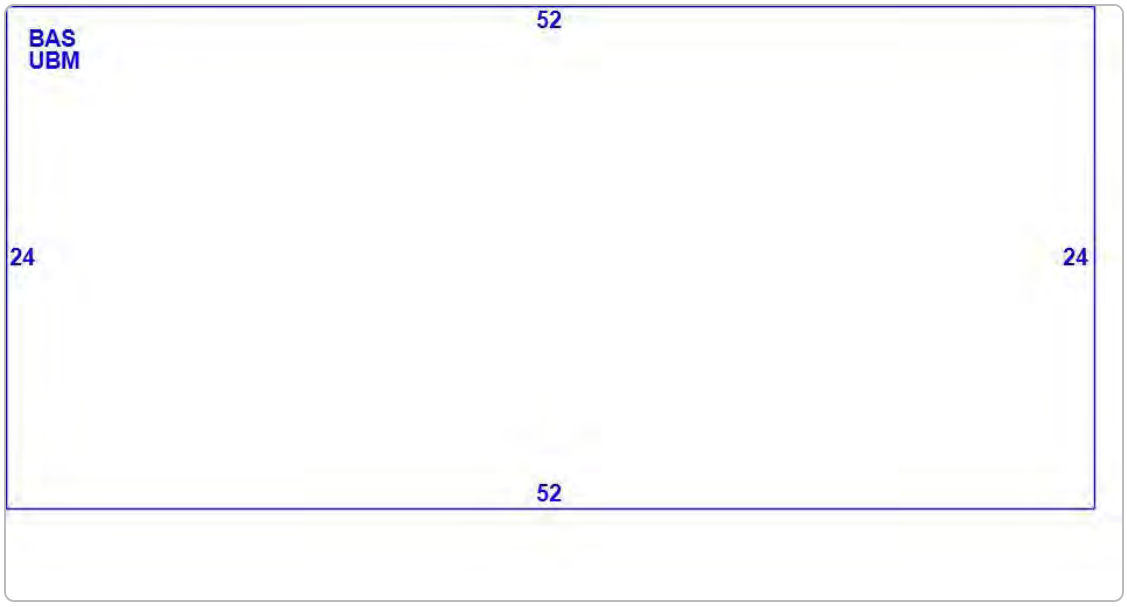
Feet

Sales by Distance

## Permit Information

| Permit ID | Issue Date | Type | Description | Amount | Inspection Date | % Complete | Date Complete | Comments |
|---|---|---|---|---|---|---|---|---|
| 18-254E | 10-15-2018 | EL | Electric | $1,000 | | 100 | | |
| 18-217E | 07-17-2018 | CM | Commercial | $20,000 | | 100 | | NEW ANTENNAS |
| 532 E | 10-04-2013 | EL | Electric | $5,000 | | 100 | | |
| 278 E | 09-02-2013 | EL | Electric | $12,000 | | 100 | | Install 6 new antennas |
| 278-E | 09-25-2012 | RE | Remodel | $12,000 | | 100 | 09-25-2012 | ANTENNAS |
| | 08-02-2007 | | BLDG/ANTENNAS | $170,000 | | 100 | | 12X30 SHELTER |
| 7614-B | 09-13-2004 | NC | CELL TOWER | $126,400 | | 100 | | |

## Sketch




## Photos

# EXHIBIT 4

qPublic.net™ own of Norfolk CT


Overview

Legend

- Parcels
- Map-Block-Lot
- Address Numbers
- Roads

| | | | | | |
|---|---|---|---|---|---|
| **Parcel ID** | 1140 | **Alternate ID** | 000171 | **Owner Address** | GUNDLACH KEVIN C |
| **Sec/Twp/Rng** | 8-14-34- | **Class** | R | | 10 ASHPOHTAG RD |
| **Property Address** | 10 ASHPOHTAG RD | **Acreage** | 13.01 | | NORFOLK CT 06058 |
| **District** | 3A | | | | |
| **Brief Tax Description** | n/a | | | | |
| | (Note: Not to be used on legal documents) | | | | |

Date created: 3/25/2021
Last Data Uploaded: 3/25/2021 1:36:07 AM

veloped by Schneider GEOSPATIAL

# EXHIBIT 5

STATE OF CONNECTICUT
*CONNECTICUT SITING COUNCIL*
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

**Docket No. 287**
**Sprint Spectrum L.P., d/b/a Sprint PCS**
**10 Ashpohtag Road, Norfolk**
**Development and Management Plan**
**Staff Report**
**September 14, 2004**

On July 12, 2004, the Connecticut Siting Council (Council) issued a Certificate of Environmental Compatibility and Public Need to Sprint Spectrum L.P., d/b/a Sprint PCS (Sprint) for the construction, maintenance, and operation of a wireless telecommunications facility at 10 Ashpohtag Road, Norfolk, Connecticut. As required in the Council's Decision and Order (D&O), Sprint submitted a Development and Management Plan (D&M) for this facility on August 25, 2004.

Consistent with the Council's D&O, Sprint will construct a 150-foot monopole at the site. The D&O limits the total height, including antennas, to 150 feet. The antennas, as depicted in the D&M, would not extend above the top of the tower and thus would be in compliance with Order No. 1. The total number of antennas would be six (two per sector), and they would be located on a platform.

Pursuant to Order No. 6 of the Council's D&O, the tower has been designed with a yield point to ensure that the tower setback radius remains within the property boundaries. Initially, the construction plans did not indicate a yield point. However, on September 3, 2004, revised tower drawings including the yield point were received and then mailed to Council members.

Sprint will construct a 50-foot by 50-foot tower compound and enclose it by an eight-foot high chain link fence. Access to the site will originate at Ashpohtag Road, follow an existing driveway for approximately 1,080 feet, then follow a new 12-foot wide access driveway for about 200 feet to reach the compound. Utilities will originate from a utility pole on Ashpohtag Road and then continue underground along the access driveway to reach the compound.

A 2-foot high silt fence will be used for sedimentation control. Further, 22 evergreen trees will be planted in a staggered pattern to screen the compound. Each tree will have a minimum height of six feet at the time of planting and will reach a minimum of 15 feet high upon maturity.

All of the D&M requirements set forth in the Council's Decision & Order for Docket 287 appear to be in compliance; therefore, Council staff recommends approval of the D&M plan.

# STATE OF CONNECTICUT

*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.ct.gov/csc


July 16, 2004

Thomas J. Regan, Esquire
Brown Rudnick Berlack Israels LLP
CityPlace I, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402

RE: **DOCKET NO. 287** – Sprint Spectrum, L.P. d/b/a Sprint PCS application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a wireless telecommunications facility at 10 Ashpohtag Road, Norfolk, Connecticut.

Dear Attorney Regan:

By its Decision and Order dated July 13, 2004, the Connecticut Siting Council (Council) granted Sprint Spectrum, L.P. d/b/a Sprint PCS a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance and operation of a wireless telecommunications facility at 10 Ashpohtag Road, Norfolk, Connecticut.

Enclosed are the Council's Certificate, Findings of Fact, Opinion, and Decision and Order.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/laf

Enclosures (4)



CSC
CONNECTICUT SITING COUNCIL

# STATE OF CONNECTICUT

*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc


**CERTIFICATE**

**OF**

**ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED**

**DOCKET NO. 287**

Pursuant to General Statutes § 16-50k, as amended, the Connecticut Siting Council hereby issues a Certificate of Environmental Compatibility and Public Need to Sprint Spectrum, L.P. d/b/a Sprint PCS for the construction, maintenance and operation of a wireless telecommunications facility at 10 Ashpohtag Road, Norfolk, Connecticut. This Certificate is issued in accordance with and subject to the terms and conditions set forth in the Decision and Order of the Council on July 13, 2004.

By order of the Council,

Pamela B. Katz, P.E., Chairman

July 13, 2004



CSC
CONNECTICUT SITING COUNCIL

# STATE OF CONNECTICUT

*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
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www.ct.gov/csc


September 15, 2004

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CityPlace I, 38th Floor
185 Asylum Street
Hartford, CT 06103-3402

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Dear Attorney Regan:

At a public meeting of the Connecticut Siting Council held on September 14, 2004, the Connecticut Siting Council (Council) considered and approved the Development and Management (D&M) Plan submitted for this project on August 25, 2004.

This approval applies only to the D&M Plan submitted on August 25, 2004 and the revised filing dated September 3, 2004. Any changes to the D&M Plan require advance Council notification and approval.

Please be advised that deviations from this plan are enforceable under the provisions of the Connecticut General Statutes § 16-50u. Enclosed is a copy of the staff report on this D&M Plan, dated September 14, 2004.

Thank you for your attention and cooperation.

Very truly yours,

PBK/laf

Pamela B. Katz, P.E.
Chairman

PBK/laf

Enclosure: Staff Report, dated September 14, 2004

# EXHIBIT 6

# PROJECT INFORMATION

| | |
|---|---|
| TOWER OWNER: | SBA PROPERTIES, LLC<br>8501 CONGRESS AVENUE<br>BOCA RATON, FL 33487<br>PHONE: 561-226-9523 |
| SBA TOWER ID: | CT46144-A |
| SBA SITE NAME: | CAMMILLETTI PROPERTY |
| T-MOBILE SITE NAME: | CTNH389A |
| T-MOBILE SITE NUMBER: | CTNH389A |
| SBA SITE ADDRESS: | 10 ASHPOHTAG ROAD<br>NORFOLK, CT 06058 |
| LATITUDE: | 42.00270000 |
| LONGITUDE: | -73.22140000 |
| TOWER HEIGHT: | 148'-6"± AGL |
| RAD CENTER: | 145'-0"± AGL |
| ZONING JURISDICTION: | TOWN OF NORFOLK |
| COUNTY: | LITCHFIELD |

DESCRIPTION OF WORK:

TELECOMMUNICATIONS FACILITY UPGRADE (SPRINT RETAIN):

MONOPOLE

# COMPLIANCE CODES:

| | |
|---|---|
| 1. | BUILDING CODE:<br>IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018 |
| 2. | ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE |
| 3. | CONCRETE CODE:<br>AMERICAN CONCRETE INSTITUTE (ACI) 318 |
| 4. | STEEL CODE:<br>AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), 14TH EDITION |
| 5. | TELECOMMUNICATIONS CODE:<br>EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL |

BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

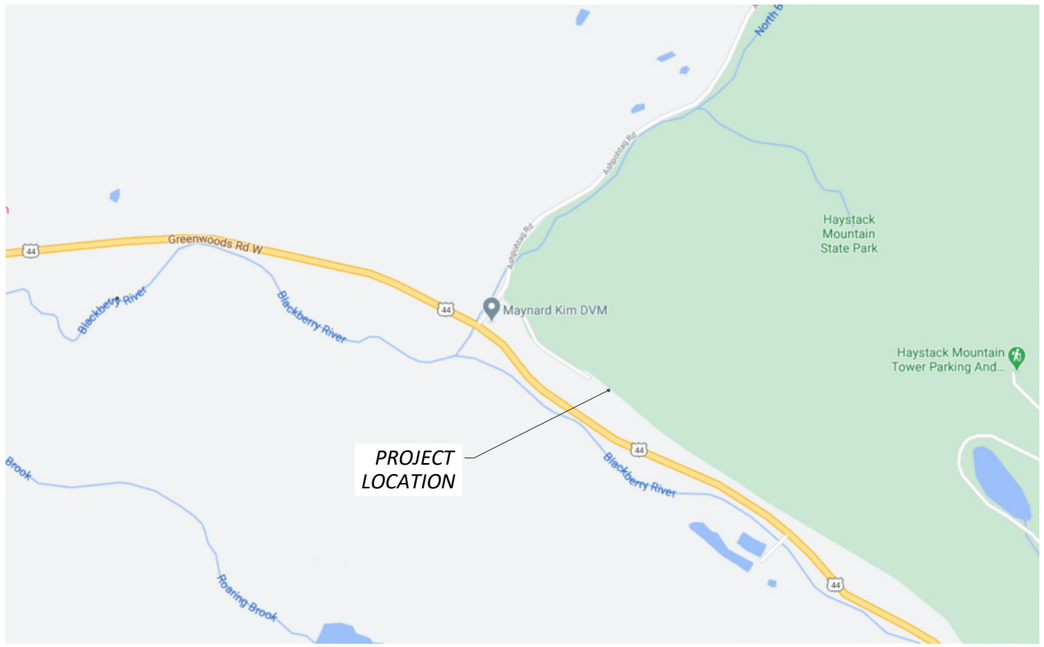
# PROJECT DIRECTORY


A&E / PROJECT MANAGER:
CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE 781.713.4725

APPLICANT:
T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893


# SITE NAME: CTNH389A
# 10 ASHPOHTAG ROAD
# NORFOLK, CT 06058

## SITE NUMBER: CTNH389A
## SBA SITE #: CT46144-A
## PROJECT: SPRINT RETAIN
## CONFIGURATION: 67D5A997DB 6160 (GSM ONLY)




VICINITY MAP
NOT TO SCALE

# GENERAL NOTES:

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE 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 T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

# DRAWING INDEX

| NO. | DESCRIPTION | REV. | DATE |
|---|---|---|---|
| T-1 | TITLE SHEET | 2 | 03/17/21 |
| GN-1 | GENERAL NOTES | 2 | 03/17/21 |
| A-1 | COMPOUND & EQUIPMENT PLANS | 2 | 03/17/21 |
| A-2 | ANTENNA LAYOUT & ELEVATIONS | 2 | 03/17/21 |
| A-3 | DETAILS | 2 | 03/17/21 |
| SN-1 | STRUCTURAL NOTES | 2 | 03/17/21 |
| RF-1 | RF PLUMBING DIAGRAM | 2 | 03/17/21 |
| G-1 | GROUNDING DETAILS | 2 | 03/17/21 |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CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725


| REVISIONS | | |
|---|---|---|
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| | | |
| 2 | 03/17/21 | ISSUED FOR CONSTRUCTION |
| 1 | 03/11/21 | REVISED FOR REVIEW |
| 0 | 12/10/20 | ISSUED FOR REVIEW |
| NO. | DATE | DESCRIPTION |
| DESIGNED BY: AG | | APPROVED BY: DC |

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28557
LICENSED PROFESSIONAL ENGINEER

**DATE: 03/17/21**



CBYD.com 811 Call Before You Dig, Inc.

| | |
|---|---|
| SITE NAME: | CTNH389A |
| SITE NUMBER: | CTNH389A |
| SITE ADDRESS: | 10 ASHPOHTAG ROAD<br>NORFOLK, CT 06058 |
| PROJECT TYPE: | SPRINT RETAIN |
| SHEET TITLE: | TITLE SHEET |
| DRAWING #: T-1 | REVISION: 2 |

# GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – CENTERLINE COMMUNICATIONS
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – T–MOBILE

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. TOUCHUP 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 T–MOBILE SITES."

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

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

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

20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
BUILDING CODE: IBC 2015 & CONNECTICUT STATE BUILDING CODE 2018
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
LIGHTING CODE: NFPA 70–2017

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

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

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–G, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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 | G.C. | GENERAL CONTRACTOR | RF | RADIO FREQUENCY |
| AWG | AMERICAN WIRE GAUGE | MGB | MASTER GROUND BUS | | |
| BCW | BARE COPPER WIRE | MIN | MINIMUM | TBD | TO BE DETERMINED |
| BTS | BASE TRANSCEIVER STATION | PROPOSED | NEW | TBR | TO BE REMOVED |
| EXISTING | EXISTING | N.T.S. | NOT TO SCALE | TBRR | TO BE REMOVED AND REPLACED |
| EG | EQUIPMENT GROUND | REF | REFERENCE | TYP | TYPICAL |
| EGR | EQUIPMENT GROUND RING | REQ | REQUIRED | | |

# RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR

2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.

3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.

4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS–OCCUPIED, INDOORS–UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.

5. RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.

6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.

7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.

8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.

9. 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.

10. USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.

11. ANTENNAS SHALL BE PAINTED,WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.

12. CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE AND SCHEDULING NOTES

1. SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.

2. TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER T–MOBILE ANTENNA CABLE MARKING STANDARD:

- TOP OF TOWER END OF MAIN COAX
- BOTTOM OF TOWER END OF MAIN COAX
- DIRECTLY BEFORE AND AFTER RF EQUIPMENT
- END OF JUMPERS AT BTS EQUIPMENT

3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.

4. PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.


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CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725


| REVISIONS | | |
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| | | |
| 2 | 03/17/21 | ISSUED FOR CONSTRUCTION |
| 1 | 03/11/21 | REVISED FOR REVIEW |
| 0 | 12/10/20 | ISSUED FOR REVIEW |
| NO. | DATE | DESCRIPTION |

| DESIGNED BY: | APPROVED BY: |
|---|---|
| AG | DC |

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

**DATE: 03/17/21**



SITE NAME: CTNH389A

SITE NUMBER: CTNH389A

SITE ADDRESS: 10 ASHPOHTAG ROAD
NORFOLK, CT 06058

PROJECT TYPE: SPRINT RETAIN

SHEET TITLE: GENERAL NOTES

DRAWING #: GN–1

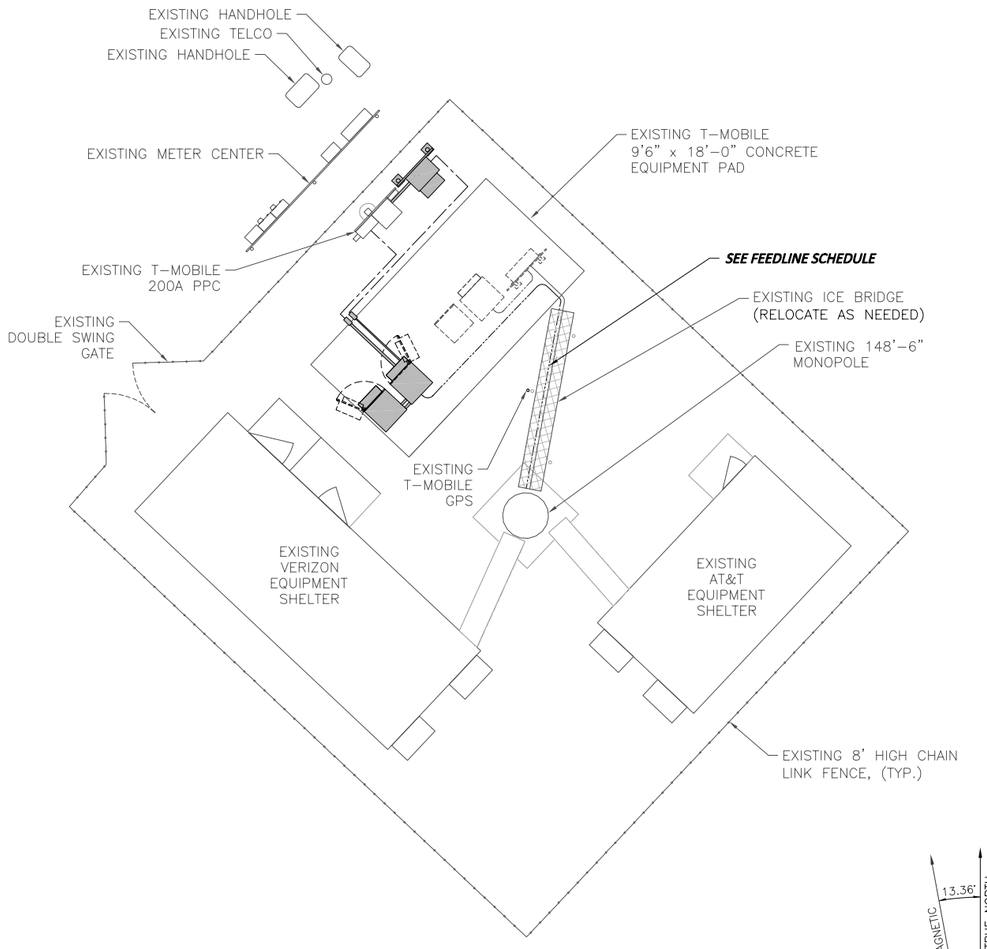
REVISION: 2

NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

| FEEDLINE SCHEDULE | FEEDLINES | LOCATION |
|---|---|---|
| A | EXISTING TO BE REMOVED:<br>REMOVE ALL EXISTING CABLES | FROM CABINET TO TOP RAD |
| B | PROPOSED:<br>(3) 6x12 (1-5/8") HYBRID FIBER | FROM CABINET TO TOP RAD |

NOTE:
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON COLLOCATION APPLICATION AND SBA RECORD, NOT FIELD OBSERVATIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.
SEE STRUCTURAL ANALYSIS FOR FEEDLINE INSTALLATION.



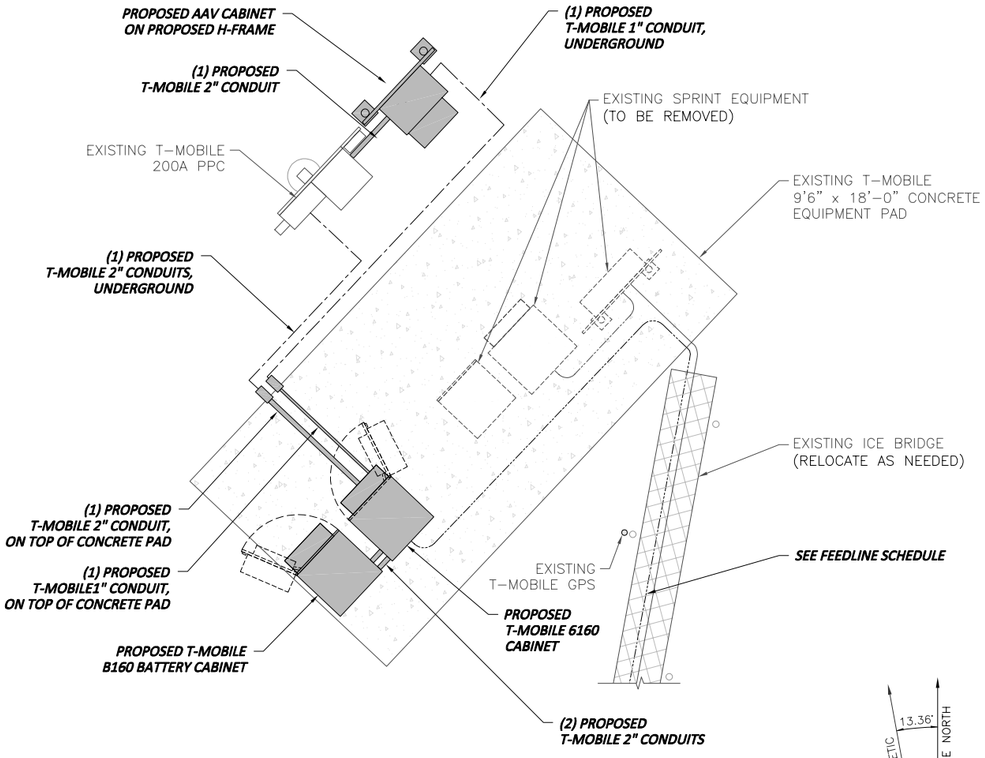


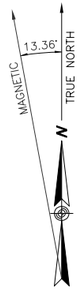
## COMPOUND PLAN

SCALE: 3/16" = 1'-0" (22"X34")
3/32" = 1'-0" (11"X17")

GRAPHIC SCALE

2'-8" 0 2'-8" 5'-4" 10'-8" 21'-4"




## EQUIPMENT PLAN

SCALE: 3/8" = 1'-0" (22"X34")
3/16" = 1'-0" (11"X17")

GRAPHIC SCALE

4 0 2 4 8 16
( IN FEET )


T-Mobile NORTHEAST LLC
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| NO. | DATE | DESCRIPTION |

| DESIGNED BY: | APPROVED BY: |
|---|---|
| AG | DC |

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

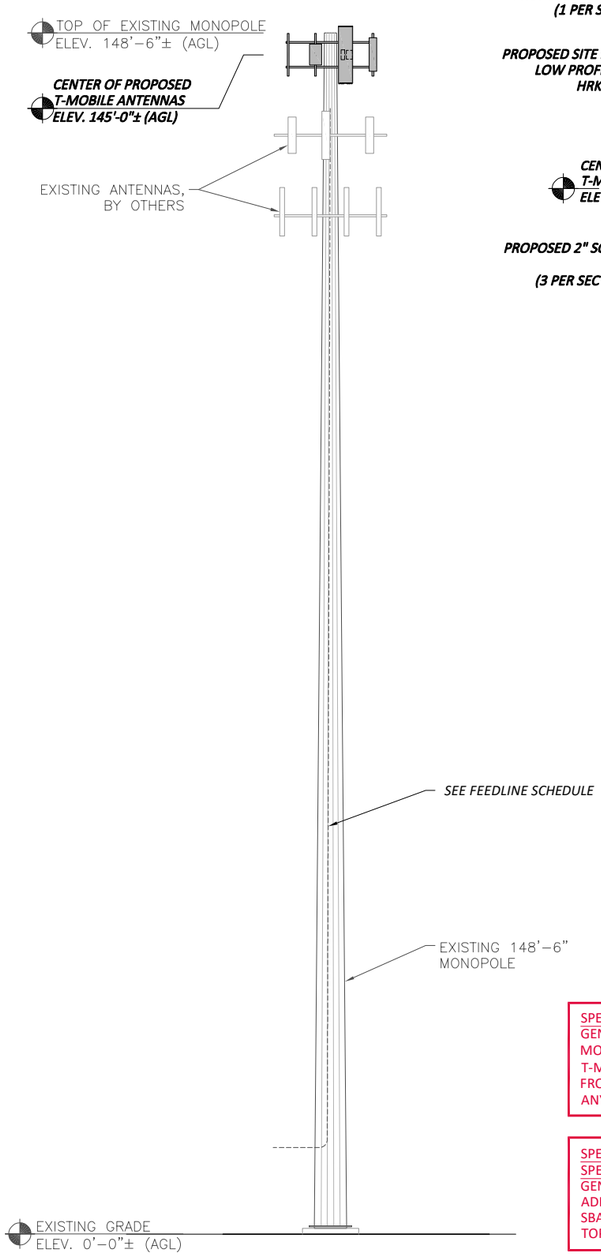
**DATE: 03/17/21**



| | |
|---|---|
| SITE NAME: | CTNH389A |
| SITE NUMBER: | CTNH389A |
| SITE ADDRESS: | 10 ASHPOHTAG ROAD<br>NORFOLK, CT 06058 |
| PROJECT TYPE: | SPRINT RETAIN |
| SHEET TITLE: | COMPOUND & EQUIPMENT PLANS |
| DRAWING #: A-1 | REVISION: 2 |

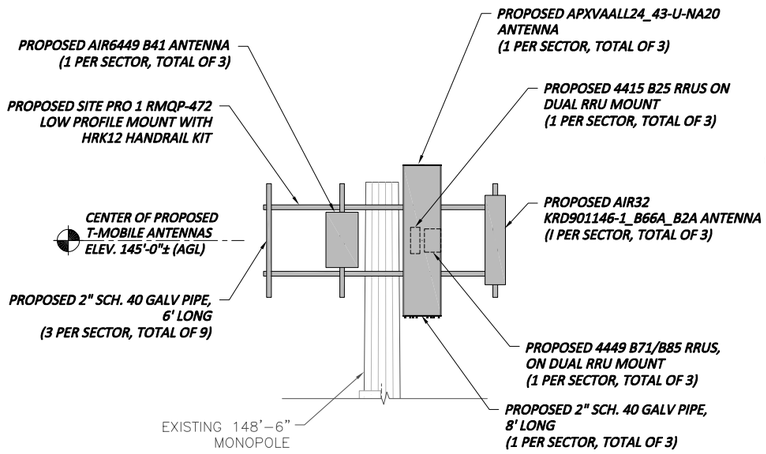
NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



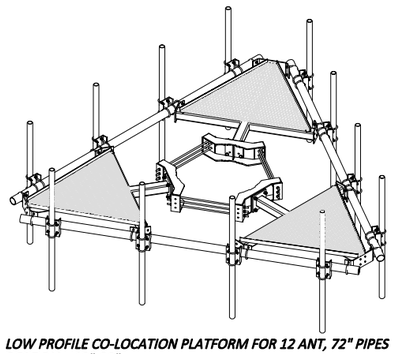

## TOWER ELEVATION

SCALE: 3/32" = 1'-0" (22"X34")
3/64" = 1'-0" (11"X17")




## ENLARGED ANTENNA ELEVATION

SCALE: N.T.S



LOW PROFILE CO-LOCATION PLATFORM FOR 12 ANT, 72" PIPES
POLE DIA.: 12"-38"
FACE WIDTH: 12'6"

## SITE PRO 1 RMQP-472

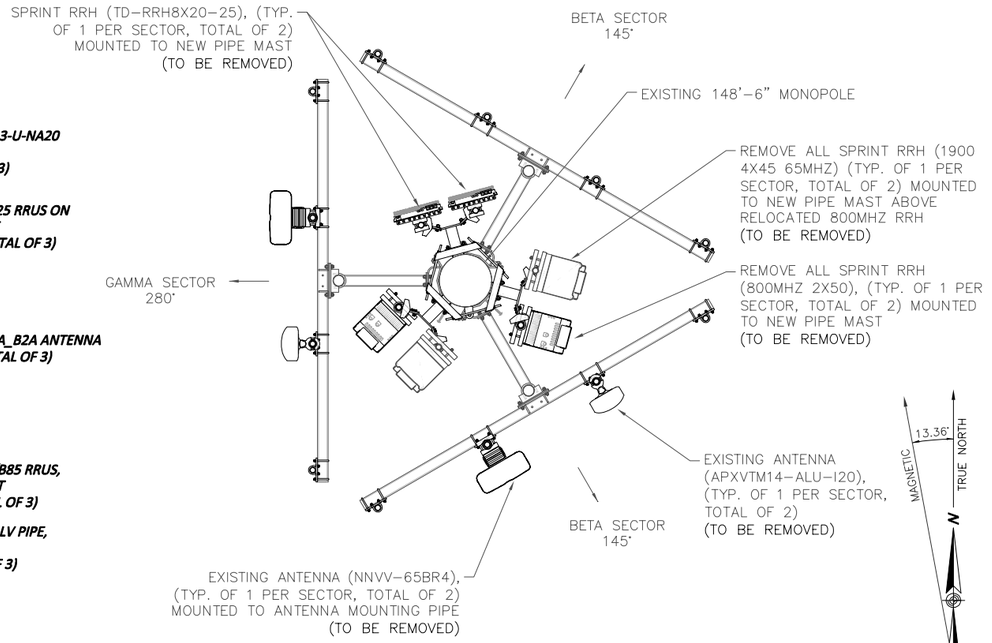
SCALE: N.T.S

SPECIAL CONSTRUCTION NOTE:
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS)
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE OR RELOCATION.

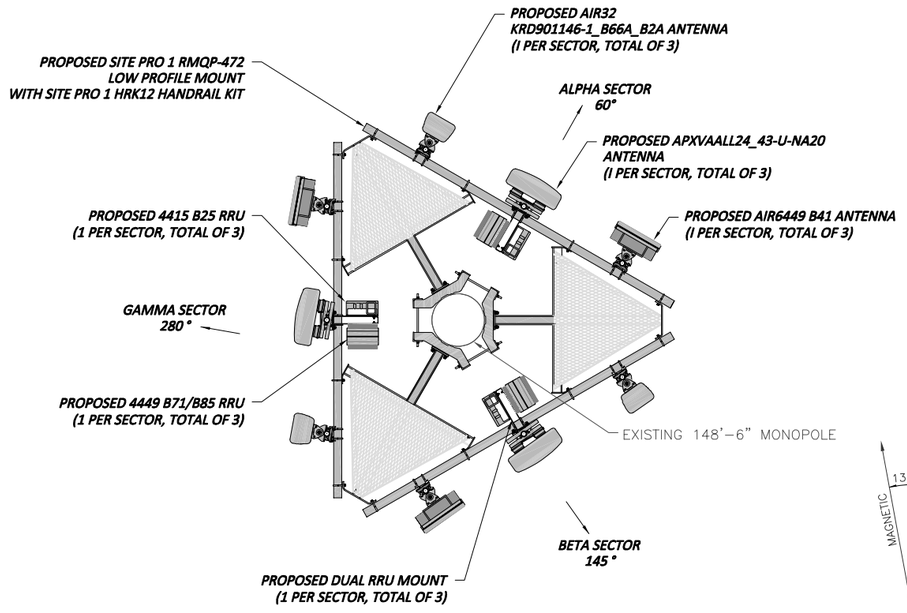
GRAPHIC SCALE

5'-4" 0 5'-4" 10'-8" 21'-4" 42'-8"
( IN FEET )




## EXISTING ANTENNA CONFIGURATION

SCALE: N.T.S




## PROPOSED ANTENNA CONFIGURATION

SCALE: N.T.S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PHONE: 781.713.4725


| REVISIONS | | |
|---|---|---|
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| 2 | 03/17/21 | ISSUED FOR CONSTRUCTION |
| 1 | 03/11/21 | REVISED FOR REVIEW |
| 0 | 12/10/20 | ISSUED FOR REVIEW |
| NO. | DATE | DESCRIPTION |
| DESIGNED BY: AG | | APPROVED BY: DC |

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

**DATE: 03/17/21**



SITE NAME: CTNH389A
SITE NUMBER: CTNH389A
SITE ADDRESS: 10 ASHPOHTAG ROAD NORFOLK, CT 06058
PROJECT TYPE: SPRINT RETAIN
SHEET TITLE: ANTENNA LAYOUT & ELEVATIONS
DRAWING #: A-2
REVISION: 2

## ANTENNA SCHEDULE

| SECTOR | EXISTING/ PROPOSED | BAND | ANTENNA | SIZE (INCHES) (L x W x D) | ANTENNA ℄ HEIGHT | AZIMUTH | TMA/ DIPLEXER | RRU | SIZE ( INCHES) (L x W x D) | FEEDER |
|---|---|---|---|---|---|---|---|---|---|---|
| A1 | PROPOSED | L2100, L1900, G1900 | AIR32 KRD901146-1_B66A _B2A | 56.6x12.9x8.7 | ±145' | 60° | – | (P) (1) 4449 B71 B85 RRUS (P) (1) 4415 B25 RRUS | 15x13.2x10.4 16.5x13.4x5.9 | (P) (3) 1-5/8" HCS |
| A2 | PROPOSED | L700, L600, N600, L1900 | APXVAALL24_43-U-NA20 | 95.9x24.0x8.7 | ±145' | 60° | – | – | – | |
| A3 | PROPOSED | L2500, N2500 | AIR6449 B41 | 33.1x20.6x8.6 | ±145' | 60° | – | – | – | |
| B1 | PROPOSED | L2100, L1900, G1900 | AIR32 KRD901146-1_B66A _B2A | 56.6x12.9x8.7 | ±145' | 145° | – | (P) (1) 4449 B71 B85 RRUS (P) (1) 4415 B25 RRUS | 15x13.2x10.4 16.5x13.4x5.9 | |
| B2 | PROPOSED | L700, L600, N600, L1900 | APXVAALL24_43-U-NA20 | 95.9x24.0x8.7 | ±145' | 145° | – | – | – | |
| B3 | PROPOSED | L2500, N2500 | AIR6449 B41 | 33.1x20.6x8.6 | ±145' | 145° | – | – | – | |
| C1 | PROPOSED | L2100, L1900, G1900 | AIR32 KRD901146-1_B66A _B2A | 56.6x12.9x8.7 | ±145' | 280° | – | (P) (1) 4449 B71 B85 RRUS (P) (1) 4415 B25 RRUS | 15x13.2x10.4 16.5x13.4x5.9 | |
| C2 | PROPOSED | L700, L600, N600, L1900 | APXVAALL24_43-U-NA20 | 95.9x24.0x8.7 | ±145' | 280° | – | – | – | |
| C3 | PROPOSED | L2500, N2500 | AIR6449 B41 | 33.1x20.6x8.6 | ±145' | 280° | – | – | – | |

NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

| RRU CHART | | | | |
|---|---|---|---|---|
| QUANTITY | MODEL | L | W | D |
| 2(P) | 4449 B71/B85 | 15.0" | 13.2" | 10.4" |
| 2(P) | 4415 B25 | 16.5" | 13.4" | 5.9" |

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

*REFER TO THE FINAL RFDS AND TABLE FOR THE PROPOSED RRUS MODEL, QUANTITY, AND DIMENSIONS*

RRUS DETAIL

N.T.S.


ERICSSON RBS6160 EQUIPMENT CABINET

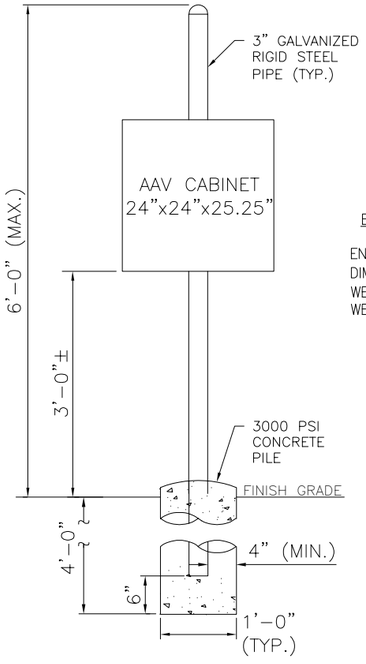
ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 25.6" X 33.5"
WEIGHT: 188LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

ERICSSON B160 BATTERY CABINET

ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 63" X 26" X 26"
WEIGHT: 188LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R

EQUIPMENT CABINET DETAIL

N.T.S.

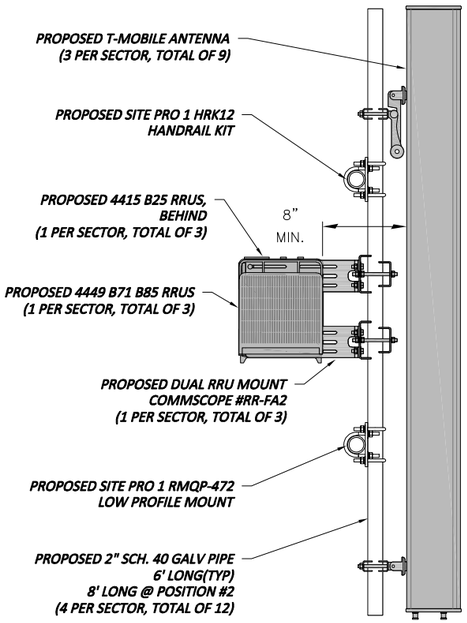



AAV CABINET DETAIL

N.T.S.

EMERSON NETXTEND COMPACT 2416 CABINET

ENCLOSURE: ALUMINUM
DIMENSIONS (HxWxD): 24" X 24" X 25.25"
WEIGHT: 64LBS (EXCLUDES EQUIPMENT)
WEATHER TIGHTNESS: NEMA TYPE 3R




ANTENNA MOUNTING DETAIL

N.T.S.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| SITE ADDRESS: | 10 ASHPOHTAG ROAD NORFOLK, CT 06058 |
| PROJECT TYPE: | SPRINT RETAIN |
| SHEET TITLE: | DETAILS |
| DRAWING #: A-3 | REVISION: 2 |

## STRUCTURAL NOTES:

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

## SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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

## NOTES:

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

## NOTES:

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


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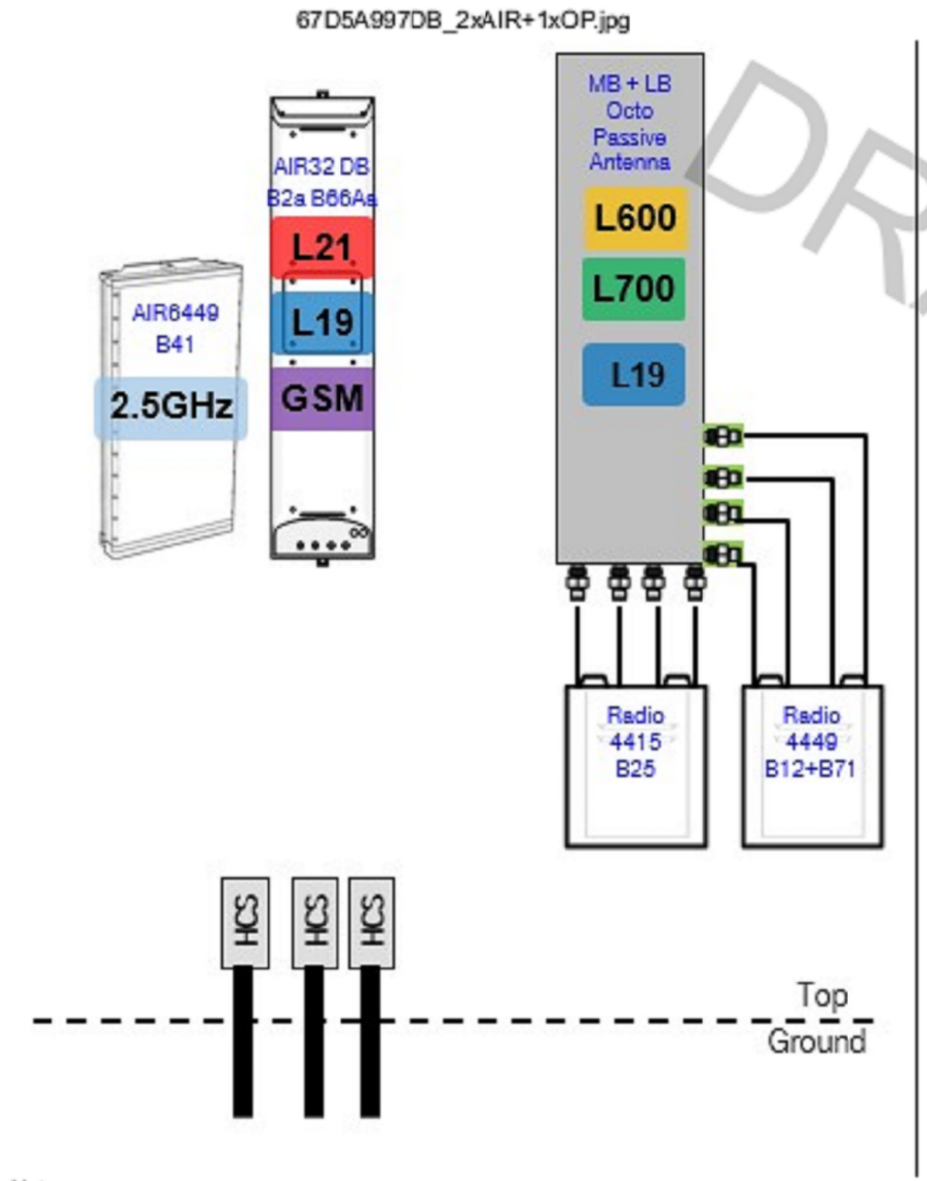
| SITE ADDRESS: | 10 ASHPOHTAG ROAD<br>NORFOLK, CT 06058 |
| PROJECT TYPE: | SPRINT RETAIN |
| SHEET TITLE: | STRUCTURAL NOTES |
| DRAWING #: | SN-1 |
| REVISION: | 2 |




Notes:

PLUMBING DIAGRAM

N.T.S.



