

October 20, 2016

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

Re: **Notice of Exempt Modification – Facility Modification
26 Commerce Drive, North Branford, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the 133-foot level of the existing 155-foot tower at 26 Commerce Drive in North Branford, Connecticut (the “Property”). The tower is owned by SBA Communications Corp. (“SBA”). The Council approved Cellco’s use of this tower in 2006. Cellco now intends to modify its facility by replacing six (6) of its antennas with three (3) model SBNHH-1D65B, 700/1900 MHz antennas and three (3) model SBNHH-1D65B, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install replace three (3) remote radio heads (“RRHs”) and install six (6) new RRHs and one (1) HYBRIFLEX™ fiber optic antenna cable. Included in Attachment 1 are specifications for Cellco’s replacement antennas, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this notice is being sent to North Branford’s Town Manager, Michael T. Paulhus. A copy of this letter is also being sent to Artec Machinery Corp., the owner of the Property and SBA, the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

15422548-v1

Melanie A. Bachman

October 20, 2016

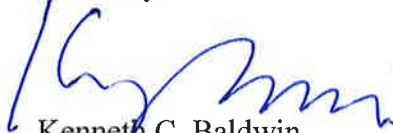
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1. The proposed modifications will not result in an increase in the height of the existing structure. The new antennas and RRHs will be installed on Cellco's existing antenna platform at the 133-foot level on the 155-foot tower.
2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, 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 (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (*See Structural Analysis Report included in Attachment 3*).

A copy of the Town Assessor's Parcel Map and property owner information is included in Attachment 4.

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

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Michael T. Paulhus, Town Manager
Artec Machinery Corp.
SBA
Tim Parks

ATTACHMENT 1



SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2200 | 2300–2360 |
|--------------------------------------|------------|------------|------------|------------|------------|------------|
| Gain, dBi | 14.9 | 14.7 | 17.7 | 18.2 | 18.6 | 18.6 |
| Beamwidth, Horizontal, degrees | 68 | 66 | 69 | 66 | 63 | 58 |
| Beamwidth, Vertical, degrees | 12.1 | 10.7 | 5.6 | 5.2 | 5.0 | 4.5 |
| Beam Tilt, degrees | 0–14 | 0–14 | 0–7 | 0–7 | 0–7 | 0–7 |
| USLS (First Lobe), dB | 14 | 13 | 15 | 15 | 15 | 13 |
| Front-to-Back Ratio at 180°, dB | 27 | 29 | 28 | 28 | 28 | 27 |
| Isolation, dB | 25 | 25 | 25 | 25 | 25 | 25 |
| Isolation, Intersystem, dB | 30 | 30 | 30 | 30 | 30 | 30 |
| VSWR Return Loss, dB | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 |
| PIM, 3rd Order, 2 x 20 W, dBc | -153 | -153 | -153 | -153 | -153 | -153 |
| Input Power per Port, maximum, watts | 350 | 350 | 350 | 350 | 350 | 300 |
| Polarization | ±45° | ±45° | ±45° | ±45° | ±45° | ±45° |
| Impedance | 50 ohm | 50 ohm | 50 ohm | 50 ohm | 50 ohm | 50 ohm |

Electrical Specifications, BASTA*

| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2200 | 2300–2360 |
|---|------------|------------|-----------|-----------|-----------|-----------|
| Gain by all Beam Tilts, average, dBi | 14.5 | 14.3 | 17.4 | 17.9 | 18.2 | 18.3 |
| Gain by all Beam Tilts Tolerance, dB | ±0.5 | ±0.8 | ±0.4 | ±0.3 | ±0.5 | ±0.3 |
| | 0° 14.6 | 0° 14.5 | 0° 17.4 | 0° 17.8 | 0° 18.1 | 0° 18.2 |
| Gain by Beam Tilt, average, dBi | 7° 14.6 | 7° 14.4 | 3° 17.5 | 3° 17.9 | 3° 18.3 | 3° 18.4 |
| | 14° 14.2 | 14° 13.6 | 7° 17.4 | 7° 17.9 | 7° 18.2 | 7° 18.4 |
| Beamwidth, Horizontal Tolerance, degrees | ±2.2 | ±3.4 | ±2 | ±4.6 | ±5.7 | ±4.3 |
| Beamwidth, Vertical Tolerance, degrees | ±0.8 | ±1 | ±0.3 | ±0.2 | ±0.3 | ±0.2 |
| USLS, beampeak to 20° above beampeak, dB | 16 | 14 | 16 | 16 | 16 | 15 |
| Front-to-Back Total Power at 180° ± 30°, dB | 25 | 26 | 27 | 26 | 26 | 26 |
| CPR at Boresight, dB | 22 | 23 | 21 | 20 | 20 | 22 |
| CPR at Sector, dB | 13 | 11 | 16 | 12 | 11 | 4 |

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

General Specifications

| | |
|--------------------------|---------------------------------|
| Antenna Type | Sector with internal RET |
| Band | Multiband |
| Brand | DualPol® |
| Operating Frequency Band | 1695 – 2360 MHz 698 – 896 MHz |
| Performance Note | Outdoor usage |

Mechanical Specifications

| | |
|----------------------|------------|
| Color | Light gray |
| Lightning Protection | dc Ground |

SBNHH-1D65B

| | |
|------------------------------|--|
| Radiator Material | Aluminum Low loss circuit board |
| Radome Material | Fiberglass, UV resistant |
| Reflector Material | Aluminum |
| RF Connector Interface | 7-16 DIN Female |
| RF Connector Location | Bottom |
| RF Connector Quantity, total | 6 |
| Wind Loading, frontal | 618.0 N @ 150 km/h 138.9 lbf @ 150 km/h |
| Wind Loading, lateral | 197.0 N @ 150 km/h 44.3 lbf @ 150 km/h |
| Wind Loading, rear | 728.0 N @ 150 km/h 163.7 lbf @ 150 km/h |
| Wind Speed, maximum | 241 km/h 150 mph |

Dimensions

| | |
|----------------------------------|---------------------|
| Depth | 180.0 mm 7.1 in |
| Length | 1851.0 mm 72.9 in |
| Width | 301.0 mm 11.9 in |
| Net Weight, without mounting kit | 18.4 kg 40.6 lb |

Remote Electrical Tilt (RET) Information

| | |
|---|-----------------------------------|
| Input Voltage | 10–30 Vdc |
| Internal RET | High band (1) Low band (1) |
| Power Consumption, idle state, maximum | 2.0 W |
| Power Consumption, normal conditions, maximum | 13.0 W |
| Protocol | 3GPP/AISG 2.0 (Multi-RET) |
| RET Interface | 8-pin DIN Female 8-pin DIN Male |
| RET Interface, quantity | 1 female 1 male |

Packed Dimensions

| | |
|-----------------|---------------------|
| Depth | 296.0 mm 11.7 in |
| Length | 2025.0 mm 79.7 in |
| Width | 390.0 mm 15.4 in |
| Shipping Weight | 31.0 kg 68.3 lb |

Regulatory Compliance/Certifications

Agency

RoHS 2011/65/EU
China RoHS SJ/T 11364-2006
ISO 9001:2008

Classification

Compliant by Exemption
Above Maximum Concentration Value (MCV)
Designed, manufactured and/or distributed under this quality management system



SBNHH-1D65B

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

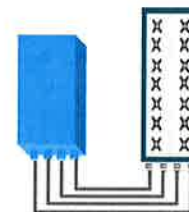


FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R
Can be switched between
modes via SW w/o site
visit

TECHNICAL SPECIFICATIONS

| Features & performance | |
|--|---|
| Number of TX/RX paths | 4 duplexed (either 4T4R or 2T4R by SW) |
| Frequency band | U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz |
| Instantaneous bandwidth - #carriers | 10MHz – 1 LTE carrier (In 10MHz occupied bandwidth) |
| LTE carrier bandwidth | 10 MHz |
| RF output power | 2x60W or 4x30W (by SW) |
| Noise figure – RX Diversity scheme | 2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity |
| Sizes (HxWxD) in mm (in.) | 550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) |
| Volume in L | 38 (with solar shield) |
| Weight in kg (lb) (w/o mounting HW) | 26 (57.2) (with solar shield) |
| DC voltage range | -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption |
| DC power consumption | 550W typical @100% RF load (In 2Tx or 4TX mode) |
| Environmental conditions | -40°C (-40°F) / +55°C (+131°F) IP65 |
| Wind load (@150km/h or 93mph) | Frontal:<200N / Lateral :<150N |
| Antenna ports | 4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 |
| CPRI ports | 2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber |
| AISG Interfaces | 1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2) |
| Misc. Interfaces | 4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins) |
| Installation conditions | Pole and wall mounting |
| Regulatory compliance | 3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 |

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ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

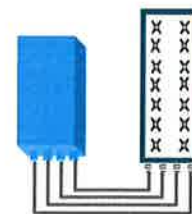


FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

TECHNICAL SPECIFICATIONS

| Features & performance | |
|---|--|
| Number of TX/RX paths | 4 duplexed (either 4T4R or 2T4R by SW) |
| Frequency band | 3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz |
| Instantaneous bandwidth - #carriers | 65MHz – Up to 4 LTE carriers (In 40MHz occupied bandwidth) |
| LTE carrier bandwidth | 3, 5, 10, 15 or 20 MHz |
| RF output power | 2x60W or 4x30W (by SW) |
| Noise figure (3GPP band 2) | 2.0 dB typ. (<2.5 dB max) |
| RX Diversity scheme | 2 or 4 way Rx diversity |
| Sizes (HxWxD)(w/ solar shield) in mm (in.) | 538 x 304 x 182 (21.2" x 12.0" x 7.2") |
| Volume (w/ solar shield) in L | 30 |
| Weight (w/ solar shield) in kg (lb) | 24 (53) |
| DC voltage range | -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption |
| DC power consumption | 580W typical @100% RF load |
| Environmental conditions | -40°C (-40°F) / +55°C (+131°F) IP65 |
| Wind load (@150km/h or 93mph) | Frontal: <200N / Lateral : <150N |
| Antenna ports | 4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB) |
| CPRI ports | 2 CPRI ports (HW ready for Rate7 / 9.8 Gbps) |
| AISG interfaces | 1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2) |
| Misc. Interfaces | 1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins) |
| Installation conditions | Pole and wall mounting |
| Regulatory compliance | 3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 |

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ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.