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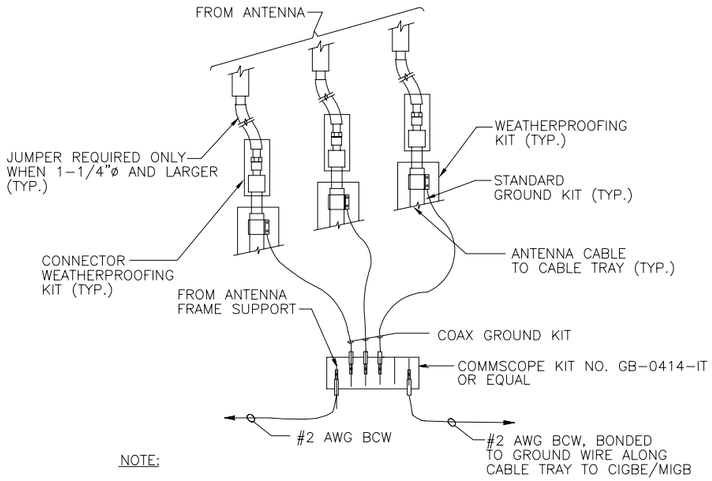
| SITE ADDRESS: | 10 ASHPOHTAG ROAD<br>NORFOLK, CT 06058 |
| PROJECT TYPE: | SPRINT RETAIN |
| SHEET TITLE: | RF PLUMBING DIAGRAM |
| DRAWING #: RF-1 | REVISION: 2 |




NOTE:

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

## GROUNDING RISER DIAGRAM
N.T.S.

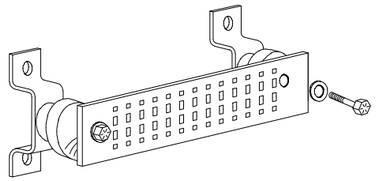
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

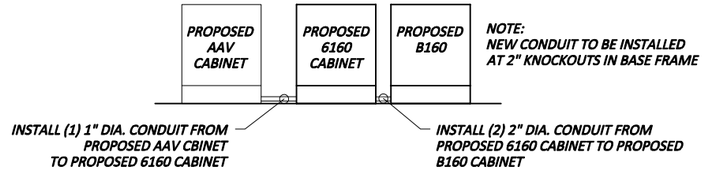
CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
-48V POWER SUPPLY RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

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



## GROUND BAR DETAIL
N.T.S.

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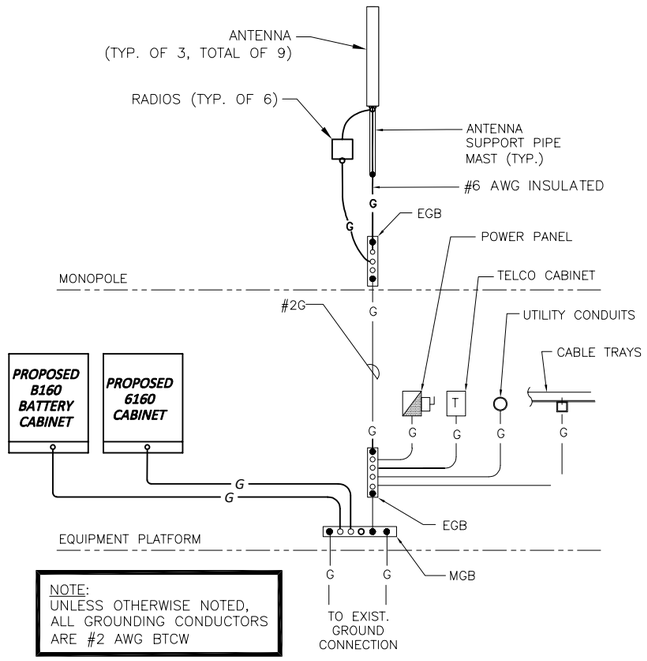
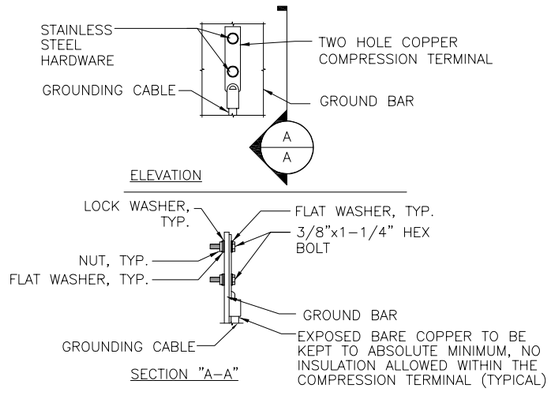



NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

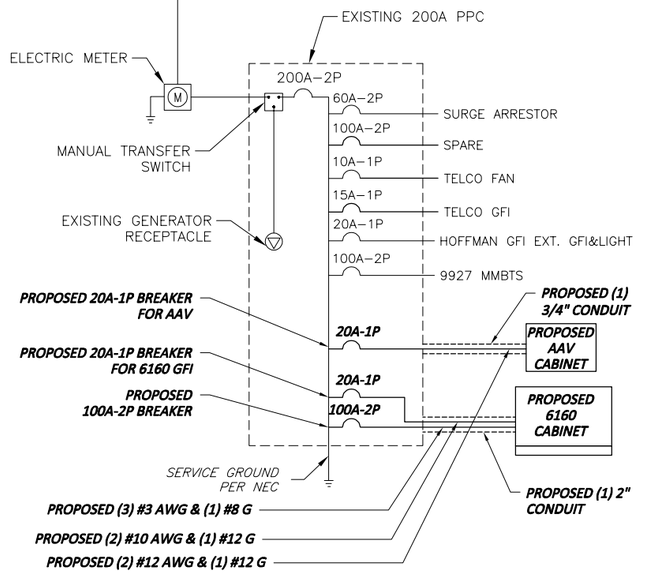
## GROUNDING RISER DIAGRAM
N.T.S.




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

## GROUND BAR CONNECTION DETAIL
N.T.S.

NOTE:
ALL WORK NEEDS TO BE PERFORMED BY LICENSED ELECTRICIAN ADHERING TO THE NEC AND LOCAL CODE REQUIREMENTS




## ONE LINE POWER DIAGRAM
N.T.S.


T-Mobile NORTHEAST LLC
T-MOBILE NORTHEAST, LLC.
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
PHONE: (508) 286-2700
FAX: (508) 286-2893

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
PHONE: (508) 251-0720

CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725


| REVISIONS | | |
|---|---|---|
| | | |
| | | |
| | | |
| 2 | 03/17/21 | ISSUED FOR CONSTRUCTION |
| 1 | 03/11/21 | REVISED FOR REVIEW |
| 0 | 12/10/20 | ISSUED FOR REVIEW |
| NO. | DATE | DESCRIPTION |

| DESIGNED BY: | APPROVED BY: |
|---|---|
| AG | DC |

STATE OF CONNECTICUT
DEREK J. CREASER
No. 23551
LICENSED PROFESSIONAL ENGINEER

**DATE: 03/17/21**



| | |
|---|---|
| SITE NAME: | CTNH389A |
| SITE NUMBER: | CTNH389A |
| SITE ADDRESS: | 10 ASHPOHTAG ROAD NORFOLK, CT 06058 |
| PROJECT TYPE: | SPRINT RETAIN |
| SHEET TITLE: | GROUNDING DETAILS |
| DRAWING #: G-1 | REVISION: 2 |

# EXHIBIT 7

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

# Structural Analysis Report

**Existing 148 ft EEI Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT46144-A**

**Customer Site Name: Cammilletti Property**

**Carrier Name: T-Mobile Sprint (App#: 151869, V1)**

**Carrier Site ID / Name: CT33XC590 / _**

**Site Location: 10 Ashpohtag Rd**

**Norfolk, Connecticut**

**Litchfield County**

**Latitude: 42.002694**

**Longitude: -73.221388**


## Analysis Result:

**Max Structural Usage: 66.4% [Pass]**

**Max Foundation Usage: 42.0% [Pass]**

**Additional Usage Caused by New Mount: +2.8%**

**Report Prepared By: Sital Shrestha**

## Introduction

The purpose of this report is to summarize the analysis results on the 148 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

| | |
|---|---|
| **Tower Drawings** | EEI Project #12865, dated 08/30/04 |
| **Foundation Drawing** | EEI Project #12865, dated 08/30/04 |
| **Geotechnical Report** | Dr. Clarence Welti, PE Geotechnical Report for Proposed Sprint Site CT33XC590, dated 08/17/04 |
| **Modification Drawings** | Vertical Solutions Project #121779, dated 10/02/12 |
| **Mount Analysis** | MA by TES, Project No. 104757, dated 04/14/2021. |

## Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

| | |
|---|---|
| **Wind Speed Used in the Analysis:** | Ultimate Design Wind Speed $V_{ult}$ =115.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd}$ = 89.0 mph (3-Sec. Gust) |
| **Wind Speed with Ice:** | 40 mph (3-Sec. Gust) with 3/4" radial ice concurrent |
| **Operational Wind Speed:** | 60 mph + 0" Radial ice |
| **Standard/Codes:** | TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code |
| **Exposure Category:** | B |
| **Structure Class:** | II |
| **Topographic Category:** | 1 |
| **Crest Height:** | 0 ft |
| **Seismic Parameters:** | $S_S$ = 0.175, $S_1$ = 0.065 |

This structural analysis is based upon the tower being classified as a Structure Class 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.

## Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

| Items | Elevation (ft) | Qty. | Antenna Descriptions | Mount Type & Qty. | Transmission Lines | Owner |
|---|---|---|---|---|---|---|
| - | 145.0 | 2 | RFS APXVTM14-C-I20 - Panel | (3) T-Arm w/ (1) Sitepro PRK-1245 & (1) handrail kit | (4) 1-1/4" Fiber | Sprint Nextel |
| - | | 2 | Commscope NNVV-65B-R4 - Panel | | | |
| - | | 4 | RFS ACU-A20-N RET | | | |
| - | | 2 | ALU 1900 Mhz | | | |
| - | | 4 | ALU 800 Mhz | | | |
| - | | 2 | ALU TD-RRH8x20-25 | | | |
| - | | 2 | ALU 800 Mhz Filter | | | |
| 9 | 137.0 | 3 | HPA-65R-BU6AA - Panel | Low Profile Platform | (12) 1 5/8" (2) 3" Conduit (4) 3/4" DC Power* (2) 7/16" Fiber* | AT&T |
| 10 | | 3 | DMP65R-BU6DA - Panel | | | |
| 11 | | 3 | RRUS 4449 B5/B12 | | | |
| 12 | | 3 | Powerwave - 7770 - Panel | | | |
| 13 | | 2 | Raycap - DC6-48-60-18-8F - SP | | | |
| 14 | | 3 | RRUS 8843 B2 B66A | | | |
| 15 | | 6 | Powerwave - LGP 21401 - TMA | | | |
| 16 | 127.0 | 3 | Antel - BXA-171085-12BF - Panel | Low Profile Platform | (12) 1 5/8" | Verizon |
| 17 | | 6 | Antel - LPA 80080/6CF - Panel | | | |
| 18 | | 2 | Antel - BXA-70040-6CF - Panel | | | |
| 19 | | 1 | Antel - BXA-70063-6CF - Panel | | | |
| 20 | | 6 | RFS - FD9R6004/2C-3L - Diplexer | | | |

*Inside the 3” conduit.

## Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

| Items | Elevation (ft) | Qty. | Antenna Descriptions | Mount Type & Qty. | Transmission Lines | Owner |
|---|---|---|---|---|---|---|
| 1 | 147.0 | 2 | Ericsson - AIR32 KRD901146-1_B66A_B2A (Octo)- Panel | (1) Low Profile Platform (SitePro1 RMQP-472) (1) Handrail Kit (SitePro HRK12) | (3) 2" Hybrid | T-Mobile Sprint |
| 2 | 145.0 | 2 | RFS - APXVAALL24_43-U-NA20 - Panel | | | |
| 3 | | 2 | Ericsson - AIR6449 B41 - Panel | | | |
| 4 | | 4 | RFS ACU-A20-N RET | | | |
| 5 | | 2 | Ericsson 4415 B25 | | | |
| 6 | | 4 | ALU 800 MHz RRH | | | |
| 7 | | 2 | Ericsson 4449 B71 + B85 | | | |
| 8 | | 2 | ALU 800 MHz Filter | | | |

See the attached coax layout for the line placement considered in the analysis.

## Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

| | Pole shafts | Anchor Bolts | Base Plate |
|---|---|---|---|
| Max. Usage: | **58.8%** | **42.2%** | **66.4%** |
| Pass/Fail | **Pass** | **Pass** | **Pass** |

## Foundations

| | Moment (Kip-Ft) | Shear (Kips) | Axial (Kips) |
|---|---|---|---|
| Analysis Reactions | 1977.3 | 17.6 | 53.5 |

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

## Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.5226 degrees under the operational wind speed as specified in the Analysis Criteria.

## Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

# Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 58.75% at 110.0ft

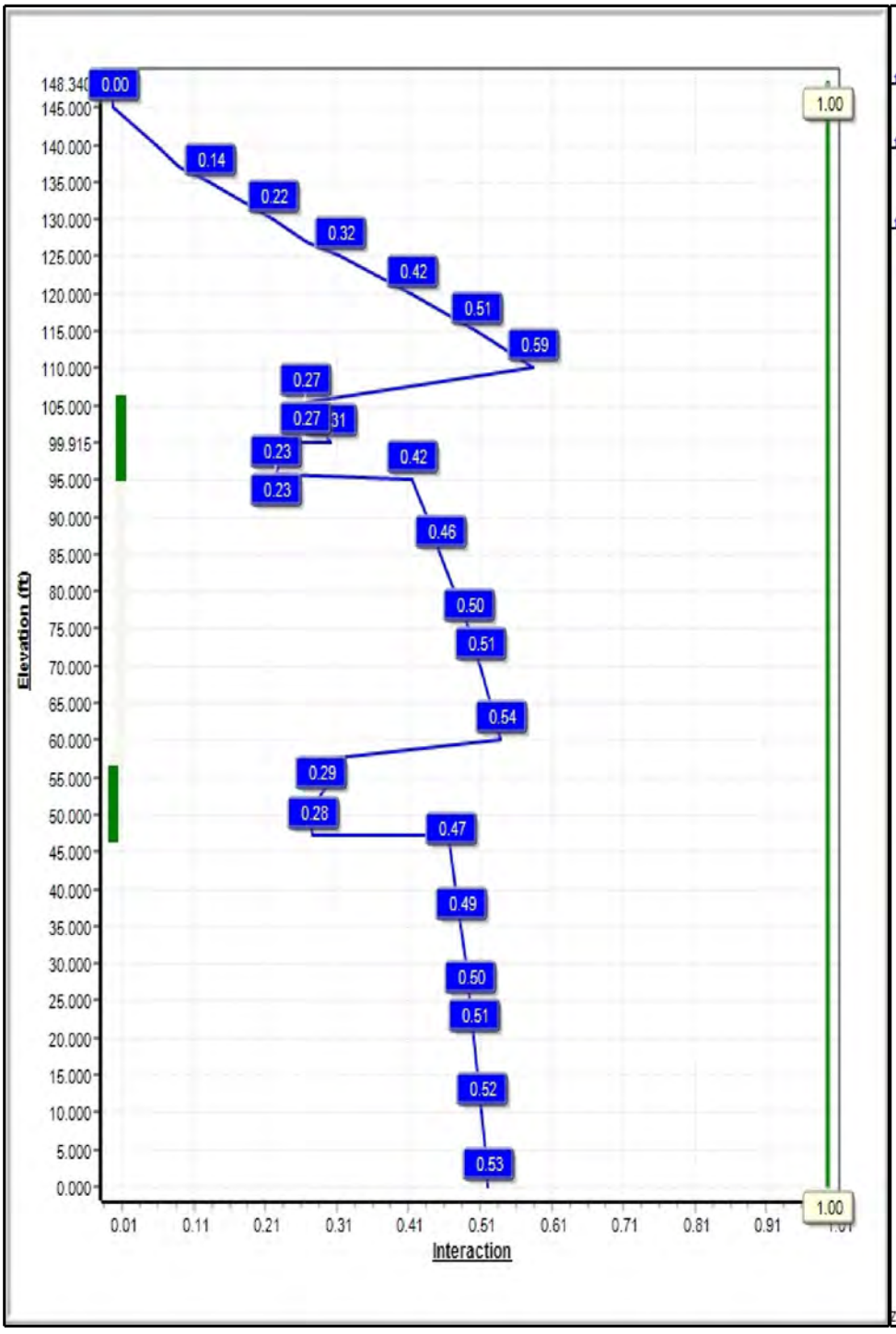
| | | | | |
|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | |
| **Height:** | 148.34 (ft) | **Gh:** | 1.1 | |
| **Base Elev:** | 0.000 (ft) | | | Page: 1 |

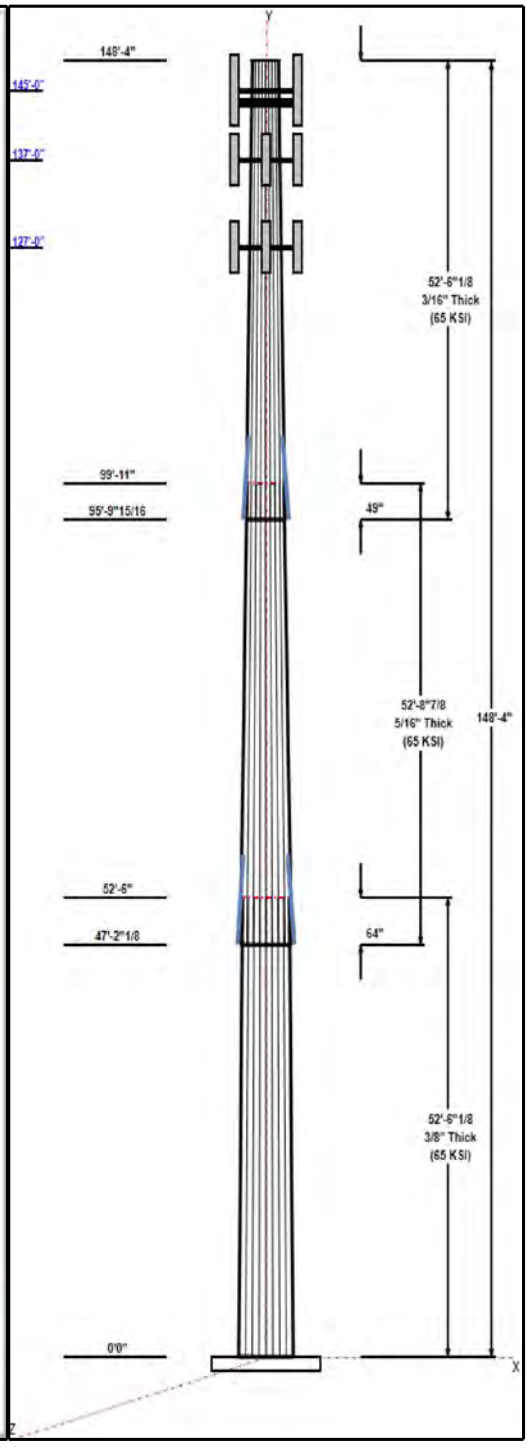
Tower Engineering Solutions

| | | | |
|---|---|---|---|
| Dead Load Factor: | 1.20 | **Iterations:** | 25 |
| Wind Load Factor: | 1.60 | | |

**Load Case : 1.2D + 1.6W 89 mph Wind**





# Structure: CT46144-A-SBA

**Type:** Tapered
**Site Name:** Cammilletti Property
**Height:** 148.34 (ft)
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided
**Taper:** 0.20898

5/7/2021



Tower Engineering Solutions

## Shaft Properties

| Seq | Length (ft) | Top (in) | Bottom (in) | Thick (in) | Joint Type | Taper | Grade (ksi) |
|---|---|---|---|---|---|---|---|
| 1 | 52.51 | 37.03 | 48.00 | 0.375 | | 0.20898 | 65 |
| 2 | 52.74 | 27.74 | 38.77 | 0.313 | Slip | 0.20898 | 65 |
| 3 | 52.51 | 18.00 | 28.97 | 0.188 | Slip | 0.20898 | 65 |

## Discrete Appurtenances

| Attach Elev (ft) | Force Elev (ft) | Qty | Description | Carrier |
|---|---|---|---|---|
| 145.00 | 145.00 | 2 | AIR32 | T-Mobile Sprint |
| 145.00 | 145.00 | 2 | APXVAALL24_43-U-NA20 | T-Mobile Sprint |
| 145.00 | 145.00 | 2 | AIR6449 B41 | T-Mobile Sprint |
| 145.00 | 145.00 | 4 | RFS ACU-A20-N RET | T-Mobile Sprint |
| 145.00 | 145.00 | 2 | Ericsson 4415 B25 | T-Mobile Sprint |
| 145.00 | 145.00 | 4 | ALU 800 MHz RRH | T-Mobile Sprint |
| 145.00 | 145.00 | 2 | Ericsson 4449 B71 + B85 | T-Mobile Sprint |
| 145.00 | 145.00 | 1 | RMQP-472 (LPP) | T-Mobile Sprint |
| 145.00 | 145.00 | 1 | HRK12 (Handrail Kit) | T-Mobile Sprint |
| 145.00 | 145.00 | 2 | ALU 800 MHz Filter | T-Mobile Sprint |
| 137.00 | 137.00 | 3 | HPA-65R-BU6AA | AT&T |
| 137.00 | 137.00 | 3 | DMP65R-BU6DA | AT&T |
| 137.00 | 137.00 | 3 | RRUS 4449 B5/B12 | AT&T |
| 137.00 | 137.00 | 3 | 7770 | AT&T |
| 137.00 | 137.00 | 2 | DC6-48-60-18-8F | AT&T |
| 137.00 | 137.00 | 3 | RRUS 8843 B2 B66A | AT&T |
| 137.00 | 137.00 | 6 | LGP 21401 | AT&T |
| 137.00 | 137.00 | 1 | Low Profile Platform | AT&T |
| 127.00 | 127.00 | 1 | Low Profile Platform | Verizon |
| 127.00 | 127.00 | 3 | Antel - BXA-171085-12BF | Verizon |
| 127.00 | 127.00 | 6 | Antel - LPA 80080/6CF | Verizon |
| 127.00 | 127.00 | 2 | Antel - BXA-70040-6CF | Verizon |
| 127.00 | 127.00 | 1 | Antel - BXA-70063-6CF | Verizon |
| 127.00 | 127.00 | 6 | RFS - FD9R6004/2C-3L - | Verizon |

## Linear Appurtenances

| Elev From (ft) | Elev To (ft) | Placement | Description | Carrier |
|---|---|---|---|---|
| 0.00 | 145.00 | Inside | 2" Hybrid | T-Mobile Sprint |
| 0.00 | 137.00 | Inside | 1 5/8" Coax | AT&T |
| 0.00 | 137.00 | Inside | 3" Conduit | AT&T |
| 0.00 | 127.00 | Inside | 1 5/8" Coax | Verizon |
| 95.80 | 105.30 | Outside | 1.5" Reinforcing plate | |
| 47.20 | 57.50 | Outside | 1.5" Reinforcing plate | |

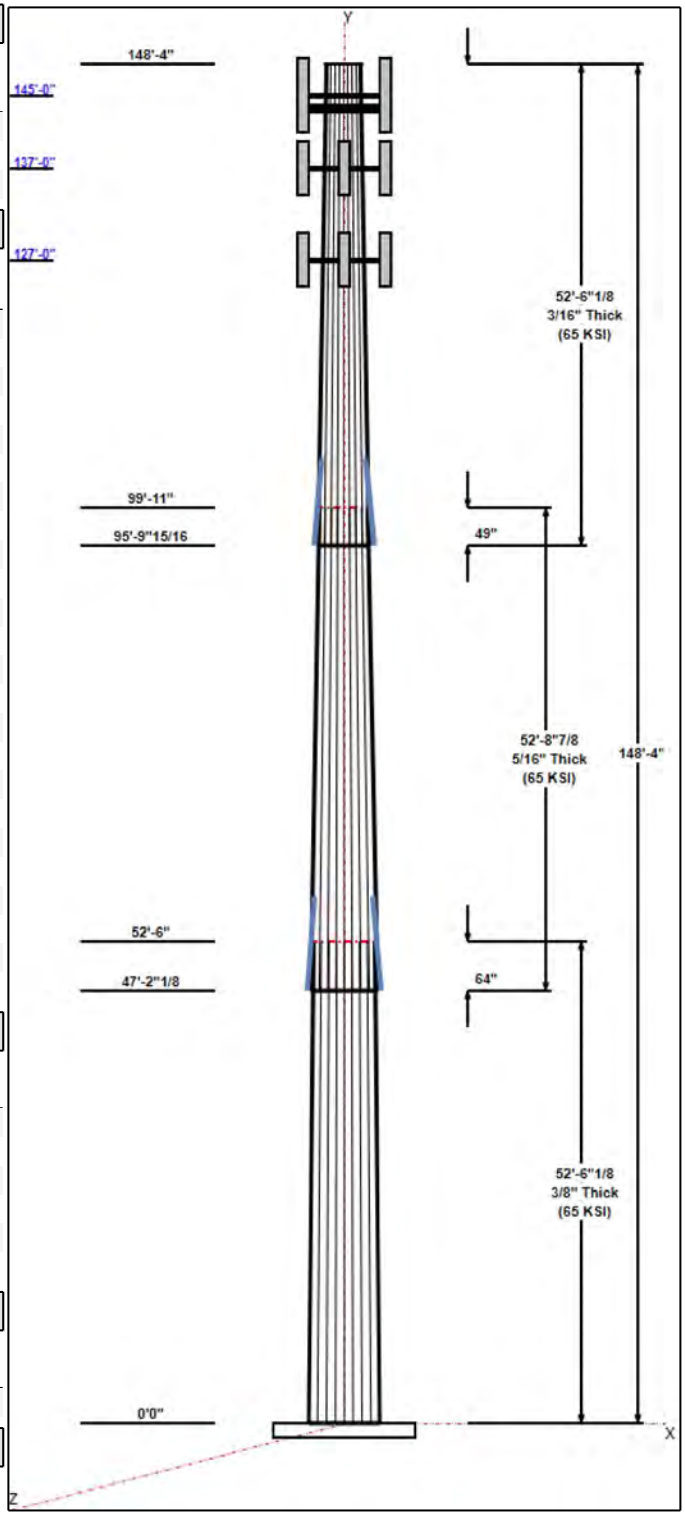
## Anchor Bolts

| Qty | Specifications | Grade (ksi) | Arrangement |
|---|---|---|---|
| 16 | 2.25" 18J | 75.0 | Radial |

## Base Plate

| Thickness (in) | Specifications (in) | Grade (ksi) | Geometry |
|---|---|---|---|
| 2.0000 | 63.0 | 60.0 | Round |

## Reactions



| Load Case | Moment (FT-Kips) | Shear (Kips) | Axial (Kips) |
|---|---|---|---|
| 1.2D + 1.6W 89 mph Wind | 1977.3 | 17.6 | 34.5 |
| 0.9D + 1.6W 89 mph Wind | 1951.9 | 17.6 | 25.8 |
| 1.2D + 1.0Di + 1.0Wi 40 mph Wind | 415.7 | 3.7 | 53.5 |
| 1.2D + 1.0E | 191.4 | 1.6 | 34.5 |
| 0.9D + 1.0E | 188.7 | 1.6 | 25.9 |
| 1.0D + 1.0W 60 mph Wind | 557.4 | 5.0 | 28.7 |

# Structure: CT46144-A-SBA - Coax Line Placement

**Type:** Monopole
**Site Name:** Cammilletti Property
**Height:** 148.34 (ft)

5/7/2021



# Shaft Properties

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | | **Exposure:** | B | |
| **Height:** | 148.34 (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 |

| Sec. No. | Shape | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Overlap (in) | Weight (lb) |
|---|---|---|---|---|---|---|---|
| 1 | 18 | 52.510 | 0.3750 | 65 | | 0.00 | 8,961 |
| 2 | 18 | 52.740 | 0.3125 | 65 | Slip | 64.02 | 5,864 |
| 3 | 18 | 52.512 | 0.1875 | 65 | Slip | 49.05 | 2,478 |
| | | | | | **Total Shaft Weight:** | | **17,303** |

| | 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 | 48.00 | 0.00 | 56.68 | 16243.54 | 21.16 | 128.00 | 37.03 | 52.51 | 43.62 | 7403.73 | 16.00 | 98.74 | 0.208979 |
| 2 | 38.77 | 47.18 | 38.14 | 7125.48 | 20.46 | 124.05 | 27.74 | 99.92 | 27.21 | 2586.91 | 14.24 | 88.78 | 0.208979 |
| 3 | 28.97 | 95.83 | 17.13 | 1793.54 | 25.84 | 154.53 | 18.00 | 148.34 | 10.60 | 424.93 | 15.52 | 96.00 | 0.208979 |

## Additional Steel

| | | | | | | | Intermediate Connectors | | Termination Connectors | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Elev From (ft)** | **Elev To (ft)** | **Qty** | **Description** | **Fy (ksi)** | **Fu (ksi)** | **Offset (in)** | **Description** | **Spacing (in)** | **Description** | **Spacing (in)** | **Lower Qty** | **Upper Qty** |
| 47.20 | 57.50 | 3 | PLT 6"x1.5"(31mm hole) | 65 | 80 | 0.00 | AJM20&sleeve | 24.00 | AJM20&sleeve | 3.00 | 11 | 10 |
| 95.80 | 105.3 | 3 | PLT 4.5x1.5(31mm Hole) | 65 | 80 | 0.00 | AJM20&sleeve | 24.00 | AJM20&sleeve | 3.00 | 8 | 6 |

# Load Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 6 | |

## Discrete Appurtenances

| | | | | No Ice | | | Ice | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | Elev (ft) | Description | Qty | Weight (lb) | CaAa (sf) | CaAa Factor | Weight (lb) | CaAa (sf) | CaAa Factor | Hor. Ecc. (ft) | Vert Ecc (ft) |
| 1 | 145.00 | AIR32 KRD901146-1_B66A_B2A | 2 | 132.20 | 6.51 | 0.87 | 315.84 | 7.686 | 0.87 | 0.00 | 0.00 |
| 2 | 145.00 | APXVAALL24_43-U-NA20 | 2 | 122.80 | 20.24 | 0.73 | 548.87 | 22.134 | 0.73 | 0.00 | 0.00 |
| 3 | 145.00 | AIR6449 B41 | 2 | 103.00 | 5.65 | 0.71 | 239.65 | 6.597 | 0.71 | 0.00 | 0.00 |
| 4 | 145.00 | RFS ACU-A20-N RET | 4 | 1.04 | 0.14 | 0.67 | 5.49 | 0.436 | 0.67 | 0.00 | 0.00 |
| 5 | 145.00 | Ericsson 4415 B25 | 2 | 46.00 | 1.86 | 0.67 | 95.32 | 2.431 | 0.67 | 0.00 | 0.00 |
| 6 | 145.00 | ALU 800 MHz RRH | 4 | 53.00 | 2.49 | 0.67 | 126.71 | 3.630 | 0.67 | 0.00 | 0.00 |
| 7 | 145.00 | Ericsson 4449 B71 + B85 | 2 | 75.00 | 1.97 | 0.67 | 133.96 | 2.537 | 0.67 | 0.00 | 0.00 |
| 8 | 145.00 | RMQP-472 (LPP) | 1 | 1625.79 | 33.60 | 1.00 | 3096.22 | 54.639 | 1.00 | 0.00 | 0.00 |
| 9 | 145.00 | HRK12 (Handrail Kit) | 1 | 261.72 | 6.75 | 1.00 | 571.26 | 13.325 | 1.00 | 0.00 | 0.00 |
| 10 | 145.00 | ALU 800 MHz Filter | 2 | 8.80 | 0.78 | 0.67 | 26.38 | 1.425 | 0.67 | 0.00 | 0.00 |
| 11 | 137.00 | HPA-65R-BU6AA | 3 | 51.00 | 9.66 | 0.85 | 296.50 | 11.013 | 0.85 | 0.00 | 0.00 |
| 12 | 137.00 | DMP65R-BU6DA | 3 | 79.40 | 12.71 | 0.72 | 371.29 | 14.161 | 0.72 | 0.00 | 0.00 |
| 13 | 137.00 | RRUS 4449 B5/B12 | 3 | 71.00 | 1.97 | 0.67 | 123.90 | 2.512 | 0.67 | 0.00 | 0.00 |
| 14 | 137.00 | 7770 | 3 | 35.00 | 5.50 | 0.73 | 168.68 | 6.555 | 0.73 | 0.00 | 0.00 |
| 15 | 137.00 | DC6-48-60-18-8F | 2 | 31.80 | 0.92 | 1.00 | 93.07 | 1.354 | 1.00 | 0.00 | 0.00 |
| 16 | 137.00 | RRUS 8843 B2 B66A | 3 | 75.00 | 1.65 | 0.67 | 148.86 | 2.182 | 0.67 | 0.00 | 0.00 |
| 17 | 137.00 | LGP 21401 | 6 | 14.10 | 1.29 | 1.00 | 38.88 | 2.118 | 1.00 | 0.00 | 0.00 |
| 18 | 137.00 | Low Profile Platform | 1 | 1500.00 | 22.00 | 1.00 | 2797.10 | 39.502 | 1.00 | 0.00 | 0.00 |
| 19 | 127.00 | Low Profile Platform | 1 | 1500.00 | 22.00 | 1.00 | 2787.31 | 39.370 | 1.00 | 0.00 | 0.00 |
| 20 | 127.00 | Antel - BXA-171085-12BF | 3 | 15.00 | 4.74 | 0.88 | 108.37 | 7.051 | 0.90 | 0.00 | 0.00 |
| 21 | 127.00 | Antel - LPA 80080/6CF | 6 | 21.00 | 4.33 | 1.50 | 79.82 | 5.498 | 1.40 | 0.00 | 0.00 |
| 22 | 127.00 | Antel - BXA-70040-6CF | 2 | 38.00 | 14.40 | 0.70 | 322.09 | 17.188 | 0.72 | 0.00 | 0.00 |
| 23 | 127.00 | Antel - BXA-70063-6CF | 1 | 17.00 | 7.57 | 0.78 | 162.85 | 10.288 | 0.80 | 0.00 | 0.00 |
| 24 | 127.00 | RFS - FD9R6004/2C-3L - Diplexer | 6 | 3.10 | 0.37 | 0.50 | 10.99 | 0.818 | 0.50 | 0.00 | 0.00 |
| | | **Totals:** | **65** | **7,444.27** | | | **17,924.86** | | | | |

## Linear Appurtenances

| Bottom Elev. (ft) | Top Elev. (ft) | Description | Exposed Width | Exposed |
|---|---|---|---|---|
| 0.00 | 145.00 | (3) 2" Hybrid | 0.00 | Inside |
| 0.00 | 137.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 0.00 | 137.00 | (2) 3" Conduit | 0.00 | Inside |
| 0.00 | 127.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 95.80 | 105.30 | (3) 1.5" Reinforcing plate | 1.50 | Outside |
| 47.20 | 57.50 | (3) 1.5" Reinforcing plate | 1.50 | Outside |

# Shaft Section Properties

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 7 | |

**Increment Length:** **5 (ft)**

| | | | | | | | | | | | Additional Reinforcing | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Elev (ft) | Description | Thick (in) | Flat Dia (in) | Area (in^2) | Ix (in^4) | W/t Ratio | D/t Ratio | Fy (ksi) | Fb (ksi) | Weight (lb) | Area (in^2) | Ixp (in^4) | Iyp (in^4) | Weight (lb) |
| 0.00 | | 0.3750 | 48.000 | 56.684 | 16243.5 | 21.16 | 128.00 | 65 | 77 | 0.0 | | | | |
| 5.00 | | 0.3750 | 46.955 | 55.440 | 15197.7 | 20.67 | 125.21 | 65 | 77 | 953.8 | | | | |
| 10.00 | | 0.3750 | 45.910 | 54.196 | 14197.7 | 20.18 | 122.43 | 65 | 78 | 932.7 | | | | |
| 15.00 | | 0.3750 | 44.865 | 52.953 | 13242.6 | 19.69 | 119.64 | 65 | 78 | 911.5 | | | | |
| 20.00 | | 0.3750 | 43.820 | 51.709 | 12331.3 | 19.19 | 116.85 | 65 | 79 | 890.4 | | | | |
| 25.00 | | 0.3750 | 42.776 | 50.465 | 11462.8 | 18.70 | 114.07 | 65 | 79 | 869.2 | | | | |
| 30.00 | | 0.3750 | 41.731 | 49.222 | 10636.0 | 18.21 | 111.28 | 65 | 80 | 848.0 | | | | |
| 35.00 | | 0.3750 | 40.686 | 47.978 | 9850.0 | 17.72 | 108.50 | 65 | 81 | 826.9 | | | | |
| 40.00 | | 0.3750 | 39.641 | 46.734 | 9103.7 | 17.23 | 105.71 | 65 | 81 | 805.7 | | | | |
| 45.00 | | 0.3750 | 38.596 | 45.491 | 8396.1 | 16.74 | 102.92 | 65 | 82 | 784.6 | | | | |
| 47.18 | Bot - Section 2 | 0.3750 | 38.141 | 44.950 | 8100.1 | 16.52 | 101.71 | 65 | 82 | 334.7 | | | | |
| 47.20 | RB1 | 0.3750 | 38.136 | 44.944 | 8096.8 | 16.52 | 101.70 | 65 | 82 | 7.0 | 27.00 | 5513.8 | 5513.8 | 2.3 |
| 50.00 | | 0.3750 | 37.551 | 44.247 | 7726.2 | 16.25 | 100.14 | 65 | 82 | 785.5 | 27.00 | 5355.9 | 5355.9 | 257.2 |
| 52.51 | Top - Section 1 | 0.3125 | 37.651 | 37.034 | 6523.5 | 19.83 | 120.48 | 65 | 78 | 693.8 | 27.00 | 5216.4 | 5216.4 | 230.6 |
| 55.00 | | 0.3125 | 37.131 | 36.518 | 6254.6 | 19.54 | 118.82 | 65 | 78 | 311.6 | 27.00 | 5079.8 | 5079.8 | 228.8 |
| 57.50 | RT1 | 0.3125 | 36.609 | 36.000 | 5992.1 | 19.25 | 117.15 | 65 | 79 | 308.5 | 27.00 | 4944.4 | 4944.4 | 229.7 |
| 60.00 | | 0.3125 | 36.086 | 35.482 | 5737.0 | 18.95 | 115.48 | 65 | 79 | 304.0 | | | | |
| 65.00 | | 0.3125 | 35.041 | 34.445 | 5248.9 | 18.36 | 112.13 | 65 | 80 | 594.9 | | | | |
| 70.00 | | 0.3125 | 33.996 | 33.409 | 4789.2 | 17.77 | 108.79 | 65 | 80 | 577.2 | | | | |
| 75.00 | | 0.3125 | 32.952 | 32.373 | 4357.2 | 17.18 | 105.44 | 65 | 81 | 559.6 | | | | |
| 80.00 | | 0.3125 | 31.907 | 31.336 | 3952.0 | 16.59 | 102.10 | 65 | 82 | 542.0 | | | | |
| 85.00 | | 0.3125 | 30.862 | 30.300 | 3572.7 | 16.00 | 98.76 | 65 | 83 | 524.3 | | | | |
| 90.00 | | 0.3125 | 29.817 | 29.264 | 3218.5 | 15.41 | 95.41 | 65 | 83 | 506.7 | | | | |
| 95.00 | | 0.3125 | 28.772 | 28.227 | 2888.5 | 14.82 | 92.07 | 65 | 83 | 489.1 | | | | |
| 95.80 | RB2 | 0.3125 | 28.605 | 28.061 | 2837.9 | 14.73 | 91.54 | 65 | 83 | 76.6 | 20.25 | 2313.1 | 2313.1 | 55.1 |
| 95.83 | Bot - Section 3 | 0.3125 | 28.599 | 28.056 | 2836.2 | 14.73 | 91.52 | 65 | 83 | 2.6 | 20.25 | 2312.2 | 2312.2 | 1.9 |
| 99.92 | Top - Section 2 | 0.1875 | 28.120 | 16.623 | 1638.6 | 25.03 | 149.97 | 65 | 72 | 619.1 | 20.25 | 2239.7 | 2239.7 | 281.7 |
| 100.00 | | 0.1875 | 28.102 | 16.612 | 1635.5 | 25.02 | 149.88 | 65 | 72 | 4.8 | 20.25 | 2237.1 | 2237.1 | 5.8 |
| 105.00 | | 0.1875 | 27.057 | 15.990 | 1458.6 | 24.03 | 144.30 | 65 | 73 | 277.3 | 20.25 | 2083.2 | 2083.2 | 344.5 |
| 105.30 | RT2 | 0.1875 | 26.994 | 15.953 | 1448.4 | 23.98 | 143.97 | 65 | 73 | 16.3 | 20.25 | 2074.2 | 2074.2 | 20.7 |
| 110.00 | | 0.1875 | 26.012 | 15.368 | 1295.0 | 23.05 | 138.73 | 65 | 74 | 250.5 | | | | |
| 115.00 | | 0.1875 | 24.967 | 14.747 | 1144.0 | 22.07 | 133.16 | 65 | 75 | 256.2 | | | | |
| 120.00 | | 0.1875 | 23.922 | 14.125 | 1005.3 | 21.09 | 127.59 | 65 | 77 | 245.6 | | | | |
| 125.00 | | 0.1875 | 22.878 | 13.503 | 878.3 | 20.10 | 122.01 | 65 | 78 | 235.0 | | | | |
| 127.00 | | 0.1875 | 22.460 | 13.254 | 830.7 | 19.71 | 119.78 | 65 | 78 | 91.0 | | | | |
| 130.00 | | 0.1875 | 21.833 | 12.881 | 762.5 | 19.12 | 116.44 | 65 | 79 | 133.4 | | | | |
| 135.00 | | 0.1875 | 20.788 | 12.259 | 657.3 | 18.14 | 110.87 | 65 | 80 | 213.9 | | | | |
| 137.00 | | 0.1875 | 20.370 | 12.011 | 618.1 | 17.75 | 108.64 | 65 | 81 | 82.6 | | | | |
| 140.00 | | 0.1875 | 19.743 | 11.637 | 562.3 | 17.16 | 105.30 | 65 | 81 | 120.7 | | | | |
| 145.00 | | 0.1875 | 18.698 | 11.016 | 476.9 | 16.17 | 99.72 | 65 | 82 | 192.7 | | | | |
| 148.34 | | 0.1875 | 18.000 | 10.600 | 424.9 | 15.52 | 96.00 | 65 | 83 | 122.8 | | | | |
| | | | | | | | | | **Total Weight** | **17302.8** | | | | **1658.3** |