The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

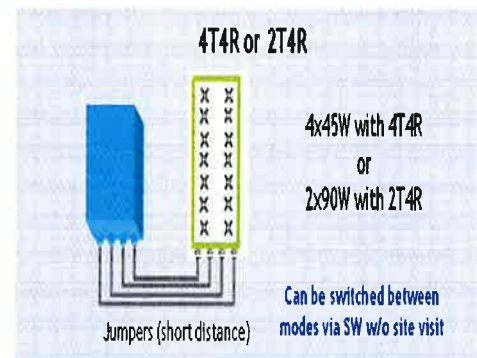
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



TECHNICAL SPECIFICATIONS

| Features & Performance | |
|---|--|
| Number of TX/RX paths | 4 duplexed (either 4T4R or 2T4R selectable by SW) |
| Frequency band | AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz |
| Instantaneous bandwidth - #carriers | 70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth) |
| LTE carrier bandwidth | 5, 10, 15, 20 MHz |
| RF output power | 2x90W or 4x45W (selectable by SW) |
| Noise figure – RX Diversity scheme Receiver Sensivity (FRC A1-3) | 2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum |
| Sizes (HxWxD) in mm (in.) | 655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) |
| Volume in Liters | 35.5 (with solar shield) 29.7 (without solar shield) |
| Weight in kg (lb) (w/o mounting HW) | 25.8kg (56.8lb) (with solar shield) |
| DC voltage range | Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption |
| DC power consumption | 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG |
| Environmental conditions | -40°C (-40°F) / +55°C (+131°F) UL50E Type 4 Enclosure |
| Wind load (@150km/h or 93mph) | 250N (56lb) Frontal/150N (34lb) Lateral |
| Antenna ports | 4 ports 4.3-10 female (50 ohms) VSWR < 1.5 |
| CPRI ports | 2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF) |
| AISG interfaces | 1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2) |
| Misc. Interfaces | 4 external alarms (1 connector) 1 DC connector (2 pins) |
| Installation conditions | Pole and wall mounting |
| Regulatory compliance | 3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE |

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HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connected and on-site options are available.

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics - minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding - Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design - Decreases tower loading
- Robust cabling - Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH - Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable - Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket - Ensures long-lasting cable protection



Figure 1: HYBRIFLEX Series

Mechanical Specifications

| | | | |
|--|--------------------------------|-------------------|--|
| Outer Conductor Armor | Corrugated Aluminum | [mm (in)] | 46.5 (1.83) |
| Jacket | Polyethylene, PE | [mm (in)] | 50.3 (1.98) |
| UV-Protection | Individual and External Jacket | | Yes |
| Weight, Approximate | | [kg/m (lb/ft)] | 1.9 (1.30) |
| Minimum Bending Radius, Single Bending | | [mm (in)] | 200 (8) |
| Minimum Bending Radius, Repeated Bending | | [mm (in)] | 500 (20) |
| Recommended/Maximum Clamp Spacing | | [m (ft)] | 1.0 / 1.2 (3.25 / 4.0) |
| DC-Resistance Outer Conductor Armor | | [Ω/km (Ω/1000ft)] | 0.68 (0.205) |
| DC-Resistance Power Cable, 8 4mm ² (8AWG) | | [Ω/km (Ω/1000ft)] | 2.1 (0.307) |
| Version | | | Single-mode OM3 |
| Quantity, Fiber Count | | | 16 (8 pairs) |
| Core/Clad | | [μm] | 50/125 |
| Primary Coating (Acrylate) | | [μm] | 245 |
| Buffer Diameter, Nominal | | [μm] | 900 |
| Secondary Protection, Jacket, Nominal | | [mm (in)] | 2.0 (0.08) |
| Minimum Bending Radius | | [mm (in)] | 104 (4.1) |
| Insertion Loss @ wavelength 850nm | | dB/km | 3.0 |
| Insertion Loss @ wavelength 1310nm | | dB/km | 1.0 |
| Standards (Meets or exceeds) | | | UL94-V0, UL1666 RoHS Compliant |
| Size (Power) | | [mm (AWG)] | 8.4 (8) |
| Quantity, Wire Count (Power) | | | 16 (8 pairs) |
| Size (Alarm) | | [mm (AWG)] | 0.8 (18) |
| Quantity, Wire Count (Alarm) | | | 4 (2 pairs) |
| Type | | | UV protected |
| Strands | | | 19 |
| Primary Jacket Diameter, Nominal | | [mm (in)] | 6.8 (0.27) |
| Standards (Meets or exceeds) | | | NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE 1202/FT4 RoHS Compliant |
| Installation Temperature | | [°C (°F)] | -40 to +65 (-40 to 149) |
| Operation Temperature | | [°C (°F)] | -40 to +65 (-40 to 149) |

* This data is provisional and subject to change

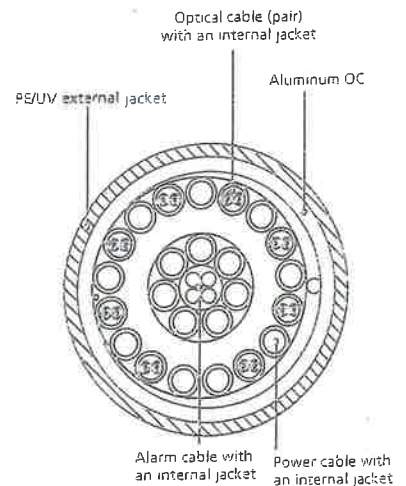


Figure 2: Construction Detail

All information contained in the present datasheet is subject to confirmation at time of ordering.

ATTACHMENT 2

| | | General | | | Power | | Density | | | | |
|--|--------------------------|---------|------------|-----------|--------|------------------|---------|--------------------|--------------|--------|--|
| Site Name: North Branford 2 Tower Height: 155Ft | | CARRIER | # OF CHAN. | WATTS ERP | HEIGHT | CALC. POWER DENS | FREQ. | MAX. PERMISS. EXP. | FRACTION MPE | Total | |
| | *T-Mobile | 2 | 12 | 154 | 1950 | 0.0004 | 1.0000 | 0.00% | | | |
| | *T-Mobile | 2 | 12 | 154 | 2100 | 0.0004 | 1.0000 | 0.00% | | | |
| | *T-Mobile | 2 | 24 | 154 | 2100 | 0.0008 | 1.0000 | 0.01% | | | |
| | *AT&T | 2 | 565 | 143 | 880 | 0.0217 | 0.5867 | 0.37% | | | |
| | *AT&T | 2 | 875 | 143 | 1900 | 0.0335 | 1.0000 | 0.34% | | | |
| | *AT&T | 1 | 283 | 143 | 880 | 0.0054 | 0.5867 | 0.09% | | | |
| | *AT&T | 4 | 875 | 143 | 1900 | 0.0671 | 1.0000 | 0.67% | | | |
| | *AT&T | 1 | 1313 | 143 | 734 | 0.0252 | 0.4893 | 0.51% | | | |
| | Verizon | 1 | 4778 | 133 | 0.0971 | 1970 | 1.0000 | 9.71% | | | |
| | Verizon | 9 | 464 | 133 | 0.0849 | 869 | 0.5793 | 14.65% | | | |
| | Verizon | 1 | 7166 | 133 | 0.1457 | 2145 | 1.0000 | 14.57% | | | |
| | Verizon | 1 | 2133 | 133 | 0.0434 | 746 | 0.4973 | 8.72% | | | |
| | | | | | | | | | | 49.65% | |
| | * Source: Siting Council | | | | | | | | | | |

ATTACHMENT 3



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 155 ft PennSummit Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT13610-A
Customer Site Name: ARTEC
Carrier Name: Verizon
Carrier Site ID / Name: North Branford 2 CT
Site Location: 26 Commerce Drive
N. Branford, Connecticut
New Haven County
Latitude: 41.322138
Longitude: -72.773277

Analysis Result:

Max Structural Usage: 49.4% [Pass]

Max Foundation Usage: 30.0% [Pass]

Report Prepared By : Fabiaye Arinyedokiari



Introduction

The purpose of this report is to summarize the analysis results on the 155 ft PennSummit 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 | Paul J. Ford and Company, Job #29205-0112 Rev 1 dated March 3, 2005 |
| Foundation Drawing | Paul J. Ford and Company, Job #29205-0112 dated May 31, 2005 |
| Geotechnical Report | JGI Eastern, Inc., Project #05267G dated May 16, 2005 |
| Modification Drawings | N/A |

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. 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 $V_{ult} = 127$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 98.0$ mph (3-Sec. Gust) |
| Wind Speed with Ice: | 50 mph (3-Sec. Gust) with 3/4" radial ice concurrent |
| Operational Wind Speed: | 60 mph + 0" Radial ice |
| Standard/Codes: | ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code |
| Exposure Category: | C |
| Structure Class: | II |
| Topographic Category: | 1 |
| Crest Height: | 0 ft |
| Seismic Parameters: | $S_S = 0.179$, $S_1 = 0.061$ |

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 |
|-------|----------------|------|------------------------------------|-------------------|--|---------------------------|
| 1 | 154.0 | 3 | Ericsson - AIR 21 B2A/B4P - Panel | (3) T-Arm | (12) 1 5/8" (1) 1 5/8" Fiber | T-Mobile |
| 2 | | 3 | Ericsson - AIR 21 B4A B2P - Panel | | | |
| 3 | | 3 | Ericsson - KRY 112 144/1 - TMA | | | |
| 4 | 143.0 | 6 | Powerwave - 7770.00 - Panel | (3) T-Arm | (12) 1 5/8" (2) 1/2" DC (1) 3/8" Fiber | New Cingular ¹ |
| 5 | | 3 | KMW - AM-X-CD-16-65-00T - Panel | | | |
| 6 | | 1 | Raycap DC6-48-60-18-8F – DC Surge | | | |
| 7 | | 6 | Powerwave - LGP13519 - TMA | | | |
| 8 | | 6 | Powerwave - LGP21401 - TMA | | | |
| 9 | | 6 | Ericsson - RRUS 11 - RRU | | | |
| - | 133.0 | 2 | Antel BXA-70063-4CF-EDIN-X - Panel | (3) T-Arm | (12) 1 5/8" (1) 1 5/8" Fiber | Verizon |
| - | | 6 | Antel - LPA-80080-6CF - Panel | | | |
| - | | 3 | Antel - BXA-171063-12CF - Panel | | | |
| - | | 1 | Antel BXA-70063-6CF-4 - Panel | | | |
| - | | 3 | Alcatel Lucent RRH2X40-AWS - RRH | | | |
| - | | 3 | Kathrein 742 213 - Panel | | | |
| - | | 6 | RFS FD9R6004/2C-3L – Diplexer | | | |
| - | | 1 | RFS Celwave DB-T1-6Z-8AB-OZ | | | |
| 16 | 85.0 | 1 | Andrew - DB408 - Whip | Pipe | (6) 7/8" | Town of North Branford |
| 17 | | 2 | Sinclair - SD222 - Whip | | | |
| 18 | | 1 | Radio Waves - SP4-4.7NS RD4 - Dish | | | |

1. DC Power and Fiber lines inside (1) 3" Innerduct.

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 |
|-------|----------------|------|----------------------------------|-------------------|---------------------------------|---------|
| 10 | 133.0 | 6 | Andrew - SBNHH-1D65B - Panel | (3) T-Arm | (12) 1 5/8" (2) 1 5/8" Fiber | Verizon |
| 11 | | 6 | Antel - LPA-80080-6CF - Panel | | | |
| 12 | | 3 | Antel - BXA-171063-12CF - Panel | | | |
| 13 | | 3 | Alcatel Lucent RRH2X60-700 – RRH | | | |
| 14 | | 3 | Alcatel Lucent RRH2X60-AWS - RRH | | | |
| 15 | | 2 | RFS Celwave DB-T1-6Z-8AB-OZ | | | |

The proposed transmission lines were considered to be installed inside of the pole shafts. (1) 1 5/8" Fiber may be installed inside or outside of the pole shaft.

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: | 49.4% | 37.8% | 42.7% |
| Pass/Fail | Pass | Pass | Pass |

Foundations

| | Moment (Kip-Ft) | Shear (Kips) |
|---------------------------|-----------------|--------------|
| Original Design Reactions | 5060.0 | 45.0 |
| Analysis Reactions | 3160.2 | 30.7 |
| Factored Reactions* | 6831.0 | 60.8 |
| % of Design Reactions | 46.3% | 50.5% |

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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):

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

| Elevation (ft) | Antenna / Dish | Carrier | Twist (deg) | Sway (deg) |
|----------------|------------------------------------|------------------------|-------------|------------|
| 133.0 | Various Panels | Verizon | 0.000 | 0.818 |
| 85.0 | Radio Waves - SP4-4.7NS RD4 - Dish | Town of North Branford | 0.000 | 0.505 |

It is recommended that the carriers review the twist and sway values of the microwave dishes.

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 ANSI/TIA/EIA 222-G 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 analysis is based on the presumption that the tower 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.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. 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 EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. 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.
8. 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.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 49.37% at 95.8ft

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)

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

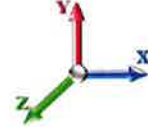
10/17/2016



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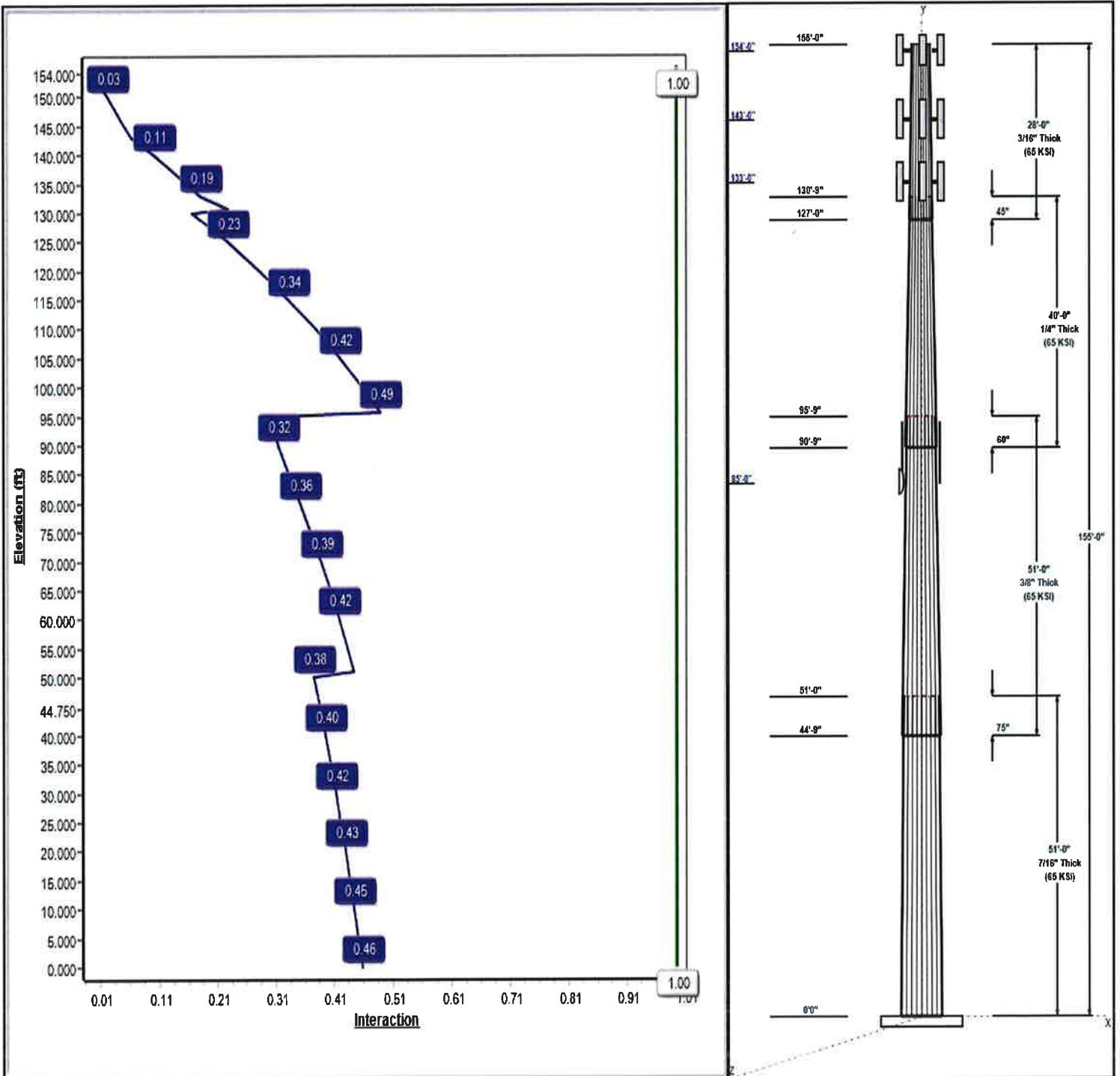
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 98 mph Wind