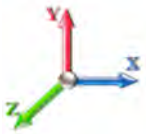
# Wind Loading - Shaft

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 8 | |

**Load Case:** 1.2D + 1.6W 89 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | 0.70 | 13.485 | 14.83 | 302.45 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 295.86 | 0.650 | 0.000 | 5.00 | 20.087 | 13.06 | 309.9 | 0.0 | 1144.6 |
| 10.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 289.28 | 0.650 | 0.000 | 5.00 | 19.645 | 12.77 | 303.1 | 0.0 | 1119.2 |
| 15.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 282.69 | 0.650 | 0.000 | 5.00 | 19.203 | 12.48 | 296.2 | 0.0 | 1093.8 |
| 20.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 276.11 | 0.650 | 0.000 | 5.00 | 18.761 | 12.19 | 289.4 | 0.0 | 1068.4 |
| 25.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 269.53 | 0.650 | 0.000 | 5.00 | 18.319 | 11.91 | 282.6 | 0.0 | 1043.0 |
| 30.00 | | 1.00 | 0.70 | 13.496 | 14.85 | 263.05 | 0.650 | 0.000 | 5.00 | 17.877 | 11.62 | 276.0 | 0.0 | 1017.6 |
| 35.00 | | 1.00 | 0.73 | 14.104 | 15.51 | 262.18 | 0.650 | 0.000 | 5.00 | 17.435 | 11.33 | 281.3 | 0.0 | 992.2 |
| 40.00 | | 1.00 | 0.76 | 14.652 | 16.12 | 260.36 | 0.650 | 0.000 | 5.00 | 16.993 | 11.05 | 284.8 | 0.0 | 966.9 |
| 45.00 | | 1.00 | 0.79 | 15.154 | 16.67 | 257.80 | 0.650 | 0.000 | 5.00 | 16.551 | 10.76 | 286.9 | 0.0 | 941.5 |
| 47.18 | Bot - Section 2 | 1.00 | 0.80 | 15.360 | 16.90 | 256.49 | 0.650 | 0.000 | 2.18 | 7.062 | 4.59 | 124.1 | 0.0 | 401.6 |
| 47.20 | RB1 | 1.00 | 0.80 | 15.362 | 16.90 | 256.47 | 0.650 | 0.000 | 0.02 | 0.081 | 0.05 | 1.4 | 0.0 | 8.4 |
| 50.00 | | 1.00 | 0.81 | 15.617 | 17.18 | 254.63 | 0.650 | 0.000 | 2.80 | 9.114 | 5.92 | 162.8 | 0.0 | 942.6 |
| 52.51 | Top - Section 1 | 1.00 | 0.82 | 15.837 | 17.42 | 252.83 | 0.650 | 0.000 | 2.51 | 8.053 | 5.23 | 145.9 | 0.0 | 832.5 |
| 55.00 | | 1.00 | 0.83 | 16.048 | 17.65 | 255.23 | 0.650 | 0.000 | 2.49 | 7.878 | 5.12 | 144.6 | 0.0 | 373.9 |
| 57.50 | RT1 | 1.00 | 0.84 | 16.253 | 17.88 | 253.24 | 0.650 | 0.000 | 2.50 | 7.800 | 5.07 | 145.0 | 0.0 | 370.1 |
| 60.00 | | 1.00 | 0.85 | 16.452 | 18.10 | 251.15 | 0.650 | 0.000 | 2.50 | 7.689 | 5.00 | 144.7 | 0.0 | 364.9 |
| 65.00 | | 1.00 | 0.87 | 16.833 | 18.52 | 246.68 | 0.650 | 0.000 | 5.00 | 15.047 | 9.78 | 289.7 | 0.0 | 713.8 |
| 70.00 | | 1.00 | 0.89 | 17.193 | 18.91 | 241.88 | 0.650 | 0.000 | 5.00 | 14.605 | 9.49 | 287.3 | 0.0 | 692.7 |
| 75.00 | | 1.00 | 0.91 | 17.535 | 19.29 | 236.76 | 0.650 | 0.000 | 5.00 | 14.163 | 9.21 | 284.1 | 0.0 | 671.5 |
| 80.00 | | 1.00 | 0.93 | 17.861 | 19.65 | 231.38 | 0.650 | 0.000 | 5.00 | 13.721 | 8.92 | 280.4 | 0.0 | 650.4 |
| 85.00 | | 1.00 | 0.94 | 18.173 | 19.99 | 225.75 | 0.650 | 0.000 | 5.00 | 13.278 | 8.63 | 276.1 | 0.0 | 629.2 |
| 90.00 | | 1.00 | 0.96 | 18.473 | 20.32 | 219.89 | 0.650 | 0.000 | 5.00 | 12.836 | 8.34 | 271.3 | 0.0 | 608.0 |
| 95.00 | | 1.00 | 0.97 | 18.760 | 20.64 | 213.83 | 0.650 | 0.000 | 5.00 | 12.394 | 8.06 | 266.0 | 0.0 | 586.9 |
| 95.80 | RB2 | 1.00 | 0.98 | 18.805 | 20.69 | 212.84 | 0.650 | 0.000 | 0.80 | 1.942 | 1.26 | 41.8 | 0.0 | 91.9 |
| 95.83 | Bot - Section 3 | 1.00 | 0.98 | 18.807 | 20.69 | 212.81 | 0.650 | 0.000 | 0.03 | 0.067 | 0.04 | 1.4 | 0.0 | 3.2 |
| 99.92 | Top - Section 2 | 1.00 | 0.99 | 19.033 | 20.94 | 207.69 | 0.650 | 0.000 | 4.09 | 9.874 | 6.42 | 215.0 | 0.0 | 742.9 |
| 100.00 | | 1.00 | 0.99 | 19.037 | 20.94 | 210.39 | 0.650 | 0.000 | 0.08 | 0.202 | 0.13 | 4.4 | 0.0 | 5.8 |
| 105.00 | | 1.00 | 1.00 | 19.304 | 21.23 | 203.98 | 0.650 | 0.000 | 5.00 | 11.669 | 7.58 | 257.7 | 0.0 | 332.8 |
| 105.30 | RT2 | 1.00 | 1.00 | 19.320 | 21.25 | 203.59 | 0.650 | 0.000 | 0.30 | 0.686 | 0.45 | 15.2 | 0.0 | 19.6 |
| 110.00 | | 1.00 | 1.02 | 19.563 | 21.52 | 197.41 | 0.650 | 0.000 | 4.70 | 10.541 | 6.85 | 235.9 | 0.0 | 300.6 |
| 115.00 | | 1.00 | 1.03 | 19.813 | 21.79 | 190.69 | 0.650 | 0.000 | 5.00 | 10.785 | 7.01 | 244.4 | 0.0 | 307.4 |
| 120.00 | | 1.00 | 1.04 | 20.055 | 22.06 | 183.82 | 0.650 | 0.000 | 5.00 | 10.343 | 6.72 | 237.3 | 0.0 | 294.7 |
| 125.00 | | 1.00 | 1.05 | 20.290 | 22.32 | 176.82 | 0.650 | 0.000 | 5.00 | 9.900 | 6.44 | 229.8 | 0.0 | 282.0 |
| 127.00 | Appurtenance(s) | 1.00 | 1.06 | 20.383 | 22.42 | 173.99 | 0.650 | 0.000 | 2.00 | 3.836 | 2.49 | 89.5 | 0.0 | 109.3 |
| 130.00 | | 1.00 | 1.07 | 20.519 | 22.57 | 169.70 | 0.650 | 0.000 | 3.00 | 5.622 | 3.65 | 132.0 | 0.0 | 160.1 |
| 135.00 | | 1.00 | 1.08 | 20.742 | 22.82 | 162.45 | 0.650 | 0.000 | 5.00 | 9.016 | 5.86 | 213.9 | 0.0 | 256.6 |
| 137.00 | Appurtenance(s) | 1.00 | 1.08 | 20.829 | 22.91 | 159.52 | 0.650 | 0.000 | 2.00 | 3.483 | 2.26 | 83.0 | 0.0 | 99.1 |
| 140.00 | | 1.00 | 1.09 | 20.958 | 23.05 | 155.09 | 0.650 | 0.000 | 3.00 | 5.091 | 3.31 | 122.1 | 0.0 | 144.8 |
| 145.00 | Appurtenance(s) | 1.00 | 1.10 | 21.169 | 23.29 | 147.62 | 0.650 | 0.000 | 5.00 | 8.132 | 5.29 | 196.9 | 0.0 | 231.3 |
| 148.34 | | 1.00 | 1.11 | 21.308 | 23.44 | 142.57 | 0.650 | 0.000 | 3.34 | 5.186 | 3.37 | 126.4 | 0.0 | 147.4 |
| | | | | | | | | **Totals:** | **148.34** | | | **7,880.4** | | **20,763.3** |

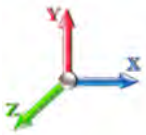
# Discrete Appurtenance Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 9 | |

**Load Case:** 1.2D + 1.6W 89 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | 145.00 | Ericsson 4415 B25 | 2 | 21.169 | 23.286 | 0.50 | 0.75 | 1.87 | 110.40 | 0.000 | 0.000 | 69.65 | 0.00 | 0.00 |
| 2 | 145.00 | AIR32 | 2 | 21.169 | 23.286 | 0.65 | 0.75 | 8.50 | 317.28 | 0.000 | 0.000 | 316.53 | 0.00 | 0.00 |
| 3 | 145.00 | APXVAALL24_43-U-NA20 | 2 | 21.169 | 23.286 | 0.55 | 0.75 | 22.16 | 294.72 | 0.000 | 0.000 | 825.74 | 0.00 | 0.00 |
| 4 | 145.00 | AIR6449 B41 | 2 | 21.169 | 23.286 | 0.53 | 0.75 | 6.02 | 247.20 | 0.000 | 0.000 | 224.19 | 0.00 | 0.00 |
| 5 | 145.00 | RFS ACU-A20-N RET | 4 | 21.169 | 23.286 | 0.50 | 0.75 | 0.28 | 4.99 | 0.000 | 0.000 | 10.48 | 0.00 | 0.00 |
| 6 | 145.00 | HRK12 (Handrail Kit) | 1 | 21.169 | 23.286 | 1.00 | 1.00 | 6.75 | 314.06 | 0.000 | 0.000 | 251.49 | 0.00 | 0.00 |
| 7 | 145.00 | ALU 800 MHz RRH | 4 | 21.169 | 23.286 | 0.50 | 0.75 | 5.00 | 254.40 | 0.000 | 0.000 | 186.47 | 0.00 | 0.00 |
| 8 | 145.00 | Ericsson 4449 B71 + B85 | 2 | 21.169 | 23.286 | 0.50 | 0.75 | 1.98 | 180.00 | 0.000 | 0.000 | 73.77 | 0.00 | 0.00 |
| 9 | 145.00 | ALU 800 MHz Filter | 2 | 21.169 | 23.286 | 0.50 | 0.75 | 0.78 | 21.12 | 0.000 | 0.000 | 29.21 | 0.00 | 0.00 |
| 10 | 145.00 | RMQP-472 (LPP) | 1 | 21.169 | 23.286 | 1.00 | 1.00 | 33.60 | 1950.95 | 0.000 | 0.000 | 1251.87 | 0.00 | 0.00 |
| 11 | 137.00 | LGP 21401 | 6 | 20.829 | 22.912 | 0.80 | 0.80 | 6.19 | 101.52 | 0.000 | 0.000 | 226.99 | 0.00 | 0.00 |
| 12 | 137.00 | RRUS 8843 B2 B66A | 3 | 20.829 | 22.912 | 0.54 | 0.80 | 2.65 | 270.00 | 0.000 | 0.000 | 97.26 | 0.00 | 0.00 |
| 13 | 137.00 | DC6-48-60-18-8F | 2 | 20.829 | 22.912 | 0.80 | 0.80 | 1.47 | 76.32 | 0.000 | 0.000 | 53.96 | 0.00 | 0.00 |
| 14 | 137.00 | RRUS 4449 B5/B12 | 3 | 20.829 | 22.912 | 0.54 | 0.80 | 3.17 | 255.60 | 0.000 | 0.000 | 116.13 | 0.00 | 0.00 |
| 15 | 137.00 | DMP65R-BU6DA | 3 | 20.829 | 22.912 | 0.58 | 0.80 | 21.96 | 285.84 | 0.000 | 0.000 | 805.13 | 0.00 | 0.00 |
| 16 | 137.00 | HPA-65R-BU6AA | 3 | 20.829 | 22.912 | 0.85 | 1.00 | 24.63 | 183.60 | 0.000 | 0.000 | 903.02 | 0.00 | 0.00 |
| 17 | 137.00 | Low Profile Platform | 1 | 20.829 | 22.912 | 1.00 | 1.00 | 22.00 | 1800.00 | 0.000 | 0.000 | 806.49 | 0.00 | 0.00 |
| 18 | 137.00 | 7770 | 3 | 20.829 | 22.912 | 0.58 | 0.80 | 9.64 | 126.00 | 0.000 | 0.000 | 353.24 | 0.00 | 0.00 |
| 19 | 127.00 | Antel - LPA 80080/6CF | 6 | 20.383 | 22.421 | 1.20 | 0.80 | 31.13 | 151.20 | 0.000 | 0.000 | 1116.90 | 0.00 | 0.00 |
| 20 | 127.00 | Low Profile Platform | 1 | 20.383 | 22.421 | 1.00 | 1.00 | 22.00 | 1800.00 | 0.000 | 0.000 | 789.22 | 0.00 | 0.00 |
| 21 | 127.00 | Antel - BXA-171085-12BF | 3 | 20.383 | 22.421 | 0.70 | 0.80 | 9.98 | 54.00 | 0.000 | 0.000 | 357.90 | 0.00 | 0.00 |
| 22 | 127.00 | RFS - FD9R6004/2C-3L - | 6 | 20.383 | 22.421 | 0.40 | 0.80 | 0.89 | 22.32 | 0.000 | 0.000 | 31.86 | 0.00 | 0.00 |
| 23 | 127.00 | Antel - BXA-70040-6CF | 2 | 20.383 | 22.421 | 0.56 | 0.80 | 16.10 | 91.20 | 0.000 | 0.000 | 577.74 | 0.00 | 0.00 |
| 24 | 127.00 | Antel - BXA-70063-6CF | 1 | 20.383 | 22.421 | 0.62 | 0.80 | 4.69 | 20.40 | 0.000 | 0.000 | 168.37 | 0.00 | 0.00 |
| | | | | | | | **Totals:** | | **8,933.12** | | | **9,643.60** | | |

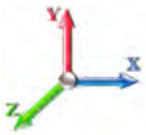
# Total Applied Force Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | | **Exposure:** | B | |
| **Height:** | 148.34 (ft) | | **Crest Height:** | 0.00 | |
| **Base Elev:** | 0.000 (ft) | | **Site Class:** | D - Stiff Soil | |
| **Gh:** | 1.1 | **Topography:** 1 | **Struct Class:** | II | Page: 10 |

**Load Case:** 1.2D + 1.6W 89 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | | 309.88 | 1324.01 | 0.00 | 0.00 |
| 10.00 | | 303.06 | 1298.62 | 0.00 | 0.00 |
| 15.00 | | 296.24 | 1273.22 | 0.00 | 0.00 |
| 20.00 | | 289.42 | 1247.83 | 0.00 | 0.00 |
| 25.00 | | 282.60 | 1222.44 | 0.00 | 0.00 |
| 30.00 | | 276.01 | 1197.05 | 0.00 | 0.00 |
| 35.00 | | 281.31 | 1171.66 | 0.00 | 0.00 |
| 40.00 | | 284.84 | 1146.27 | 0.00 | 0.00 |
| 45.00 | | 286.92 | 1120.88 | 0.00 | 0.00 |
| 47.18 | | 124.09 | 479.69 | 0.00 | 0.00 |
| 47.20 | | 1.43 | 9.32 | 0.00 | 0.00 |
| 50.00 | | 162.84 | 1043.04 | 0.00 | 0.00 |
| 52.51 | | 145.89 | 922.60 | 0.00 | 0.00 |
| 55.00 | | 144.64 | 463.27 | 0.00 | 0.00 |
| 57.50 | | 145.02 | 459.85 | 0.00 | 0.00 |
| 60.00 | | 144.72 | 454.56 | 0.00 | 0.00 |
| 65.00 | | 289.75 | 893.25 | 0.00 | 0.00 |
| 70.00 | | 287.25 | 872.09 | 0.00 | 0.00 |
| 75.00 | | 284.10 | 850.93 | 0.00 | 0.00 |
| 80.00 | | 280.36 | 829.77 | 0.00 | 0.00 |
| 85.00 | | 276.06 | 808.62 | 0.00 | 0.00 |
| 90.00 | | 271.27 | 787.46 | 0.00 | 0.00 |
| 95.00 | | 266.00 | 766.30 | 0.00 | 0.00 |
| 95.80 | | 41.78 | 120.64 | 0.00 | 0.00 |
| 95.83 | | 1.44 | 4.16 | 0.00 | 0.00 |
| 99.92 | | 214.98 | 889.55 | 0.00 | 0.00 |
| 100.00 | | 4.39 | 8.80 | 0.00 | 0.00 |
| 105.00 | | 257.70 | 512.23 | 0.00 | 0.00 |
| 105.30 | | 15.16 | 30.33 | 0.00 | 0.00 |
| 110.00 | | 235.90 | 469.20 | 0.00 | 0.00 |
| 115.00 | | 244.44 | 486.84 | 0.00 | 0.00 |
| 120.00 | | 237.29 | 474.14 | 0.00 | 0.00 |
| 125.00 | | 229.81 | 461.44 | 0.00 | 0.00 |
| 127.00 | (19) attachments | 3131.44 | 2320.14 | 0.00 | 0.00 |
| 130.00 | | 131.97 | 222.80 | 0.00 | 0.00 |
| 135.00 | | 213.94 | 361.17 | 0.00 | 0.00 |
| 137.00 | (24) attachments | 3445.21 | 3239.79 | 0.00 | 0.00 |
| 140.00 | | 122.07 | 155.15 | 0.00 | 0.00 |
| 145.00 | (22) attachments | 3436.34 | 3943.55 | 0.00 | 0.00 |
| 148.34 | | 126.41 | 147.40 | 0.00 | 0.00 |
| | **Totals:** | **17,523.99** | **34,490.08** | **0.00** | **0.00** |

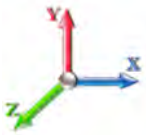
# Linear Appurtenance Segment Forces (Factored)

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 11 | |

**Load Case:** 1.2D + 1.6W 89 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60




**Iterations** 25

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.00 | 1.5" Reinforcing plate | Yes | 2.80 | 0.000 | 1.50 | 0.35 | 0.00 | 0.039 | 0.000 | 15.617 | 0.00 | 0.00 |
| 52.51 | 1.5" Reinforcing plate | Yes | 2.51 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 15.837 | 0.00 | 0.00 |
| 55.00 | 1.5" Reinforcing plate | Yes | 2.49 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 16.048 | 0.00 | 0.00 |
| 57.50 | 1.5" Reinforcing plate | Yes | 2.50 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 16.253 | 0.00 | 0.00 |
| 95.83 | 1.5" Reinforcing plate | Yes | 0.03 | 0.000 | 1.50 | 0.00 | 0.00 | 0.052 | 0.000 | 18.807 | 0.00 | 0.00 |
| 99.92 | 1.5" Reinforcing plate | Yes | 4.09 | 0.000 | 1.50 | 0.51 | 0.00 | 0.052 | 0.000 | 19.033 | 0.00 | 0.00 |
| 100.00 | 1.5" Reinforcing plate | Yes | 0.08 | 0.000 | 1.50 | 0.01 | 0.00 | 0.053 | 0.000 | 19.037 | 0.00 | 0.00 |
| 105.00 | 1.5" Reinforcing plate | Yes | 5.00 | 0.000 | 1.50 | 0.63 | 0.00 | 0.054 | 0.000 | 19.304 | 0.00 | 0.00 |
| 105.30 | 1.5" Reinforcing plate | Yes | 0.30 | 0.000 | 1.50 | 0.04 | 0.00 | 0.055 | 0.000 | 19.320 | 0.00 | 0.00 |
| | | | | | | | | | **Totals:** | | **0.0** | **0.0** |

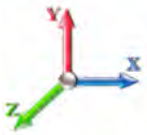
# Calculated Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 12 | |

**Load Case:** 1.2D + 1.6W 89 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | -34.46 | -17.57 | 0.00 | -1977.3 | 0.00 | 1977.31 | 3903.36 | 1951.68 | 7638.46 | 3824.91 | 0.00 | 0.000 | 0.000 | 0.526 |
| 5.00 | -33.09 | -17.36 | 0.00 | -1889.4 | 0.00 | 1889.43 | 3846.55 | 1923.28 | 7360.85 | 3685.90 | 0.09 | -0.169 | 0.000 | 0.521 |
| 10.00 | -31.74 | -17.15 | 0.00 | -1802.6 | 0.00 | 1802.63 | 3788.45 | 1894.23 | 7085.75 | 3548.14 | 0.36 | -0.342 | 0.000 | 0.517 |
| 15.00 | -30.42 | -16.94 | 0.00 | -1716.8 | 0.00 | 1716.88 | 3729.06 | 1864.53 | 6813.30 | 3411.72 | 0.81 | -0.518 | 0.000 | 0.511 |
| 20.00 | -29.12 | -16.73 | 0.00 | -1632.1 | 0.00 | 1632.19 | 3668.37 | 1834.19 | 6543.69 | 3276.71 | 1.45 | -0.698 | 0.000 | 0.506 |
| 25.00 | -27.85 | -16.52 | 0.00 | -1548.5 | 0.00 | 1548.55 | 3606.39 | 1803.19 | 6277.08 | 3143.21 | 2.28 | -0.882 | 0.000 | 0.500 |
| 30.00 | -26.60 | -16.31 | 0.00 | -1465.9 | 0.00 | 1465.96 | 3543.11 | 1771.56 | 6013.64 | 3011.29 | 3.31 | -1.069 | 0.000 | 0.494 |
| 35.00 | -25.38 | -16.09 | 0.00 | -1384.4 | 0.00 | 1384.41 | 3478.55 | 1739.27 | 5753.54 | 2881.05 | 4.53 | -1.259 | 0.000 | 0.488 |
| 40.00 | -24.19 | -15.86 | 0.00 | -1303.9 | 0.00 | 1303.95 | 3412.68 | 1706.34 | 5496.94 | 2752.56 | 5.95 | -1.454 | 0.000 | 0.481 |
| 45.00 | -23.04 | -15.60 | 0.00 | -1224.6 | 0.00 | 1224.65 | 3345.53 | 1672.76 | 5244.01 | 2625.90 | 7.58 | -1.651 | 0.000 | 0.473 |
| 47.18 | -22.55 | -15.48 | 0.00 | -1190.7 | 0.00 | 1190.71 | 3315.91 | 1657.95 | 5135.17 | 2571.40 | 8.35 | -1.740 | 0.000 | 0.470 |
| 47.20 | -22.53 | -15.49 | 0.00 | -1190.3 | 0.00 | 1190.33 | 3315.57 | 1657.78 | 5133.93 | 2570.78 | 8.36 | -1.741 | 0.000 | 0.280 |
| 50.00 | -21.47 | -15.32 | 0.00 | -1146.9 | 0.00 | 1146.95 | 3277.08 | 1638.54 | 4994.93 | 2501.18 | 9.40 | -1.810 | 0.000 | 0.275 |
| 52.51 | -20.54 | -15.17 | 0.00 | -1108.4 | 0.00 | 1108.49 | 2602.21 | 1301.11 | 3990.47 | 1998.20 | 10.37 | -1.871 | 0.000 | 0.291 |
| 55.00 | -20.07 | -15.03 | 0.00 | -1070.7 | 0.00 | 1070.72 | 2577.30 | 1288.65 | 3896.73 | 1951.26 | 11.36 | -1.932 | 0.000 | 0.307 |
| 57.50 | -19.59 | -14.89 | 0.00 | -1033.1 | 0.00 | 1033.14 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 12.39 | -1.998 | 0.000 | 0.302 |
| 57.50 | -19.59 | -14.89 | 0.00 | -1033.1 | 0.00 | 1033.14 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 12.39 | -1.998 | 0.000 | 0.302 |
| 60.00 | -19.11 | -14.78 | 0.00 | -995.91 | 0.00 | 995.91 | 2526.30 | 1263.15 | 3710.31 | 1857.91 | 13.45 | -2.064 | 0.000 | 0.544 |
| 65.00 | -18.16 | -14.54 | 0.00 | -922.00 | 0.00 | 922.00 | 2474.01 | 1237.00 | 3526.46 | 1765.85 | 15.74 | -2.302 | 0.000 | 0.530 |
| 70.00 | -17.24 | -14.28 | 0.00 | -849.32 | 0.00 | 849.32 | 2420.42 | 1210.21 | 3345.35 | 1675.16 | 18.28 | -2.542 | 0.000 | 0.514 |
| 75.00 | -16.35 | -14.03 | 0.00 | -777.90 | 0.00 | 777.90 | 2365.54 | 1182.77 | 3167.14 | 1585.93 | 21.07 | -2.784 | 0.000 | 0.498 |
| 80.00 | -15.48 | -13.77 | 0.00 | -707.75 | 0.00 | 707.75 | 2309.37 | 1154.68 | 2992.01 | 1498.23 | 24.12 | -3.026 | 0.000 | 0.479 |
| 85.00 | -14.63 | -13.52 | 0.00 | -638.88 | 0.00 | 638.88 | 2251.13 | 1125.57 | 2819.16 | 1411.68 | 27.42 | -3.269 | 0.000 | 0.459 |
| 90.00 | -13.80 | -13.26 | 0.00 | -571.30 | 0.00 | 571.30 | 2174.14 | 1087.07 | 2628.67 | 1316.29 | 30.97 | -3.510 | 0.000 | 0.441 |
| 95.00 | -13.02 | -12.97 | 0.00 | -505.02 | 0.00 | 505.02 | 2097.14 | 1048.57 | 2444.84 | 1224.23 | 34.77 | -3.747 | 0.000 | 0.419 |
| 95.80 | -12.90 | -12.93 | 0.00 | -494.64 | 0.00 | 494.64 | 2084.82 | 1042.41 | 2416.04 | 1209.82 | 35.40 | -3.787 | 0.000 | 0.229 |
| 95.83 | -12.88 | -12.94 | 0.00 | -494.28 | 0.00 | 494.28 | 2084.39 | 1042.20 | 2415.05 | 1209.32 | 35.42 | -3.788 | 0.000 | 0.229 |
| 99.92 | -12.00 | -12.68 | 0.00 | -441.39 | 0.00 | 441.39 | 1076.50 | 538.25 | 1236.95 | 619.40 | 38.71 | -3.893 | 0.000 | 0.246 |
| 100.00 | -11.97 | -12.69 | 0.00 | -440.32 | 0.00 | 440.32 | 1076.11 | 538.05 | 1235.71 | 618.78 | 38.78 | -3.895 | 0.000 | 0.306 |
| 105.00 | -11.46 | -12.41 | 0.00 | -376.88 | 0.00 | 376.88 | 1052.46 | 526.23 | 1163.02 | 582.37 | 42.94 | -4.045 | 0.000 | 0.272 |
| 105.30 | -11.42 | -12.41 | 0.00 | -373.16 | 0.00 | 373.16 | 1051.00 | 525.50 | 1158.68 | 580.20 | 43.19 | -4.055 | 0.000 | 0.270 |
| 105.30 | -11.42 | -12.41 | 0.00 | -373.16 | 0.00 | 373.16 | 1051.00 | 525.50 | 1158.68 | 580.20 | 43.19 | -4.055 | 0.000 | 0.270 |
| 110.00 | -10.92 | -12.18 | 0.00 | -314.85 | 0.00 | 314.85 | 1027.52 | 513.76 | 1090.99 | 546.31 | 47.24 | -4.185 | 0.000 | 0.588 |
| 115.00 | -10.39 | -11.95 | 0.00 | -253.94 | 0.00 | 253.94 | 1001.28 | 500.64 | 1019.81 | 510.66 | 51.80 | -4.498 | 0.000 | 0.508 |
| 120.00 | -9.89 | -11.72 | 0.00 | -194.17 | 0.00 | 194.17 | 973.75 | 486.88 | 949.64 | 475.53 | 56.66 | -4.776 | 0.000 | 0.419 |
| 125.00 | -9.42 | -11.48 | 0.00 | -135.55 | 0.00 | 135.55 | 944.93 | 472.47 | 880.64 | 440.98 | 61.78 | -5.009 | 0.000 | 0.318 |
| 127.00 | -7.37 | -8.17 | 0.00 | -112.59 | 0.00 | 112.59 | 933.04 | 466.52 | 853.41 | 427.34 | 63.90 | -5.090 | 0.000 | 0.272 |
| 130.00 | -7.14 | -8.03 | 0.00 | -88.08 | 0.00 | 88.08 | 914.81 | 457.41 | 812.99 | 407.10 | 67.13 | -5.193 | 0.000 | 0.224 |
| 135.00 | -6.79 | -7.80 | 0.00 | -47.92 | 0.00 | 47.92 | 883.40 | 441.70 | 746.85 | 373.98 | 72.63 | -5.320 | 0.000 | 0.136 |
| 137.00 | -3.88 | -4.07 | 0.00 | -32.33 | 0.00 | 32.33 | 870.48 | 435.24 | 720.86 | 360.97 | 74.87 | -5.354 | 0.000 | 0.094 |
| 140.00 | -3.74 | -3.93 | 0.00 | -20.13 | 0.00 | 20.13 | 850.70 | 425.35 | 682.40 | 341.71 | 78.24 | -5.391 | 0.000 | 0.063 |
| 145.00 | -0.13 | -0.14 | 0.00 | -0.47 | 0.00 | 0.47 | 816.70 | 408.35 | 619.79 | 310.35 | 83.89 | -5.417 | 0.000 | 0.002 |
| 148.34 | 0.00 | -0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 787.55 | 393.77 | 574.90 | 287.88 | 87.68 | -5.417 | 0.000 | 0.000 |

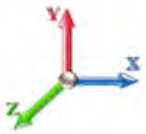
# Wind Loading - Shaft

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 + 1.6W 89 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | 0.70 | 13.485 | 14.83 | 302.45 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 295.86 | 0.650 | 0.000 | 5.00 | 20.087 | 13.06 | 309.9 | 0.0 | 858.4 |
| 10.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 289.28 | 0.650 | 0.000 | 5.00 | 19.645 | 12.77 | 303.1 | 0.0 | 839.4 |
| 15.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 282.69 | 0.650 | 0.000 | 5.00 | 19.203 | 12.48 | 296.2 | 0.0 | 820.4 |
| 20.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 276.11 | 0.650 | 0.000 | 5.00 | 18.761 | 12.19 | 289.4 | 0.0 | 801.3 |
| 25.00 | | 1.00 | 0.70 | 13.485 | 14.83 | 269.53 | 0.650 | 0.000 | 5.00 | 18.319 | 11.91 | 282.6 | 0.0 | 782.3 |
| 30.00 | | 1.00 | 0.70 | 13.496 | 14.85 | 263.05 | 0.650 | 0.000 | 5.00 | 17.877 | 11.62 | 276.0 | 0.0 | 763.2 |
| 35.00 | | 1.00 | 0.73 | 14.104 | 15.51 | 262.18 | 0.650 | 0.000 | 5.00 | 17.435 | 11.33 | 281.3 | 0.0 | 744.2 |
| 40.00 | | 1.00 | 0.76 | 14.652 | 16.12 | 260.36 | 0.650 | 0.000 | 5.00 | 16.993 | 11.05 | 284.8 | 0.0 | 725.1 |
| 45.00 | | 1.00 | 0.79 | 15.154 | 16.67 | 257.80 | 0.650 | 0.000 | 5.00 | 16.551 | 10.76 | 286.9 | 0.0 | 706.1 |
| 47.18 | Bot - Section 2 | 1.00 | 0.80 | 15.360 | 16.90 | 256.49 | 0.650 | 0.000 | 2.18 | 7.062 | 4.59 | 124.1 | 0.0 | 301.2 |
| 47.20 | RB1 | 1.00 | 0.80 | 15.362 | 16.90 | 256.47 | 0.650 | 0.000 | 0.02 | 0.081 | 0.05 | 1.4 | 0.0 | 6.3 |
| 50.00 | | 1.00 | 0.81 | 15.617 | 17.18 | 254.63 | 0.650 | 0.000 | 2.80 | 9.114 | 5.92 | 162.8 | 0.0 | 706.9 |
| 52.51 | Top - Section 1 | 1.00 | 0.82 | 15.837 | 17.42 | 252.83 | 0.650 | 0.000 | 2.51 | 8.053 | 5.23 | 145.9 | 0.0 | 624.4 |
| 55.00 | | 1.00 | 0.83 | 16.048 | 17.65 | 255.23 | 0.650 | 0.000 | 2.49 | 7.878 | 5.12 | 144.6 | 0.0 | 280.4 |
| 57.50 | RT1 | 1.00 | 0.84 | 16.253 | 17.88 | 253.24 | 0.650 | 0.000 | 2.50 | 7.800 | 5.07 | 145.0 | 0.0 | 277.6 |
| 60.00 | | 1.00 | 0.85 | 16.452 | 18.10 | 251.15 | 0.650 | 0.000 | 2.50 | 7.689 | 5.00 | 144.7 | 0.0 | 273.6 |
| 65.00 | | 1.00 | 0.87 | 16.833 | 18.52 | 246.68 | 0.650 | 0.000 | 5.00 | 15.047 | 9.78 | 289.7 | 0.0 | 535.4 |
| 70.00 | | 1.00 | 0.89 | 17.193 | 18.91 | 241.88 | 0.650 | 0.000 | 5.00 | 14.605 | 9.49 | 287.3 | 0.0 | 519.5 |
| 75.00 | | 1.00 | 0.91 | 17.535 | 19.29 | 236.76 | 0.650 | 0.000 | 5.00 | 14.163 | 9.21 | 284.1 | 0.0 | 503.6 |
| 80.00 | | 1.00 | 0.93 | 17.861 | 19.65 | 231.38 | 0.650 | 0.000 | 5.00 | 13.721 | 8.92 | 280.4 | 0.0 | 487.8 |
| 85.00 | | 1.00 | 0.94 | 18.173 | 19.99 | 225.75 | 0.650 | 0.000 | 5.00 | 13.278 | 8.63 | 276.1 | 0.0 | 471.9 |
| 90.00 | | 1.00 | 0.96 | 18.473 | 20.32 | 219.89 | 0.650 | 0.000 | 5.00 | 12.836 | 8.34 | 271.3 | 0.0 | 456.0 |
| 95.00 | | 1.00 | 0.97 | 18.760 | 20.64 | 213.83 | 0.650 | 0.000 | 5.00 | 12.394 | 8.06 | 266.0 | 0.0 | 440.2 |
| 95.80 | RB2 | 1.00 | 0.98 | 18.805 | 20.69 | 212.84 | 0.650 | 0.000 | 0.80 | 1.942 | 1.26 | 41.8 | 0.0 | 69.0 |
| 95.83 | Bot - Section 3 | 1.00 | 0.98 | 18.807 | 20.69 | 212.81 | 0.650 | 0.000 | 0.03 | 0.067 | 0.04 | 1.4 | 0.0 | 2.4 |
| 99.92 | Top - Section 2 | 1.00 | 0.99 | 19.033 | 20.94 | 207.69 | 0.650 | 0.000 | 4.09 | 9.874 | 6.42 | 215.0 | 0.0 | 557.2 |
| 100.00 | | 1.00 | 0.99 | 19.037 | 20.94 | 210.39 | 0.650 | 0.000 | 0.08 | 0.202 | 0.13 | 4.4 | 0.0 | 4.3 |
| 105.00 | | 1.00 | 1.00 | 19.304 | 21.23 | 203.98 | 0.650 | 0.000 | 5.00 | 11.669 | 7.58 | 257.7 | 0.0 | 249.6 |
| 105.30 | RT2 | 1.00 | 1.00 | 19.320 | 21.25 | 203.59 | 0.650 | 0.000 | 0.30 | 0.686 | 0.45 | 15.2 | 0.0 | 14.7 |
| 110.00 | | 1.00 | 1.02 | 19.563 | 21.52 | 197.41 | 0.650 | 0.000 | 4.70 | 10.541 | 6.85 | 235.9 | 0.0 | 225.4 |
| 115.00 | | 1.00 | 1.03 | 19.813 | 21.79 | 190.69 | 0.650 | 0.000 | 5.00 | 10.785 | 7.01 | 244.4 | 0.0 | 230.6 |
| 120.00 | | 1.00 | 1.04 | 20.055 | 22.06 | 183.82 | 0.650 | 0.000 | 5.00 | 10.343 | 6.72 | 237.3 | 0.0 | 221.0 |
| 125.00 | | 1.00 | 1.05 | 20.290 | 22.32 | 176.82 | 0.650 | 0.000 | 5.00 | 9.900 | 6.44 | 229.8 | 0.0 | 211.5 |
| 127.00 | Appurtenance(s) | 1.00 | 1.06 | 20.383 | 22.42 | 173.99 | 0.650 | 0.000 | 2.00 | 3.836 | 2.49 | 89.5 | 0.0 | 81.9 |
| 130.00 | | 1.00 | 1.07 | 20.519 | 22.57 | 169.70 | 0.650 | 0.000 | 3.00 | 5.622 | 3.65 | 132.0 | 0.0 | 120.1 |
| 135.00 | | 1.00 | 1.08 | 20.742 | 22.82 | 162.45 | 0.650 | 0.000 | 5.00 | 9.016 | 5.86 | 213.9 | 0.0 | 192.5 |
| 137.00 | Appurtenance(s) | 1.00 | 1.08 | 20.829 | 22.91 | 159.52 | 0.650 | 0.000 | 2.00 | 3.483 | 2.26 | 83.0 | 0.0 | 74.3 |
| 140.00 | | 1.00 | 1.09 | 20.958 | 23.05 | 155.09 | 0.650 | 0.000 | 3.00 | 5.091 | 3.31 | 122.1 | 0.0 | 108.6 |
| 145.00 | Appurtenance(s) | 1.00 | 1.10 | 21.169 | 23.29 | 147.62 | 0.650 | 0.000 | 5.00 | 8.132 | 5.29 | 196.9 | 0.0 | 173.4 |
| 148.34 | | 1.00 | 1.11 | 21.308 | 23.44 | 142.57 | 0.650 | 0.000 | 3.34 | 5.186 | 3.37 | 126.4 | 0.0 | 110.6 |
| | | | | | | | | **Totals:** | **148.34** | | | **7,880.4** | | **15,572.5** |

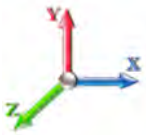
# Discrete Appurtenance Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 + 1.6W 89 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | 145.00 | Ericsson 4415 B25 | 2 | 21.169 | 23.286 | 0.50 | 0.75 | 1.87 | 82.80 | 0.000 | 0.000 | 69.65 | 0.00 | 0.00 |
| 2 | 145.00 | AIR32 | 2 | 21.169 | 23.286 | 0.65 | 0.75 | 8.50 | 237.96 | 0.000 | 0.000 | 316.53 | 0.00 | 0.00 |
| 3 | 145.00 | APXVAALL24_43-U-NA20 | 2 | 21.169 | 23.286 | 0.55 | 0.75 | 22.16 | 221.04 | 0.000 | 0.000 | 825.74 | 0.00 | 0.00 |
| 4 | 145.00 | AIR6449 B41 | 2 | 21.169 | 23.286 | 0.53 | 0.75 | 6.02 | 185.40 | 0.000 | 0.000 | 224.19 | 0.00 | 0.00 |
| 5 | 145.00 | RFS ACU-A20-N RET | 4 | 21.169 | 23.286 | 0.50 | 0.75 | 0.28 | 3.74 | 0.000 | 0.000 | 10.48 | 0.00 | 0.00 |
| 6 | 145.00 | HRK12 (Handrail Kit) | 1 | 21.169 | 23.286 | 1.00 | 1.00 | 6.75 | 235.55 | 0.000 | 0.000 | 251.49 | 0.00 | 0.00 |
| 7 | 145.00 | ALU 800 MHz RRH | 4 | 21.169 | 23.286 | 0.50 | 0.75 | 5.00 | 190.80 | 0.000 | 0.000 | 186.47 | 0.00 | 0.00 |
| 8 | 145.00 | Ericsson 4449 B71 + B85 | 2 | 21.169 | 23.286 | 0.50 | 0.75 | 1.98 | 135.00 | 0.000 | 0.000 | 73.77 | 0.00 | 0.00 |
| 9 | 145.00 | ALU 800 MHz Filter | 2 | 21.169 | 23.286 | 0.50 | 0.75 | 0.78 | 15.84 | 0.000 | 0.000 | 29.21 | 0.00 | 0.00 |
| 10 | 145.00 | RMQP-472 (LPP) | 1 | 21.169 | 23.286 | 1.00 | 1.00 | 33.60 | 1463.21 | 0.000 | 0.000 | 1251.87 | 0.00 | 0.00 |
| 11 | 137.00 | LGP 21401 | 6 | 20.829 | 22.912 | 0.80 | 0.80 | 6.19 | 76.14 | 0.000 | 0.000 | 226.99 | 0.00 | 0.00 |
| 12 | 137.00 | RRUS 8843 B2 B66A | 3 | 20.829 | 22.912 | 0.54 | 0.80 | 2.65 | 202.50 | 0.000 | 0.000 | 97.26 | 0.00 | 0.00 |
| 13 | 137.00 | DC6-48-60-18-8F | 2 | 20.829 | 22.912 | 0.80 | 0.80 | 1.47 | 57.24 | 0.000 | 0.000 | 53.96 | 0.00 | 0.00 |
| 14 | 137.00 | RRUS 4449 B5/B12 | 3 | 20.829 | 22.912 | 0.54 | 0.80 | 3.17 | 191.70 | 0.000 | 0.000 | 116.13 | 0.00 | 0.00 |
| 15 | 137.00 | DMP65R-BU6DA | 3 | 20.829 | 22.912 | 0.58 | 0.80 | 21.96 | 214.38 | 0.000 | 0.000 | 805.13 | 0.00 | 0.00 |
| 16 | 137.00 | HPA-65R-BU6AA | 3 | 20.829 | 22.912 | 0.85 | 1.00 | 24.63 | 137.70 | 0.000 | 0.000 | 903.02 | 0.00 | 0.00 |
| 17 | 137.00 | Low Profile Platform | 1 | 20.829 | 22.912 | 1.00 | 1.00 | 22.00 | 1350.00 | 0.000 | 0.000 | 806.49 | 0.00 | 0.00 |
| 18 | 137.00 | 7770 | 3 | 20.829 | 22.912 | 0.58 | 0.80 | 9.64 | 94.50 | 0.000 | 0.000 | 353.24 | 0.00 | 0.00 |
| 19 | 127.00 | Antel - LPA 80080/6CF | 6 | 20.383 | 22.421 | 1.20 | 0.80 | 31.13 | 113.40 | 0.000 | 0.000 | 1116.90 | 0.00 | 0.00 |
| 20 | 127.00 | Low Profile Platform | 1 | 20.383 | 22.421 | 1.00 | 1.00 | 22.00 | 1350.00 | 0.000 | 0.000 | 789.22 | 0.00 | 0.00 |
| 21 | 127.00 | Antel - BXA-171085-12BF | 3 | 20.383 | 22.421 | 0.70 | 0.80 | 9.98 | 40.50 | 0.000 | 0.000 | 357.90 | 0.00 | 0.00 |
| 22 | 127.00 | RFS - FD9R6004/2C-3L - | 6 | 20.383 | 22.421 | 0.40 | 0.80 | 0.89 | 16.74 | 0.000 | 0.000 | 31.86 | 0.00 | 0.00 |
| 23 | 127.00 | Antel - BXA-70040-6CF | 2 | 20.383 | 22.421 | 0.56 | 0.80 | 16.10 | 68.40 | 0.000 | 0.000 | 577.74 | 0.00 | 0.00 |
| 24 | 127.00 | Antel - BXA-70063-6CF | 1 | 20.383 | 22.421 | 0.62 | 0.80 | 4.69 | 15.30 | 0.000 | 0.000 | 168.37 | 0.00 | 0.00 |
| | | | | | | | **Totals:** | | **6,699.84** | | | **9,643.60** | | |

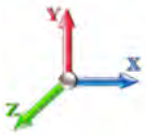
# Total Applied Force Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | | **Exposure:** | B | |
| **Height:** | 148.34 (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 + 1.6W 89 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | | 309.88 | 993.01 | 0.00 | 0.00 |
| 10.00 | | 303.06 | 973.96 | 0.00 | 0.00 |
| 15.00 | | 296.24 | 954.92 | 0.00 | 0.00 |
| 20.00 | | 289.42 | 935.88 | 0.00 | 0.00 |
| 25.00 | | 282.60 | 916.83 | 0.00 | 0.00 |
| 30.00 | | 276.01 | 897.79 | 0.00 | 0.00 |
| 35.00 | | 281.31 | 878.75 | 0.00 | 0.00 |
| 40.00 | | 284.84 | 859.70 | 0.00 | 0.00 |
| 45.00 | | 286.92 | 840.66 | 0.00 | 0.00 |
| 47.18 | | 124.09 | 359.77 | 0.00 | 0.00 |
| 47.20 | | 1.43 | 6.99 | 0.00 | 0.00 |
| 50.00 | | 162.84 | 782.28 | 0.00 | 0.00 |
| 52.51 | | 145.89 | 691.95 | 0.00 | 0.00 |
| 55.00 | | 144.64 | 347.45 | 0.00 | 0.00 |
| 57.50 | | 145.02 | 344.89 | 0.00 | 0.00 |
| 60.00 | | 144.72 | 340.92 | 0.00 | 0.00 |
| 65.00 | | 289.75 | 669.94 | 0.00 | 0.00 |
| 70.00 | | 287.25 | 654.07 | 0.00 | 0.00 |
| 75.00 | | 284.10 | 638.20 | 0.00 | 0.00 |
| 80.00 | | 280.36 | 622.33 | 0.00 | 0.00 |
| 85.00 | | 276.06 | 606.46 | 0.00 | 0.00 |
| 90.00 | | 271.27 | 590.59 | 0.00 | 0.00 |
| 95.00 | | 266.00 | 574.72 | 0.00 | 0.00 |
| 95.80 | | 41.78 | 90.48 | 0.00 | 0.00 |
| 95.83 | | 1.44 | 3.12 | 0.00 | 0.00 |
| 99.92 | | 214.98 | 667.16 | 0.00 | 0.00 |
| 100.00 | | 4.39 | 6.60 | 0.00 | 0.00 |
| 105.00 | | 257.70 | 384.17 | 0.00 | 0.00 |
| 105.30 | | 15.16 | 22.75 | 0.00 | 0.00 |
| 110.00 | | 235.90 | 351.90 | 0.00 | 0.00 |
| 115.00 | | 244.44 | 365.13 | 0.00 | 0.00 |
| 120.00 | | 237.29 | 355.61 | 0.00 | 0.00 |
| 125.00 | | 229.81 | 346.08 | 0.00 | 0.00 |
| 127.00 | (19) attachments | 3131.44 | 1740.11 | 0.00 | 0.00 |
| 130.00 | | 131.97 | 167.10 | 0.00 | 0.00 |
| 135.00 | | 213.94 | 270.88 | 0.00 | 0.00 |
| 137.00 | (24) attachments | 3445.21 | 2429.85 | 0.00 | 0.00 |
| 140.00 | | 122.07 | 116.36 | 0.00 | 0.00 |
| 145.00 | (22) attachments | 3436.34 | 2957.66 | 0.00 | 0.00 |
| 148.34 | | 126.41 | 110.55 | 0.00 | 0.00 |
| | **Totals:** | **17,523.99** | **25,867.56** | **0.00** | **0.00** |

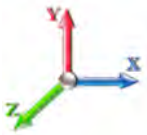
# Linear Appurtenance Segment Forces (Factored)

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 + 1.6W 89 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60




**Iterations** 25

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.00 | 1.5" Reinforcing plate | Yes | 2.80 | 0.000 | 1.50 | 0.35 | 0.00 | 0.039 | 0.000 | 15.617 | 0.00 | 0.00 |
| 52.51 | 1.5" Reinforcing plate | Yes | 2.51 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 15.837 | 0.00 | 0.00 |
| 55.00 | 1.5" Reinforcing plate | Yes | 2.49 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 16.048 | 0.00 | 0.00 |
| 57.50 | 1.5" Reinforcing plate | Yes | 2.50 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 16.253 | 0.00 | 0.00 |
| 95.83 | 1.5" Reinforcing plate | Yes | 0.03 | 0.000 | 1.50 | 0.00 | 0.00 | 0.052 | 0.000 | 18.807 | 0.00 | 0.00 |
| 99.92 | 1.5" Reinforcing plate | Yes | 4.09 | 0.000 | 1.50 | 0.51 | 0.00 | 0.052 | 0.000 | 19.033 | 0.00 | 0.00 |
| 100.00 | 1.5" Reinforcing plate | Yes | 0.08 | 0.000 | 1.50 | 0.01 | 0.00 | 0.053 | 0.000 | 19.037 | 0.00 | 0.00 |
| 105.00 | 1.5" Reinforcing plate | Yes | 5.00 | 0.000 | 1.50 | 0.63 | 0.00 | 0.054 | 0.000 | 19.304 | 0.00 | 0.00 |
| 105.30 | 1.5" Reinforcing plate | Yes | 0.30 | 0.000 | 1.50 | 0.04 | 0.00 | 0.055 | 0.000 | 19.320 | 0.00 | 0.00 |
| | | | | | | | | | **Totals:** | | **0.0** | **0.0** |

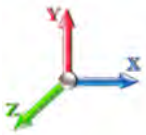
# Calculated Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 17 | |

**Load Case:** 0.9D + 1.6W 89 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60




**Iterations** 25

| 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 | -25.84 | -17.56 | 0.00 | -1951.9 | 0.00 | 1951.91 | 3903.36 | 1951.68 | 7638.46 | 3824.91 | 0.00 | 0.000 | 0.000 | 0.517 |
| 5.00 | -24.80 | -17.32 | 0.00 | -1864.1 | 0.00 | 1864.11 | 3846.55 | 1923.28 | 7360.85 | 3685.90 | 0.09 | -0.167 | 0.000 | 0.512 |
| 10.00 | -23.77 | -17.09 | 0.00 | -1777.4 | 0.00 | 1777.49 | 3788.45 | 1894.23 | 7085.75 | 3548.14 | 0.36 | -0.338 | 0.000 | 0.507 |
| 15.00 | -22.77 | -16.85 | 0.00 | -1692.0 | 0.00 | 1692.06 | 3729.06 | 1864.53 | 6813.30 | 3411.72 | 0.80 | -0.511 | 0.000 | 0.502 |
| 20.00 | -21.79 | -16.62 | 0.00 | -1607.7 | 0.00 | 1607.79 | 3668.37 | 1834.19 | 6543.69 | 3276.71 | 1.43 | -0.689 | 0.000 | 0.497 |
| 25.00 | -20.82 | -16.39 | 0.00 | -1524.6 | 0.00 | 1524.68 | 3606.39 | 1803.19 | 6277.08 | 3143.21 | 2.25 | -0.869 | 0.000 | 0.491 |
| 30.00 | -19.87 | -16.17 | 0.00 | -1442.7 | 0.00 | 1442.71 | 3543.11 | 1771.56 | 6013.64 | 3011.29 | 3.26 | -1.053 | 0.000 | 0.485 |
| 35.00 | -18.95 | -15.93 | 0.00 | -1361.8 | 0.00 | 1361.87 | 3478.55 | 1739.27 | 5753.54 | 2881.05 | 4.46 | -1.241 | 0.000 | 0.478 |
| 40.00 | -18.04 | -15.69 | 0.00 | -1282.2 | 0.00 | 1282.22 | 3412.68 | 1706.34 | 5496.94 | 2752.56 | 5.86 | -1.432 | 0.000 | 0.471 |
| 45.00 | -17.17 | -15.42 | 0.00 | -1203.7 | 0.00 | 1203.78 | 3345.53 | 1672.76 | 5244.01 | 2625.90 | 7.47 | -1.626 | 0.000 | 0.464 |
| 47.18 | -16.81 | -15.30 | 0.00 | -1170.2 | 0.00 | 1170.24 | 3315.91 | 1657.95 | 5135.17 | 2571.40 | 8.23 | -1.714 | 0.000 | 0.460 |
| 47.20 | -16.79 | -15.31 | 0.00 | -1169.8 | 0.00 | 1169.86 | 3315.57 | 1657.78 | 5133.93 | 2570.78 | 8.24 | -1.715 | 0.000 | 0.274 |
| 50.00 | -16.00 | -15.14 | 0.00 | -1127.0 | 0.00 | 1127.00 | 3277.08 | 1638.54 | 4994.93 | 2501.18 | 9.26 | -1.782 | 0.000 | 0.269 |
| 52.51 | -15.29 | -14.99 | 0.00 | -1089.0 | 0.00 | 1089.01 | 2602.21 | 1301.11 | 3990.47 | 1998.20 | 10.22 | -1.842 | 0.000 | 0.285 |
| 55.00 | -14.93 | -14.85 | 0.00 | -1051.6 | 0.00 | 1051.69 | 2577.30 | 1288.65 | 3896.73 | 1951.26 | 11.19 | -1.902 | 0.000 | 0.301 |
| 57.50 | -14.58 | -14.71 | 0.00 | -1014.5 | 0.00 | 1014.57 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 12.21 | -1.967 | 0.000 | 0.295 |
| 57.50 | -14.58 | -14.71 | 0.00 | -1014.5 | 0.00 | 1014.57 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 12.21 | -1.967 | 0.000 | 0.295 |
| 60.00 | -14.20 | -14.59 | 0.00 | -977.81 | 0.00 | 977.81 | 2526.30 | 1263.15 | 3710.31 | 1857.91 | 13.25 | -2.032 | 0.000 | 0.532 |
| 65.00 | -13.49 | -14.33 | 0.00 | -904.87 | 0.00 | 904.87 | 2474.01 | 1237.00 | 3526.46 | 1765.85 | 15.51 | -2.265 | 0.000 | 0.518 |
| 70.00 | -12.79 | -14.07 | 0.00 | -833.23 | 0.00 | 833.23 | 2420.42 | 1210.21 | 3345.35 | 1675.16 | 18.01 | -2.501 | 0.000 | 0.503 |
| 75.00 | -12.11 | -13.80 | 0.00 | -762.90 | 0.00 | 762.90 | 2365.54 | 1182.77 | 3167.14 | 1585.93 | 20.75 | -2.738 | 0.000 | 0.486 |
| 80.00 | -11.44 | -13.54 | 0.00 | -693.87 | 0.00 | 693.87 | 2309.37 | 1154.68 | 2992.01 | 1498.23 | 23.74 | -2.976 | 0.000 | 0.468 |
| 85.00 | -10.80 | -13.28 | 0.00 | -626.17 | 0.00 | 626.17 | 2251.13 | 1125.57 | 2819.16 | 1411.68 | 26.99 | -3.213 | 0.000 | 0.449 |
| 90.00 | -10.17 | -13.01 | 0.00 | -559.79 | 0.00 | 559.79 | 2174.14 | 1087.07 | 2628.67 | 1316.29 | 30.48 | -3.449 | 0.000 | 0.430 |
| 95.00 | -9.58 | -12.74 | 0.00 | -494.72 | 0.00 | 494.72 | 2097.14 | 1048.57 | 2444.84 | 1224.23 | 34.21 | -3.682 | 0.000 | 0.409 |
| 95.80 | -9.49 | -12.69 | 0.00 | -484.53 | 0.00 | 484.53 | 2084.82 | 1042.41 | 2416.04 | 1209.82 | 34.83 | -3.721 | 0.000 | 0.223 |
| 95.83 | -9.48 | -12.70 | 0.00 | -484.18 | 0.00 | 484.18 | 2084.39 | 1042.20 | 2415.05 | 1209.32 | 34.86 | -3.722 | 0.000 | 0.223 |
| 99.92 | -8.81 | -12.45 | 0.00 | -432.28 | 0.00 | 432.28 | 1076.50 | 538.25 | 1236.95 | 619.40 | 38.09 | -3.825 | 0.000 | 0.240 |
| 100.00 | -8.79 | -12.45 | 0.00 | -431.22 | 0.00 | 431.22 | 1076.11 | 538.05 | 1235.71 | 618.78 | 38.15 | -3.827 | 0.000 | 0.299 |
| 105.00 | -8.41 | -12.18 | 0.00 | -368.95 | 0.00 | 368.95 | 1052.46 | 526.23 | 1163.02 | 582.37 | 42.24 | -3.974 | 0.000 | 0.265 |
| 105.30 | -8.37 | -12.18 | 0.00 | -365.29 | 0.00 | 365.29 | 1051.00 | 525.50 | 1158.68 | 580.20 | 42.49 | -3.983 | 0.000 | 0.263 |
| 105.30 | -8.37 | -12.18 | 0.00 | -365.29 | 0.00 | 365.29 | 1051.00 | 525.50 | 1158.68 | 580.20 | 42.49 | -3.983 | 0.000 | 0.263 |
| 110.00 | -7.99 | -11.95 | 0.00 | -308.07 | 0.00 | 308.07 | 1027.52 | 513.76 | 1090.99 | 546.31 | 46.47 | -4.111 | 0.000 | 0.572 |
| 115.00 | -7.59 | -11.71 | 0.00 | -248.33 | 0.00 | 248.33 | 1001.28 | 500.64 | 1019.81 | 510.66 | 50.94 | -4.417 | 0.000 | 0.494 |
| 120.00 | -7.20 | -11.48 | 0.00 | -189.76 | 0.00 | 189.76 | 973.75 | 486.88 | 949.64 | 475.53 | 55.72 | -4.689 | 0.000 | 0.407 |
| 125.00 | -6.85 | -11.24 | 0.00 | -132.36 | 0.00 | 132.36 | 944.93 | 472.47 | 880.64 | 440.98 | 60.75 | -4.917 | 0.000 | 0.308 |
| 127.00 | -5.37 | -7.98 | 0.00 | -109.88 | 0.00 | 109.88 | 933.04 | 466.52 | 853.41 | 427.34 | 62.82 | -4.995 | 0.000 | 0.263 |
| 130.00 | -5.20 | -7.84 | 0.00 | -85.94 | 0.00 | 85.94 | 914.81 | 457.41 | 812.99 | 407.10 | 65.99 | -5.096 | 0.000 | 0.217 |
| 135.00 | -4.94 | -7.61 | 0.00 | -46.72 | 0.00 | 46.72 | 883.40 | 441.70 | 746.85 | 373.98 | 71.40 | -5.220 | 0.000 | 0.131 |
| 137.00 | -2.83 | -3.96 | 0.00 | -31.49 | 0.00 | 31.49 | 870.48 | 435.24 | 720.86 | 360.97 | 73.59 | -5.254 | 0.000 | 0.091 |
| 140.00 | -2.73 | -3.83 | 0.00 | -19.61 | 0.00 | 19.61 | 850.70 | 425.35 | 682.40 | 341.71 | 76.90 | -5.289 | 0.000 | 0.061 |
| 145.00 | -0.10 | -0.14 | 0.00 | -0.45 | 0.00 | 0.45 | 816.70 | 408.35 | 619.79 | 310.35 | 82.45 | -5.314 | 0.000 | 0.002 |
| 148.34 | 0.00 | -0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 787.55 | 393.77 | 574.90 | 287.88 | 86.16 | -5.315 | 0.000 | 0.000 |

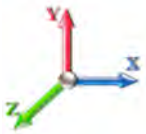
# Wind Loading - Shaft

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 18 | |

**Load Case:** 1.2D + 1.0Di + 1.0Wi 40 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | 0.70 | 2.724 | 3.00 | 0.00 | 1.200 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.70 | 2.724 | 3.00 | 0.00 | 1.200 | 1.242 | 5.00 | 21.123 | 25.35 | 75.9 | 375.0 | 1519.6 |
| 10.00 | | 1.00 | 0.70 | 2.724 | 3.00 | 0.00 | 1.200 | 1.331 | 5.00 | 20.755 | 24.91 | 74.6 | 393.9 | 1513.1 |
| 15.00 | | 1.00 | 0.70 | 2.724 | 3.00 | 0.00 | 1.200 | 1.386 | 5.00 | 20.359 | 24.43 | 73.2 | 401.6 | 1495.4 |
| 20.00 | | 1.00 | 0.70 | 2.724 | 3.00 | 0.00 | 1.200 | 1.427 | 5.00 | 19.950 | 23.94 | 71.7 | 404.4 | 1472.8 |
| 25.00 | | 1.00 | 0.70 | 2.724 | 3.00 | 0.00 | 1.200 | 1.459 | 5.00 | 19.535 | 23.44 | 70.2 | 404.2 | 1447.2 |
| 30.00 | | 1.00 | 0.70 | 2.726 | 3.00 | 0.00 | 1.200 | 1.486 | 5.00 | 19.115 | 22.94 | 68.8 | 402.2 | 1419.8 |
| 35.00 | | 1.00 | 0.73 | 2.849 | 3.13 | 0.00 | 1.200 | 1.509 | 5.00 | 18.692 | 22.43 | 70.3 | 398.8 | 1391.0 |
| 40.00 | | 1.00 | 0.76 | 2.960 | 3.26 | 0.00 | 1.200 | 1.529 | 5.00 | 18.267 | 21.92 | 71.4 | 394.3 | 1361.1 |
| 45.00 | | 1.00 | 0.79 | 3.061 | 3.37 | 0.00 | 1.200 | 1.547 | 5.00 | 17.840 | 21.41 | 72.1 | 389.0 | 1330.5 |
| 47.18 | Bot - Section 2 | 1.00 | 0.80 | 3.103 | 3.41 | 0.00 | 1.200 | 1.555 | 2.18 | 7.626 | 9.15 | 31.2 | 168.1 | 569.8 |
| 47.20 | RB1 | 1.00 | 0.80 | 3.103 | 3.41 | 0.00 | 1.200 | 1.555 | 0.02 | 0.088 | 0.11 | 0.4 | 1.9 | 10.4 |
| 50.00 | | 1.00 | 0.81 | 3.155 | 3.47 | 0.00 | 1.200 | 1.564 | 2.80 | 9.844 | 11.81 | 41.0 | 217.9 | 1160.5 |
| 52.51 | Top - Section 1 | 1.00 | 0.82 | 3.199 | 3.52 | 0.00 | 1.200 | 1.571 | 2.51 | 8.710 | 10.45 | 36.8 | 193.8 | 1026.3 |
| 55.00 | | 1.00 | 0.83 | 3.242 | 3.57 | 0.00 | 1.200 | 1.579 | 2.49 | 8.534 | 10.24 | 36.5 | 190.6 | 564.5 |
| 57.50 | RT1 | 1.00 | 0.84 | 3.283 | 3.61 | 0.00 | 1.200 | 1.586 | 2.50 | 8.460 | 10.15 | 36.7 | 189.6 | 559.8 |
| 60.00 | | 1.00 | 0.85 | 3.323 | 3.66 | 0.00 | 1.200 | 1.592 | 2.50 | 8.353 | 10.02 | 36.6 | 187.9 | 552.7 |
| 65.00 | | 1.00 | 0.87 | 3.400 | 3.74 | 0.00 | 1.200 | 1.605 | 5.00 | 16.385 | 19.66 | 73.5 | 368.4 | 1082.2 |
| 70.00 | | 1.00 | 0.89 | 3.473 | 3.82 | 0.00 | 1.200 | 1.617 | 5.00 | 15.952 | 19.14 | 73.1 | 360.7 | 1053.3 |
| 75.00 | | 1.00 | 0.91 | 3.542 | 3.90 | 0.00 | 1.200 | 1.628 | 5.00 | 15.520 | 18.62 | 72.6 | 352.6 | 1024.1 |
| 80.00 | | 1.00 | 0.93 | 3.608 | 3.97 | 0.00 | 1.200 | 1.639 | 5.00 | 15.086 | 18.10 | 71.8 | 344.3 | 994.6 |
| 85.00 | | 1.00 | 0.94 | 3.671 | 4.04 | 0.00 | 1.200 | 1.649 | 5.00 | 14.653 | 17.58 | 71.0 | 335.7 | 964.9 |
| 90.00 | | 1.00 | 0.96 | 3.731 | 4.10 | 0.00 | 1.200 | 1.658 | 5.00 | 14.218 | 17.06 | 70.0 | 326.8 | 934.9 |
| 95.00 | | 1.00 | 0.97 | 3.789 | 4.17 | 0.00 | 1.200 | 1.667 | 5.00 | 13.784 | 16.54 | 68.9 | 317.8 | 904.7 |
| 95.80 | RB2 | 1.00 | 0.98 | 3.799 | 4.18 | 0.00 | 1.200 | 1.669 | 0.80 | 2.165 | 2.60 | 10.9 | 50.6 | 142.5 |
| 95.83 | Bot - Section 3 | 1.00 | 0.98 | 3.799 | 4.18 | 0.00 | 1.200 | 1.669 | 0.03 | 0.075 | 0.09 | 0.4 | 1.7 | 4.9 |
| 99.92 | Top - Section 2 | 1.00 | 0.99 | 3.844 | 4.23 | 0.00 | 1.200 | 1.676 | 4.09 | 11.015 | 13.22 | 55.9 | 255.6 | 998.4 |
| 100.00 | | 1.00 | 0.99 | 3.845 | 4.23 | 0.00 | 1.200 | 1.676 | 0.08 | 0.225 | 0.27 | 1.1 | 5.3 | 11.1 |
| 105.00 | | 1.00 | 1.00 | 3.899 | 4.29 | 0.00 | 1.200 | 1.684 | 5.00 | 13.072 | 15.69 | 67.3 | 303.0 | 635.9 |
| 105.30 | RT2 | 1.00 | 1.00 | 3.903 | 4.29 | 0.00 | 1.200 | 1.685 | 0.30 | 0.770 | 0.92 | 4.0 | 18.1 | 37.7 |
| 110.00 | | 1.00 | 1.02 | 3.952 | 4.35 | 0.00 | 1.200 | 1.692 | 4.70 | 11.866 | 14.24 | 61.9 | 275.9 | 576.4 |
| 115.00 | | 1.00 | 1.03 | 4.002 | 4.40 | 0.00 | 1.200 | 1.699 | 5.00 | 12.201 | 14.64 | 64.5 | 283.7 | 591.1 |
| 120.00 | | 1.00 | 1.04 | 4.051 | 4.46 | 0.00 | 1.200 | 1.707 | 5.00 | 11.765 | 14.12 | 62.9 | 273.8 | 568.6 |
| 125.00 | | 1.00 | 1.05 | 4.099 | 4.51 | 0.00 | 1.200 | 1.714 | 5.00 | 11.328 | 13.59 | 61.3 | 263.8 | 545.8 |
| 127.00 | Appurtenance(s) | 1.00 | 1.06 | 4.117 | 4.53 | 0.00 | 1.200 | 1.716 | 2.00 | 4.409 | 5.29 | 24.0 | 103.9 | 213.2 |
| 130.00 | | 1.00 | 1.07 | 4.145 | 4.56 | 0.00 | 1.200 | 1.720 | 3.00 | 6.482 | 7.78 | 35.5 | 152.2 | 312.3 |
| 135.00 | | 1.00 | 1.08 | 4.190 | 4.61 | 0.00 | 1.200 | 1.727 | 5.00 | 10.455 | 12.55 | 57.8 | 243.4 | 500.0 |
| 137.00 | Appurtenance(s) | 1.00 | 1.08 | 4.207 | 4.63 | 0.00 | 1.200 | 1.729 | 2.00 | 4.059 | 4.87 | 22.5 | 95.7 | 194.8 |
| 140.00 | | 1.00 | 1.09 | 4.233 | 4.66 | 0.00 | 1.200 | 1.733 | 3.00 | 5.958 | 7.15 | 33.3 | 139.8 | 284.6 |
| 145.00 | Appurtenance(s) | 1.00 | 1.10 | 4.276 | 4.70 | 0.00 | 1.200 | 1.739 | 5.00 | 9.581 | 11.50 | 54.1 | 222.5 | 453.7 |
| 148.34 | | 1.00 | 1.11 | 4.304 | 4.73 | 0.00 | 1.200 | 1.743 | 3.34 | 6.156 | 7.39 | 35.0 | 143.9 | 291.3 |
| | | | | | | | | **Totals:** | **148.34** | | | **2,020.7** | | **30,715.7** |

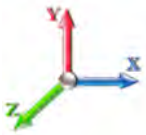
# Discrete Appurtenance Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 40 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | 145.00 | Ericsson 4415 B25 | 2 | 4.276 | 4.704 | 0.50 | 0.75 | 2.44 | 192.43 | 0.000 | 0.000 | 11.49 | 0.00 | 0.00 |
| 2 | 145.00 | AIR32 | 2 | 4.276 | 4.704 | 0.65 | 0.75 | 10.03 | 684.55 | 0.000 | 0.000 | 47.18 | 0.00 | 0.00 |
| 3 | 145.00 | APXVAALL24_43-U-NA20 | 2 | 4.276 | 4.704 | 0.55 | 0.75 | 24.24 | 1146.87 | 0.000 | 0.000 | 114.00 | 0.00 | 0.00 |
| 4 | 145.00 | AIR6449 B41 | 2 | 4.276 | 4.704 | 0.53 | 0.75 | 7.03 | 457.11 | 0.000 | 0.000 | 33.05 | 0.00 | 0.00 |
| 5 | 145.00 | RFS ACU-A20-N RET | 4 | 4.276 | 4.704 | 0.50 | 0.75 | 0.88 | 17.76 | 0.000 | 0.000 | 4.12 | 0.00 | 0.00 |
| 6 | 145.00 | HRK12 (Handrail Kit) | 1 | 4.276 | 4.704 | 1.00 | 1.00 | 13.32 | 885.33 | 0.000 | 0.000 | 62.67 | 0.00 | 0.00 |
| 7 | 145.00 | ALU 800 MHz RRH | 4 | 4.276 | 4.704 | 0.50 | 0.75 | 7.30 | 464.84 | 0.000 | 0.000 | 34.32 | 0.00 | 0.00 |
| 8 | 145.00 | Ericsson 4449 B71 + B85 | 2 | 4.276 | 4.704 | 0.50 | 0.75 | 2.55 | 184.73 | 0.000 | 0.000 | 11.99 | 0.00 | 0.00 |
| 9 | 145.00 | ALU 800 MHz Filter | 2 | 4.276 | 4.704 | 0.50 | 0.75 | 1.43 | 46.29 | 0.000 | 0.000 | 6.73 | 0.00 | 0.00 |
| 10 | 145.00 | RMQP-472 (LPP) | 1 | 4.276 | 4.704 | 1.00 | 1.00 | 54.64 | 2972.17 | 0.000 | 0.000 | 257.00 | 0.00 | 0.00 |
| 11 | 137.00 | LGP 21401 | 6 | 4.207 | 4.628 | 0.80 | 0.80 | 10.17 | 207.57 | 0.000 | 0.000 | 47.05 | 0.00 | 0.00 |
| 12 | 137.00 | RRUS 8843 B2 B66A | 3 | 4.207 | 4.628 | 0.54 | 0.80 | 3.51 | 491.58 | 0.000 | 0.000 | 16.24 | 0.00 | 0.00 |
| 13 | 137.00 | DC6-48-60-18-8F | 2 | 4.207 | 4.628 | 0.80 | 0.80 | 2.17 | 163.45 | 0.000 | 0.000 | 10.03 | 0.00 | 0.00 |
| 14 | 137.00 | RRUS 4449 B5/B12 | 3 | 4.207 | 4.628 | 0.54 | 0.80 | 4.04 | 373.50 | 0.000 | 0.000 | 18.70 | 0.00 | 0.00 |
| 15 | 137.00 | DMP65R-BU6DA | 3 | 4.207 | 4.628 | 0.58 | 0.80 | 24.47 | 959.60 | 0.000 | 0.000 | 113.25 | 0.00 | 0.00 |
| 16 | 137.00 | HPA-65R-BU6AA | 3 | 4.207 | 4.628 | 0.85 | 1.00 | 28.08 | 920.11 | 0.000 | 0.000 | 129.97 | 0.00 | 0.00 |
| 17 | 137.00 | Low Profile Platform | 1 | 4.207 | 4.628 | 1.00 | 1.00 | 39.50 | 2797.10 | 0.000 | 0.000 | 182.82 | 0.00 | 0.00 |
| 18 | 137.00 | 7770 | 3 | 4.207 | 4.628 | 0.58 | 0.80 | 11.48 | 527.04 | 0.000 | 0.000 | 53.15 | 0.00 | 0.00 |
| 19 | 127.00 | Antel - LPA 80080/6CF | 6 | 4.117 | 4.529 | 1.12 | 0.80 | 37.03 | 630.15 | 0.000 | 0.000 | 167.70 | 0.00 | 0.00 |
| 20 | 127.00 | Low Profile Platform | 1 | 4.117 | 4.529 | 1.00 | 1.00 | 39.37 | 2787.31 | 0.000 | 0.000 | 178.30 | 0.00 | 0.00 |
| 21 | 127.00 | Antel - BXA-171085-12BF | 3 | 4.117 | 4.529 | 0.72 | 0.80 | 15.16 | 252.50 | 0.000 | 0.000 | 68.67 | 0.00 | 0.00 |
| 22 | 127.00 | RFS - FD9R6004/2C-3L - | 6 | 4.117 | 4.529 | 0.40 | 0.80 | 1.96 | 55.88 | 0.000 | 0.000 | 8.89 | 0.00 | 0.00 |
| 23 | 127.00 | Antel - BXA-70040-6CF | 2 | 4.117 | 4.529 | 0.57 | 0.80 | 19.75 | 493.77 | 0.000 | 0.000 | 89.43 | 0.00 | 0.00 |
| 24 | 127.00 | Antel - BXA-70063-6CF | 1 | 4.117 | 4.529 | 0.64 | 0.80 | 6.60 | 123.75 | 0.000 | 0.000 | 29.89 | 0.00 | 0.00 |
| | | | | | | | **Totals:** | | **17,835.38** | | | **1,696.65** | | |

# Total Applied Force Summary

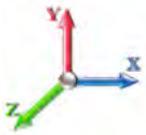
| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | | **Exposure:** | B | |
| **Height:** | 148.34 (ft) | | **Crest Height:** | 0.00 | |
| **Base Elev:** | 0.000 (ft) | | **Site Class:** | D - Stiff Soil | |
| **Gh:** | 1.1 | **Topography:** 1 | **Struct Class:** | II | Page: 20 |

Tower Engineering Solutions

**Load Case:** 1.2D + 1.0Di + 1.0Wi 40 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | | 75.95 | 1699.00 | 0.00 | 0.00 |
| 10.00 | | 74.62 | 1692.54 | 0.00 | 0.00 |
| 15.00 | | 73.20 | 1674.84 | 0.00 | 0.00 |
| 20.00 | | 71.73 | 1652.19 | 0.00 | 0.00 |
| 25.00 | | 70.24 | 1626.66 | 0.00 | 0.00 |
| 30.00 | | 68.79 | 1599.22 | 0.00 | 0.00 |
| 35.00 | | 70.29 | 1570.41 | 0.00 | 0.00 |
| 40.00 | | 71.37 | 1540.56 | 0.00 | 0.00 |
| 45.00 | | 72.08 | 1509.88 | 0.00 | 0.00 |
| 47.18 | | 31.23 | 647.83 | 0.00 | 0.00 |
| 47.20 | | 0.36 | 11.27 | 0.00 | 0.00 |
| 50.00 | | 40.99 | 1286.23 | 0.00 | 0.00 |
| 52.51 | | 36.78 | 1139.15 | 0.00 | 0.00 |
| 55.00 | | 36.51 | 676.60 | 0.00 | 0.00 |
| 57.50 | | 36.66 | 672.46 | 0.00 | 0.00 |
| 60.00 | | 36.64 | 642.44 | 0.00 | 0.00 |
| 65.00 | | 73.54 | 1261.64 | 0.00 | 0.00 |
| 70.00 | | 73.13 | 1232.76 | 0.00 | 0.00 |
| 75.00 | | 72.56 | 1203.54 | 0.00 | 0.00 |
| 80.00 | | 71.85 | 1174.04 | 0.00 | 0.00 |
| 85.00 | | 71.00 | 1144.28 | 0.00 | 0.00 |
| 90.00 | | 70.03 | 1114.28 | 0.00 | 0.00 |
| 95.00 | | 68.95 | 1084.07 | 0.00 | 0.00 |
| 95.80 | | 10.85 | 171.25 | 0.00 | 0.00 |
| 95.83 | | 0.37 | 6.18 | 0.00 | 0.00 |
| 99.92 | | 55.90 | 1185.42 | 0.00 | 0.00 |
| 100.00 | | 1.14 | 14.94 | 0.00 | 0.00 |
| 105.00 | | 67.28 | 864.89 | 0.00 | 0.00 |
| 105.30 | | 3.97 | 51.46 | 0.00 | 0.00 |
| 110.00 | | 61.89 | 745.06 | 0.00 | 0.00 |
| 115.00 | | 64.45 | 770.56 | 0.00 | 0.00 |
| 120.00 | | 62.91 | 747.98 | 0.00 | 0.00 |
| 125.00 | | 61.29 | 725.25 | 0.00 | 0.00 |
| 127.00 | (19) attachments | 566.84 | 4628.28 | 0.00 | 0.00 |
| 130.00 | | 35.46 | 374.99 | 0.00 | 0.00 |
| 135.00 | | 57.82 | 604.54 | 0.00 | 0.00 |
| 137.00 | (24) attachments | 593.75 | 6676.56 | 0.00 | 0.00 |
| 140.00 | | 33.29 | 294.93 | 0.00 | 0.00 |
| 145.00 | (22) attachments | 636.65 | 7522.97 | 0.00 | 0.00 |
| 148.34 | | 34.98 | 291.29 | 0.00 | 0.00 |
| | **Totals:** | **3,717.35** | **53,532.45** | **0.00** | **0.00** |

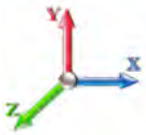
# Linear Appurtenance Segment Forces (Factored)

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 40 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00




**Iterations** 24

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.00 | 1.5" Reinforcing plate | Yes | 2.80 | 0.000 | 1.50 | 1.08 | 0.00 | 0.039 | 0.000 | 3.155 | 0.00 | 25.26 |
| 52.51 | 1.5" Reinforcing plate | Yes | 2.51 | 0.000 | 1.50 | 0.97 | 0.00 | 0.040 | 0.000 | 3.199 | 0.00 | 22.79 |
| 55.00 | 1.5" Reinforcing plate | Yes | 2.49 | 0.000 | 1.50 | 0.97 | 0.00 | 0.040 | 0.000 | 3.242 | 0.00 | 22.74 |
| 57.50 | 1.5" Reinforcing plate | Yes | 2.50 | 0.000 | 1.50 | 0.97 | 0.00 | 0.040 | 0.000 | 3.283 | 0.00 | 22.96 |
| 95.83 | 1.5" Reinforcing plate | Yes | 0.03 | 0.000 | 1.50 | 0.01 | 0.00 | 0.052 | 0.000 | 3.799 | 0.00 | 0.27 |
| 99.92 | 1.5" Reinforcing plate | Yes | 4.09 | 0.000 | 1.50 | 1.65 | 0.00 | 0.052 | 0.000 | 3.844 | 0.00 | 40.30 |
| 100.00 | 1.5" Reinforcing plate | Yes | 0.08 | 0.000 | 1.50 | 0.03 | 0.00 | 0.053 | 0.000 | 3.845 | 0.00 | 0.84 |
| 105.00 | 1.5" Reinforcing plate | Yes | 5.00 | 0.000 | 1.50 | 2.03 | 0.00 | 0.054 | 0.000 | 3.899 | 0.00 | 49.61 |
| 105.30 | 1.5" Reinforcing plate | Yes | 0.30 | 0.000 | 1.50 | 0.12 | 0.00 | 0.055 | 0.000 | 3.903 | 0.00 | 2.98 |
| | | | | | | | | | | **Totals:** | **0.0** | **187.8** |