Iterations: 23

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Structure: CT13610-A-SBA

Type: Tapered
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25803

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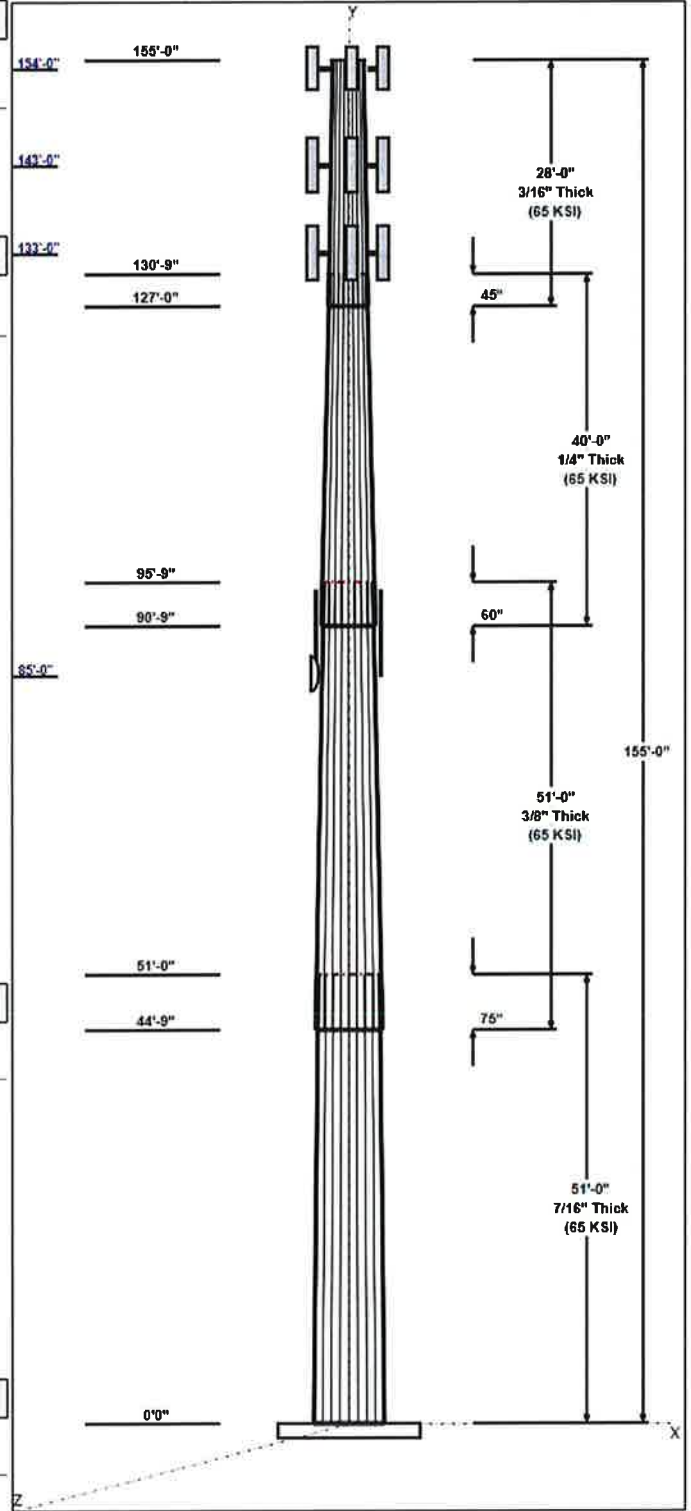
| Shaft Properties | | | | | | | |
|------------------|-------------|----------|-------------|------------|------------|---------|-------------|
| Seq | Length (ft) | Top (in) | Bottom (in) | Thick (in) | Joint Type | Taper | Grade (ksi) |
| 1 | 51.00 | 47.71 | 60.87 | 0.438 | | 0.25803 | 65 |
| 2 | 51.00 | 36.91 | 50.07 | 0.375 | Slip | 0.25803 | 65 |
| 3 | 40.00 | 28.38 | 38.70 | 0.250 | Slip | 0.25803 | 65 |
| 4 | 28.00 | 22.50 | 29.72 | 0.188 | Slip | 0.25803 | 65 |

| Discrete Appurtenances | | | | |
|------------------------|-----------------|-----|-----------------------|---------------|
| Attach Elev (ft) | Force Elev (ft) | Qty | Description | Carrier |
| 154.00 | 154.00 | 3 | AIR 21 B2A B4P | T-Mobile |
| 154.00 | 154.00 | 3 | AIR 21 B4A B2P | T-Mobile |
| 154.00 | 154.00 | 3 | KRY 112 144/1 | T-Mobile |
| 154.00 | 154.00 | 3 | T-Arm | T-Mobile |
| 143.00 | 143.00 | 3 | T-Arm | New Cingular |
| 143.00 | 143.00 | 6 | RRUS 11 | New Cingular |
| 143.00 | 143.00 | 1 | DC6-48-60-18-8F | New Cingular |
| 143.00 | 143.00 | 6 | 7770.00 | New Cingular |
| 143.00 | 143.00 | 3 | AM-X-CD-16-65-00T-RET | New Cingular |
| 143.00 | 143.00 | 6 | LGP21401 | New Cingular |
| 143.00 | 143.00 | 6 | LGP13519 | New Cingular |
| 133.00 | 133.00 | 6 | SBNHH-1D65B | Verizon |
| 133.00 | 133.00 | 6 | LPA-80080-6CF | Verizon |
| 133.00 | 133.00 | 3 | BXA-171063-12CF | Verizon |
| 133.00 | 133.00 | 3 | RRH2X60-AWS | Verizon |
| 133.00 | 133.00 | 3 | RRH2X60-700 | Verizon |
| 133.00 | 133.00 | 2 | DB-T1-6Z-8AB-0Z | Verizon |
| 133.00 | 133.00 | 3 | T-Arm | Verizon |
| 85.00 | 85.00 | 2 | Pipe Mount | Town of North |
| 85.00 | 85.00 | 1 | SP4-4.7NS RD4 | Town of North |
| 85.00 | 89.75 | 2 | SD222 | Town of North |
| 85.00 | 89.71 | 1 | DB408 | Town of North |

| Linear Appurtenances | | | | |
|----------------------|--------------|-----------|--------------|---------------|
| Elev From (ft) | Elev To (ft) | Placement | Description | Carrier |
| 0.00 | 154.00 | Inside | 1 5/8" Coax | T-Mobile |
| 0.00 | 154.00 | Inside | 1 5/8" Fiber | T-Mobile |
| 0.00 | 143.00 | Inside | 1 5/8" Coax | New Cingular |
| 0.00 | 143.00 | Inside | 1/2" DC | New Cingular |
| 0.00 | 143.00 | Inside | 3" Innerduct | New Cingular |
| 0.00 | 143.00 | Inside | 3/8" Fiber | New Cingular |
| 0.00 | 133.00 | Inside | 1 5/8" Coax | Verizon |
| 0.00 | 133.00 | Inside | 1 5/8" Fiber | Verizon |
| 0.00 | 133.00 | Outside | 1 5/8" Fiber | Verizon |
| 0.00 | 85.00 | Inside | 7/8" Coax | Town of North |

| Anchor Bolts | | | |
|--------------|----------------|-------------|-------------|
| Qty | Specifications | Grade (ksi) | Arrangement |
| 24 | 2.25" 18J | 75.0 | Cluster |

| Base Plate | | | |
|----------------|---------------------|-------------|----------|
| Thickness (in) | Specifications (in) | Grade (ksi) | Geometry |
| | | | |



Structure: CT13610-A-SBA

Type: Tapered
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.25803

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3.0000 70.0 50.0 Clipped

Reactions

| Load Case | Moment | Shear | Axial |
|-------------------------|--------|-------|-------|
| 1.0D + 1.0W 60 mph Wind | 737.6 | 7.2 | 39.3 |

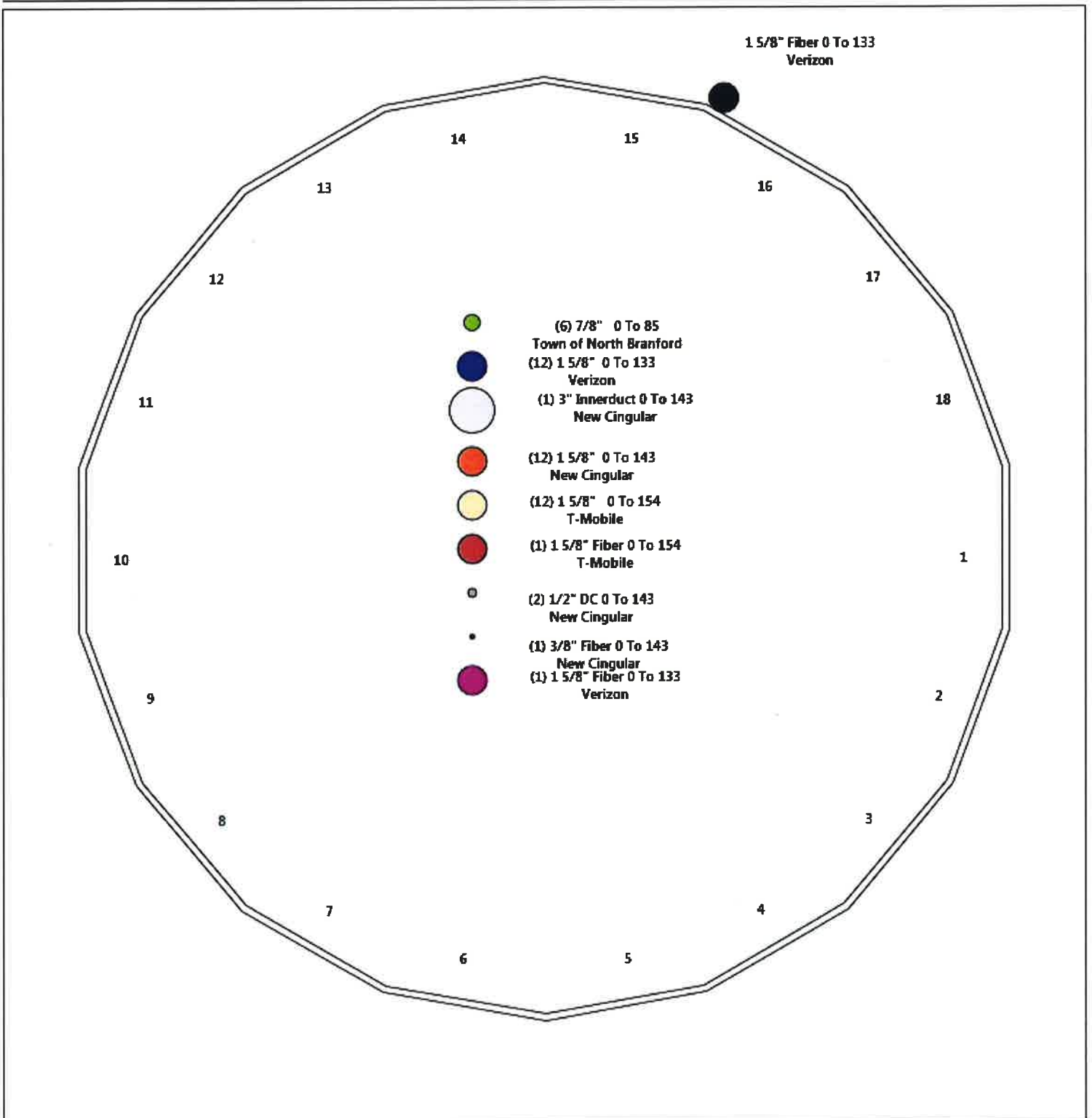
Structure: CT13610-A-SBA - Coax Line Placement

Type: Monopole
Site Name: ARTEC
Height: 155.00 (ft)

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Shaft Properties

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| Sec. No. | Shape | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Overlap (in) | Weight (lb) |
|----------------------------|-------|-------------|------------|----------|------------|--------------|---------------|
| 1 | 18 | 51.000 | 0.4375 | 65 | | 0.00 | 12,977 |
| 2 | 18 | 51.000 | 0.3750 | 65 | Slip | 75.00 | 8,906 |
| 3 | 18 | 40.000 | 0.2500 | 65 | Slip | 60.00 | 3,596 |
| 4 | 18 | 28.000 | 0.1875 | 65 | Slip | 45.00 | 1,470 |
| Total Shaft Weight: | | | | | | | 26,949 |

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 | 60.87 | 0.00 | 83.92 | 38719.89 | 23.12 | 139.13 | 47.71 | 51.00 | 65.64 | 18533.5 | 17.82 | 109.0 | 0.258032 |
| 2 | 50.07 | 44.75 | 59.15 | 18458.39 | 22.13 | 133.53 | 36.91 | 95.75 | 43.49 | 7335.41 | 15.95 | 98.44 | 0.258032 |
| 3 | 38.70 | 90.75 | 30.51 | 5700.26 | 25.89 | 154.81 | 28.38 | 130.75 | 22.32 | 2232.03 | 18.61 | 113.5 | 0.258032 |
| 4 | 29.72 | 127.0 | 17.58 | 1937.59 | 26.54 | 158.53 | 22.50 | 155.00 | 13.28 | 835.20 | 19.75 | 120.0 | 0.258032 |

Load Summary

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Discrete Appurtenances

| No. | Elev (ft) | Description | Qty | No Ice | | | Ice | | | Hor. Ecc. (ft) | Vert Ecc (ft) |
|----------------|-----------|-----------------------|-----------|-----------------|-----------|-------------|------------------|-----------|-------------|----------------|---------------|
| | | | | Weight (lb) | CaAa (sf) | CaAa Factor | Weight (lb) | CaAa (sf) | CaAa Factor | | |
| 1 | 154.00 | AIR 21 B2A B4P | 3 | 91.50 | 6.09 | 0.86 | 260.92 | 7.190 | 0.86 | 0.00 | 0.00 |
| 2 | 154.00 | AIR 21 B4A B2P | 3 | 90.40 | 6.09 | 0.86 | 259.82 | 7.190 | 0.86 | 0.00 | 0.00 |
| 3 | 154.00 | KRY 112 144/1 | 3 | 11.00 | 0.41 | 0.67 | 21.81 | 0.886 | 0.70 | 0.00 | 0.00 |
| 4 | 154.00 | T-Arm | 3 | 400.00 | 10.00 | 0.67 | 679.97 | 18.749 | 0.67 | 0.00 | 0.00 |
| 5 | 143.00 | T-Arm | 3 | 400.00 | 10.00 | 0.67 | 677.90 | 18.684 | 0.67 | 0.00 | 0.00 |
| 6 | 143.00 | RRUS 11 | 6 | 50.70 | 2.52 | 0.71 | 139.37 | 3.168 | 0.71 | 0.00 | 0.00 |
| 7 | 143.00 | DC6-48-60-18-8F | 1 | 31.80 | 0.92 | 0.75 | 93.33 | 1.356 | 0.75 | 0.00 | 0.00 |
| 8 | 143.00 | 7770.00 | 6 | 35.00 | 5.50 | 0.73 | 169.38 | 6.560 | 0.73 | 0.00 | 0.00 |
| 9 | 143.00 | AM-X-CD-16-65-00T-RET | 3 | 48.50 | 8.02 | 0.75 | 210.00 | 10.800 | 0.75 | 0.00 | 0.00 |
| 10 | 143.00 | LGP21401 | 6 | 14.10 | 1.29 | 0.67 | 38.98 | 2.122 | 0.67 | 0.00 | 0.00 |
| 11 | 143.00 | LGP13519 | 6 | 5.30 | 0.34 | 0.67 | 14.75 | 0.792 | 0.67 | 0.00 | 0.00 |
| 12 | 133.00 | SBNHH-1D65B | 6 | 40.00 | 8.16 | 0.83 | 240.24 | 9.443 | 0.83 | 0.00 | 0.00 |
| 13 | 133.00 | LPA-80080-6CF | 6 | 21.00 | 4.33 | 1.70 | 187.41 | 5.689 | 1.70 | 0.00 | 0.00 |
| 14 | 133.00 | BXA-171063-12CF | 3 | 15.00 | 4.78 | 0.84 | 109.68 | 7.111 | 0.84 | 0.00 | 0.00 |
| 15 | 133.00 | RRH2X60-AWS | 3 | 60.00 | 3.50 | 0.76 | 146.25 | 4.280 | 0.76 | 0.00 | 0.00 |
| 16 | 133.00 | RRH2X60-700 | 3 | 60.00 | 3.50 | 0.76 | 146.25 | 4.280 | 0.76 | 0.00 | 0.00 |
| 17 | 133.00 | DB-T1-6Z-8AB-0Z | 2 | 44.00 | 4.80 | 0.71 | 185.71 | 5.662 | 0.71 | 0.00 | 0.00 |
| 18 | 133.00 | T-Arm | 3 | 350.00 | 8.00 | 0.67 | 591.41 | 14.897 | 0.67 | 0.00 | 0.00 |
| 19 | 85.00 | Pipe Mount | 2 | 60.00 | 5.00 | 1.00 | 107.49 | 8.298 | 1.00 | 0.00 | 0.00 |
| 20 | 85.00 | SP4-4.7NS RD4 | 1 | 60.00 | 23.14 | 1.00 | 282.63 | 26.192 | 1.00 | 0.00 | 0.00 |
| 21 | 85.00 | SD222 | 2 | 17.00 | 5.30 | 1.00 | 151.21 | 13.043 | 1.00 | 0.00 | 4.75 |
| 22 | 85.00 | DB408 | 1 | 17.00 | 2.90 | 1.00 | 134.44 | 11.633 | 1.00 | 0.00 | 4.71 |
| Totals: | | | 75 | 5,926.60 | | | 15,452.10 | | | | |

Linear Appurtenances

| Bottom Elev. (ft) | Top Elev. (ft) | Description | Exposed Width | Exposed |
|-------------------|----------------|------------------|---------------|---------|
| 0.00 | 154.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 0.00 | 154.00 | (1) 1 5/8" Fiber | 0.00 | Inside |
| 0.00 | 143.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 0.00 | 143.00 | (2) 1/2" DC | 0.00 | Inside |
| 0.00 | 143.00 | (1) 3" Innerduct | 0.00 | Inside |
| 0.00 | 143.00 | (1) 3/8" Fiber | 0.00 | Inside |
| 0.00 | 133.00 | (12) 1 5/8" Coax | 0.00 | Inside |
| 0.00 | 133.00 | (1) 1 5/8" Fiber | 0.00 | Inside |
| 0.00 | 133.00 | (1) 1 5/8" Fiber | 2.00 | Outside |
| 0.00 | 85.00 | (6) 7/8" Coax | 0.00 | Inside |