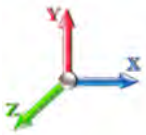
# Calculated Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 40 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | -53.53 | -3.73 | 0.00 | -415.68 | 0.00 | 415.68 | 3903.36 | 1951.68 | 7638.46 | 3824.91 | 0.00 | 0.000 | 0.000 | 0.122 |
| 5.00 | -51.83 | -3.69 | 0.00 | -397.02 | 0.00 | 397.02 | 3846.55 | 1923.28 | 7360.85 | 3685.90 | 0.02 | -0.036 | 0.000 | 0.121 |
| 10.00 | -50.14 | -3.65 | 0.00 | -378.57 | 0.00 | 378.57 | 3788.45 | 1894.23 | 7085.75 | 3548.14 | 0.08 | -0.072 | 0.000 | 0.120 |
| 15.00 | -48.46 | -3.60 | 0.00 | -360.35 | 0.00 | 360.35 | 3729.06 | 1864.53 | 6813.30 | 3411.72 | 0.17 | -0.109 | 0.000 | 0.119 |
| 20.00 | -46.80 | -3.56 | 0.00 | -342.34 | 0.00 | 342.34 | 3668.37 | 1834.19 | 6543.69 | 3276.71 | 0.31 | -0.147 | 0.000 | 0.117 |
| 25.00 | -45.17 | -3.51 | 0.00 | -324.56 | 0.00 | 324.56 | 3606.39 | 1803.19 | 6277.08 | 3143.21 | 0.48 | -0.185 | 0.000 | 0.116 |
| 30.00 | -43.57 | -3.47 | 0.00 | -307.00 | 0.00 | 307.00 | 3543.11 | 1771.56 | 6013.64 | 3011.29 | 0.69 | -0.224 | 0.000 | 0.114 |
| 35.00 | -42.00 | -3.42 | 0.00 | -289.66 | 0.00 | 289.66 | 3478.55 | 1739.27 | 5753.54 | 2881.05 | 0.95 | -0.264 | 0.000 | 0.113 |
| 40.00 | -40.46 | -3.37 | 0.00 | -272.56 | 0.00 | 272.56 | 3412.68 | 1706.34 | 5496.94 | 2752.56 | 1.25 | -0.305 | 0.000 | 0.111 |
| 45.00 | -38.95 | -3.31 | 0.00 | -255.71 | 0.00 | 255.71 | 3345.53 | 1672.76 | 5244.01 | 2625.90 | 1.59 | -0.346 | 0.000 | 0.109 |
| 47.18 | -38.30 | -3.28 | 0.00 | -248.51 | 0.00 | 248.51 | 3315.91 | 1657.95 | 5135.17 | 2571.40 | 1.75 | -0.365 | 0.000 | 0.108 |
| 47.20 | -38.29 | -3.29 | 0.00 | -248.43 | 0.00 | 248.43 | 3315.57 | 1657.78 | 5133.93 | 2570.78 | 1.75 | -0.365 | 0.000 | 0.065 |
| 50.00 | -37.00 | -3.24 | 0.00 | -239.23 | 0.00 | 239.23 | 3277.08 | 1638.54 | 4994.93 | 2501.18 | 1.97 | -0.379 | 0.000 | 0.064 |
| 52.51 | -35.86 | -3.21 | 0.00 | -231.08 | 0.00 | 231.08 | 2602.21 | 1301.11 | 3990.47 | 1998.20 | 2.18 | -0.392 | 0.000 | 0.067 |
| 55.00 | -35.18 | -3.18 | 0.00 | -223.10 | 0.00 | 223.10 | 2577.30 | 1288.65 | 3896.73 | 1951.26 | 2.38 | -0.405 | 0.000 | 0.071 |
| 57.50 | -34.51 | -3.14 | 0.00 | -215.16 | 0.00 | 215.16 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 2.60 | -0.418 | 0.000 | 0.070 |
| 57.50 | -34.51 | -3.14 | 0.00 | -215.16 | 0.00 | 215.16 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 2.60 | -0.418 | 0.000 | 0.070 |
| 60.00 | -33.87 | -3.12 | 0.00 | -207.30 | 0.00 | 207.30 | 2526.30 | 1263.15 | 3710.31 | 1857.91 | 2.82 | -0.432 | 0.000 | 0.125 |
| 65.00 | -32.60 | -3.06 | 0.00 | -191.71 | 0.00 | 191.71 | 2474.01 | 1237.00 | 3526.46 | 1765.85 | 3.30 | -0.482 | 0.000 | 0.122 |
| 70.00 | -31.37 | -3.01 | 0.00 | -176.39 | 0.00 | 176.39 | 2420.42 | 1210.21 | 3345.35 | 1675.16 | 3.83 | -0.532 | 0.000 | 0.118 |
| 75.00 | -30.16 | -2.95 | 0.00 | -161.35 | 0.00 | 161.35 | 2365.54 | 1182.77 | 3167.14 | 1585.93 | 4.42 | -0.582 | 0.000 | 0.114 |
| 80.00 | -28.99 | -2.89 | 0.00 | -146.60 | 0.00 | 146.60 | 2309.37 | 1154.68 | 2992.01 | 1498.23 | 5.05 | -0.632 | 0.000 | 0.110 |
| 85.00 | -27.84 | -2.83 | 0.00 | -132.15 | 0.00 | 132.15 | 2251.13 | 1125.57 | 2819.16 | 1411.68 | 5.74 | -0.682 | 0.000 | 0.106 |
| 90.00 | -26.73 | -2.77 | 0.00 | -117.99 | 0.00 | 117.99 | 2174.14 | 1087.07 | 2628.67 | 1316.29 | 6.48 | -0.732 | 0.000 | 0.102 |
| 95.00 | -25.64 | -2.70 | 0.00 | -104.14 | 0.00 | 104.14 | 2097.14 | 1048.57 | 2444.84 | 1224.23 | 7.27 | -0.781 | 0.000 | 0.097 |
| 95.80 | -25.47 | -2.69 | 0.00 | -101.98 | 0.00 | 101.98 | 2084.82 | 1042.41 | 2416.04 | 1209.82 | 7.41 | -0.789 | 0.000 | 0.054 |
| 95.83 | -25.46 | -2.69 | 0.00 | -101.91 | 0.00 | 101.91 | 2084.39 | 1042.20 | 2415.05 | 1209.32 | 7.41 | -0.789 | 0.000 | 0.054 |
| 99.92 | -24.28 | -2.63 | 0.00 | -90.90 | 0.00 | 90.90 | 1076.50 | 538.25 | 1236.95 | 619.40 | 8.10 | -0.811 | 0.000 | 0.058 |
| 100.00 | -24.26 | -2.63 | 0.00 | -90.68 | 0.00 | 90.68 | 1076.11 | 538.05 | 1235.71 | 618.78 | 8.11 | -0.812 | 0.000 | 0.072 |
| 105.00 | -23.40 | -2.56 | 0.00 | -77.52 | 0.00 | 77.52 | 1052.46 | 526.23 | 1163.02 | 582.37 | 8.98 | -0.842 | 0.000 | 0.065 |
| 105.30 | -23.35 | -2.56 | 0.00 | -76.76 | 0.00 | 76.76 | 1051.00 | 525.50 | 1158.68 | 580.20 | 9.03 | -0.844 | 0.000 | 0.064 |
| 105.30 | -23.35 | -2.56 | 0.00 | -76.76 | 0.00 | 76.76 | 1051.00 | 525.50 | 1158.68 | 580.20 | 9.03 | -0.844 | 0.000 | 0.064 |
| 110.00 | -22.60 | -2.50 | 0.00 | -64.73 | 0.00 | 64.73 | 1027.52 | 513.76 | 1090.99 | 546.31 | 9.88 | -0.871 | 0.000 | 0.141 |
| 115.00 | -21.83 | -2.45 | 0.00 | -52.21 | 0.00 | 52.21 | 1001.28 | 500.64 | 1019.81 | 510.66 | 10.82 | -0.935 | 0.000 | 0.124 |
| 120.00 | -21.08 | -2.39 | 0.00 | -39.96 | 0.00 | 39.96 | 973.75 | 486.88 | 949.64 | 475.53 | 11.83 | -0.993 | 0.000 | 0.106 |
| 125.00 | -20.35 | -2.33 | 0.00 | -27.98 | 0.00 | 27.98 | 944.93 | 472.47 | 880.64 | 440.98 | 12.90 | -1.041 | 0.000 | 0.085 |
| 127.00 | -15.74 | -1.69 | 0.00 | -23.32 | 0.00 | 23.32 | 933.04 | 466.52 | 853.41 | 427.34 | 13.34 | -1.057 | 0.000 | 0.071 |
| 130.00 | -15.36 | -1.65 | 0.00 | -18.26 | 0.00 | 18.26 | 914.81 | 457.41 | 812.99 | 407.10 | 14.01 | -1.079 | 0.000 | 0.062 |
| 135.00 | -14.76 | -1.58 | 0.00 | -10.02 | 0.00 | 10.02 | 883.40 | 441.70 | 746.85 | 373.98 | 15.16 | -1.105 | 0.000 | 0.043 |
| 137.00 | -8.09 | -0.86 | 0.00 | -6.85 | 0.00 | 6.85 | 870.48 | 435.24 | 720.86 | 360.97 | 15.62 | -1.112 | 0.000 | 0.028 |
| 140.00 | -7.80 | -0.82 | 0.00 | -4.26 | 0.00 | 4.26 | 850.70 | 425.35 | 682.40 | 341.71 | 16.32 | -1.120 | 0.000 | 0.022 |
| 145.00 | -0.29 | -0.04 | 0.00 | -0.14 | 0.00 | 0.14 | 816.70 | 408.35 | 619.79 | 310.35 | 17.50 | -1.126 | 0.000 | 0.001 |
| 148.34 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 787.55 | 393.77 | 574.90 | 287.88 | 18.29 | -1.126 | 0.000 | 0.000 |

# Seismic Segment Forces (Factored)

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 23 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Load Case:** | 1.2D + 1.0E | | | | | | | **Iterations** | 23 |
| **Gust Response Factor** | 1.10 | | | | **Sds** | 0.19 | | **Ss** | 0.17 |
| **Dead Load Factor** | 1.20 | **Seismic Load Factor** | 1.00 | | **Sd1** | 0.10 | | **S1** | 0.07 |
| **Wind Load Factor** | 0.00 | **Structure Frequency (f1)** | 0.33 | | **SA** | 0.03 | **Seismic Importance Factor** | | 1.00 |

| Top Elev (ft) | Description | Wz (lb) | a | b | c | Lateral Fs (lb) | R: 1.50 |
|---|---|---|---|---|---|---|---|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5.00 | | 953.83 | 0.00 | 0.03 | 0.02 | 17.17 | |
| 10.00 | | 932.67 | 0.01 | 0.05 | 0.03 | 24.29 | |
| 15.00 | | 911.51 | 0.02 | 0.06 | 0.04 | 27.33 | |
| 20.00 | | 890.35 | 0.03 | 0.07 | 0.04 | 28.49 | |
| 25.00 | | 869.19 | 0.05 | 0.07 | 0.04 | 28.83 | |
| 30.00 | | 848.03 | 0.08 | 0.07 | 0.04 | 28.88 | |
| 35.00 | | 826.87 | 0.11 | 0.07 | 0.04 | 28.86 | |
| 40.00 | | 805.71 | 0.14 | 0.07 | 0.03 | 28.76 | |
| 45.00 | | 784.56 | 0.17 | 0.07 | 0.03 | 28.44 | |
| 47.18 | Bot - Section 2 | 334.70 | 0.19 | 0.06 | 0.02 | 12.15 | |
| 47.20 | RB1 | 7.02 | 0.19 | 0.06 | 0.02 | 0.25 | |
| 50.00 | | 785.47 | 0.21 | 0.06 | 0.02 | 28.38 | |
| 52.51 | Top - Section 1 | 693.78 | 0.24 | 0.06 | 0.02 | 24.73 | |
| 55.00 | | 311.60 | 0.26 | 0.05 | 0.02 | 10.83 | |
| 57.50 | RT1 | 308.45 | 0.28 | 0.05 | 0.01 | 10.29 | |
| 60.00 | | 304.05 | 0.31 | 0.04 | 0.01 | 9.54 | |
| 65.00 | | 594.87 | 0.36 | 0.03 | 0.01 | 15.03 | |
| 70.00 | | 577.23 | 0.42 | 0.01 | 0.01 | 9.21 | |
| 75.00 | | 559.60 | 0.48 | -0.01 | 0.01 | 2.16 | |
| 80.00 | | 541.97 | 0.55 | -0.03 | 0.01 | -5.15 | |
| 85.00 | | 524.34 | 0.62 | -0.06 | 0.02 | -11.44 | |
| 90.00 | | 506.70 | 0.70 | -0.09 | 0.03 | -15.65 | |
| 95.00 | | 489.07 | 0.78 | -0.11 | 0.05 | -17.31 | |
| 95.80 | RB2 | 76.62 | 0.79 | -0.11 | 0.05 | -2.73 | |
| 95.83 | Bot - Section 3 | 2.64 | 0.79 | -0.11 | 0.05 | -0.09 | |
| 99.92 | Top - Section 2 | 619.07 | 0.86 | -0.12 | 0.07 | -21.57 | |
| 100.00 | | 4.80 | 0.86 | -0.12 | 0.07 | -0.17 | |
| 105.00 | | 277.35 | 0.95 | -0.12 | 0.11 | -8.05 | |
| 105.30 | RT2 | 16.30 | 0.95 | -0.12 | 0.11 | -0.47 | |
| 110.00 | | 250.46 | 1.04 | -0.10 | 0.15 | -4.56 | |
| 115.00 | | 256.19 | 1.14 | -0.05 | 0.21 | -0.59 | |
| 120.00 | | 245.61 | 1.24 | 0.04 | 0.28 | 4.55 | |
| 125.00 | | 235.03 | 1.34 | 0.18 | 0.37 | 10.45 | |
| 127.00 | Appurtenance(s) | 1873.6 | 1.39 | 0.26 | 0.42 | 105.37 | |
| 130.00 | | 133.40 | 1.45 | 0.39 | 0.49 | 10.07 | |
| 135.00 | | 213.87 | 1.57 | 0.68 | 0.62 | 23.89 | |
| 137.00 | Appurtenance(s) | 2664.9 | 1.61 | 0.82 | 0.69 | 340.23 | |
| 140.00 | | 120.70 | 1.68 | 1.06 | 0.79 | 18.50 | |
| 145.00 | Appurtenance(s) | 3271.9 | 1.81 | 1.57 | 0.99 | 655.22 | |
| 148.34 | | 122.84 | 1.89 | 1.98 | 1.14 | 28.84 | |
| | **Totals:** | **24,747.1** | | | | **1,473.0** | **Total Wind:** **17,524.0** |

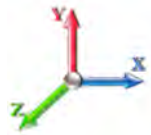
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

# Calculated Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 | |

Tower Engineering Solutions

**Load Case:** 1.2D + 1.0E




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Gust Response Factor** | 1.10 | | | **Sds** | 0.19 | | | **Iterations** | 23 |
| **Dead Load Factor** | 1.20 | **Seismic Load Factor** | 1.00 | **Sd1** | 0.10 | | | **Ss** | 0.17 |
| **Wind Load Factor** | 0.00 | **Structure Frequency (f1)** | 0.33 | **SA** | 0.03 | | | **S1** | 0.07 |
| | | | | | | | | **Seismic Importance Factor** | 1.00 |

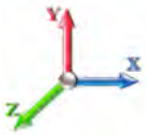
| Seg Elev (ft) | Pu FY (-) (kips) | Vu FX (-) (kips) | Tu MY (-) (ft-kips) | Mu MZ (ft-kips) | Mu MX (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Vn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | -34.49 | -1.56 | 0.00 | -191.35 | 0.00 | 191.35 | 3903.36 | 1951.68 | 7638.46 | 3824.91 | | 0.00 | 0.00 | 0.059 |
| 5.00 | -33.17 | -1.56 | 0.00 | -183.53 | 0.00 | 183.53 | 3846.55 | 1923.28 | 7360.85 | 3685.90 | | 0.01 | -0.02 | 0.058 |
| 10.00 | -31.87 | -1.54 | 0.00 | -175.75 | 0.00 | 175.75 | 3788.45 | 1894.23 | 7085.75 | 3548.14 | | 0.03 | -0.03 | 0.058 |
| 15.00 | -30.59 | -1.52 | 0.00 | -168.04 | 0.00 | 168.04 | 3729.06 | 1864.53 | 6813.30 | 3411.72 | | 0.08 | -0.05 | 0.057 |
| 20.00 | -29.34 | -1.50 | 0.00 | -160.43 | 0.00 | 160.43 | 3668.37 | 1834.19 | 6543.69 | 3276.71 | | 0.14 | -0.07 | 0.057 |
| 25.00 | -28.12 | -1.48 | 0.00 | -152.92 | 0.00 | 152.92 | 3606.39 | 1803.19 | 6277.08 | 3143.21 | | 0.22 | -0.09 | 0.056 |
| 30.00 | -26.92 | -1.46 | 0.00 | -145.52 | 0.00 | 145.52 | 3543.11 | 1771.56 | 6013.64 | 3011.29 | | 0.32 | -0.10 | 0.056 |
| 35.00 | -25.75 | -1.44 | 0.00 | -138.22 | 0.00 | 138.22 | 3478.55 | 1739.27 | 5753.54 | 2881.05 | | 0.44 | -0.12 | 0.055 |
| 40.00 | -24.61 | -1.41 | 0.00 | -131.05 | 0.00 | 131.05 | 3412.68 | 1706.34 | 5496.94 | 2752.56 | | 0.58 | -0.14 | 0.055 |
| 45.00 | -23.48 | -1.39 | 0.00 | -123.98 | 0.00 | 123.98 | 3345.53 | 1672.76 | 5244.01 | 2625.90 | | 0.74 | -0.16 | 0.054 |
| 47.18 | -23.00 | -1.38 | 0.00 | -120.96 | 0.00 | 120.96 | 3315.91 | 1657.95 | 5135.17 | 2571.40 | | 0.82 | -0.17 | 0.054 |
| 47.20 | -22.99 | -1.38 | 0.00 | -120.93 | 0.00 | 120.93 | 3315.57 | 1657.78 | 5133.93 | 2570.78 | | 0.82 | -0.17 | 0.032 |
| 50.00 | -21.95 | -1.35 | 0.00 | -117.08 | 0.00 | 117.08 | 3277.08 | 1638.54 | 4994.93 | 2501.18 | | 0.92 | -0.18 | 0.032 |
| 52.51 | -21.03 | -1.32 | 0.00 | -113.69 | 0.00 | 113.69 | 2602.21 | 1301.11 | 3990.47 | 1998.20 | | 1.02 | -0.19 | 0.034 |
| 55.00 | -20.57 | -1.31 | 0.00 | -110.40 | 0.00 | 110.40 | 2577.30 | 1288.65 | 3896.73 | 1951.26 | | 1.12 | -0.19 | 0.036 |
| 57.50 | -20.11 | -1.30 | 0.00 | -107.12 | 0.00 | 107.12 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | | 1.22 | -0.20 | 0.035 |
| 57.50 | -20.11 | -1.30 | 0.00 | -107.12 | 0.00 | 107.12 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | | 1.22 | -0.20 | 0.035 |
| 60.00 | -19.65 | -1.30 | 0.00 | -103.86 | 0.00 | 103.86 | 2526.30 | 1263.15 | 3710.31 | 1857.91 | | 1.33 | -0.21 | 0.064 |
| 65.00 | -18.76 | -1.29 | 0.00 | -97.38 | 0.00 | 97.38 | 2474.01 | 1237.00 | 3526.46 | 1765.85 | | 1.55 | -0.23 | 0.063 |
| 70.00 | -17.88 | -1.28 | 0.00 | -90.94 | 0.00 | 90.94 | 2420.42 | 1210.21 | 3345.35 | 1675.16 | | 1.81 | -0.26 | 0.062 |
| 75.00 | -17.03 | -1.28 | 0.00 | -84.53 | 0.00 | 84.53 | 2365.54 | 1182.77 | 3167.14 | 1585.93 | | 2.09 | -0.28 | 0.061 |
| 80.00 | -16.20 | -1.29 | 0.00 | -78.11 | 0.00 | 78.11 | 2309.37 | 1154.68 | 2992.01 | 1498.23 | | 2.40 | -0.31 | 0.059 |
| 85.00 | -15.39 | -1.29 | 0.00 | -71.67 | 0.00 | 71.67 | 2251.13 | 1125.57 | 2819.16 | 1411.68 | | 2.74 | -0.34 | 0.058 |
| 90.00 | -14.61 | -1.29 | 0.00 | -65.22 | 0.00 | 65.22 | 2174.14 | 1087.07 | 2628.67 | 1316.29 | | 3.10 | -0.36 | 0.056 |
| 95.00 | -13.84 | -1.29 | 0.00 | -58.76 | 0.00 | 58.76 | 2097.14 | 1048.57 | 2444.84 | 1224.23 | | 3.50 | -0.39 | 0.055 |
| 95.80 | -13.72 | -1.29 | 0.00 | -57.73 | 0.00 | 57.73 | 2084.82 | 1042.41 | 2416.04 | 1209.82 | | 3.56 | -0.39 | 0.030 |
| 95.83 | -13.71 | -1.29 | 0.00 | -57.69 | 0.00 | 57.69 | 2084.39 | 1042.20 | 2415.05 | 1209.32 | | 3.57 | -0.39 | 0.030 |
| 99.92 | -12.82 | -1.29 | 0.00 | -52.41 | 0.00 | 52.41 | 1076.50 | 538.25 | 1236.95 | 619.40 | | 3.91 | -0.41 | 0.033 |
| 100.00 | -12.82 | -1.29 | 0.00 | -52.30 | 0.00 | 52.30 | 1076.11 | 538.05 | 1235.71 | 618.78 | | 3.92 | -0.41 | 0.041 |
| 105.00 | -12.30 | -1.29 | 0.00 | -45.85 | 0.00 | 45.85 | 1052.46 | 526.23 | 1163.02 | 582.37 | | 4.35 | -0.43 | 0.038 |
| 105.30 | -12.27 | -1.29 | 0.00 | -45.47 | 0.00 | 45.47 | 1051.00 | 525.50 | 1158.68 | 580.20 | | 4.38 | -0.43 | 0.037 |
| 105.30 | -12.27 | -1.29 | 0.00 | -45.47 | 0.00 | 45.47 | 1051.00 | 525.50 | 1158.68 | 580.20 | | 4.38 | -0.43 | 0.037 |
| 110.00 | -11.80 | -1.29 | 0.00 | -39.41 | 0.00 | 39.41 | 1027.52 | 513.76 | 1090.99 | 546.31 | | 4.81 | -0.44 | 0.084 |
| 115.00 | -11.31 | -1.30 | 0.00 | -32.95 | 0.00 | 32.95 | 1001.28 | 500.64 | 1019.81 | 510.66 | | 5.29 | -0.48 | 0.076 |
| 120.00 | -10.84 | -1.29 | 0.00 | -26.47 | 0.00 | 26.47 | 973.75 | 486.88 | 949.64 | 475.53 | | 5.82 | -0.52 | 0.067 |
| 125.00 | -10.38 | -1.28 | 0.00 | -20.00 | 0.00 | 20.00 | 944.93 | 472.47 | 880.64 | 440.98 | | 6.38 | -0.55 | 0.056 |
| 127.00 | -8.06 | -1.16 | 0.00 | -17.43 | 0.00 | 17.43 | 933.04 | 466.52 | 853.41 | 427.34 | | 6.62 | -0.56 | 0.049 |
| 130.00 | -7.84 | -1.15 | 0.00 | -13.96 | 0.00 | 13.96 | 914.81 | 457.41 | 812.99 | 407.10 | | 6.98 | -0.58 | 0.043 |
| 135.00 | -7.47 | -1.12 | 0.00 | -8.23 | 0.00 | 8.23 | 883.40 | 441.70 | 746.85 | 373.98 | | 7.60 | -0.60 | 0.030 |
| 137.00 | -4.24 | -0.75 | 0.00 | -5.98 | 0.00 | 5.98 | 870.48 | 435.24 | 720.86 | 360.97 | | 7.85 | -0.61 | 0.021 |
| 140.00 | -4.08 | -0.73 | 0.00 | -3.74 | 0.00 | 3.74 | 850.70 | 425.35 | 682.40 | 341.71 | | 8.23 | -0.61 | 0.016 |
| 145.00 | -0.15 | -0.03 | 0.00 | -0.10 | 0.00 | 0.10 | 816.70 | 408.35 | 619.79 | 310.35 | | 8.88 | -0.62 | 0.001 |
| 148.34 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 787.55 | 393.77 | 574.90 | 287.88 | | 9.31 | -0.62 | 0.000 |

# Seismic Segment Forces (Factored)

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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 | |

Tower Engineering Solutions

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Load Case:** | 0.9D + 1.0E | | | | | **Iterations** | 23 |
| **Gust Response Factor** | 1.10 | | | **Sds** | 0.19 | **Ss** | 0.17 |
| **Dead Load Factor** | 0.90 | **Seismic Load Factor** | 1.00 | **Sd1** | 0.10 | **S1** | 0.07 |
| **Wind Load Factor** | 0.00 | **Structure Frequency (f1)** | 0.33 | **SA** | 0.03 | **Seismic Importance Factor** | 1.00 |




| Top Elev (ft) | Description | Wz (lb) | a | b | c | Lateral Fs (lb) | R: 1.50 |
|---|---|---|---|---|---|---|---|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5.00 | | 953.83 | 0.00 | 0.03 | 0.02 | 17.17 | |
| 10.00 | | 932.67 | 0.01 | 0.05 | 0.03 | 24.29 | |
| 15.00 | | 911.51 | 0.02 | 0.06 | 0.04 | 27.33 | |
| 20.00 | | 890.35 | 0.03 | 0.07 | 0.04 | 28.49 | |
| 25.00 | | 869.19 | 0.05 | 0.07 | 0.04 | 28.83 | |
| 30.00 | | 848.03 | 0.08 | 0.07 | 0.04 | 28.88 | |
| 35.00 | | 826.87 | 0.11 | 0.07 | 0.04 | 28.86 | |
| 40.00 | | 805.71 | 0.14 | 0.07 | 0.03 | 28.76 | |
| 45.00 | | 784.56 | 0.17 | 0.07 | 0.03 | 28.44 | |
| 47.18 | Bot - Section 2 | 334.70 | 0.19 | 0.06 | 0.02 | 12.15 | |
| 47.20 | RB1 | 7.02 | 0.19 | 0.06 | 0.02 | 0.25 | |
| 50.00 | | 785.47 | 0.21 | 0.06 | 0.02 | 28.38 | |
| 52.51 | Top - Section 1 | 693.78 | 0.24 | 0.06 | 0.02 | 24.73 | |
| 55.00 | | 311.60 | 0.26 | 0.05 | 0.02 | 10.83 | |
| 57.50 | RT1 | 308.45 | 0.28 | 0.05 | 0.01 | 10.29 | |
| 60.00 | | 304.05 | 0.31 | 0.04 | 0.01 | 9.54 | |
| 65.00 | | 594.87 | 0.36 | 0.03 | 0.01 | 15.03 | |
| 70.00 | | 577.23 | 0.42 | 0.01 | 0.01 | 9.21 | |
| 75.00 | | 559.60 | 0.48 | -0.01 | 0.01 | 2.16 | |
| 80.00 | | 541.97 | 0.55 | -0.03 | 0.01 | -5.15 | |
| 85.00 | | 524.34 | 0.62 | -0.06 | 0.02 | -11.44 | |
| 90.00 | | 506.70 | 0.70 | -0.09 | 0.03 | -15.65 | |
| 95.00 | | 489.07 | 0.78 | -0.11 | 0.05 | -17.31 | |
| 95.80 | RB2 | 76.62 | 0.79 | -0.11 | 0.05 | -2.73 | |
| 95.83 | Bot - Section 3 | 2.64 | 0.79 | -0.11 | 0.05 | -0.09 | |
| 99.92 | Top - Section 2 | 619.07 | 0.86 | -0.12 | 0.07 | -21.57 | |
| 100.00 | | 4.80 | 0.86 | -0.12 | 0.07 | -0.17 | |
| 105.00 | | 277.35 | 0.95 | -0.12 | 0.11 | -8.05 | |
| 105.30 | RT2 | 16.30 | 0.95 | -0.12 | 0.11 | -0.47 | |
| 110.00 | | 250.46 | 1.04 | -0.10 | 0.15 | -4.56 | |
| 115.00 | | 256.19 | 1.14 | -0.05 | 0.21 | -0.59 | |
| 120.00 | | 245.61 | 1.24 | 0.04 | 0.28 | 4.55 | |
| 125.00 | | 235.03 | 1.34 | 0.18 | 0.37 | 10.45 | |
| 127.00 | Appurtenance(s) | 1873.6 | 1.39 | 0.26 | 0.42 | 105.37 | |
| 130.00 | | 133.40 | 1.45 | 0.39 | 0.49 | 10.07 | |
| 135.00 | | 213.87 | 1.57 | 0.68 | 0.62 | 23.89 | |
| 137.00 | Appurtenance(s) | 2664.9 | 1.61 | 0.82 | 0.69 | 340.23 | |
| 140.00 | | 120.70 | 1.68 | 1.06 | 0.79 | 18.50 | |
| 145.00 | Appurtenance(s) | 3271.9 | 1.81 | 1.57 | 0.99 | 655.22 | |
| 148.34 | | 122.84 | 1.89 | 1.98 | 1.14 | 28.84 | |
| | **Totals:** | **24,747.1** | | | | **1,473.0** | **Total Wind:** **17,524.0** |

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

# Calculated Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 26 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Load Case:** | 0.9D + 1.0E | | | | | | | **Iterations** | 23 |
| **Gust Response Factor** | 1.10 | | | **Sds** | 0.19 | | | **Ss** | 0.17 |
| **Dead Load Factor** | 0.90 | **Seismic Load Factor** | 1.00 | **Sd1** | 0.10 | | | **S1** | 0.07 |
| **Wind Load Factor** | 0.00 | **Structure Frequency (f1)** | 0.33 | **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 | -25.87 | -1.56 | 0.00 | -188.72 | 0.00 | 188.72 | 3903.36 | 1951.68 | 7638.46 | 3824.91 | | 0.00 | 0.00 | 0.056 |
| 5.00 | -24.87 | -1.55 | 0.00 | -180.91 | 0.00 | 180.91 | 3846.55 | 1923.28 | 7360.85 | 3685.90 | | 0.01 | -0.02 | 0.056 |
| 10.00 | -23.90 | -1.54 | 0.00 | -173.14 | 0.00 | 173.14 | 3788.45 | 1894.23 | 7085.75 | 3548.14 | | 0.03 | -0.03 | 0.055 |
| 15.00 | -22.94 | -1.51 | 0.00 | -165.46 | 0.00 | 165.46 | 3729.06 | 1864.53 | 6813.30 | 3411.72 | | 0.08 | -0.05 | 0.055 |
| 20.00 | -22.01 | -1.49 | 0.00 | -157.89 | 0.00 | 157.89 | 3668.37 | 1834.19 | 6543.69 | 3276.71 | | 0.14 | -0.07 | 0.054 |
| 25.00 | -21.09 | -1.47 | 0.00 | -150.43 | 0.00 | 150.43 | 3606.39 | 1803.19 | 6277.08 | 3143.21 | | 0.22 | -0.08 | 0.054 |
| 30.00 | -20.19 | -1.44 | 0.00 | -143.09 | 0.00 | 143.09 | 3543.11 | 1771.56 | 6013.64 | 3011.29 | | 0.32 | -0.10 | 0.053 |
| 35.00 | -19.31 | -1.42 | 0.00 | -135.87 | 0.00 | 135.87 | 3478.55 | 1739.27 | 5753.54 | 2881.05 | | 0.44 | -0.12 | 0.053 |
| 40.00 | -18.45 | -1.40 | 0.00 | -128.77 | 0.00 | 128.77 | 3412.68 | 1706.34 | 5496.94 | 2752.56 | | 0.57 | -0.14 | 0.052 |
| 45.00 | -17.61 | -1.37 | 0.00 | -121.79 | 0.00 | 121.79 | 3345.53 | 1672.76 | 5244.01 | 2625.90 | | 0.73 | -0.16 | 0.052 |
| 47.18 | -17.25 | -1.36 | 0.00 | -118.81 | 0.00 | 118.81 | 3315.91 | 1657.95 | 5135.17 | 2571.40 | | 0.81 | -0.17 | 0.051 |
| 47.20 | -17.25 | -1.36 | 0.00 | -118.78 | 0.00 | 118.78 | 3315.57 | 1657.78 | 5133.93 | 2570.78 | | 0.81 | -0.17 | 0.031 |
| 50.00 | -16.46 | -1.33 | 0.00 | -114.98 | 0.00 | 114.98 | 3277.08 | 1638.54 | 4994.93 | 2501.18 | | 0.91 | -0.18 | 0.030 |
| 52.51 | -15.77 | -1.30 | 0.00 | -111.64 | 0.00 | 111.64 | 2602.21 | 1301.11 | 3990.47 | 1998.20 | | 1.00 | -0.18 | 0.032 |
| 55.00 | -15.42 | -1.29 | 0.00 | -108.39 | 0.00 | 108.39 | 2577.30 | 1288.65 | 3896.73 | 1951.26 | | 1.10 | -0.19 | 0.034 |
| 57.50 | -15.08 | -1.28 | 0.00 | -105.16 | 0.00 | 105.16 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | | 1.20 | -0.20 | 0.034 |
| 57.50 | -15.08 | -1.28 | 0.00 | -105.16 | 0.00 | 105.16 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | | 1.20 | -0.20 | 0.034 |
| 60.00 | -14.74 | -1.28 | 0.00 | -101.95 | 0.00 | 101.95 | 2526.30 | 1263.15 | 3710.31 | 1857.91 | | 1.30 | -0.20 | 0.061 |
| 65.00 | -14.07 | -1.27 | 0.00 | -95.56 | 0.00 | 95.56 | 2474.01 | 1237.00 | 3526.46 | 1765.85 | | 1.53 | -0.23 | 0.060 |
| 70.00 | -13.41 | -1.26 | 0.00 | -89.23 | 0.00 | 89.23 | 2420.42 | 1210.21 | 3345.35 | 1675.16 | | 1.78 | -0.25 | 0.059 |
| 75.00 | -12.77 | -1.26 | 0.00 | -82.93 | 0.00 | 82.93 | 2365.54 | 1182.77 | 3167.14 | 1585.93 | | 2.06 | -0.28 | 0.058 |
| 80.00 | -12.15 | -1.26 | 0.00 | -76.62 | 0.00 | 76.62 | 2309.37 | 1154.68 | 2992.01 | 1498.23 | | 2.36 | -0.30 | 0.056 |
| 85.00 | -11.54 | -1.27 | 0.00 | -70.30 | 0.00 | 70.30 | 2251.13 | 1125.57 | 2819.16 | 1411.68 | | 2.69 | -0.33 | 0.055 |
| 90.00 | -10.95 | -1.27 | 0.00 | -63.98 | 0.00 | 63.98 | 2174.14 | 1087.07 | 2628.67 | 1316.29 | | 3.05 | -0.36 | 0.054 |
| 95.00 | -10.38 | -1.27 | 0.00 | -57.64 | 0.00 | 57.64 | 2097.14 | 1048.57 | 2444.84 | 1224.23 | | 3.44 | -0.38 | 0.052 |
| 95.80 | -10.29 | -1.27 | 0.00 | -56.63 | 0.00 | 56.63 | 2084.82 | 1042.41 | 2416.04 | 1209.82 | | 3.50 | -0.39 | 0.029 |
| 95.83 | -10.28 | -1.27 | 0.00 | -56.59 | 0.00 | 56.59 | 2084.39 | 1042.20 | 2415.05 | 1209.32 | | 3.51 | -0.39 | 0.029 |
| 99.92 | -9.62 | -1.26 | 0.00 | -51.41 | 0.00 | 51.41 | 1076.50 | 538.25 | 1236.95 | 619.40 | | 3.84 | -0.40 | 0.031 |
| 100.00 | -9.61 | -1.27 | 0.00 | -51.31 | 0.00 | 51.31 | 1076.11 | 538.05 | 1235.71 | 618.78 | | 3.85 | -0.40 | 0.039 |
| 105.00 | -9.22 | -1.26 | 0.00 | -44.98 | 0.00 | 44.98 | 1052.46 | 526.23 | 1163.02 | 582.37 | | 4.28 | -0.42 | 0.036 |
| 105.30 | -9.20 | -1.27 | 0.00 | -44.60 | 0.00 | 44.60 | 1051.00 | 525.50 | 1158.68 | 580.20 | | 4.31 | -0.42 | 0.035 |
| 105.30 | -9.20 | -1.27 | 0.00 | -44.60 | 0.00 | 44.60 | 1051.00 | 525.50 | 1158.68 | 580.20 | | 4.31 | -0.42 | 0.035 |
| 110.00 | -8.85 | -1.27 | 0.00 | -38.66 | 0.00 | 38.66 | 1027.52 | 513.76 | 1090.99 | 546.31 | | 4.73 | -0.43 | 0.079 |
| 115.00 | -8.48 | -1.27 | 0.00 | -32.32 | 0.00 | 32.32 | 1001.28 | 500.64 | 1019.81 | 510.66 | | 5.20 | -0.47 | 0.072 |
| 120.00 | -8.13 | -1.27 | 0.00 | -25.97 | 0.00 | 25.97 | 973.75 | 486.88 | 949.64 | 475.53 | | 5.72 | -0.51 | 0.063 |
| 125.00 | -7.78 | -1.26 | 0.00 | -19.64 | 0.00 | 19.64 | 944.93 | 472.47 | 880.64 | 440.98 | | 6.27 | -0.54 | 0.053 |
| 127.00 | -6.04 | -1.14 | 0.00 | -17.13 | 0.00 | 17.13 | 933.04 | 466.52 | 853.41 | 427.34 | | 6.50 | -0.55 | 0.047 |
| 130.00 | -5.87 | -1.13 | 0.00 | -13.72 | 0.00 | 13.72 | 914.81 | 457.41 | 812.99 | 407.10 | | 6.86 | -0.57 | 0.040 |
| 135.00 | -5.60 | -1.10 | 0.00 | -8.09 | 0.00 | 8.09 | 883.40 | 441.70 | 746.85 | 373.98 | | 7.46 | -0.59 | 0.028 |
| 137.00 | -3.18 | -0.74 | 0.00 | -5.89 | 0.00 | 5.89 | 870.48 | 435.24 | 720.86 | 360.97 | | 7.71 | -0.60 | 0.020 |
| 140.00 | -3.06 | -0.72 | 0.00 | -3.68 | 0.00 | 3.68 | 850.70 | 425.35 | 682.40 | 341.71 | | 8.09 | -0.60 | 0.014 |
| 145.00 | -0.11 | -0.03 | 0.00 | -0.10 | 0.00 | 0.10 | 816.70 | 408.35 | 619.79 | 310.35 | | 8.73 | -0.61 | 0.000 |
| 148.34 | 0.00 | -0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 787.55 | 393.77 | 574.90 | 287.88 | | 9.15 | -0.61 | 0.000 |

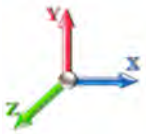
# Wind Loading - Shaft

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (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:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | 0.70 | 6.129 | 6.74 | 203.90 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.70 | 6.129 | 6.74 | 199.46 | 0.650 | 0.000 | 5.00 | 20.087 | 13.06 | 88.0 | 0.0 | 953.8 |
| 10.00 | | 1.00 | 0.70 | 6.129 | 6.74 | 195.02 | 0.650 | 0.000 | 5.00 | 19.645 | 12.77 | 86.1 | 0.0 | 932.7 |
| 15.00 | | 1.00 | 0.70 | 6.129 | 6.74 | 190.58 | 0.650 | 0.000 | 5.00 | 19.203 | 12.48 | 84.1 | 0.0 | 911.5 |
| 20.00 | | 1.00 | 0.70 | 6.129 | 6.74 | 186.14 | 0.650 | 0.000 | 5.00 | 18.761 | 12.19 | 82.2 | 0.0 | 890.4 |
| 25.00 | | 1.00 | 0.70 | 6.129 | 6.74 | 181.70 | 0.650 | 0.000 | 5.00 | 18.319 | 11.91 | 80.3 | 0.0 | 869.2 |
| 30.00 | | 1.00 | 0.70 | 6.134 | 6.75 | 177.34 | 0.650 | 0.000 | 5.00 | 17.877 | 11.62 | 78.4 | 0.0 | 848.0 |
| 35.00 | | 1.00 | 0.73 | 6.410 | 7.05 | 176.75 | 0.650 | 0.000 | 5.00 | 17.435 | 11.33 | 79.9 | 0.0 | 826.9 |
| 40.00 | | 1.00 | 0.76 | 6.659 | 7.33 | 175.53 | 0.650 | 0.000 | 5.00 | 16.993 | 11.05 | 80.9 | 0.0 | 805.7 |
| 45.00 | | 1.00 | 0.79 | 6.887 | 7.58 | 173.80 | 0.650 | 0.000 | 5.00 | 16.551 | 10.76 | 81.5 | 0.0 | 784.6 |
| 47.18 | Bot - Section 2 | 1.00 | 0.80 | 6.981 | 7.68 | 172.91 | 0.650 | 0.000 | 2.18 | 7.062 | 4.59 | 35.2 | 0.0 | 334.7 |
| 47.20 | RB1 | 1.00 | 0.80 | 6.982 | 7.68 | 172.90 | 0.650 | 0.000 | 0.02 | 0.081 | 0.05 | 0.4 | 0.0 | 7.0 |
| 50.00 | | 1.00 | 0.81 | 7.098 | 7.81 | 171.66 | 0.650 | 0.000 | 2.80 | 9.114 | 5.92 | 46.3 | 0.0 | 785.5 |
| 52.51 | Top - Section 1 | 1.00 | 0.82 | 7.198 | 7.92 | 170.45 | 0.650 | 0.000 | 2.51 | 8.053 | 5.23 | 41.4 | 0.0 | 693.8 |
| 55.00 | | 1.00 | 0.83 | 7.294 | 8.02 | 172.07 | 0.650 | 0.000 | 2.49 | 7.878 | 5.12 | 41.1 | 0.0 | 311.6 |
| 57.50 | RT1 | 1.00 | 0.84 | 7.387 | 8.13 | 170.73 | 0.650 | 0.000 | 2.50 | 7.800 | 5.07 | 41.2 | 0.0 | 308.5 |
| 60.00 | | 1.00 | 0.85 | 7.477 | 8.22 | 169.32 | 0.650 | 0.000 | 2.50 | 7.689 | 5.00 | 41.1 | 0.0 | 304.0 |
| 65.00 | | 1.00 | 0.87 | 7.650 | 8.42 | 166.30 | 0.650 | 0.000 | 5.00 | 15.047 | 9.78 | 82.3 | 0.0 | 594.9 |
| 70.00 | | 1.00 | 0.89 | 7.814 | 8.60 | 163.06 | 0.650 | 0.000 | 5.00 | 14.605 | 9.49 | 81.6 | 0.0 | 577.2 |
| 75.00 | | 1.00 | 0.91 | 7.969 | 8.77 | 159.62 | 0.650 | 0.000 | 5.00 | 14.163 | 9.21 | 80.7 | 0.0 | 559.6 |
| 80.00 | | 1.00 | 0.93 | 8.118 | 8.93 | 155.99 | 0.650 | 0.000 | 5.00 | 13.721 | 8.92 | 79.6 | 0.0 | 542.0 |
| 85.00 | | 1.00 | 0.94 | 8.260 | 9.09 | 152.19 | 0.650 | 0.000 | 5.00 | 13.278 | 8.63 | 78.4 | 0.0 | 524.3 |
| 90.00 | | 1.00 | 0.96 | 8.396 | 9.24 | 148.24 | 0.650 | 0.000 | 5.00 | 12.836 | 8.34 | 77.1 | 0.0 | 506.7 |
| 95.00 | | 1.00 | 0.97 | 8.526 | 9.38 | 144.16 | 0.650 | 0.000 | 5.00 | 12.394 | 8.06 | 75.6 | 0.0 | 489.1 |
| 95.80 | RB2 | 1.00 | 0.98 | 8.547 | 9.40 | 143.49 | 0.650 | 0.000 | 0.80 | 1.942 | 1.26 | 11.9 | 0.0 | 76.6 |
| 95.83 | Bot - Section 3 | 1.00 | 0.98 | 8.547 | 9.40 | 143.47 | 0.650 | 0.000 | 0.03 | 0.067 | 0.04 | 0.4 | 0.0 | 2.6 |
| 99.92 | Top - Section 2 | 1.00 | 0.99 | 8.650 | 9.52 | 140.02 | 0.650 | 0.000 | 4.09 | 9.874 | 6.42 | 61.1 | 0.0 | 619.1 |
| 100.00 | | 1.00 | 0.99 | 8.652 | 9.52 | 141.84 | 0.650 | 0.000 | 0.08 | 0.202 | 0.13 | 1.2 | 0.0 | 4.8 |
| 105.00 | | 1.00 | 1.00 | 8.774 | 9.65 | 137.52 | 0.650 | 0.000 | 5.00 | 11.669 | 7.58 | 73.2 | 0.0 | 277.3 |
| 105.30 | RT2 | 1.00 | 1.00 | 8.781 | 9.66 | 137.25 | 0.650 | 0.000 | 0.30 | 0.686 | 0.45 | 4.3 | 0.0 | 16.3 |
| 110.00 | | 1.00 | 1.02 | 8.891 | 9.78 | 133.09 | 0.650 | 0.000 | 4.70 | 10.541 | 6.85 | 67.0 | 0.0 | 250.5 |
| 115.00 | | 1.00 | 1.03 | 9.005 | 9.91 | 128.56 | 0.650 | 0.000 | 5.00 | 10.785 | 7.01 | 69.4 | 0.0 | 256.2 |
| 120.00 | | 1.00 | 1.04 | 9.115 | 10.03 | 123.93 | 0.650 | 0.000 | 5.00 | 10.343 | 6.72 | 67.4 | 0.0 | 245.6 |
| 125.00 | | 1.00 | 1.05 | 9.222 | 10.14 | 119.21 | 0.650 | 0.000 | 5.00 | 9.900 | 6.44 | 65.3 | 0.0 | 235.0 |
| 127.00 | Appurtenance(s) | 1.00 | 1.06 | 9.264 | 10.19 | 117.29 | 0.650 | 0.000 | 2.00 | 3.836 | 2.49 | 25.4 | 0.0 | 91.0 |
| 130.00 | | 1.00 | 1.07 | 9.326 | 10.26 | 114.40 | 0.650 | 0.000 | 3.00 | 5.622 | 3.65 | 37.5 | 0.0 | 133.4 |
| 135.00 | | 1.00 | 1.08 | 9.427 | 10.37 | 109.52 | 0.650 | 0.000 | 5.00 | 9.016 | 5.86 | 60.8 | 0.0 | 213.9 |
| 137.00 | Appurtenance(s) | 1.00 | 1.08 | 9.466 | 10.41 | 107.54 | 0.650 | 0.000 | 2.00 | 3.483 | 2.26 | 23.6 | 0.0 | 82.6 |
| 140.00 | | 1.00 | 1.09 | 9.525 | 10.48 | 104.55 | 0.650 | 0.000 | 3.00 | 5.091 | 3.31 | 34.7 | 0.0 | 120.7 |
| 145.00 | Appurtenance(s) | 1.00 | 1.10 | 9.621 | 10.58 | 99.52 | 0.650 | 0.000 | 5.00 | 8.132 | 5.29 | 55.9 | 0.0 | 192.7 |
| 148.34 | | 1.00 | 1.11 | 9.684 | 10.65 | 96.11 | 0.650 | 0.000 | 3.34 | 5.186 | 3.37 | 35.9 | 0.0 | 122.8 |
| | | | | | | | | **Totals:** | **148.34** | | | **2,238.5** | | **17,302.8** |