Shaft Section Properties

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Increment Length: 5 (ft)

| Elev (ft) | Description | Thick (in) | Dia (in) | Area (in^2) | Ix (in^4) | W/t Ratio | D/t Ratio | Fpy (ksi) | S (in^3) | Weight (lb) |
|-----------|-----------------|------------|----------|-------------|-----------|-----------|-----------|-----------|----------|-------------|
| 0.00 | | 0.4375 | 60.870 | 83.915 | 38719.9 | 23.12 | 139.13 | 74.2 | 1252. | 0.0 |
| 5.00 | | 0.4375 | 59.580 | 82.124 | 36292.6 | 22.60 | 136.18 | 74.8 | 1199. | 1412.5 |
| 10.00 | | 0.4375 | 58.290 | 80.332 | 33968.9 | 22.08 | 133.23 | 75.4 | 1147. | 1382.0 |
| 15.00 | | 0.4375 | 57.000 | 78.541 | 31746.6 | 21.56 | 130.28 | 76.0 | 1097. | 1351.5 |
| 20.00 | | 0.4375 | 55.709 | 76.749 | 29623.4 | 21.04 | 127.34 | 76.7 | 1047. | 1321.0 |
| 25.00 | | 0.4375 | 54.419 | 74.958 | 27597.0 | 20.52 | 124.39 | 77.3 | 998.8 | 1290.6 |
| 30.00 | | 0.4375 | 53.129 | 73.166 | 25665.2 | 20.00 | 121.44 | 77.9 | 951.5 | 1260.1 |
| 35.00 | | 0.4375 | 51.839 | 71.375 | 23825.7 | 19.48 | 118.49 | 78.5 | 905.3 | 1229.6 |
| 40.00 | | 0.4375 | 50.549 | 69.583 | 22076.3 | 18.96 | 115.54 | 79.1 | 860.2 | 1199.1 |
| 44.75 | Bot - Section 2 | 0.4375 | 49.323 | 67.881 | 20495.8 | 18.47 | 112.74 | 79.7 | 818.5 | 1110.9 |
| 45.00 | | 0.4375 | 49.259 | 67.792 | 20414.7 | 18.44 | 112.59 | 79.7 | 816.3 | 108.0 |
| 50.00 | | 0.4375 | 47.968 | 66.000 | 18838.7 | 17.92 | 109.64 | 80.3 | 773.5 | 2130.2 |
| 51.00 | Top - Section 1 | 0.3750 | 48.460 | 57.232 | 16719.1 | 21.38 | 129.23 | 0.0 | 0.0 | 419.2 |
| 55.00 | | 0.3750 | 47.428 | 56.003 | 15665.5 | 20.89 | 126.48 | 76.8 | 650.6 | 770.6 |
| 60.00 | | 0.3750 | 46.138 | 54.468 | 14411.9 | 20.28 | 123.03 | 77.5 | 615.2 | 939.8 |
| 65.00 | | 0.3750 | 44.848 | 52.932 | 13227.0 | 19.68 | 119.59 | 78.3 | 580.9 | 913.6 |
| 70.00 | | 0.3750 | 43.558 | 51.396 | 12108.9 | 19.07 | 116.15 | 79.0 | 547.5 | 887.5 |
| 75.00 | | 0.3750 | 42.268 | 49.861 | 11055.7 | 18.46 | 112.71 | 79.7 | 515.2 | 861.4 |
| 80.00 | | 0.3750 | 40.977 | 48.325 | 10065.4 | 17.86 | 109.27 | 80.4 | 483.8 | 835.3 |
| 85.00 | | 0.3750 | 39.687 | 46.790 | 9136.1 | 17.25 | 105.83 | 81.1 | 453.4 | 809.1 |
| 90.00 | | 0.3750 | 38.397 | 45.254 | 8265.8 | 16.64 | 102.39 | 81.8 | 424.0 | 783.0 |
| 90.75 | Bot - Section 3 | 0.3750 | 38.204 | 45.024 | 8140.2 | 16.55 | 101.88 | 81.9 | 419.7 | 115.2 |
| 95.00 | | 0.3750 | 37.107 | 43.719 | 7452.6 | 16.04 | 98.95 | 82.5 | 395.6 | 1076.7 |
| 95.75 | Top - Section 2 | 0.2500 | 37.413 | 29.488 | 5145.5 | 24.98 | 149.65 | 0.0 | 0.0 | 186.7 |
| 100.00 | | 0.2500 | 36.317 | 28.618 | 4703.3 | 24.20 | 145.27 | 72.9 | 255.1 | 420.2 |
| 105.00 | | 0.2500 | 35.027 | 27.594 | 4216.4 | 23.29 | 140.11 | 74.0 | 237.1 | 478.2 |
| 110.00 | | 0.2500 | 33.736 | 26.571 | 3764.4 | 22.38 | 134.95 | 75.1 | 219.8 | 460.8 |
| 115.00 | | 0.2500 | 32.446 | 25.547 | 3345.8 | 21.47 | 129.79 | 76.1 | 203.1 | 443.4 |
| 120.00 | | 0.2500 | 31.156 | 24.523 | 2959.5 | 20.56 | 124.62 | 77.2 | 187.1 | 425.9 |
| 125.00 | | 0.2500 | 29.866 | 23.499 | 2604.1 | 19.65 | 119.46 | 78.3 | 171.7 | 408.5 |
| 127.00 | Bot - Section 4 | 0.2500 | 29.350 | 23.090 | 2470.4 | 19.29 | 117.40 | 78.7 | 165.8 | 158.5 |
| 130.00 | | 0.2500 | 28.576 | 22.476 | 2278.4 | 18.74 | 114.30 | 79.4 | 157.0 | 409.7 |
| 130.75 | Top - Section 3 | 0.1875 | 28.757 | 17.002 | 1753.3 | 25.63 | 153.37 | 0.0 | 0.0 | 100.7 |
| 133.00 | | 0.1875 | 28.177 | 16.656 | 1648.6 | 25.09 | 150.28 | 71.9 | 115.2 | 128.8 |
| 135.00 | | 0.1875 | 27.661 | 16.349 | 1559.1 | 24.60 | 147.52 | 72.5 | 111.0 | 112.3 |
| 140.00 | | 0.1875 | 26.370 | 15.582 | 1349.6 | 23.39 | 140.64 | 73.9 | 100.8 | 271.6 |
| 143.00 | | 0.1875 | 25.596 | 15.121 | 1233.4 | 22.66 | 136.51 | 74.7 | 94.9 | 156.7 |
| 145.00 | | 0.1875 | 25.080 | 14.814 | 1159.8 | 22.18 | 133.76 | 75.3 | 91.1 | 101.9 |
| 150.00 | | 0.1875 | 23.790 | 14.046 | 988.6 | 20.96 | 126.88 | 76.7 | 81.8 | 245.5 |
| 154.00 | | 0.1875 | 22.758 | 13.432 | 864.5 | 19.99 | 121.38 | 77.9 | 74.8 | 187.0 |
| 155.00 | | 0.1875 | 22.500 | 13.278 | 835.2 | 19.75 | 120.00 | 78.2 | 73.1 | 45.4 |

26948.9

Wind Loading - Shaft

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

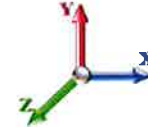
10/17/2016

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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| Elev (ft) | Description | z | z ₀ | q (psf) | q _{Gh} (psf) | C (mph-ft) | C _f | Ice Thick (in) | Tributary (ft) | A _a (sf) | C _f A _a (sf) | Wind Force (lb) | Dead Load Ice (lb) | Tot Dead Load (lb) |
|----------------|-----------------|------|----------------|---------|-----------------------|------------|----------------|----------------|----------------|---------------------|------------------------------------|-----------------|--------------------|--------------------|
| 0.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 465.38 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 455.51 | 0.650 | 0.000 | 5.00 | 25.481 | 16.56 | 578.7 | 0.0 | 1695.0 |
| 10.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 445.65 | 0.650 | 0.000 | 5.00 | 24.935 | 16.21 | 566.3 | 0.0 | 1658.4 |
| 15.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 435.79 | 0.650 | 0.000 | 5.00 | 24.389 | 15.85 | 553.9 | 0.0 | 1621.8 |
| 20.00 | | 1.00 | 0.90 | 21.065 | 23.17 | 438.73 | 0.650 | 0.000 | 5.00 | 23.843 | 15.50 | 574.6 | 0.0 | 1585.2 |
| 25.00 | | 1.00 | 0.95 | 22.078 | 24.29 | 438.76 | 0.650 | 0.000 | 5.00 | 23.297 | 15.14 | 588.4 | 0.0 | 1548.7 |
| 30.00 | | 1.00 | 0.98 | 22.942 | 25.24 | 436.65 | 0.650 | 0.000 | 5.00 | 22.752 | 14.79 | 597.1 | 0.0 | 1512.1 |
| 35.00 | | 1.00 | 1.01 | 23.699 | 26.07 | 433.02 | 0.650 | 0.000 | 5.00 | 22.206 | 14.43 | 602.0 | 0.0 | 1475.5 |
| 40.00 | | 1.00 | 1.04 | 24.375 | 26.81 | 428.22 | 0.650 | 0.000 | 5.00 | 21.660 | 14.08 | 604.0 | 0.0 | 1438.9 |
| 44.75 | Bot - Section 2 | 1.00 | 1.07 | 24.958 | 27.45 | 422.80 | 0.650 | 0.000 | 4.75 | 20.071 | 13.05 | 573.1 | 0.0 | 1333.1 |
| 45.00 | | 1.00 | 1.07 | 24.987 | 27.49 | 422.50 | 0.650 | 0.000 | 0.25 | 1.059 | 0.69 | 30.3 | 0.0 | 129.6 |
| 50.00 | | 1.00 | 1.09 | 25.547 | 28.10 | 416.02 | 0.650 | 0.000 | 5.00 | 20.885 | 13.58 | 610.4 | 0.0 | 2556.2 |
| 51.00 | Top - Section 1 | 1.00 | 1.10 | 25.654 | 28.22 | 414.64 | 0.650 | 0.000 | 1.00 | 4.112 | 2.67 | 120.7 | 0.0 | 503.1 |
| 55.00 | | 1.00 | 1.12 | 26.065 | 28.67 | 415.48 | 0.650 | 0.000 | 4.00 | 16.228 | 10.55 | 483.9 | 0.0 | 924.7 |
| 60.00 | | 1.00 | 1.14 | 26.547 | 29.20 | 407.90 | 0.650 | 0.000 | 5.00 | 19.794 | 12.87 | 601.1 | 0.0 | 1127.7 |
| 65.00 | | 1.00 | 1.16 | 26.998 | 29.70 | 399.85 | 0.650 | 0.000 | 5.00 | 19.248 | 12.51 | 594.5 | 0.0 | 1096.4 |
| 70.00 | | 1.00 | 1.17 | 27.423 | 30.16 | 391.39 | 0.650 | 0.000 | 5.00 | 18.702 | 12.16 | 586.7 | 0.0 | 1065.0 |
| 75.00 | | 1.00 | 1.19 | 27.824 | 30.61 | 382.56 | 0.650 | 0.000 | 5.00 | 18.156 | 11.80 | 577.9 | 0.0 | 1033.7 |
| 80.00 | | 1.00 | 1.21 | 28.204 | 31.02 | 373.41 | 0.650 | 0.000 | 5.00 | 17.610 | 11.45 | 568.2 | 0.0 | 1002.3 |
| 85.00 | Appurtenance(s) | 1.00 | 1.22 | 28.567 | 31.42 | 363.97 | 0.650 | 0.000 | 5.00 | 17.064 | 11.09 | 557.7 | 0.0 | 971.0 |
| 90.00 | | 1.00 | 1.24 | 28.912 | 31.80 | 354.26 | 0.650 | 0.000 | 5.00 | 16.519 | 10.74 | 546.4 | 0.0 | 939.6 |
| 90.75 | Bot - Section 3 | 1.00 | 1.24 | 28.963 | 31.86 | 352.79 | 0.650 | 0.000 | 0.75 | 2.431 | 1.58 | 80.5 | 0.0 | 138.2 |
| 95.00 | | 1.00 | 1.25 | 29.243 | 32.17 | 344.31 | 0.650 | 0.000 | 4.25 | 13.722 | 8.92 | 459.1 | 0.0 | 1292.0 |
| 95.75 | Top - Section 2 | 1.00 | 1.25 | 29.292 | 32.22 | 342.80 | 0.650 | 0.000 | 0.75 | 2.381 | 1.55 | 79.8 | 0.0 | 224.1 |
| 100.00 | | 1.00 | 1.27 | 29.561 | 32.52 | 338.81 | 0.650 | 0.000 | 4.25 | 13.258 | 8.62 | 448.3 | 0.0 | 504.2 |
| 105.00 | | 1.00 | 1.28 | 29.866 | 32.85 | 328.45 | 0.650 | 0.000 | 5.00 | 15.092 | 9.81 | 515.7 | 0.0 | 573.8 |
| 110.00 | | 1.00 | 1.29 | 30.160 | 33.18 | 317.91 | 0.650 | 0.000 | 5.00 | 14.547 | 9.46 | 501.9 | 0.0 | 552.9 |
| 115.00 | | 1.00 | 1.30 | 30.444 | 33.49 | 307.18 | 0.650 | 0.000 | 5.00 | 14.001 | 9.10 | 487.6 | 0.0 | 532.0 |
| 120.00 | | 1.00 | 1.32 | 30.718 | 33.79 | 296.29 | 0.650 | 0.000 | 5.00 | 13.455 | 8.75 | 472.8 | 0.0 | 511.1 |
| 125.00 | | 1.00 | 1.33 | 30.983 | 34.08 | 285.25 | 0.650 | 0.000 | 5.00 | 12.909 | 8.39 | 457.6 | 0.0 | 490.2 |
| 127.00 | Bot - Section 4 | 1.00 | 1.33 | 31.087 | 34.20 | 280.79 | 0.650 | 0.000 | 2.00 | 5.011 | 3.26 | 178.2 | 0.0 | 190.2 |
| 130.00 | | 1.00 | 1.34 | 31.240 | 34.36 | 274.05 | 0.650 | 0.000 | 3.00 | 7.448 | 4.84 | 266.2 | 0.0 | 491.6 |
| 130.75 | Top - Section 3 | 1.00 | 1.34 | 31.278 | 34.41 | 272.36 | 0.650 | 0.000 | 0.75 | 1.831 | 1.19 | 65.5 | 0.0 | 120.8 |
| 133.00 | Appurtenance(s) | 1.00 | 1.34 | 31.390 | 34.53 | 270.88 | 0.650 | 0.000 | 2.25 | 5.420 | 3.52 | 194.6 | 0.0 | 154.6 |
| 135.00 | | 1.00 | 1.35 | 31.489 | 34.64 | 266.33 | 0.650 | 0.000 | 2.00 | 4.725 | 3.07 | 170.2 | 0.0 | 134.8 |
| 140.00 | | 1.00 | 1.36 | 31.731 | 34.90 | 254.89 | 0.650 | 0.000 | 5.00 | 11.430 | 7.43 | 414.9 | 0.0 | 326.0 |
| 143.00 | Appurtenance(s) | 1.00 | 1.36 | 31.873 | 35.06 | 247.96 | 0.650 | 0.000 | 3.00 | 6.596 | 4.29 | 240.5 | 0.0 | 188.1 |
| 145.00 | | 1.00 | 1.37 | 31.966 | 35.16 | 243.31 | 0.650 | 0.000 | 2.00 | 4.288 | 2.79 | 156.8 | 0.0 | 122.2 |
| 150.00 | | 1.00 | 1.38 | 32.195 | 35.41 | 231.62 | 0.650 | 0.000 | 5.00 | 10.338 | 6.72 | 380.8 | 0.0 | 294.6 |
| 154.00 | Appurtenance(s) | 1.00 | 1.39 | 32.374 | 35.61 | 222.19 | 0.650 | 0.000 | 4.00 | 7.878 | 5.12 | 291.8 | 0.0 | 224.4 |
| 155.00 | | 1.00 | 1.39 | 32.418 | 35.66 | 219.82 | 0.650 | 0.000 | 1.00 | 1.915 | 1.24 | 71.0 | 0.0 | 54.5 |
| Totals: | | | | | | | | | 155.00 | | | 16,449.7 | | 32,338.6 |