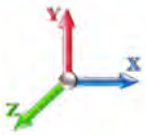
# Discrete Appurtenance Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 28 | |

**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | 145.00 | Ericsson 4415 B25 | 2 | 9.621 | 10.583 | 0.50 | 0.75 | 1.87 | 92.00 | 0.000 | 0.000 | 19.78 | 0.00 | 0.00 |
| 2 | 145.00 | AIR32 | 2 | 9.621 | 10.583 | 0.65 | 0.75 | 8.50 | 264.40 | 0.000 | 0.000 | 89.91 | 0.00 | 0.00 |
| 3 | 145.00 | APXVAALL24_43-U-NA20 | 2 | 9.621 | 10.583 | 0.55 | 0.75 | 22.16 | 245.60 | 0.000 | 0.000 | 234.56 | 0.00 | 0.00 |
| 4 | 145.00 | AIR6449 B41 | 2 | 9.621 | 10.583 | 0.53 | 0.75 | 6.02 | 206.00 | 0.000 | 0.000 | 63.68 | 0.00 | 0.00 |
| 5 | 145.00 | RFS ACU-A20-N RET | 4 | 9.621 | 10.583 | 0.50 | 0.75 | 0.28 | 4.16 | 0.000 | 0.000 | 2.98 | 0.00 | 0.00 |
| 6 | 145.00 | HRK12 (Handrail Kit) | 1 | 9.621 | 10.583 | 1.00 | 1.00 | 6.75 | 261.72 | 0.000 | 0.000 | 71.44 | 0.00 | 0.00 |
| 7 | 145.00 | ALU 800 MHz RRH | 4 | 9.621 | 10.583 | 0.50 | 0.75 | 5.00 | 212.00 | 0.000 | 0.000 | 52.97 | 0.00 | 0.00 |
| 8 | 145.00 | Ericsson 4449 B71 + B85 | 2 | 9.621 | 10.583 | 0.50 | 0.75 | 1.98 | 150.00 | 0.000 | 0.000 | 20.95 | 0.00 | 0.00 |
| 9 | 145.00 | ALU 800 MHz Filter | 2 | 9.621 | 10.583 | 0.50 | 0.75 | 0.78 | 17.60 | 0.000 | 0.000 | 8.30 | 0.00 | 0.00 |
| 10 | 145.00 | RMQP-472 (LPP) | 1 | 9.621 | 10.583 | 1.00 | 1.00 | 33.60 | 1625.79 | 0.000 | 0.000 | 355.60 | 0.00 | 0.00 |
| 11 | 137.00 | LGP 21401 | 6 | 9.466 | 10.413 | 0.80 | 0.80 | 6.19 | 84.60 | 0.000 | 0.000 | 64.48 | 0.00 | 0.00 |
| 12 | 137.00 | RRUS 8843 B2 B66A | 3 | 9.466 | 10.413 | 0.54 | 0.80 | 2.65 | 225.00 | 0.000 | 0.000 | 27.63 | 0.00 | 0.00 |
| 13 | 137.00 | DC6-48-60-18-8F | 2 | 9.466 | 10.413 | 0.80 | 0.80 | 1.47 | 63.60 | 0.000 | 0.000 | 15.33 | 0.00 | 0.00 |
| 14 | 137.00 | RRUS 4449 B5/B12 | 3 | 9.466 | 10.413 | 0.54 | 0.80 | 3.17 | 213.00 | 0.000 | 0.000 | 32.99 | 0.00 | 0.00 |
| 15 | 137.00 | DMP65R-BU6DA | 3 | 9.466 | 10.413 | 0.58 | 0.80 | 21.96 | 238.20 | 0.000 | 0.000 | 228.70 | 0.00 | 0.00 |
| 16 | 137.00 | HPA-65R-BU6AA | 3 | 9.466 | 10.413 | 0.85 | 1.00 | 24.63 | 153.00 | 0.000 | 0.000 | 256.51 | 0.00 | 0.00 |
| 17 | 137.00 | Low Profile Platform | 1 | 9.466 | 10.413 | 1.00 | 1.00 | 22.00 | 1500.00 | 0.000 | 0.000 | 229.09 | 0.00 | 0.00 |
| 18 | 137.00 | 7770 | 3 | 9.466 | 10.413 | 0.58 | 0.80 | 9.64 | 105.00 | 0.000 | 0.000 | 100.34 | 0.00 | 0.00 |
| 19 | 127.00 | Antel - LPA 80080/6CF | 6 | 9.264 | 10.190 | 1.20 | 0.80 | 31.13 | 126.00 | 0.000 | 0.000 | 317.26 | 0.00 | 0.00 |
| 20 | 127.00 | Low Profile Platform | 1 | 9.264 | 10.190 | 1.00 | 1.00 | 22.00 | 1500.00 | 0.000 | 0.000 | 224.18 | 0.00 | 0.00 |
| 21 | 127.00 | Antel - BXA-171085-12BF | 3 | 9.264 | 10.190 | 0.70 | 0.80 | 9.98 | 45.00 | 0.000 | 0.000 | 101.66 | 0.00 | 0.00 |
| 22 | 127.00 | RFS - FD9R6004/2C-3L - | 6 | 9.264 | 10.190 | 0.40 | 0.80 | 0.89 | 18.60 | 0.000 | 0.000 | 9.05 | 0.00 | 0.00 |
| 23 | 127.00 | Antel - BXA-70040-6CF | 2 | 9.264 | 10.190 | 0.56 | 0.80 | 16.10 | 76.00 | 0.000 | 0.000 | 164.11 | 0.00 | 0.00 |
| 24 | 127.00 | Antel - BXA-70063-6CF | 1 | 9.264 | 10.190 | 0.62 | 0.80 | 4.69 | 17.00 | 0.000 | 0.000 | 47.83 | 0.00 | 0.00 |
| | | | | | | | **Totals:** | | **7,444.27** | | | **2,739.31** | | |

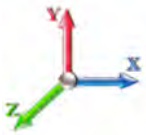
# Total Applied Force Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | | **Exposure:** | B | |
| **Height:** | 148.34 (ft) | | **Crest Height:** | 0.00 | |
| **Base Elev:** | 0.000 (ft) | | **Site Class:** | D - Stiff Soil | |
| **Gh:** | 1.1 | **Topography:** 1 | **Struct Class:** | II | Page: 29 |

**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | | 88.02 | 1103.34 | 0.00 | 0.00 |
| 10.00 | | 86.09 | 1082.18 | 0.00 | 0.00 |
| 15.00 | | 84.15 | 1061.02 | 0.00 | 0.00 |
| 20.00 | | 82.21 | 1039.86 | 0.00 | 0.00 |
| 25.00 | | 80.27 | 1018.70 | 0.00 | 0.00 |
| 30.00 | | 78.40 | 997.54 | 0.00 | 0.00 |
| 35.00 | | 79.91 | 976.38 | 0.00 | 0.00 |
| 40.00 | | 80.91 | 955.22 | 0.00 | 0.00 |
| 45.00 | | 81.50 | 934.07 | 0.00 | 0.00 |
| 47.18 | | 35.25 | 399.74 | 0.00 | 0.00 |
| 47.20 | | 0.41 | 7.76 | 0.00 | 0.00 |
| 50.00 | | 46.25 | 869.20 | 0.00 | 0.00 |
| 52.51 | | 41.44 | 768.83 | 0.00 | 0.00 |
| 55.00 | | 41.09 | 386.06 | 0.00 | 0.00 |
| 57.50 | | 41.19 | 383.21 | 0.00 | 0.00 |
| 60.00 | | 41.11 | 378.80 | 0.00 | 0.00 |
| 65.00 | | 82.30 | 744.38 | 0.00 | 0.00 |
| 70.00 | | 81.60 | 726.74 | 0.00 | 0.00 |
| 75.00 | | 80.70 | 709.11 | 0.00 | 0.00 |
| 80.00 | | 79.64 | 691.48 | 0.00 | 0.00 |
| 85.00 | | 78.42 | 673.85 | 0.00 | 0.00 |
| 90.00 | | 77.05 | 656.21 | 0.00 | 0.00 |
| 95.00 | | 75.56 | 638.58 | 0.00 | 0.00 |
| 95.80 | | 11.87 | 100.54 | 0.00 | 0.00 |
| 95.83 | | 0.41 | 3.47 | 0.00 | 0.00 |
| 99.92 | | 61.07 | 741.29 | 0.00 | 0.00 |
| 100.00 | | 1.25 | 7.33 | 0.00 | 0.00 |
| 105.00 | | 73.20 | 426.86 | 0.00 | 0.00 |
| 105.30 | | 4.31 | 25.27 | 0.00 | 0.00 |
| 110.00 | | 67.01 | 391.00 | 0.00 | 0.00 |
| 115.00 | | 69.43 | 405.70 | 0.00 | 0.00 |
| 120.00 | | 67.40 | 395.12 | 0.00 | 0.00 |
| 125.00 | | 65.28 | 384.54 | 0.00 | 0.00 |
| 127.00 | (19) attachments | 889.50 | 1933.45 | 0.00 | 0.00 |
| 130.00 | | 37.49 | 185.67 | 0.00 | 0.00 |
| 135.00 | | 60.77 | 300.98 | 0.00 | 0.00 |
| 137.00 | (24) attachments | 978.63 | 2699.83 | 0.00 | 0.00 |
| 140.00 | | 34.68 | 129.29 | 0.00 | 0.00 |
| 145.00 | (22) attachments | 976.11 | 3286.29 | 0.00 | 0.00 |
| 148.34 | | 35.91 | 122.84 | 0.00 | 0.00 |
| | **Totals:** | **4,977.78** | **28,741.73** | **0.00** | **0.00** |

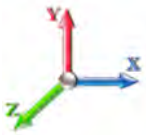
# Linear Appurtenance Segment Forces (Factored)

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 30 | |

**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00




**Iterations** 24

| 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) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.00 | 1.5" Reinforcing plate | Yes | 2.80 | 0.000 | 1.50 | 0.35 | 0.00 | 0.039 | 0.000 | 7.098 | 0.00 | 0.00 |
| 52.51 | 1.5" Reinforcing plate | Yes | 2.51 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 7.198 | 0.00 | 0.00 |
| 55.00 | 1.5" Reinforcing plate | Yes | 2.49 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 7.294 | 0.00 | 0.00 |
| 57.50 | 1.5" Reinforcing plate | Yes | 2.50 | 0.000 | 1.50 | 0.31 | 0.00 | 0.040 | 0.000 | 7.387 | 0.00 | 0.00 |
| 95.83 | 1.5" Reinforcing plate | Yes | 0.03 | 0.000 | 1.50 | 0.00 | 0.00 | 0.052 | 0.000 | 8.547 | 0.00 | 0.00 |
| 99.92 | 1.5" Reinforcing plate | Yes | 4.09 | 0.000 | 1.50 | 0.51 | 0.00 | 0.052 | 0.000 | 8.650 | 0.00 | 0.00 |
| 100.00 | 1.5" Reinforcing plate | Yes | 0.08 | 0.000 | 1.50 | 0.01 | 0.00 | 0.053 | 0.000 | 8.652 | 0.00 | 0.00 |
| 105.00 | 1.5" Reinforcing plate | Yes | 5.00 | 0.000 | 1.50 | 0.63 | 0.00 | 0.054 | 0.000 | 8.774 | 0.00 | 0.00 |
| 105.30 | 1.5" Reinforcing plate | Yes | 0.30 | 0.000 | 1.50 | 0.04 | 0.00 | 0.055 | 0.000 | 8.781 | 0.00 | 0.00 |
| | | | | | | | | | | **Totals:** | **0.0** | **0.0** |

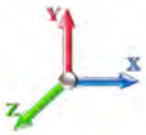
# Calculated Forces

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 31 | |

**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00




**Iterations** 24

| 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 | -28.74 | -4.99 | 0.00 | -557.39 | 0.00 | 557.39 | 3903.36 | 1951.68 | 7638.46 | 3824.91 | 0.00 | 0.000 | 0.000 | 0.153 |
| 5.00 | -27.63 | -4.92 | 0.00 | -532.45 | 0.00 | 532.45 | 3846.55 | 1923.28 | 7360.85 | 3685.90 | 0.03 | -0.048 | 0.000 | 0.152 |
| 10.00 | -26.55 | -4.86 | 0.00 | -507.83 | 0.00 | 507.83 | 3788.45 | 1894.23 | 7085.75 | 3548.14 | 0.10 | -0.096 | 0.000 | 0.150 |
| 15.00 | -25.48 | -4.80 | 0.00 | -483.53 | 0.00 | 483.53 | 3729.06 | 1864.53 | 6813.30 | 3411.72 | 0.23 | -0.146 | 0.000 | 0.149 |
| 20.00 | -24.44 | -4.73 | 0.00 | -459.56 | 0.00 | 459.56 | 3668.37 | 1834.19 | 6543.69 | 3276.71 | 0.41 | -0.197 | 0.000 | 0.147 |
| 25.00 | -23.41 | -4.67 | 0.00 | -435.90 | 0.00 | 435.90 | 3606.39 | 1803.19 | 6277.08 | 3143.21 | 0.64 | -0.248 | 0.000 | 0.145 |
| 30.00 | -22.41 | -4.61 | 0.00 | -412.56 | 0.00 | 412.56 | 3543.11 | 1771.56 | 6013.64 | 3011.29 | 0.93 | -0.301 | 0.000 | 0.143 |
| 35.00 | -21.43 | -4.54 | 0.00 | -389.53 | 0.00 | 389.53 | 3478.55 | 1739.27 | 5753.54 | 2881.05 | 1.28 | -0.355 | 0.000 | 0.141 |
| 40.00 | -20.47 | -4.47 | 0.00 | -366.82 | 0.00 | 366.82 | 3412.68 | 1706.34 | 5496.94 | 2752.56 | 1.68 | -0.409 | 0.000 | 0.139 |
| 45.00 | -19.54 | -4.40 | 0.00 | -344.46 | 0.00 | 344.46 | 3345.53 | 1672.76 | 5244.01 | 2625.90 | 2.13 | -0.465 | 0.000 | 0.137 |
| 47.18 | -19.14 | -4.36 | 0.00 | -334.89 | 0.00 | 334.89 | 3315.91 | 1657.95 | 5135.17 | 2571.40 | 2.35 | -0.490 | 0.000 | 0.136 |
| 47.20 | -19.13 | -4.37 | 0.00 | -334.78 | 0.00 | 334.78 | 3315.57 | 1657.78 | 5133.93 | 2570.78 | 2.35 | -0.490 | 0.000 | 0.081 |
| 50.00 | -18.26 | -4.32 | 0.00 | -322.55 | 0.00 | 322.55 | 3277.08 | 1638.54 | 4994.93 | 2501.18 | 2.65 | -0.509 | 0.000 | 0.080 |
| 52.51 | -17.49 | -4.28 | 0.00 | -311.71 | 0.00 | 311.71 | 2602.21 | 1301.11 | 3990.47 | 1998.20 | 2.92 | -0.527 | 0.000 | 0.084 |
| 55.00 | -17.10 | -4.24 | 0.00 | -301.07 | 0.00 | 301.07 | 2577.30 | 1288.65 | 3896.73 | 1951.26 | 3.20 | -0.544 | 0.000 | 0.089 |
| 57.50 | -16.72 | -4.20 | 0.00 | -290.48 | 0.00 | 290.48 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 3.49 | -0.562 | 0.000 | 0.087 |
| 57.50 | -16.72 | -4.20 | 0.00 | -290.48 | 0.00 | 290.48 | 2551.96 | 1275.98 | 3803.21 | 1904.43 | 3.49 | -0.562 | 0.000 | 0.087 |
| 60.00 | -16.34 | -4.16 | 0.00 | -279.98 | 0.00 | 279.98 | 2526.30 | 1263.15 | 3710.31 | 1857.91 | 3.79 | -0.581 | 0.000 | 0.157 |
| 65.00 | -15.59 | -4.09 | 0.00 | -259.16 | 0.00 | 259.16 | 2474.01 | 1237.00 | 3526.46 | 1765.85 | 4.43 | -0.648 | 0.000 | 0.153 |
| 70.00 | -14.86 | -4.02 | 0.00 | -238.70 | 0.00 | 238.70 | 2420.42 | 1210.21 | 3345.35 | 1675.16 | 5.15 | -0.715 | 0.000 | 0.149 |
| 75.00 | -14.14 | -3.95 | 0.00 | -218.60 | 0.00 | 218.60 | 2365.54 | 1182.77 | 3167.14 | 1585.93 | 5.93 | -0.783 | 0.000 | 0.144 |
| 80.00 | -13.45 | -3.87 | 0.00 | -198.87 | 0.00 | 198.87 | 2309.37 | 1154.68 | 2992.01 | 1498.23 | 6.79 | -0.851 | 0.000 | 0.139 |
| 85.00 | -12.77 | -3.80 | 0.00 | -179.51 | 0.00 | 179.51 | 2251.13 | 1125.57 | 2819.16 | 1411.68 | 7.72 | -0.919 | 0.000 | 0.133 |
| 90.00 | -12.11 | -3.73 | 0.00 | -160.51 | 0.00 | 160.51 | 2174.14 | 1087.07 | 2628.67 | 1316.29 | 8.72 | -0.987 | 0.000 | 0.128 |
| 95.00 | -11.47 | -3.65 | 0.00 | -141.88 | 0.00 | 141.88 | 2097.14 | 1048.57 | 2444.84 | 1224.23 | 9.79 | -1.054 | 0.000 | 0.121 |
| 95.80 | -11.37 | -3.63 | 0.00 | -138.96 | 0.00 | 138.96 | 2084.82 | 1042.41 | 2416.04 | 1209.82 | 9.97 | -1.065 | 0.000 | 0.066 |
| 95.83 | -11.37 | -3.64 | 0.00 | -138.86 | 0.00 | 138.86 | 2084.39 | 1042.20 | 2415.05 | 1209.32 | 9.97 | -1.065 | 0.000 | 0.066 |
| 99.92 | -10.63 | -3.56 | 0.00 | -124.00 | 0.00 | 124.00 | 1076.50 | 538.25 | 1236.95 | 619.40 | 10.90 | -1.095 | 0.000 | 0.071 |
| 100.00 | -10.62 | -3.57 | 0.00 | -123.70 | 0.00 | 123.70 | 1076.11 | 538.05 | 1235.71 | 618.78 | 10.92 | -1.096 | 0.000 | 0.089 |
| 105.00 | -10.19 | -3.49 | 0.00 | -105.86 | 0.00 | 105.86 | 1052.46 | 526.23 | 1163.02 | 582.37 | 12.09 | -1.138 | 0.000 | 0.079 |
| 105.30 | -10.17 | -3.49 | 0.00 | -104.82 | 0.00 | 104.82 | 1051.00 | 525.50 | 1158.68 | 580.20 | 12.16 | -1.140 | 0.000 | 0.079 |
| 105.30 | -10.17 | -3.49 | 0.00 | -104.82 | 0.00 | 104.82 | 1051.00 | 525.50 | 1158.68 | 580.20 | 12.16 | -1.140 | 0.000 | 0.079 |
| 110.00 | -9.77 | -3.42 | 0.00 | -88.42 | 0.00 | 88.42 | 1027.52 | 513.76 | 1090.99 | 546.31 | 13.30 | -1.177 | 0.000 | 0.171 |
| 115.00 | -9.36 | -3.36 | 0.00 | -71.30 | 0.00 | 71.30 | 1001.28 | 500.64 | 1019.81 | 510.66 | 14.58 | -1.265 | 0.000 | 0.149 |
| 120.00 | -8.97 | -3.29 | 0.00 | -54.51 | 0.00 | 54.51 | 973.75 | 486.88 | 949.64 | 475.53 | 15.95 | -1.343 | 0.000 | 0.124 |
| 125.00 | -8.58 | -3.23 | 0.00 | -38.03 | 0.00 | 38.03 | 944.93 | 472.47 | 880.64 | 440.98 | 17.39 | -1.408 | 0.000 | 0.095 |
| 127.00 | -6.67 | -2.29 | 0.00 | -31.58 | 0.00 | 31.58 | 933.04 | 466.52 | 853.41 | 427.34 | 17.99 | -1.431 | 0.000 | 0.081 |
| 130.00 | -6.48 | -2.25 | 0.00 | -24.70 | 0.00 | 24.70 | 914.81 | 457.41 | 812.99 | 407.10 | 18.90 | -1.460 | 0.000 | 0.068 |
| 135.00 | -6.18 | -2.19 | 0.00 | -13.43 | 0.00 | 13.43 | 883.40 | 441.70 | 746.85 | 373.98 | 20.45 | -1.495 | 0.000 | 0.043 |
| 137.00 | -3.51 | -1.14 | 0.00 | -9.06 | 0.00 | 9.06 | 870.48 | 435.24 | 720.86 | 360.97 | 21.07 | -1.505 | 0.000 | 0.029 |
| 140.00 | -3.38 | -1.10 | 0.00 | -5.64 | 0.00 | 5.64 | 850.70 | 425.35 | 682.40 | 341.71 | 22.02 | -1.515 | 0.000 | 0.020 |
| 145.00 | -0.12 | -0.04 | 0.00 | -0.13 | 0.00 | 0.13 | 816.70 | 408.35 | 619.79 | 310.35 | 23.62 | -1.523 | 0.000 | 0.001 |
| 148.34 | 0.00 | -0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 787.55 | 393.77 | 574.90 | 287.88 | 24.68 | -1.523 | 0.000 | 0.000 |

# Final Analysis Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SBA | **Code:** | EIA/TIA-222-G | 5/7/2021 | |
| **Site Name:** | Cammilletti Property | **Exposure:** | B | | |
| **Height:** | 148.34 (ft) | **Crest Height:** | 0.00 | | |
| **Base Elev:** | 0.000 (ft) | **Site Class:** | D - Stiff Soil | | |
| **Gh:** | 1.1 **Topography:** 1 | **Struct Class:** | II | Page: 32 | |

## 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 + 1.6W 89 mph Wind | 17.6 | 0.00 | 34.46 | 0.00 | 0.00 | 1977.31 |
| 0.9D + 1.6W 89 mph Wind | 17.6 | 0.00 | 25.84 | 0.00 | 0.00 | 1951.91 |
| 1.2D + 1.0Di + 1.0Wi 40 mph Wind | 3.7 | 0.00 | 53.53 | 0.00 | 0.00 | 415.68 |
| 1.2D + 1.0E | 1.6 | 0.00 | 34.49 | 0.00 | 0.00 | 191.35 |
| 0.9D + 1.0E | 1.6 | 0.00 | 25.87 | 0.00 | 0.00 | 188.72 |
| 1.0D + 1.0W 60 mph Wind | 5.0 | 0.00 | 28.74 | 0.00 | 0.00 | 557.39 |

## 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 + 1.6W 89 mph Wind | -10.92 | -12.18 | 0.00 | -314.85 | 0.00 | -314.85 | 1027.52 | 513.76 | 1090.99 | 546.31 | 110.00 | 0.588 |
| 0.9D + 1.6W 89 mph Wind | -7.99 | -11.95 | 0.00 | -308.07 | 0.00 | -308.07 | 1027.52 | 513.76 | 1090.99 | 546.31 | 110.00 | 0.572 |
| 1.2D + 1.0Di + 1.0Wi 40 mph Wind | -22.60 | -2.50 | 0.00 | -64.73 | 0.00 | -64.73 | 1027.52 | 513.76 | 1090.99 | 546.31 | 110.00 | 0.141 |
| 1.2D + 1.0E | -11.80 | -1.29 | 0.00 | -39.41 | 0.00 | -39.41 | 1027.52 | 513.76 | 1090.99 | 546.31 | 110.00 | 0.084 |
| 0.9D + 1.0E | -8.85 | -1.27 | 0.00 | -38.66 | 0.00 | -38.66 | 1027.52 | 513.76 | 1090.99 | 546.31 | 110.00 | 0.079 |
| 1.0D + 1.0W 60 mph Wind | -9.77 | -3.42 | 0.00 | -88.42 | 0.00 | -88.42 | 1027.52 | 513.76 | 1090.99 | 546.31 | 110.00 | 0.171 |

## Additional Steel Summary

| | | | Intermediate Connectors | | | Lower Termination | | | | Upper Termination | | | | Max Member | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Elev From (ft) | Elev To (ft) | Member | VQ/I (lb/in) | Vu (kips) | phi Vn (kips) | MQ/I (kips) | phi Vn (kips) | Num Reqd | Num Actual | MQ/I (kips) | phi Vn (kips) | Num Reqd | Num Actual | Pu (kips) | phi Pn (kips) | phi Tn (kips) | Ratio |
| 47.2 | 57.5 | (3) PLT-6"x1.5"(31mm hole) | 233.5 | 5.60 | 37.1 | 190.1 | 37.1 | 6 | 11 | 194.4 | 37.1 | 6 | 10 | 197.07 | 489.4 | 430.20 | 0.458 |
| 95.8 | 105.3 | (3) PLT-4.5x1.5(31mm Hole) | -338.7 | -8.13 | 37.1 | 117.1 | 37.1 | 4 | 8 | 122.3 | 37.1 | 4 | 6 | 136.32 | 367.1 | 295.20 | 0.462 |

# Base Plate Summary

| | | | | | |
|---|---|---|---|---|---|
| **Structure:** | CT46144-A-SB | | **Code:** | EIA/TIA-222-G | 5/7/2021 |
| **Site Name:** | Cammilletti Property | | **Exposure:** | B | |
| **Height:** | 148.34 (ft) | | **Crest Height:** | 0.00 | |
| **Base Elev:** | 0.000 (ft) | | **Site Class:** | D - Stiff Soil | |
| **Gh:** | 1.1 | **Topography:** 1 | **Struct Class:** | II | Page: 33 |

| Reactions | |
|---|---|
| Original Design | |
| **Moment (kip-ft):** | 2300.40 |
| **Axial (kip):** | 21.20 |
| **Shear (kip):** | 22.00 |
| Analysis (1.2D + 1.6W) | |
| **Moment (kip-ft):** | 1977.31 |
| **Axial (kip):** | 34.46 |
| **Shear (kip):** | 17.57 |

| Base Plate | |
|---|---|
| **Yield (ksi):** | 60.00 |
| **Width (in):** | 63.00 |
| **Style:** | Round |
| **Polygon Sides:** | 0.00 |
| **Clip Length (in):** | 0.00 |
| **Effective Len (in):** | 13.49 |
| **Moment (kip-in):** | 483.37 |
| **Allow Stress (ksi):** | 81.00 |
| **Applied Stress (ksi):** | 53.46 |
| **Stress Ratio:** | 0.66 |

| Anchor Bolts | |
|---|---|
| **Bolt Circle:** | 57.00 |
| **Number Bolts:** | 16.00 |
| **Bolt Type:** | 2.25" 18J |
| **Bolt Diameter (in):** | 2.25 |
| **Yield (ksi):** | 75.00 |
| **Ultimate (ksi):** | 100.00 |
| **Arrangement:** | Radial |
| **Cluster Dist (in):** | 0.00 |
| **Start Angle (deg):** | 0.00 |
| Compression | |
| **Force (kip):** | 107.41 |
| **Allowable (kip):** | 260.00 |
| **Ratio:** | 0.42 |
| Tension | |
| **Force (kip):** | 100.72 |
| **Allowable (kip):** | 260.00 |
| **Ratio:** | 0.40 |

# Monopole Mat Foundation Design

| | | | |
|---|---|---|---|
| | | | Date: 5/7/2021 |
| **Customer Name:** | T-Mobile Sprint | **EIA/TIA Standard:** | EIA-222-G |
| **Site Name:** | | **Structure Height (Ft.):** | 148.34 |
| **Site Number:** | CT46144-A-SBA | **Engineer Name:** | J. Tibbetts |
| **Engr. Number:** | 106868 | **Manager Login Req'd:** | |

**Foundation Info Obtained from:** Drawings/Calculations

**Structure Type:** Monopole

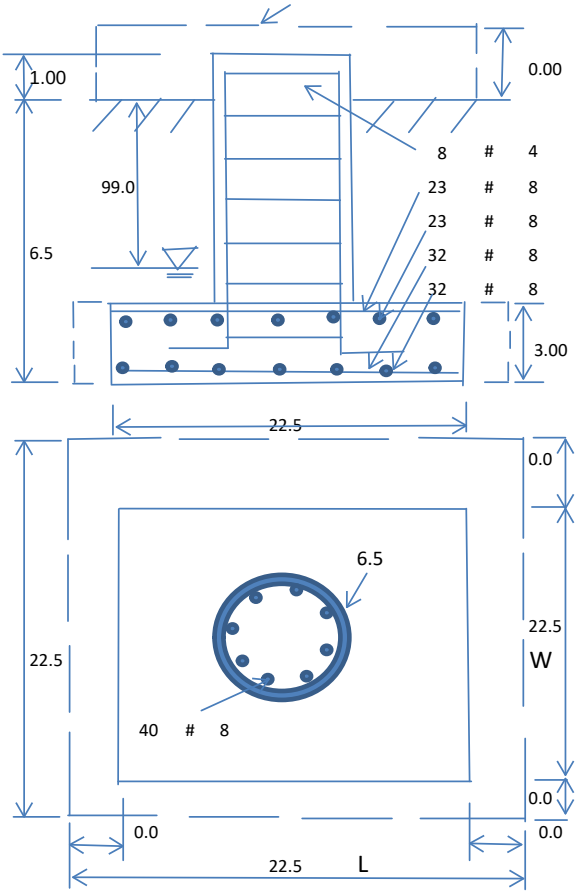
**Analysis or Design?** Analysis

**Base Reactions (Factored):**

| | | | |
|---|---|---|---|
| Axial Load (Kips): | 34.5 | Shear Force (Kips): | 17.6 |
| Uplift Force (Kips): | 0.0 | Moment (Kips-ft): | 1977.3 |
| Allowable overstress %: | 5.0% | | |

**Foundation Geometries:**

| | | | |
|---|---|---|---|
| | | Mods required -Yes/No ?: | No |
| Diameter of Pier (ft.): | 6.5 | Depth of Base BG (ft.): | 6.5 |
| Pier Height A. G. (ft.): | 1.00 | Thickness of Pad (ft): | 3.00 |
| Length of Pad (ft.): | 22.5 | Width of Pad (ft.): | 22.5 |
| Final Length of pad (ft) | 22.5 | Final width of pad (ft): | 22.5 |
| Control Value for Cell D18: | 0 | Control Value for Cell F18: | 0 |




**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 #: | 8 | Tie / Stirrup Size #: | 4 | |
| Qty. of Vertical Rebars: | 40 | Tie Spacing (in): | 12.0 | |
| Pad Rebar Yield (Ksi): | 60 | Pad Steel Rebar Size (#): | 8 | |
| Concrete Cover (in.): | 3 | Unit Weight of Concrete: | 150.0 | pcf |
| Rebar at the bottom of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 32 | Qty. of Rebar in Pad (W): | 32 | |
| Rebar at the top of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 23 | Qty. of Rebar in Pad (W): | 23 | |
| Apply 1.35 factor for e/w Per G: | 1.35 | | | |

**Soil Design Parameters:**

| | | | | | | |
|---|---|---|---|---|---|---|
| Soil Unit Weight (pcf): | 135.0 | Soil Buoyant Weight: | 50.0 | Pcf | | |
| Water Table B.G.S. (ft): | 99.0 | Unit Weight of Water: | 62.4 | pcf | Angle from Top of Pad: | 30 |
| Ultimate Bearing Pressure (psf): | 12000 | Ultimate Skin Friction: | | Psf | Angle from Bottm of Pad: | 25 |
| Consider Friction for O.T.M. (Y/N): | No | Consider Friction for bearing (Y/N): | No | | Angle from Bottm of Pad: | 25 |
| Consider soil hor. resist. for OTM.: | No | Reduction factor on the maximum soil bearing pressure: | | | 1.00 | |

**Foundation Analysis and Design:** Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

| | | | |
|---|---|---|---|
| Total Dry Soil Volume (cu. Ft.): | 1655.73 | Total Dry Soil Weight (Kips): | 223.52 |
| Total Buoyant Soil Volume (cu. Ft.): | 0.00 | Total Buoyant Soil Weight (Kips): | 0.00 |
| Total Effective Soil Weight (Kips): | 223.52 | Weight from the Concrete Block at Top (K): | 0.00 |
| Total Dry Concrete Volume (cu. Ft.): | 1668.07 | Total Dry Concrete Weight (Kips): | 250.21 |
| Total Buoyant Concrete Volume (cu. Ft.): | 0.00 | Total Buoyant Concrete Weight (Kips): | 0.00 |
| Total Effective Concrete Weight (Kips): | 250.21 | Total Vertical Load on Base (Kips): | 508.24 |

**Check Soil Capacities:**

| | | | | Load/ Capacity Ratio | |
|---|---|---|---|---|---|
| Calculated Maxium Net Soil Pressure under the base (psf): | 2034 | < | Allowable Factored Soil Bearing (psf): 9000 | 0.23 | OK! |
| Allowable Foundation Overturning Resistance (kips-ft.): | 5184.7 | > | Design Factored Momont (kips-ft): 2109 | 0.41 | OK! |
| Factor of Safety Against Overturning (O. R. Moment/Design Moment): | 2.46 | OK! | | | |

**Check the capacities of Reinforceing Concrete:**

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

(1) Concrete Pier:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vertical Steel Rebar Area (sq. in./each): | 0.79 | | Tie / Stirrup Area (sq. in./each): | 0.20 | | |
| Calculated Moment Capacity (Mn,Kips-Ft): | 4910.3 | > | Design Factored Moment (Mu, Kips-Ft | 2056.5 | 0.42 | OK! |
| Calculated Shear Capacity (Kips): | 578.1 | > | Design Factored Shear (Kips): | 17.6 | 0.03 | OK! |
| Calculated Tension Capacity (Tn, Kips): | 1706.4 | > | Design Factored Tension (Tu Kips): | 0.0 | 0.00 | OK! |
| Calculated Compression Capacity (Pn, Kips): | 8392.3 | > | Design Factored Axial Load (Pu Kips): | 34.5 | 0.00 | OK! |
| Moment & Axial Strength Combination: | 0.42 | OK! | Check Tie Spacing (Design/Required): | | 1 | OK! |
| Pier Reinforcement Ratio: | 0.007 | Reinforcement Ratio is satisfied per ACI | | | | |

(2).Concrete Pad:

| | | | | | | |
|---|---|---|---|---|---|---|
| One-Way Design Shear Capacity (L-Direction, Kips): | 832.5 | > | One-Way Factored Shear (L-D. Kips): | 145.6 | 0.17 | OK! |
| One-Way Design Shear Capacity (W-Direction, Kips): | 832.5 | > | One-Way Factored Shear (W-D., Kips) | 145.6 | 0.17 | OK! |
| One-Way Design Shear Capacity (Corner-Corner. Kips): | 936.8 | > | One-Way Factored Shear (C-C, Kips): | 137.1 | 0.15 | OK! |
| Lower Steel Pad Reinforcement Ratio (L-Direct. ): | 0.0029 | OK! | Lower Steel Pad Reinf. Ratio (W-Direc | 0.0029 | | |
| Lower Steel Pad Moment Capacity (L-Direction. Kips-ft): | 3603.2 | > | Moment at Bottom ( L-Direct. K-Ft): | 385.3 | 0.11 | OK! |
| Lower Steel Pad Moment Capacity (W-Direction. Kips-ft): | 3603.2 | > | Moment at Bottom ( W-Direct. K-Ft): | 385.3 | 0.11 | OK! |
| Lower Steel Pad Moment Capacity (Corner-Corner,K-ft): | 5061.6 | > | Moment at Bottom ( C-C Dir. K-Ft): | 544.9 | 0.11 | OK! |
| Upper Steel Pad Reinforcement Ratio (L-Direct. ): | 0.0021 | OK! | Upper Steel Reinf. Ratio (W-Direct. ): | 0.0021 | | |
| Upper Steel Pad Moment Capacity (L-Direction. Kips-ft): | 2608.8 | > | Moment at the top (L-Dir Kips-Ft): | 150.1 | 0.06 | OK! |
| Upper Steel Pad Moment Capacity (W-Direction. Kips-ft): | 2608.8 | > | Moment at the top (W-Dir Kips-Ft): | 150.1 | 0.06 | OK! |
| Upper Steel Pad Moment Capacity (Corner-Corner. K-ft): | 3671.8 | > | Moment at the top (C-C Direc. K-Ft): | 253.8 | 0.07 | OK! |

# EXHIBIT 8

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

# Antenna Mount Analysis Report

**Existing 148-Ft Monopole Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT46144-A-SBA / Cammilletti Property**

**Customer Site Name: Cammilletti Property**

**Carrier Name: T-Mobile Sprint (App#: 151869-1)**

**Carrier Site ID / Name: CT33XC590 / _**

**Site Location: 10 Ashpohtag Rd**

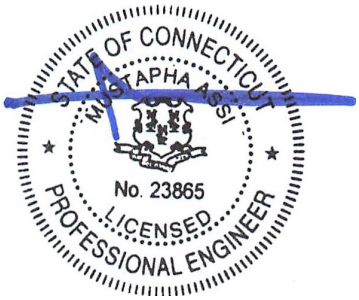
**Norfolk, Connecticut**

**Litchfield County**

**Latitude: 42.002694**

**Longitude: -73.221388**

Exp.10/31/2021




04/14/2021

## Analysis Result:

**Max Structural Usage: 84.2% [Pass]**

**Report Prepared By : Noah Kessler**

NOTE: The proposed mount SitePro1 low profile mount is not currently installed. It is assumed that the mount will be installed according to the manufacturing drawings, and it was assumed that the mount can be installed properly on the tower. The analysis results are void if the proposed equipment is not installed in accordance with this report. TES cannot verify that the proposed mount will fit properly and is not liable for any fit-up issues during installation.

## Introduction

The purpose of this report is to summarize the analysis results on the SitePro1 low profile mount at 145.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

## Sources of Information

| | |
|---|---|
| Mount Drawings | (1) SitePro1 RMQP-472 w/ (1) SitePro HRK12 |
| Antenna Loading | SBA Application #: 151869, v1 dated 3/19/2021 |
| Modification Drawings | N/A |

## Analysis Criteria

Basic Wind Speed Used in the Analysis: $V_{ULT}$ = 115 mph (3-Sec. Gust) / Equivalent to
$V_{ASD}$ = 89 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 40 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G
Exposure Category: B
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

## Mount Information

SitePro1 low profile mount at 145.00' elevation

## Final Antenna Configuration

| | |
|---|---|
| 2 | Ericsson AIR32 KRD901146-1_B66A_B2A (Octo) |
| 2 | RFS APXVAALL24_43-U-NA20 |
| 2 | Ericsson AIR6449 B41 |
| 4 | RFS ACU-A20-N RET |
| 2 | Ericsson 4415 B25 |
| 4 | ALU 800 MHz RRH |
| 2 | Ericsson 4449 B71 + B85 |
| 2 | ALU 800 MHz Filter |

## Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 84.2%, which occurs in the standoff member. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

## Attachments

1. Mount Photos
2. Antenna Placement Diagram
3. Analysis Calculations

# Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

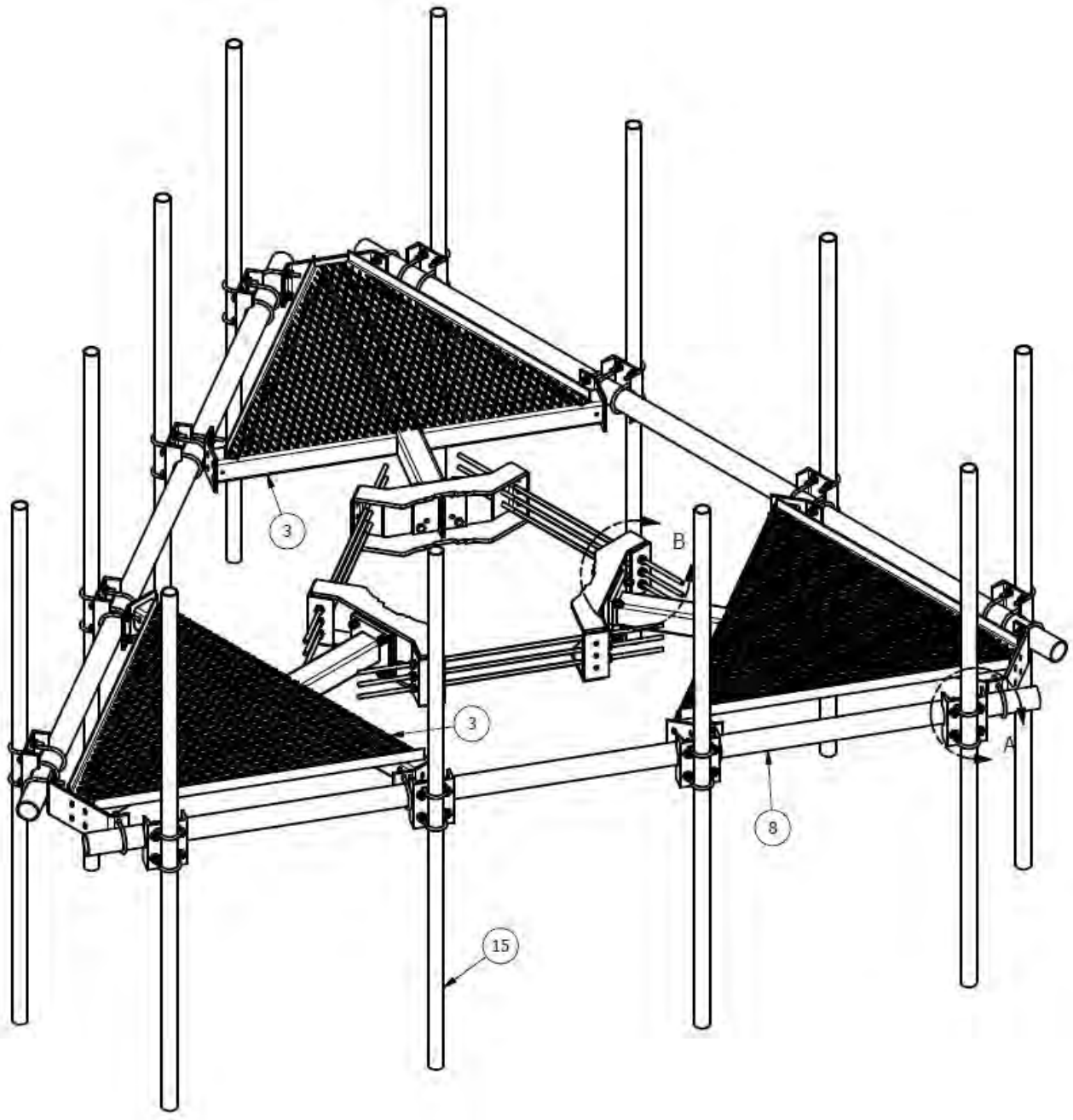
5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.


3
B
3
A
8
15

# Structure: CT46144-A-SBA - Cammilletti Property

**Sector:** A

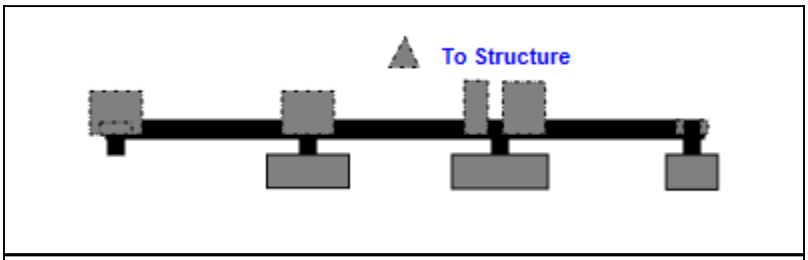
**Structure Type:** Monopole

**Mount Elev:** 145.00

4/14/2021

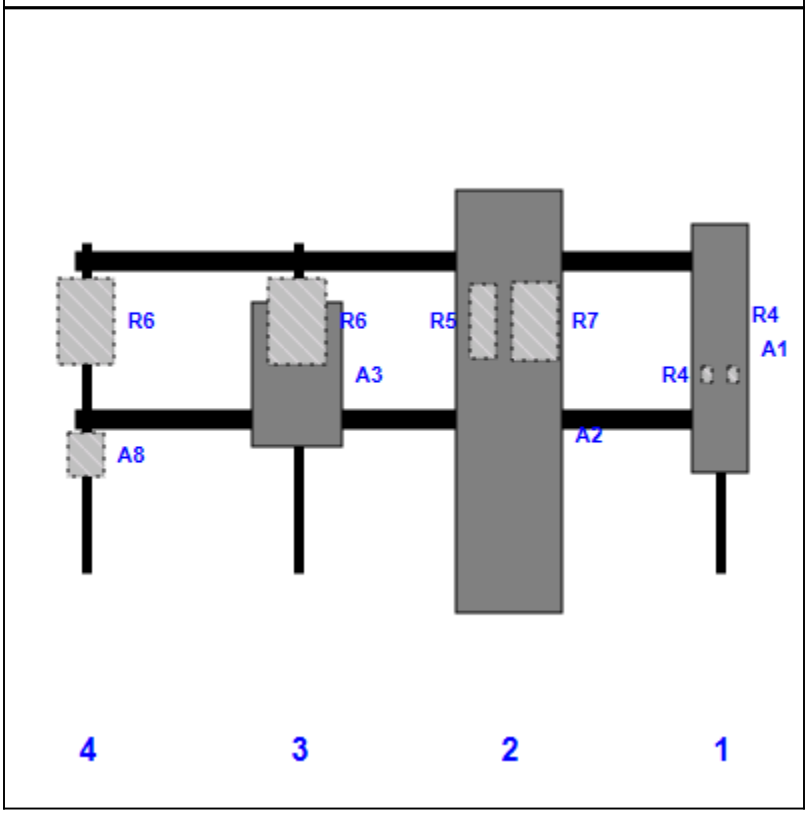


## Plan View




## Front View

**Looking Toward Structure**




| Ref # | Model | Height (in) | Width (in) | H Dist Left | Pipe # | Pipe Pos V | Pos | From Top | H Offset | Status | Validation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | AIR32 KRD901146-1_B66A_B2A (Octo) ( | 56.60 | 12.90 | 147.00 | 1 | a | Front | 24.00 | | | |
| R4 | ACU-A20-N RET @ 145' | 4.00 | 2.00 | 147.00 | 1 | a | Behind | 30.00 | 3.00 | | |
| R4 | ACU-A20-N RET @ 145' | 4.00 | 2.00 | 147.00 | 1 | b | Behind | 30.00 | -3.00 | | |
| A2 | APXVAALL24_43-U-NA20 @ 145' | 95.90 | 24.00 | 99.00 | 2 | a | Front | 36.00 | | | |
| R5 | 4415 B25 @ 145' | 16.50 | 5.90 | 99.00 | 2 | a | Behind | 18.00 | -6.00 | | |
| R7 | 4449 B71 + B85 @ 145' | 17.90 | 10.60 | 99.00 | 2 | a | Behind | 18.00 | 6.00 | | |
| A3 | AIR6449 B41 @ 145' | 33.10 | 20.50 | 51.00 | 3 | a | Front | 30.00 | | | |
| R6 | 800 MHz RRH @ 145' | 19.70 | 13.00 | 51.00 | 3 | a | Behind | 18.00 | | | |
| R6 | 800 MHz RRH @ 145' | 19.70 | 13.00 | 3.00 | 4 | a | Behind | 18.00 | | | |
| A8 | 800 MHz Filter @ 145' | 10.00 | 8.00 | 3.00 | 4 | a | Behind | 48.00 | | | |

# Structure: CT46144-A-SBA - Cammilletti Property

**Sector:** **B**

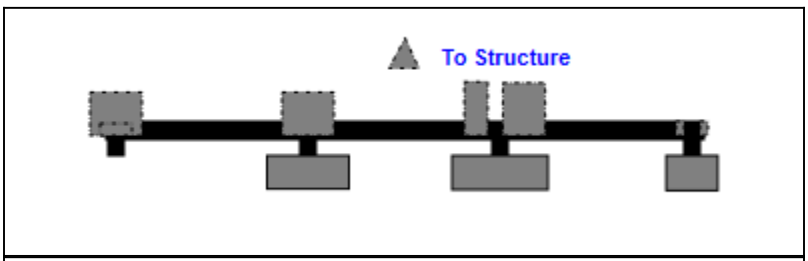
**Structure Type:** Monopole

**Mount Elev:** 145.00

4/14/2021

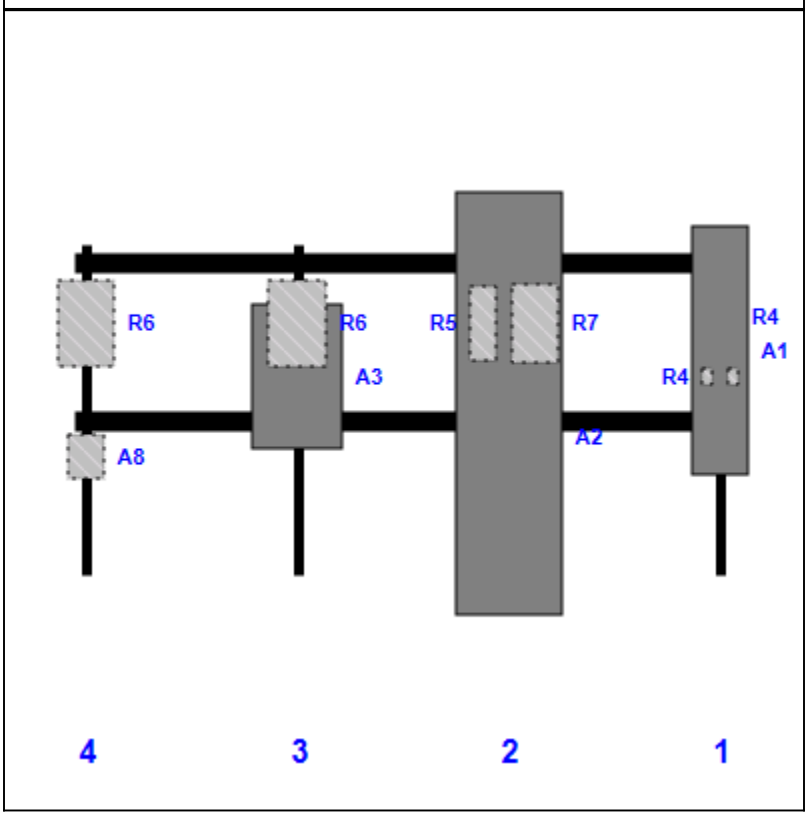


## Plan View




## Front View

**Looking Toward Structure**




| Ref # | Model | Height (in) | Width (in) | H Dist Left | Pipe # | Pipe Pos V | Pos | From Top | H Offset | Status | Validation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | AIR32 KRD901146-1_B66A_B2A (Octo) ( | 56.60 | 12.90 | 147.00 | 1 | a | Front | 24.00 | | | |
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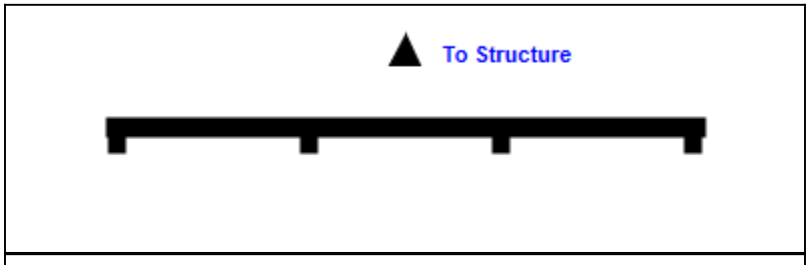
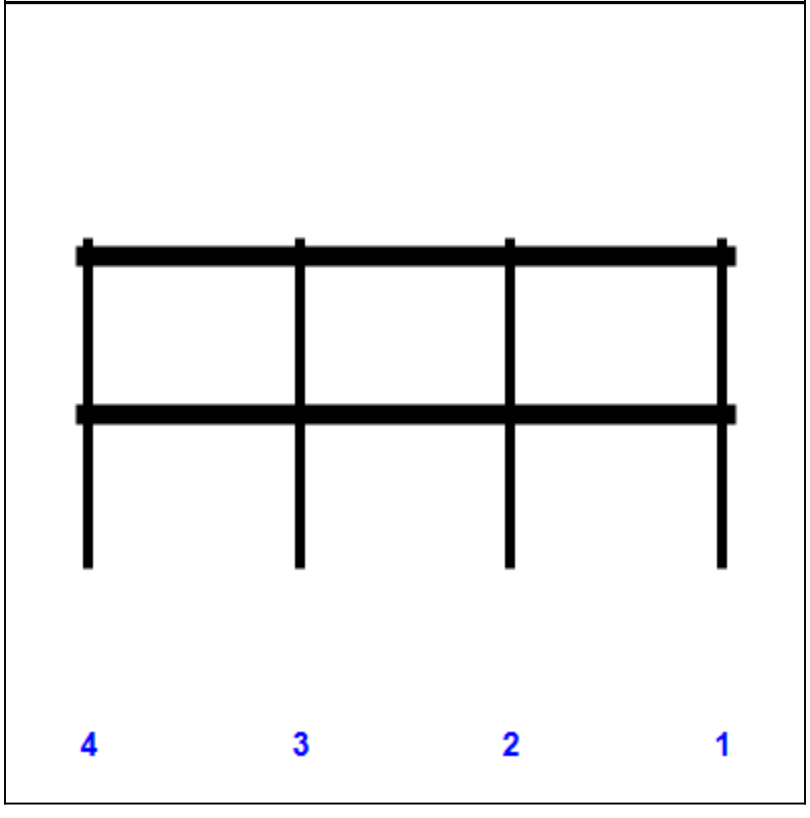
| A2 | APXVAALL24_43-U-NA20 @ 145' | 95.90 | 24.00 | 99.00 | 2 | a | Front | 36.00 | | | |
| R5 | 4415 B25 @ 145' | 16.50 | 5.90 | 99.00 | 2 | a | Behind | 18.00 | -6.00 | | |
| R7 | 4449 B71 + B85 @ 145' | 17.90 | 10.60 | 99.00 | 2 | a | Behind | 18.00 | 6.00 | | |
| A3 | AIR6449 B41 @ 145' | 33.10 | 20.50 | 51.00 | 3 | a | Front | 30.00 | | | |
| R6 | 800 MHz RRH @ 145' | 19.70 | 13.00 | 51.00 | 3 | a | Behind | 18.00 | | | |
| R6 | 800 MHz RRH @ 145' | 19.70 | 13.00 | 3.00 | 4 | a | Behind | 18.00 | | | |
| A8 | 800 MHz Filter @ 145' | 10.00 | 8.00 | 3.00 | 4 | a | Behind | 48.00 | | | |

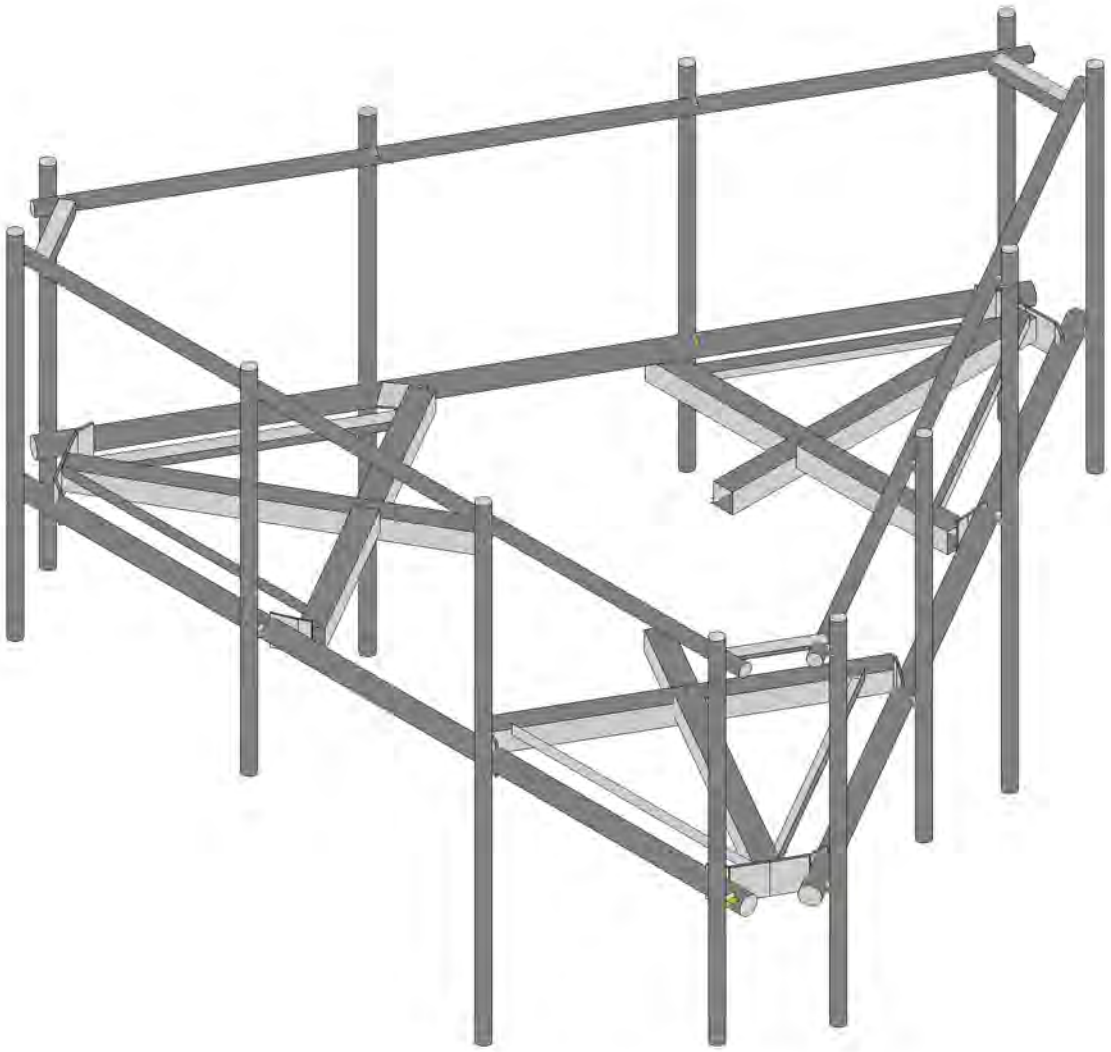
### Plan View



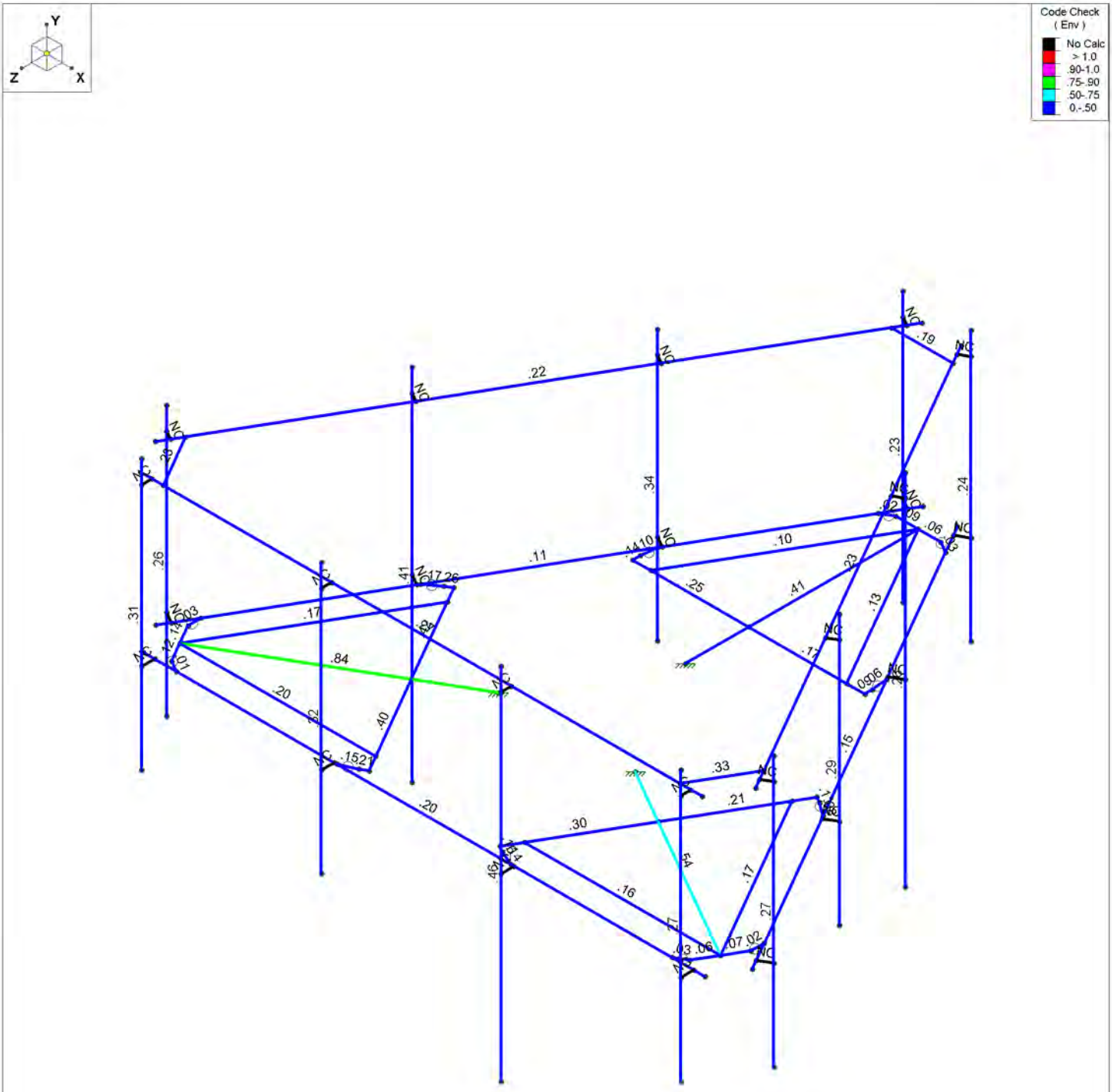

### Front View

**Looking Toward Structure**



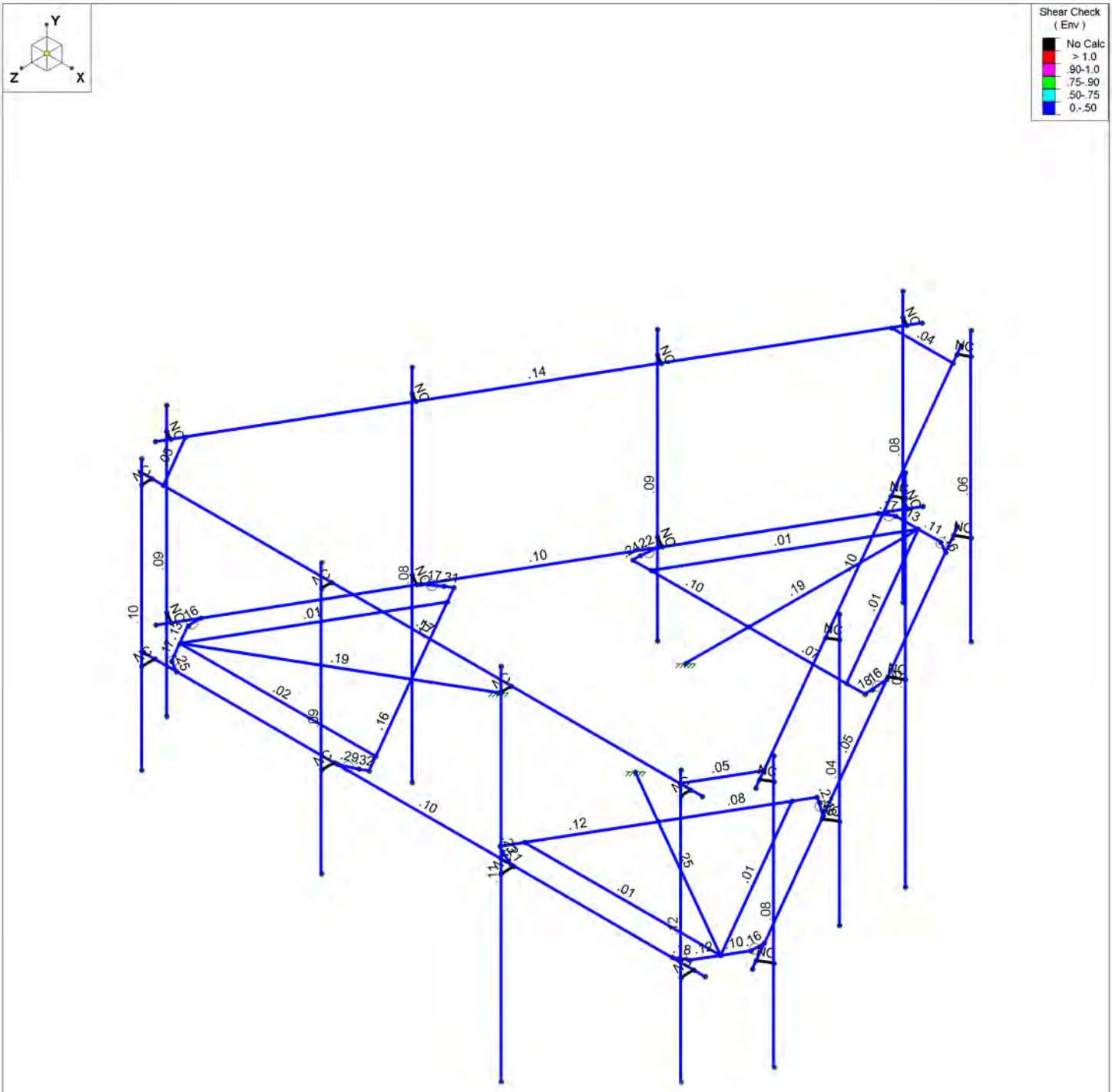


| | | |
|---|---|---|
| Tower Engineering Solutio... | CT46144-A-SBA_MT_LO_Loads Only_G | SK - 1 |
| JET | | Apr 14, 2021 at 8:23 AM |
| TES Project No. 104757 | | CT46144-A-SBA_104757_G_RISA_... |




Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

| | | |
|---|---|---|
| Tower Engineering Solutio... | CT46144-A-SBA_MT_LO_Loads Only_G | SK - 1 |
| JET | | Apr 14, 2021 at 2:34 PM |
| TES Project No. 104757 | | CT46144-A-SBA_104757_G_RISA_... |




Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

| | | |
|---|---|---|
| Tower Engineering Solutio... | CT46144-A-SBA_MT_LO_Loads Only_G | SK - 2 |
| JET | | Apr 14, 2021 at 2:34 PM |
| TES Project No. 104757 | | CT46144-A-SBA_104757_G_RISA_... |

## Basic Load Cases

| | BLC Description | Category | X Gravity | Y Gravity | Z Gravity | Joint | Point | Distributed | Area(Me... | Surface(P... |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Antenna D | None | | | | | 26 | | | |
| 2 | Antenna Di | None | | | | | 26 | | | |
| 3 | Antenna W Front | None | | | | | 26 | | | |
| 4 | Antenna Wi Front | None | | | | | 26 | | | |
| 5 | Antenna W Side | None | | | | | 26 | | | |
| 6 | Antenna Wi Side | None | | | | | 26 | | | |
| 7 | Service Lm1 | None | | | | | 1 | | | |
| 8 | Service Lm2 | None | | | | | 1 | | | |
| 9 | Structure D | None | | -1 | | | | | | |
| 10 | Structure Di | None | | | | | | 60 | | |
| 11 | Structure W Front | None | | | | | | 60 | | |
| 12 | Structure Wi Front | None | | | | | | 60 | | |
| 13 | Structure W Side | None | | | | | | 60 | | |
| 14 | Structure Wi Side | None | | | | | | 60 | | |

## Load Combinations

| | Description | Sol.. | PD.. | SR.. | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... | BLC | Fact... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2D+1.6... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 3 | 1.6 | 11 | 1.6 | | | | | | | | | | | | | | |
| 2 | 1.2D+1.6... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 3 | -1.6 | 11 | -1.6 | | | | | | | | | | | | | | |
| 3 | 1.2D+1.6... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 5 | 1.6 | 13 | 1.6 | | | | | | | | | | | | | | |
| 4 | 1.2D+1.6... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 5 | -1.6 | 13 | -1.6 | | | | | | | | | | | | | | |
| 5 | 1.2D+1.0... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 2 | 1 | 10 | 1 | 4 | 1 | 12 | 1 | | | | | | | | | | |
| 6 | 1.2D+1.0... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 2 | 1 | 10 | 1 | 4 | -1 | 12 | -1 | | | | | | | | | | |
| 7 | 1.2D+1.0... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 2 | 1 | 10 | 1 | 6 | 1 | 14 | 1 | | | | | | | | | | |
| 8 | 1.2D+1.0... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 2 | 1 | 10 | 1 | 6 | -1 | 14 | -1 | | | | | | | | | | |
| 9 | 1.2D+1.5L... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 7 | 1.5 | 3 | .16 | 11 | .16 | | | | | | | | | | | | |
| 10 | 1.2D+1.5L... | Yes | Y | | 1 | 1.2 | 9 | 1.2 | 8 | 1.5 | 3 | .16 | 11 | .16 | | | | | | | | | | | | |
| 11 | 1.4D | Yes | Y | | 1 | 1.4 | 9 | 1.4 | | | | | | | | | | | | | | | | | | |

## Joint Coordinates and Temperatures

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diaphragm |
|---|---|---|---|---|---|---|
| 1 | NP12 | 6.634806 | 0 | 3.386271 | 0 | |
| 2 | NP9 | 0.384806 | 0 | -7.439046 | 0 | |
| 3 | NP8 | -0.385333 | 0 | -7.43935 | 0 | |
| 4 | NP5 | -6.635333 | 0 | 3.385967 | 0 | |
| 5 | NP4 | -6.25 | 0 | 4.052255 | 0 | |
| 6 | NP1 | 6.25 | 0 | 4.052255 | 0 | |
| 7 | N57 | -1.526951 | 0 | 0.880833 | 0 | |
| 8 | N56 | 0 | 0 | -1.760626 | 0 | |
| 9 | N55 | 1.524117 | 0 | 0.879222 | 0 | |
| 10 | N53 | 5.516722 | 0 | 4.052255 | 0 | |
| 11 | N51 | 1.933386 | 0 | 4.052255 | 0 | |
| 12 | N50 | -1.934089 | 0 | 4.052255 | 0 | |
| 13 | N48 | -5.517425 | 0 | 4.052255 | 0 | |
| 14 | N45 | -6.268719 | 0 | 2.750974 | 0 | |

## Joint Coordinates and Temperatures (Continued)

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diaphragm |
|---|---|---|---|---|---|---|
| 15 | N43 | -4.477052 | 0 | -0.352284 | 0 | |
| 16 | N42 | -2.543314 | 0 | -3.701617 | 0 | |
| 17 | N40 | -0.751646 | 0 | -6.804876 | 0 | |
| 18 | N37 | 0.750945 | 0 | -6.804875 | 0 | |
| 19 | N35 | 2.54261 | 0 | -3.70162 | 0 | |
| 20 | N34 | 4.476351 | 0 | -0.352283 | 0 | |
| 21 | N32 | 6.268016 | 0 | 2.750972 | 0 | |
| 22 | N30 | -0.001303 | 0 | -3.17336 | 0 | |
| 23 | N29 | 2.179207 | 0 | -3.17336 | 0 | |
| 24 | N28 | -2.17991 | 0 | -3.17336 | 0 | |
| 25 | N27 | -0.001303 | 0 | -6.948466 | 0 | |
| 26 | N26 | 0.499648 | 0 | -6.948466 | 0 | |
| 27 | N25 | -0.500352 | 0 | -6.948466 | 0 | |
| 28 | N24 | 2.582982 | 0 | -3.17336 | 0 | |
| 29 | N23 | -2.583685 | 0 | -3.17336 | 0 | |
| 30 | N22 | 2.582982 | 0 | -3.340026 | 0 | |
| 31 | N21 | -2.583685 | 0 | -3.340026 | 0 | |
| 32 | N20 | 2.747548 | 0 | 1.585571 | 0 | |
| 33 | N19 | 1.657769 | 0 | 3.473123 | 0 | |
| 34 | N18 | 3.837162 | 0 | -0.301696 | 0 | |
| 35 | N17 | 6.016886 | 0 | 3.473123 | 0 | |
| 36 | N16 | 5.766721 | 0 | 3.906422 | 0 | |
| 37 | N15 | 6.266721 | 0 | 3.040397 | 0 | |
| 38 | N14 | 1.455717 | 0 | 3.823089 | 0 | |
| 39 | N13 | 4.03905 | 0 | -0.651376 | 0 | |
| 40 | N12 | 1.600054 | 0 | 3.906422 | 0 | |
| 41 | N11 | 4.183387 | 0 | -0.568042 | 0 | |
| 42 | N10 | -2.748086 | 0 | 1.585856 | 0 | |
| 43 | N9 | -3.837866 | 0 | -0.301696 | 0 | |
| 44 | N8 | -1.658307 | 0 | 3.473409 | 0 | |
| 45 | N7 | -6.017424 | 0 | 3.473409 | 0 | |
| 46 | N6 | -6.267424 | 0 | 3.040397 | 0 | |
| 47 | N5 | -5.767424 | 0 | 3.906422 | 0 | |
| 48 | N4 | -4.039753 | 0 | -0.651376 | 0 | |
| 49 | N3 | -1.45642 | 0 | 3.823089 | 0 | |
| 50 | N2 | -4.184091 | 0 | -0.568042 | 0 | |
| 51 | N1 | -1.600757 | 0 | 3.906422 | 0 | |
| 52 | N72 | -6 | 0 | 4.052255 | 0 | |
| 53 | N53A | -2 | 0 | 4.052255 | 0 | |
| 54 | N54 | 6 | 0 | 4.052255 | 0 | |
| 55 | N55A | 2 | 0 | 4.052255 | 0 | |
| 56 | N56A | -6 | 4 | 4.338713 | 0 | |
| 57 | N57A | -2 | 4 | 4.338713 | 0 | |
| 58 | N58 | 6 | 4 | 4.338713 | 0 | |
| 59 | N59 | 2 | 4 | 4.338713 | 0 | |
| 60 | N60 | -6 | -2 | 4.338713 | 0 | |
| 61 | N61 | -2 | -2 | 4.338713 | 0 | |
| 62 | N62 | 6 | -2 | 4.338713 | 0 | |
| 63 | N63 | 2 | -4 | 4.338713 | 0 | |
| 64 | N80 | 6.509956 | 0 | 3.170025 | 0 | |
| 65 | N81 | 4.509956 | 0 | -0.294077 | 0 | |
| 66 | N82 | 2.509956 | 0 | -3.758178 | 0 | |

## Joint Coordinates and Temperatures (Continued)

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diaphragm |
|---|---|---|---|---|---|---|
| 67 | N83 | 0.509956 | 0 | -7.22228 | 0 | |
| 68 | N84 | -0.510658 | 0 | -7.22228 | 0 | |
| 69 | N85 | -2.510658 | 0 | -3.758178 | 0 | |
| 70 | N86 | -4.510658 | 0 | -0.294077 | 0 | |
| 71 | N87 | -6.510658 | 0 | 3.170025 | 0 | |
| 72 | N88 | -6 | 0 | 4.338713 | 0 | |
| 73 | N89 | -2 | 0 | 4.338713 | 0 | |
| 74 | N90 | 6 | 0 | 4.338713 | 0 | |
| 75 | N91 | 2 | 0 | 4.338713 | 0 | |
| 76 | N80A | 6.757436 | 4 | 3.026796 | 0 | |
| 77 | N81A | 4.757436 | 4 | -0.437306 | 0 | |
| 78 | N82A | 0.757436 | 4 | -7.365509 | 0 | |
| 79 | N83A | 2.757436 | 4 | -3.901407 | 0 | |
| 80 | N84A | 6.757436 | -2 | 3.026796 | 0 | |
| 81 | N85A | 4.757436 | -2 | -0.437306 | 0 | |
| 82 | N86A | 0.757436 | -2 | -7.365509 | 0 | |
| 83 | N87A | 2.757436 | -4 | -3.901407 | 0 | |
| 84 | N88A | 6.757436 | 0 | 3.026796 | 0 | |
| 85 | N89A | 4.757436 | 0 | -0.437306 | 0 | |
| 86 | N90A | 0.757436 | 0 | -7.365509 | 0 | |
| 87 | N91A | 2.757436 | 0 | -3.901407 | 0 | |
| 88 | N96 | -0.757436 | 4 | -7.365509 | 0 | |
| 89 | N97 | -2.757436 | 4 | -3.901407 | 0 | |
| 90 | N98 | -6.757436 | 4 | 3.026796 | 0 | |
| 91 | N99 | -4.757436 | 4 | -0.437306 | 0 | |
| 92 | N100 | -0.757436 | -2 | -7.365509 | 0 | |
| 93 | N101 | -2.757436 | -2 | -3.901407 | 0 | |
| 94 | N102 | -6.757436 | -2 | 3.026796 | 0 | |
| 95 | N103 | -4.757436 | -4 | -0.437306 | 0 | |
| 96 | N104 | -0.757436 | 0 | -7.365509 | 0 | |
| 97 | N105 | -2.757436 | 0 | -3.901407 | 0 | |
| 98 | N106 | -6.757436 | 0 | 3.026796 | 0 | |
| 99 | N107 | -4.757436 | 0 | -0.437306 | 0 | |
| 100 | N100A | -6 | 3.5 | 4.338713 | 0 | |
| 101 | N101A | -2 | 3.5 | 4.338713 | 0 | |
| 102 | N102A | 6 | 3.5 | 4.338713 | 0 | |
| 103 | N103A | 2 | 3.5 | 4.338713 | 0 | |
| 104 | N104A | 6.757436 | 3.5 | 3.026796 | 0 | |
| 105 | N105A | 4.757436 | 3.5 | -0.437306 | 0 | |
| 106 | N106A | 0.757436 | 3.5 | -7.365509 | 0 | |
| 107 | N107A | 2.757436 | 3.5 | -3.901407 | 0 | |
| 108 | N108 | -0.757436 | 3.5 | -7.365509 | 0 | |
| 109 | N109 | -2.757436 | 3.5 | -3.901407 | 0 | |
| 110 | N110 | -6.757436 | 3.5 | 3.026796 | 0 | |
| 111 | N111 | -4.757436 | 3.5 | -0.437306 | 0 | |
| 112 | N112 | -6 | 3.5 | 4.109546 | 0 | |
| 113 | N113 | -2 | 3.5 | 4.109546 | 0 | |
| 114 | N114 | 6 | 3.5 | 4.109546 | 0 | |
| 115 | N115 | 2 | 3.5 | 4.109546 | 0 | |
| 116 | N116 | -6.25 | 3.5 | 4.109546 | 0 | |
| 117 | N117 | 6.25 | 3.5 | 4.109546 | 0 | |
| 118 | N122 | 6.558971 | 3.5 | 3.141379 | 0 | |

## Joint Coordinates and Temperatures (Continued)

| | Label | X [ft] | Y [ft] | Z [ft] | Temp [F] | Detach From Diaphragm |
|---|---|---|---|---|---|---|
| 119 | N123 | 4.558971 | 3.5 | -0.322722 | 0 | |
| 120 | N124 | 0.558971 | 3.5 | -7.250925 | 0 | |
| 121 | N125 | 2.558971 | 3.5 | -3.786824 | 0 | |
| 122 | N126 | 6.683971 | 3.5 | 3.357886 | 0 | |
| 123 | N127 | 0.433971 | 3.5 | -7.467432 | 0 | |
| 124 | N132 | -0.558971 | 3.5 | -7.250925 | 0 | |
| 125 | N133 | -2.558971 | 3.5 | -3.786824 | 0 | |
| 126 | N134 | -6.558971 | 3.5 | 3.141379 | 0 | |
| 127 | N135 | -4.558971 | 3.5 | -0.322722 | 0 | |
| 128 | N136 | -0.433971 | 3.5 | -7.467432 | 0 | |
| 129 | N137 | -6.683971 | 3.5 | 3.357886 | 0 | |
| 130 | N130 | -5.75 | 3.5 | 4.109546 | 0 | |
| 131 | N131 | 5.75 | 3.5 | 4.109546 | 0 | |
| 132 | N132A | 6.433971 | 3.5 | 2.924873 | 0 | |
| 133 | N133A | 0.683971 | 3.5 | -7.034419 | 0 | |
| 134 | N134A | -0.683971 | 3.5 | -7.034419 | 0 | |
| 135 | N135A | -6.433971 | 3.5 | 2.924873 | 0 | |

## Hot Rolled Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design ... | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Handrails | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical | 1.02 | .627 | .627 | 1.25 |
| 2 | Corner Braces | L2.5x2.5x4 | Beam | Single Angle | A36 Gr.36 | Typical | 1.19 | .692 | .692 | .026 |

## Cold Formed Steel Section Sets

| | Label | Shape | Type | Design List | Material | Design Rules | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CF1A | 1.5CU1.25X... | Beam | CU | A570_33 | Typical | .131 | .022 | .052 | 5.4e-5 |

## Aluminum Section Sets

| | Label | Shape | Type | Design List | Material | Design Rules | A [in2] | Iyy [in4] | Izz [in4] | J [in4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | AL1 | AA CS14X1... | Beam | AA Channel | 3003-H14 | Typical | 11.8 | 44.7 | 401 | 1.19 |

## Hot Rolled Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm (\1E... | Density[k/ft... | Yield[ksi] | Ry | Fu[ksi] | Rt |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A36 Gr.36 | 29000 | 11154 | .3 | .65 | .49 | 36 | 1.5 | 58 | 1.2 |
| 2 | A572 Gr.50 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.1 | 58 | 1.2 |
| 3 | A992 | 29000 | 11154 | .3 | .65 | .49 | 50 | 1.1 | 58 | 1.2 |
| 4 | A500 Gr.42 | 29000 | 11154 | .3 | .65 | .49 | 42 | 1.3 | 58 | 1.1 |
| 5 | A500 Gr.46 | 29000 | 11154 | .3 | .65 | .49 | 46 | 1.2 | 58 | 1.1 |
| 6 | A53 Gr.B | 29000 | 11154 | .3 | .65 | .49 | 35 | 1.5 | 58 | 1.2 |
| 7 | Q235 | 29000 | 11154 | .3 | .65 | .49 | 34 | 1.5 | 58 | 1.2 |
| 8 | J429-Gr5 | 29000 | 11154 | .3 | .65 | .49 | 92 | 1.5 | 120 | 1.2 |

## Cold Formed Steel Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm (\1E5 F) | Density[k/ft^3] | Yield[ksi] | Fu[ksi] |
|---|---|---|---|---|---|---|---|---|
| 1 | A570_33 | 29500 | 11346 | .3 | .65 | .49 | 33 | 52 |
| 2 | A607_C1_55 | 29500 | 11346 | .3 | .65 | .49 | 55 | 70 |

## Aluminum Properties

| | Label | E [ksi] | G [ksi] | Nu | Therm (... | Density[... | Table B.4 | kt | Ftu[ksi] | Fty[ksi] | Fcy[ksi] | Fsu[ksi] | Ct |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3003-H14 | 10100 | 3787.5 | .33 | 1.3 | .173 | Table B.... | 1 | 19 | 16 | 13 | 12 | 141 |
| 2 | 6061-T6 | 10100 | 3787.5 | .33 | 1.3 | .173 | Table B.... | 1 | 38 | 35 | 35 | 24 | 141 |
| 3 | 6063-T5 | 10100 | 3787.5 | .33 | 1.3 | .173 | Table B.... | 1 | 22 | 16 | 16 | 13 | 141 |
| 4 | 6063-T6 | 10100 | 3787.5 | .33 | 1.3 | .173 | Table B.... | 1 | 30 | 25 | 25 | 19 | 141 |
| 5 | 5052-H34 | 10200 | 3787.5 | .33 | 1.3 | .173 | Table B.... | 1 | 34 | 26 | 24 | 20 | 141 |
| 6 | 6061-T6 W | 10100 | 3787.5 | .33 | 1.3 | .173 | Table B.... | 1 | 24 | 15 | 15 | 15 | 141 |

## Member Primary Data

| | Label | I Joint | J Joint | K Joint | Rotate(de... | Section/Shape | Type | Design List | Material | Design Rules |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M1 | N7 | N5 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 2 | M2 | N7 | N6 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 3 | M3 | N3 | N1 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 4 | M4 | N1 | N50 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 5 | M5 | N4 | N2 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 6 | M6 | N2 | N43 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 7 | M7 | N7 | N9 | | | L2x2x3 | Beam | Single Angle | Q235 | Typical |
| 8 | M8 | N7 | N8 | | 270 | L2x2x3 | Beam | Single Angle | Q235 | Typical |
| 9 | M9 | N5 | N48 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 10 | M10 | N6 | N45 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 11 | M11 | N7 | N57 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 12 | M12 | N3 | N10 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 13 | M13 | N10 | N4 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 14 | M14 | N17 | N15 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 15 | M15 | N17 | N16 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 16 | M16 | N13 | N11 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 17 | M17 | N11 | N34 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 18 | M18 | N14 | N12 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 19 | M19 | N12 | N51 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 20 | M20 | N17 | N19 | | | L2x2x3 | Beam | Single Angle | Q235 | Typical |
| 21 | M21 | N17 | N18 | | 270 | L2x2x3 | Beam | Single Angle | Q235 | Typical |
| 22 | M22 | N15 | N32 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 23 | M23 | N16 | N53 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 24 | M24 | N17 | N55 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 25 | M25 | N13 | N20 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 26 | M26 | N20 | N14 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 27 | M27 | N27 | N25 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 28 | M28 | N27 | N26 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 29 | M29 | N23 | N21 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 30 | M30 | N21 | N42 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 31 | M31 | N24 | N22 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 32 | M32 | N22 | N35 | | | PL3/8x6 | Beam | RECT | Q235 | Typical |
| 33 | M33 | N27 | N29 | | | L2x2x3 | Beam | Single Angle | Q235 | Typical |
| 34 | M34 | N27 | N28 | | 270 | L2x2x3 | Beam | Single Angle | Q235 | Typical |

## Member Primary Data (Continued)

| | Label | I Joint | J Joint | K Joint | Rotate(de... | Section/Shape | Type | Design List | Material | Design Rules |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | M35 | N25 | N40 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 36 | M36 | N26 | N37 | | | PL1/2x6 | Beam | RECT | Q235 | Typical |
| 37 | M37 | N27 | N56 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 38 | M38 | N23 | N30 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 39 | M39 | N30 | N24 | | | HSS4x4x4 | Beam | SquareTube | Q235 | Typical |
| 40 | M40 | NP12 | NP9 | | | PIPE_3.0 | Beam | Pipe | A53 Gr.B | Typical |
| 41 | M41 | NP8 | NP5 | | | PIPE_3.0 | Beam | Pipe | A53 Gr.B | Typical |
| 42 | M42 | NP4 | NP1 | | | PIPE_3.0 | Beam | Pipe | A53 Gr.B | Typical |
| 43 | MP4A | N56A | N60 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 44 | MP3A | N57A | N61 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 45 | MP2A | N59 | N63 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 46 | MP1A | N58 | N62 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 47 | M55 | N72 | N88 | | | RIGID | None | None | RIGID | Typical |
| 48 | M56 | N53A | N89 | | | RIGID | None | None | RIGID | Typical |
| 49 | M57 | N55A | N91 | | | RIGID | None | None | RIGID | Typical |
| 50 | M58 | N54 | N90 | | | RIGID | None | None | RIGID | Typical |
| 51 | MP4C | N80A | N84A | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 52 | MP3C | N81A | N85A | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 53 | MP2C | N83A | N87A | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 54 | MP1C | N82A | N86A | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 55 | M55A | N80 | N88A | | | RIGID | None | None | RIGID | Typical |
| 56 | M56A | N81 | N89A | | | RIGID | None | None | RIGID | Typical |
| 57 | M57A | N82 | N91A | | | RIGID | None | None | RIGID | Typical |
| 58 | M58A | N83 | N90A | | | RIGID | None | None | RIGID | Typical |
| 59 | MP4B | N96 | N100 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 60 | MP3B | N97 | N101 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 61 | MP2B | N99 | N103 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 62 | MP1B | N98 | N102 | | | PIPE_2.0 | Beam | Pipe | A53 Gr.B | Typical |
| 63 | M63 | N84 | N104 | | | RIGID | None | None | RIGID | Typical |
| 64 | M64 | N85 | N105 | | | RIGID | None | None | RIGID | Typical |
| 65 | M65 | N86 | N107 | | | RIGID | None | None | RIGID | Typical |
| 66 | M66 | N87 | N106 | | | RIGID | None | None | RIGID | Typical |
| 67 | M67 | N112 | N100A | | | RIGID | None | None | RIGID | Typical |
| 68 | M68 | N113 | N101A | | | RIGID | None | None | RIGID | Typical |
| 69 | M69 | N115 | N103A | | | RIGID | None | None | RIGID | Typical |
| 70 | M70 | N114 | N102A | | | RIGID | None | None | RIGID | Typical |
| 71 | M71 | N116 | N117 | | | Handrails | Beam | Pipe | A53 Gr.B | Typical |
| 72 | M72 | N122 | N104A | | | RIGID | None | None | RIGID | Typical |
| 73 | M73 | N123 | N105A | | | RIGID | None | None | RIGID | Typical |
| 74 | M74 | N125 | N107A | | | RIGID | None | None | RIGID | Typical |
| 75 | M75 | N124 | N106A | | | RIGID | None | None | RIGID | Typical |
| 76 | M76 | N126 | N127 | | | Handrails | Beam | Pipe | A53 Gr.B | Typical |
| 77 | M77 | N132 | N108 | | | RIGID | None | None | RIGID | Typical |
| 78 | M78 | N133 | N109 | | | RIGID | None | None | RIGID | Typical |
| 79 | M79 | N135 | N111 | | | RIGID | None | None | RIGID | Typical |
| 80 | M80 | N134 | N110 | | | RIGID | None | None | RIGID | Typical |
| 81 | M81 | N136 | N137 | | | Handrails | Beam | Pipe | A53 Gr.B | Typical |
| 82 | M82 | N131 | N132A | | 90 | Corner Braces | Beam | Single Angle | A36 Gr.36 | Typical |
| 83 | M83 | N133A | N134A | | 90 | Corner Braces | Beam | Single Angle | A36 Gr.36 | Typical |
| 84 | M84 | N135A | N130 | | 90 | Corner Braces | Beam | Single Angle | A36 Gr.36 | Typical |

## Member Advanced Data

| | Label | I Release | J Release | I Offset[in] | J Offset[in] | T/C Only | Physical | Analysis ... | Inactive | Seismic Design ... |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M1 | | | | | | Yes | | | None |
| 2 | M2 | | | | | | Yes | | | None |
| 3 | M3 | | | | | | Yes | | | None |
| 4 | M4 | | BenPIN | | | | Yes | | | None |
| 5 | M5 | | | | | | Yes | | | None |
| 6 | M6 | | BenPIN | | | | Yes | | | None |
| 7 | M7 | | | | | | Yes | | | None |
| 8 | M8 | | | | | | Yes | | | None |
| 9 | M9 | | BenPIN | | | | Yes | | | None |
| 10 | M10 | | BenPIN | | | | Yes | | | None |
| 11 | M11 | | | | | | Yes | | | None |
| 12 | M12 | | | | | | Yes | | | None |
| 13 | M13 | | | | | | Yes | | | None |
| 14 | M14 | | | | | | Yes | | | None |
| 15 | M15 | | | | | | Yes | | | None |
| 16 | M16 | | | | | | Yes | | | None |
| 17 | M17 | | BenPIN | | | | Yes | | | None |
| 18 | M18 | | | | | | Yes | | | None |
| 19 | M19 | | BenPIN | | | | Yes | | | None |
| 20 | M20 | | | | | | Yes | | | None |
| 21 | M21 | | | | | | Yes | | | None |
| 22 | M22 | | BenPIN | | | | Yes | | | None |
| 23 | M23 | | BenPIN | | | | Yes | | | None |
| 24 | M24 | | | | | | Yes | | | None |
| 25 | M25 | | | | | | Yes | | | None |
| 26 | M26 | | | | | | Yes | | | None |
| 27 | M27 | | | | | | Yes | | | None |
| 28 | M28 | | | | | | Yes | | | None |
| 29 | M29 | | | | | | Yes | | | None |
| 30 | M30 | | BenPIN | | | | Yes | | | None |
| 31 | M31 | | | | | | Yes | | | None |
| 32 | M32 | | BenPIN | | | | Yes | | | None |
| 33 | M33 | | | | | | Yes | | | None |
| 34 | M34 | | | | | | Yes | | | None |
| 35 | M35 | | BenPIN | | | | Yes | | | None |
| 36 | M36 | | BenPIN | | | | Yes | | | None |
| 37 | M37 | | | | | | Yes | | | None |
| 38 | M38 | | | | | | Yes | | | None |
| 39 | M39 | | | | | | Yes | | | None |
| 40 | M40 | | | | | | Yes | | | None |
| 41 | M41 | | | | | | Yes | | | None |
| 42 | M42 | | | | | | Yes | | | None |
| 43 | MP4A | | | | | | Yes | | | None |
| 44 | MP3A | | | | | | Yes | | | None |
| 45 | MP2A | | | | | | Yes | | | None |
| 46 | MP1A | | | | | | Yes | | | None |
| 47 | M55 | | | | | | Yes | | | None |
| 48 | M56 | | | | | | Yes | | | None |
| 49 | M57 | | | | | | Yes | | | None |
| 50 | M58 | | | | | | Yes | | | None |
| 51 | MP4C | | | | | | Yes | | | None |

## Member Advanced Data (Continued)

| | Label | I Release | J Release | I Offset[in] | J Offset[in] | T/C Only | Physical | Analysis ... | Inactive | Seismic Design ... |
|---|---|---|---|---|---|---|---|---|---|---|
| 52 | MP3C | | | | | | Yes | | | None |
| 53 | MP2C | | | | | | Yes | | | None |
| 54 | MP1C | | | | | | Yes | | | None |
| 55 | M55A | | | | | | Yes | | | None |
| 56 | M56A | | | | | | Yes | | | None |
| 57 | M57A | | | | | | Yes | | | None |
| 58 | M58A | | | | | | Yes | | | None |
| 59 | MP4B | | | | | | Yes | | | None |
| 60 | MP3B | | | | | | Yes | | | None |
| 61 | MP2B | | | | | | Yes | | | None |
| 62 | MP1B | | | | | | Yes | | | None |
| 63 | M63 | | | | | | Yes | | | None |
| 64 | M64 | | | | | | Yes | | | None |
| 65 | M65 | | | | | | Yes | | | None |
| 66 | M66 | | | | | | Yes | | | None |
| 67 | M67 | | | | | | Yes | | | None |
| 68 | M68 | | | | | | Yes | | | None |
| 69 | M69 | | | | | | Yes | | | None |
| 70 | M70 | | | | | | Yes | | | None |
| 71 | M71 | | | | | | Yes | | | None |
| 72 | M72 | | | | | | Yes | | | None |
| 73 | M73 | | | | | | Yes | | | None |
| 74 | M74 | | | | | | Yes | | | None |
| 75 | M75 | | | | | | Yes | | | None |
| 76 | M76 | | | | | | Yes | | | None |
| 77 | M77 | | | | | | Yes | | | None |
| 78 | M78 | | | | | | Yes | | | None |
| 79 | M79 | | | | | | Yes | | | None |
| 80 | M80 | | | | | | Yes | | | None |
| 81 | M81 | | | | | | Yes | | | None |
| 82 | M82 | | | | | | Yes | | | None |
| 83 | M83 | | | | | | Yes | | | None |
| 84 | M84 | | | | | | Yes | | | None |

## Hot Rolled Steel Design Parameters

| | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M1 | PL1/2x6 | .5 | | | Lbyy | | | .65 | .65 | | Lateral |
| 2 | M2 | PL1/2x6 | .5 | | | Lbyy | | | .65 | .65 | | Lateral |
| 3 | M3 | PL3/8x6 | .167 | | | Lbyy | | | .65 | .65 | | Lateral |
| 4 | M4 | PL3/8x6 | .364 | | | Lbyy | | | .65 | .65 | | Lateral |
| 5 | M5 | PL3/8x6 | .167 | | | Lbyy | | | .65 | .65 | | Lateral |
| 6 | M6 | PL3/8x6 | .364 | | | Lbyy | | | .65 | .65 | | Lateral |
| 7 | M7 | L2x2x3 | 4.359 | | | Lbyy | | | .65 | .65 | | Lateral |
| 8 | M8 | L2x2x3 | 4.359 | | | Lbyy | | | .65 | .65 | | Lateral |
| 9 | M9 | PL1/2x6 | .289 | | | Lbyy | | | .65 | .65 | | Lateral |
| 10 | M10 | PL1/2x6 | .289 | | | Lbyy | | | .65 | .65 | | Lateral |
| 11 | M11 | HSS4x4x4 | 5.185 | | | Lbyy | | | .65 | .65 | | Lateral |
| 12 | M12 | HSS4x4x4 | 2.583 | | | Lbyy | | | .65 | .65 | | Lateral |
| 13 | M13 | HSS4x4x4 | 2.583 | | | Lbyy | | | .65 | .65 | | Lateral |
| 14 | M14 | PL1/2x6 | .5 | | | Lbyy | | | .65 | .65 | | Lateral |

## Hot Rolled Steel Design Parameters (Continued)

| | Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | M15 | PL1/2x6 | .5 | | | Lbyy | | | .65 | .65 | | Lateral |
| 16 | M16 | PL3/8x6 | .167 | | | Lbyy | | | .65 | .65 | | Lateral |
| 17 | M17 | PL3/8x6 | .364 | | | Lbyy | | | .65 | .65 | | Lateral |
| 18 | M18 | PL3/8x6 | .167 | | | Lbyy | | | .65 | .65 | | Lateral |
| 19 | M19 | PL3/8x6 | .364 | | | Lbyy | | | .65 | .65 | | Lateral |
| 20 | M20 | L2x2x3 | 4.359 | | | Lbyy | | | .65 | .65 | | Lateral |
| 21 | M21 | L2x2x3 | 4.359 | | | Lbyy | | | .65 | .65 | | Lateral |
| 22 | M22 | PL1/2x6 | .289 | | | Lbyy | | | .65 | .65 | | Lateral |
| 23 | M23 | PL1/2x6 | .289 | | | Lbyy | | | .65 | .65 | | Lateral |
| 24 | M24 | HSS4x4x4 | 5.188 | | | Lbyy | | | .65 | .65 | | Lateral |
| 25 | M25 | HSS4x4x4 | 2.583 | | | Lbyy | | | .65 | .65 | | Lateral |
| 26 | M26 | HSS4x4x4 | 2.584 | | | Lbyy | | | .65 | .65 | | Lateral |
| 27 | M27 | PL1/2x6 | .499 | | | Lbyy | | | .65 | .65 | | Lateral |
| 28 | M28 | PL1/2x6 | .501 | | | Lbyy | | | .65 | .65 | | Lateral |
| 29 | M29 | PL3/8x6 | .167 | | | Lbyy | | | .65 | .65 | | Lateral |
| 30 | M30 | PL3/8x6 | .364 | | | Lbyy | | | .65 | .65 | | Lateral |
| 31 | M31 | PL3/8x6 | .167 | | | Lbyy | | | .65 | .65 | | Lateral |
| 32 | M32 | PL3/8x6 | .364 | | | Lbyy | | | .65 | .65 | | Lateral |
| 33 | M33 | L2x2x3 | 4.36 | | | Lbyy | | | .65 | .65 | | Lateral |
| 34 | M34 | L2x2x3 | 4.359 | | | Lbyy | | | .65 | .65 | | Lateral |
| 35 | M35 | PL1/2x6 | .289 | | | Lbyy | | | .65 | .65 | | Lateral |
| 36 | M36 | PL1/2x6 | .289 | | | Lbyy | | | .65 | .65 | | Lateral |
| 37 | M37 | HSS4x4x4 | 5.188 | | | Lbyy | | | .65 | .65 | | Lateral |
| 38 | M38 | HSS4x4x4 | 2.582 | | | Lbyy | | | .65 | .65 | | Lateral |
| 39 | M39 | HSS4x4x4 | 2.584 | | | Lbyy | | | .65 | .65 | | Lateral |
| 40 | M40 | PIPE_3.0 | 12.5 | | | Lbyy | | | 1 | 1 | | Lateral |
| 41 | M41 | PIPE_3.0 | 12.5 | | | Lbyy | | | 1 | 1 | | Lateral |
| 42 | M42 | PIPE_3.0 | 12.5 | | | Lbyy | | | 1 | 1 | | Lateral |
| 43 | MP4A | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 44 | MP3A | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 45 | MP2A | PIPE_2.0 | 8 | | | Lbyy | | | | | | Lateral |
| 46 | MP1A | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 47 | MP4C | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 48 | MP3C | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 49 | MP2C | PIPE_2.0 | 8 | | | Lbyy | | | | | | Lateral |
| 50 | MP1C | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 51 | MP4B | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 52 | MP3B | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 53 | MP2B | PIPE_2.0 | 8 | | | Lbyy | | | | | | Lateral |
| 54 | MP1B | PIPE_2.0 | 6 | | | Lbyy | | | | | | Lateral |
| 55 | M71 | Handrails | 12.5 | | | Lbyy | | | | | | Lateral |
| 56 | M76 | Handrails | 12.5 | | | Lbyy | | | | | | Lateral |
| 57 | M81 | Handrails | 12.5 | | | Lbyy | | | | | | Lateral |
| 58 | M82 | Corner Brac... | 1.368 | | | Lbyy | | | | | | Lateral |
| 59 | M83 | Corner Brac... | 1.368 | | | Lbyy | | | | | | Lateral |
| 60 | M84 | Corner Brac... | 1.368 | | | Lbyy | | | | | | Lateral |

## Cold Formed Steel Design Parameters

| Label | Shape | Lengt... | Lbyy[ft] | Lbzz[ft] | Lcomp to... | Lcomp b... | Kyy | Kzz | Cm-yy | Cm-zz | Cb | R | y sway | z sway |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Data to Print ... | | | | | | | | | | | | | | |

## Aluminum Design Parameters

| Label | Shape | Length[ft] | Lbyy[ft] | Lbzz[ft] | Lcomp top[ft] | Lcomp bot[ft] | L-torqu... | Kyy | Kzz | Cb | Function |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No Data to Print ... | | | | | | | | | | | |

## Joint Loads and Enforced Displacements

| Joint Label | L,D,M | Direction | Magnitude[(lb,k-ft), (in,rad), (lb*s^2... |
|---|---|---|---|
| No Data to Print ... | | | |

## Member Area Loads

| Joint A | Joint B | Joint C | Joint D | Direction | Distribution | Magnitude[ksf] |
|---|---|---|---|---|---|---|
| No Data to Print ... | | | | | | |

## Joint Boundary Conditions

| | Joint Label | X [k/in] | Y [k/in] | Z [k/in] | X Rot.[k-ft/rad] | Y Rot.[k-ft/rad] | Z Rot.[k-ft/rad] |
|---|---|---|---|---|---|---|---|
| 1 | N56 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 2 | N10 | | | | | | |
| 3 | N55 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |
| 4 | N57 | Reaction | Reaction | Reaction | Reaction | Reaction | Reaction |

## Envelope Joint Reactions

| | Joint | | X [lb] | LC | Y [lb] | LC | Z [lb] | LC | MX [k-ft] | LC | MY [k-ft] | LC | MZ [k-ft] | LC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | N56 | max | 550.135 | 4 | 2301.748 | 5 | 1715.224 | 1 | 4.665 | 5 | .777 | 1 | .248 | 9 |
| 2 | | min | -574.526 | 3 | 52.01 | 2 | -1768.479 | 2 | -.714 | 2 | -.705 | 2 | -1.192 | 8 |
| 3 | N55 | max | 1369.758 | 4 | 2918.603 | 7 | 1371.251 | 1 | -.365 | 1 | .532 | 4 | 4.794 | 7 |
| 4 | | min | -1327.18 | 3 | 360.689 | 4 | -1312.159 | 2 | -4.434 | 6 | -.562 | 3 | -.047 | 4 |
| 5 | N57 | max | 2378.793 | 4 | 4510.374 | 8 | 1634.557 | 1 | -.522 | 1 | 1.319 | 1 | -.99 | 3 |
| 6 | | min | -2397.098 | 3 | 853.447 | 3 | -1640.234 | 2 | -4.727 | 6 | -1.328 | 2 | -8.754 | 8 |
| 7 | Totals: | max | 4298.686 | 4 | 9387.485 | 7 | 4721.032 | 1 | | | | | | |
| 8 | | min | -4298.804 | 3 | 2839.526 | 4 | -4720.872 | 2 | | | | | | |

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

| | Member | Shape | Code Check | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | phi*Pnc ... | phi*Pnt ... | phi*Mn ... | phi*Mn ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M11 | HSS4x4x4 | .842 | 5.185 | 6 | .194 | 5.185 | y | 8 | 99561.4... | 103122 | 11.96 | 11.96 | 2... | H1-1b |
| 2 | M24 | HSS4x4x4 | .543 | 5.188 | 7 | .253 | 5.188 | y | 6 | 99557.85 | 103122 | 11.96 | 11.96 | 2... | H1-1b |
| 3 | MP2A | PIPE 2.0 | .460 | 4 | 2 | .109 | 4 | | 2 | 14916.0... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 4 | M13 | HSS4x4x4 | .416 | 0 | 8 | .165 | 0 | y | 8 | 102226.... | 103122 | 11.96 | 11.96 | 1... | H1-1b |
| 5 | M37 | HSS4x4x4 | .412 | 5.188 | 5 | .195 | 5.188 | y | 8 | 99557.7... | 103122 | 11.96 | 11.96 | 3... | H1-1b |
| 6 | MP2B | PIPE 2.0 | .408 | 4 | 3 | .080 | 4 | | 4 | 14916.0... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 7 | M12 | HSS4x4x4 | .401 | 2.583 | 6 | .159 | 2.583 | y | 8 | 102226.... | 103122 | 11.96 | 11.96 | 1... | H1-1b |
| 8 | MP3B | PIPE 2.0 | .337 | 4 | 2 | .093 | 4 | | 4 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 9 | M82 | L2.5x2.5x4 | .326 | 1.368 | 2 | .051 | 1.368 | y | 2 | 36272.2... | 38556 | 1.114 | 2.537 | 1... | H2-1 |

## *Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)*

| | Member | Shape | Code Check | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | phi*Pnc ... | phi*Pnt ... | phi*Mn ... | phi*Mn ... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | MP3A | PIPE_2.0 | .319 | 4 | 3 | .092 | 4 | | 2 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 11 | MP4A | PIPE_2.0 | .306 | 4 | 7 | .104 | .5 | | 2 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 12 | M26 | HSS4x4x4 | .302 | 0 | 6 | .120 | 0 | y | 7 | 102226.... | 103122 | 11.96 | 11.96 | 1... | H1-1b |
| 13 | MP3C | PIPE_2.0 | .285 | 4 | 1 | .040 | 4 | | 1 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 14 | MP1A | PIPE_2.0 | .274 | 4 | 8 | .119 | .5 | | 2 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 15 | MP4C | PIPE_2.0 | .266 | 4 | 5 | .082 | 4 | | 1 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 16 | M71 | PIPE_2.0 | .265 | 8.333 | 2 | .170 | 11.9... | | 1 | 6295.422 | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 17 | M5 | PL3/8x6 | .258 | 0 | 2 | .306 | 0 | y | 6 | 68358.09 | 68850 | .538 | 8.606 | 1... | H1-1b |
| 18 | MP1B | PIPE_2.0 | .258 | 4 | 5 | .090 | .5 | | 4 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 19 | MP2C | PIPE_2.0 | .256 | 4 | 2 | .047 | 4 | | 2 | 14916.0... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 20 | M38 | HSS4x4x4 | .248 | 2.582 | 5 | .096 | 2.582 | y | 5 | 102227.... | 103122 | 11.96 | 11.96 | 1.7 | H1-1b |
| 21 | MP1C | PIPE_2.0 | .238 | 4 | 7 | .059 | 4 | | 3 | 20866.7... | 32130 | 1.872 | 1.872 | 2... | H1-1b |
| 22 | MP4B | PIPE_2.0 | .235 | 4 | 8 | .082 | 4 | | 4 | 20866.7... | 32130 | 1.872 | 1.872 | 1... | H1-1b |
| 23 | M84 | L2.5x2.5x4 | .233 | 1.368 | 4 | .055 | 1.368 | z | 2 | 36272.2... | 38556 | 1.114 | 2.537 | 1... | H2-1 |
| 24 | M76 | PIPE_2.0 | .227 | .521 | 1 | .103 | .391 | | 2 | 6295.422 | 32130 | 1.872 | 1.872 | 3... | H1-1b |
| 25 | M81 | PIPE_2.0 | .220 | 12.1... | 1 | .137 | 12.1... | | 6 | 6295.422 | 32130 | 1.872 | 1.872 | 3... | H1-1b |
| 26 | M3 | PL3/8x6 | .214 | 0 | 4 | .322 | 0 | y | 1 | 68358.09 | 68850 | .538 | 8.606 | 1... | H1-1b |
| 27 | M25 | HSS4x4x4 | .208 | 2.583 | 7 | .082 | 2.583 | y | 7 | 102226.... | 103122 | 11.96 | 11.96 | 1... | H1-1b |
| 28 | M42 | PIPE_3.0 | .205 | 4.297 | 8 | .101 | 4.297 | | 2 | 28250.5... | 65205 | 5.749 | 5.749 | 2... | H1-1b |
| 29 | M8 | L2x2x3 | .202 | 0 | 8 | .017 | 0 | z | 5 | 15110.9... | 22093.2 | .527 | 1.17 | 2... | H2-1 |
| 30 | M83 | L2.5x2.5x4 | .185 | 1.368 | 3 | .036 | 0 | z | 3 | 36272.2... | 38556 | 1.114 | 2.537 | 2... | H2-1 |
| 31 | M6 | PL3/8x6 | .175 | 0 | 2 | .173 | 0 | y | 2 | 66537.0... | 68850 | .538 | 8.606 | 1... | H1-1b |
| 32 | M7 | L2x2x3 | .169 | 4.359 | 4 | .015 | 0 | y | 6 | 15110.9... | 22093.2 | .527 | 1.167 | 2... | H2-1 |
| 33 | M39 | HSS4x4x4 | .167 | 0 | 5 | .065 | 0 | y | 5 | 102225.... | 103122 | 11.96 | 11.96 | 1... | H1-1b |
| 34 | M21 | L2x2x3 | .165 | 0 | 7 | .014 | 0 | z | 6 | 15111.3... | 22093.2 | .527 | 1.17 | 2... | H2-1 |
| 35 | M18 | PL3/8x6 | .165 | 0 | 2 | .231 | 0 | y | 1 | 68358.09 | 68850 | .538 | 8.606 | 1... | H1-1b |
| 36 | M20 | L2x2x3 | .157 | 4.359 | 2 | .010 | 0 | y | 5 | 15110.9... | 22093.2 | .527 | 1.17 | 2... | H2-1 |
| 37 | M4 | PL3/8x6 | .152 | 0 | 1 | .294 | 0 | y | 2 | 66537.0... | 68850 | .538 | 8.606 | 1... | H1-1b |
| 38 | M40 | PIPE_3.0 | .151 | 4.167 | 7 | .048 | 4.297 | | 6 | 28250.5... | 65205 | 5.749 | 5.749 | 1... | H1-1b |
| 39 | M19 | PL3/8x6 | .141 | 0 | 2 | .211 | 0 | y | 2 | 66537.0... | 68850 | .538 | 8.606 | 1... | H1-1b |
| 40 | M2 | PL1/2x6 | .140 | 0 | 1 | .127 | .5 | y | 2 | 88527.4... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 41 | M29 | PL3/8x6 | .135 | 0 | 4 | .239 | 0 | y | 3 | 68358.09 | 68850 | .538 | 8.606 | 1... | H1-1b |
| 42 | M33 | L2x2x3 | .132 | 0 | 5 | .012 | 0 | y | 8 | 15109.65 | 22093.2 | .527 | 1.17 | 2... | H2-1 |
| 43 | M1 | PL1/2x6 | .121 | 0 | 4 | .166 | .5 | y | 1 | 88527.4... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 44 | M16 | PL3/8x6 | .114 | 0 | 7 | .209 | 0 | y | 6 | 68358.09 | 68850 | .538 | 8.606 | 1... | H1-1b |
| 45 | M41 | PIPE_3.0 | .110 | 8.333 | 8 | .101 | 8.203 | | 5 | 28250.5... | 65205 | 5.749 | 5.749 | 1... | H1-1b |
| 46 | M34 | L2x2x3 | .104 | 0 | 7 | .010 | 0 | z | 7 | 15112.1... | 22093.2 | .527 | 1.17 | 2... | H2-1 |
| 47 | M30 | PL3/8x6 | .101 | 0 | 4 | .217 | 0 | y | 4 | 66537.0... | 68850 | .538 | 8.606 | 1... | H1-1b |
| 48 | M31 | PL3/8x6 | .086 | 0 | 5 | .179 | 0 | y | 4 | 68358.09 | 68850 | .538 | 8.606 | 1... | H1-1b |
| 49 | M27 | PL1/2x6 | .086 | 0 | 2 | .134 | .499 | y | 3 | 88539.6... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 50 | M17 | PL3/8x6 | .075 | 0 | 7 | .155 | 0 | y | 2 | 66537.0... | 68850 | .538 | 8.606 | 1... | H1-1b |
| 51 | M14 | PL1/2x6 | .072 | 0 | 3 | .101 | .5 | y | 2 | 88531.7... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 52 | M28 | PL1/2x6 | .063 | 0 | 2 | .108 | .501 | y | 4 | 88515.23 | 91800 | .956 | 11.475 | 1... | H1-1b |
| 53 | M32 | PL3/8x6 | .056 | 0 | 5 | .160 | 0 | y | 4 | 66537.0... | 68850 | .538 | 8.606 | 1... | H1-1b |
| 54 | M15 | PL1/2x6 | .055 | 0 | 3 | .124 | .5 | y | 1 | 88523.2... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 55 | M10 | PL1/2x6 | .031 | 0 | 7 | .165 | .289 | y | 2 | 90690.2... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 56 | M23 | PL1/2x6 | .030 | 0 | 1 | .180 | .289 | y | 1 | 90690.2... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 57 | M36 | PL1/2x6 | .025 | 0 | 4 | .164 | .289 | y | 4 | 90690.2... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 58 | M22 | PL1/2x6 | .021 | 0 | 2 | .161 | .289 | y | 2 | 90690.2... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 59 | M35 | PL1/2x6 | .019 | 0 | 7 | .170 | .289 | y | 3 | 90690.2... | 91800 | .956 | 11.475 | 1... | H1-1b |
| 60 | M9 | PL1/2x6 | .015 | 0 | 3 | .249 | .289 | y | 1 | 90690.2... | 91800 | .956 | 11.475 | 1... | H1-1b |

## Envelope AISI 1999: ASD Cold Formed Steel Code Checks

| Member | Shape | Code ... | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | Pn[lb] | Tn[lb] | Mnyy[k-ft] | Mnzz[k-ft] | Cb | Cmyy | Cmzz | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Data to Print ... | | | | | | | | | | | | | | | | |

## Envelope AA ADM1-10: ASD - Building Aluminum Code Checks

| Member | Shape | Code C... | Loc[ft] | LC | Shear ... | Loc[ft] | Dir | LC | Pnc/O... | Pnt/Om... | Mny/O... | Mnz/O... | Vny/O... | Vnz/O... | Cb | Eqn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No Data to Print ... | | | | | | | | | | | | | | | | |

# EXHIBIT 9

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH389A

10 Ashpohtag Road
Norfolk, Connecticut 06058

**February 23, 2021**

**EBI Project Number: 6221000651**

| **Site Compliance Summary** | |
|---|---|
| Compliance Status: | **COMPLIANT** |
| Site total MPE% of FCC general population allowable limit: | **22.02%** |

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

February 23, 2021

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNH389A

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **10 Ashpohtag Road** in **Norfolk, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ 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 population 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 population 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 microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 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.

## CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 10 Ashpohtag Road in Norfolk, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B and the Ericsson AIR 32 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 145 feet above ground level (AGL).

13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

14) All calculations were done with respect to uncontrolled / general population threshold limits.

# T-Mobile Site Inventory and Power Data

| Sector: | B | Sector: | C |
|---|---|---|---|
| Antenna #: | 1 | Antenna #: | 1 |
| Make / Model: | Ericsson AIR 32 | Make / Model: | Ericsson AIR 32 |
| Frequency Bands: | 1900 MHz / 1900 MHz / 2100 MHz | Frequency Bands: | 1900 MHz / 1900 MHz / 2100 MHz |
| Gain: | 15.35 dBd / 15.35 dBd / 15.85 dBd | Gain: | 15.35 dBd / 15.35 dBd / 15.85 dBd |
| Height (AGL): | 145 feet | Height (AGL): | 145 feet |
| Channel Count: | 8 | Channel Count: | 8 |
| Total TX Power (W): | 360 Watts | Total TX Power (W): | 360 Watts |
| ERP (W): | 12,841.53 | ERP (W): | 12,841.53 |
| Antenna B1 MPE %: | **2.20%** | Antenna C1 MPE %: | **2.20%** |
| Antenna #: | **2** | Antenna #: | **2** |
| Make / Model: | RFS APXVAALL24_43-U-NA20 | Make / Model: | RFS APXVAALL24_43-U-NA20 |
| Frequency Bands: | 600 MHz / 600 MHz / 700 MHz / 1900 MHz | Frequency Bands: | 600 MHz / 600 MHz / 700 MHz / 1900 MHz |
| Gain: | 12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd | Gain: | 12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd |
| Height (AGL): | 145 feet | Height (AGL): | 145 feet |
| Channel Count: | 7 | Channel Count: | 7 |
| Total TX Power (W): | 320 Watts | Total TX Power (W): | 320 Watts |
| ERP (W): | 8,360.85 | ERP (W): | 8,360.85 |
| Antenna B2 MPE %: | **2.41%** | Antenna C2 MPE %: | **2.41%** |
| Antenna #: | **3** | Antenna #: | **3** |
| Make / Model: | Ericsson AIR 6449 | Make / Model: | Ericsson AIR 6449 |
| Frequency Bands: | 2500 MHz / 2500 MHz | Frequency Bands: | 2500 MHz / 2500 MHz |
| Gain: | 22.05 dBd / 22.05 dBd | Gain: | 22.05 dBd / 22.05 dBd |
| Height (AGL): | 145 feet | Height (AGL): | 145 feet |
| Channel Count: | 2 | Channel Count: | 2 |
| Total TX Power (W): | 240 Watts | Total TX Power (W): | 240 Watts |
| ERP (W): | 38,477.89 | ERP (W): | 38,477.89 |
| Antenna B3 MPE %: | **6.58%** | Antenna C3 MPE %: | **6.58%** |

| Site Composite MPE % | |
|---|---|
| **Carrier** | **MPE %** |
| T-Mobile (Max at Sector B): | 11.18% |
| Sprint | 2.38% |
| AT&T | 4.82% |
| Verizon | 3.64% |
| **Site Total MPE % :** | 22.02% |

| T-Mobile MPE % Per Sector | |
|---|---|
| T-Mobile Sector B Total: | 11.18% |
| T-Mobile Sector C Total: | 11.18% |
| | |
| Site Total MPE % : | 22.02% |

## T-Mobile Maximum MPE Power Values (Sector B)

| T-Mobile Frequency Band / Technology (Sector A) | # Channels | Watts ERP (Per Channel) | Height (feet) | Total Power Density (μW/cm²) | Frequency (MHz) | Allowable MPE (μW/cm²) | Calculated % MPE |
|---|---|---|---|---|---|---|---|
| T-Mobile 1900 MHz GSM | 4 | 1028.30 | 145.0 | 7.03 | 1900 MHz GSM | 1000 | 0.70% |
| T-Mobile 1900 MHz LTE | 2 | 2056.61 | 145.0 | 7.03 | 1900 MHz LTE | 1000 | 0.70% |
| T-Mobile 2100 MHz LTE | 2 | 2307.55 | 145.0 | 7.89 | 2100 MHz LTE | 1000 | 0.79% |
| T-Mobile 600 MHz LTE | 2 | 591.73 | 145.0 | 2.02 | 600 MHz LTE | 400 | 0.51% |
| T-Mobile 600 MHz NR | 1 | 1577.94 | 145.0 | 2.70 | 600 MHz NR | 400 | 0.67% |
| T-Mobile 700 MHz LTE | 2 | 695.22 | 145.0 | 2.38 | 700 MHz LTE | 467 | 0.51% |
| T-Mobile 1900 MHz LTE | 2 | 2104.51 | 145.0 | 7.20 | 1900 MHz LTE | 1000 | 0.72% |
| T-Mobile 2500 MHz LTE | 1 | 19238.94 | 145.0 | 32.90 | 2500 MHz LTE | 1000 | 3.29% |
| T-Mobile 2500 MHz NR | 1 | 19238.94 | 145.0 | 32.90 | 2500 MHz NR | 1000 | 3.29% |
| | | | | | | **Total:** | **11.18%** |

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

## Summary

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

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

| T-Mobile Sector | Power Density Value (%) |
|---|---|
| Sector B: | 11.18% |
| Sector C: | 11.18% |
| T-Mobile Maximum MPE % (Sector B): | 11.18% |
| | |
| Site Total: | 22.02% |
| | |
| Site Compliance Status: | **COMPLIANT** |

The anticipated composite MPE value for this site assuming all carriers present is **22.02%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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 well within the allowable 100% threshold standard per the federal government.