Discrete Appurtenance Forces

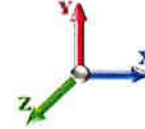
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| No. | Elev (ft) | Description | Qty | q (psf) | q Gh (psf) | CaAa x a | a | Total CaAa (sf) | Dead Load (lb) | Horizontal Ecc (ft) | Vertical Ecc (ft) | Wind F (lb) | Mom (lb-ft) | Mom (lb-ft) |
|----------------|-----------|-----------------------|-----|---------|------------|----------|------|-----------------|-----------------|---------------------|-------------------|------------------|-------------|-------------|
| 1 | 154.00 | KRY 112 144/1 | 3 | 32.374 | 35.611 | 0.54 | 0.80 | 0.66 | 39.60 | 0.000 | 0.000 | 37.56 | 0.00 | 0.00 |
| 2 | 154.00 | AIR 21 B4A B2P | 3 | 32.374 | 35.611 | 0.69 | 0.80 | 12.57 | 325.44 | 0.000 | 0.000 | 716.20 | 0.00 | 0.00 |
| 3 | 154.00 | AIR 21 B2A B4P | 3 | 32.374 | 35.611 | 0.69 | 0.80 | 12.57 | 329.40 | 0.000 | 0.000 | 716.20 | 0.00 | 0.00 |
| 4 | 154.00 | T-Arm | 3 | 32.374 | 35.611 | 0.50 | 0.75 | 15.08 | 1440.00 | 0.000 | 0.000 | 858.95 | 0.00 | 0.00 |
| 5 | 143.00 | DC6-48-60-18-8F | 1 | 31.873 | 35.060 | 0.56 | 0.75 | 0.52 | 38.16 | 0.000 | 0.000 | 29.03 | 0.00 | 0.00 |
| 6 | 143.00 | T-Arm | 3 | 31.873 | 35.060 | 0.50 | 0.75 | 15.08 | 1440.00 | 0.000 | 0.000 | 845.65 | 0.00 | 0.00 |
| 7 | 143.00 | RRUS 11 | 6 | 31.873 | 35.060 | 0.57 | 0.80 | 8.59 | 365.04 | 0.000 | 0.000 | 481.76 | 0.00 | 0.00 |
| 8 | 143.00 | LGP21401 | 6 | 31.873 | 35.060 | 0.54 | 0.80 | 4.15 | 101.52 | 0.000 | 0.000 | 232.72 | 0.00 | 0.00 |
| 9 | 143.00 | 7770.00 | 6 | 31.873 | 35.060 | 0.58 | 0.80 | 19.27 | 252.00 | 0.000 | 0.000 | 1081.09 | 0.00 | 0.00 |
| 10 | 143.00 | AM-X-CD-16-65-00T-RET | 3 | 31.873 | 35.060 | 0.60 | 0.80 | 14.44 | 174.60 | 0.000 | 0.000 | 809.81 | 0.00 | 0.00 |
| 11 | 143.00 | LGP13519 | 6 | 31.873 | 35.060 | 0.54 | 0.80 | 1.09 | 38.16 | 0.000 | 0.000 | 61.34 | 0.00 | 0.00 |
| 12 | 133.00 | T-Arm | 3 | 31.390 | 34.529 | 0.50 | 0.75 | 12.06 | 1260.00 | 0.000 | 0.000 | 666.27 | 0.00 | 0.00 |
| 13 | 133.00 | DB-T1-6Z-8AB-0Z | 2 | 31.390 | 34.529 | 0.57 | 0.80 | 5.45 | 105.60 | 0.000 | 0.000 | 301.25 | 0.00 | 0.00 |
| 14 | 133.00 | RRH2X60-700 | 3 | 31.390 | 34.529 | 0.61 | 0.80 | 6.38 | 216.00 | 0.000 | 0.000 | 352.69 | 0.00 | 0.00 |
| 15 | 133.00 | RRH2X60-AWS | 3 | 31.390 | 34.529 | 0.61 | 0.80 | 6.38 | 216.00 | 0.000 | 0.000 | 352.69 | 0.00 | 0.00 |
| 16 | 133.00 | BXA-171063-12CF | 3 | 31.390 | 34.529 | 0.67 | 0.80 | 9.64 | 54.00 | 0.000 | 0.000 | 532.38 | 0.00 | 0.00 |
| 17 | 133.00 | LPA-80080-6CF | 6 | 31.390 | 34.529 | 1.36 | 0.80 | 35.33 | 151.20 | 0.000 | 0.000 | 1952.02 | 0.00 | 0.00 |
| 18 | 133.00 | SBNHH-1D65B | 6 | 31.390 | 34.529 | 0.66 | 0.80 | 32.51 | 288.00 | 0.000 | 0.000 | 1796.04 | 0.00 | 0.00 |
| 19 | 85.00 | DB408 | 1 | 28.893 | 31.782 | 1.00 | 1.00 | 2.90 | 20.40 | 0.000 | 4.708 | 147.47 | 0.00 | 694.33 |
| 20 | 85.00 | SD222 | 2 | 28.896 | 31.785 | 1.00 | 1.00 | 10.60 | 40.80 | 0.000 | 4.750 | 539.08 | 0.00 | 2560.61 |
| 21 | 85.00 | SP4-4.7NS RD4 | 1 | 28.567 | 31.423 | 1.00 | 1.00 | 23.14 | 72.00 | 0.000 | 0.000 | 1163.42 | 0.00 | 0.00 |
| 22 | 85.00 | Pipe Mount | 2 | 28.567 | 31.423 | 1.00 | 1.00 | 10.00 | 144.00 | 0.000 | 0.000 | 502.77 | 0.00 | 0.00 |
| Totals: | | | | | | | | | 7,111.92 | | | 14,176.39 | | |

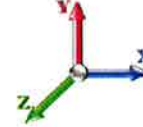
Total Applied Force Summary

| | | |
|---------------------------------|--|-----------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Page: 10 |
| | Struct Class: II | |



Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| Elev (ft) | Description | Lateral F _x (-) (lb) | Axial F _y (-) (lb) | Torsion M _z (lb-ft) | Moment M _x (lb-ft) |
|----------------|------------------|---------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | | 578.73 | 1971.10 | 0.00 | 0.00 |
| 10.00 | | 566.33 | 1934.52 | 0.00 | 0.00 |
| 15.00 | | 553.93 | 1897.95 | 0.00 | 0.00 |
| 20.00 | | 574.59 | 1861.37 | 0.00 | 0.00 |
| 25.00 | | 588.44 | 1824.79 | 0.00 | 0.00 |
| 30.00 | | 597.14 | 1788.22 | 0.00 | 0.00 |
| 35.00 | | 602.04 | 1751.64 | 0.00 | 0.00 |
| 40.00 | | 603.98 | 1715.06 | 0.00 | 0.00 |
| 44.75 | | 573.06 | 1595.43 | 0.00 | 0.00 |
| 45.00 | | 30.26 | 143.40 | 0.00 | 0.00 |
| 50.00 | | 610.40 | 2832.33 | 0.00 | 0.00 |
| 51.00 | | 120.67 | 558.32 | 0.00 | 0.00 |
| 55.00 | | 483.89 | 1145.65 | 0.00 | 0.00 |
| 60.00 | | 601.13 | 1403.84 | 0.00 | 0.00 |
| 65.00 | | 594.48 | 1372.49 | 0.00 | 0.00 |
| 70.00 | | 586.71 | 1341.14 | 0.00 | 0.00 |
| 75.00 | | 577.92 | 1309.79 | 0.00 | 0.00 |
| 80.00 | | 568.21 | 1278.44 | 0.00 | 0.00 |
| 85.00 | (6) attachments | 2910.40 | 1524.29 | 0.00 | 3254.94 |
| 90.00 | | 546.36 | 1197.01 | 0.00 | 0.00 |
| 90.75 | | 80.54 | 176.85 | 0.00 | 0.00 |
| 95.00 | | 459.06 | 1510.77 | 0.00 | 0.00 |
| 95.75 | | 79.77 | 262.69 | 0.00 | 0.00 |
| 100.00 | | 448.35 | 722.98 | 0.00 | 0.00 |
| 105.00 | | 515.66 | 831.23 | 0.00 | 0.00 |
| 110.00 | | 501.90 | 810.33 | 0.00 | 0.00 |
| 115.00 | | 487.61 | 789.43 | 0.00 | 0.00 |
| 120.00 | | 472.82 | 768.53 | 0.00 | 0.00 |
| 125.00 | | 457.55 | 747.63 | 0.00 | 0.00 |
| 127.00 | | 178.20 | 293.20 | 0.00 | 0.00 |
| 130.00 | | 266.16 | 646.04 | 0.00 | 0.00 |
| 130.75 | | 65.52 | 159.45 | 0.00 | 0.00 |
| 133.00 | (26) attachments | 6147.97 | 2561.25 | 0.00 | 0.00 |
| 135.00 | | 170.21 | 202.50 | 0.00 | 0.00 |
| 140.00 | | 414.92 | 495.28 | 0.00 | 0.00 |
| 143.00 | (31) attachments | 3781.91 | 2699.12 | 0.00 | 0.00 |
| 145.00 | | 156.82 | 154.83 | 0.00 | 0.00 |
| 150.00 | | 380.78 | 376.09 | 0.00 | 0.00 |
| 154.00 | (12) attachments | 2620.68 | 2424.03 | 0.00 | 0.00 |
| 155.00 | | 71.01 | 54.53 | 0.00 | 0.00 |
| Totals: | | 30,626.10 | 47,133.54 | 0.00 | 3,254.94 |

Linear Appurtenance Segment Forces (Factored)

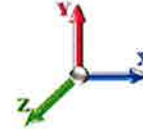
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 23

| Top Elev (ft) | Description | Wind Exposed | Length (ft) | Ca | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra | Cf Adjust Factor | q (psf) | F (lb) | Dead Load (lb) |
|----------------|--------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|---------|------------|----------------|
| 5.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.033 | 0.000 | 19.853 | 0.00 | 6.60 |
| 10.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.033 | 0.000 | 19.853 | 0.00 | 6.60 |
| 15.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.034 | 0.000 | 19.853 | 0.00 | 6.60 |
| 20.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.035 | 0.000 | 21.065 | 0.00 | 6.60 |
| 25.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.036 | 0.000 | 22.078 | 0.00 | 6.60 |
| 30.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.037 | 0.000 | 22.942 | 0.00 | 6.60 |
| 35.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.038 | 0.000 | 23.699 | 0.00 | 6.60 |
| 40.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.038 | 0.000 | 24.375 | 0.00 | 6.60 |
| 44.75 | 1 5/8" Fiber | Yes | 4.75 | 0.000 | 2.00 | 0.79 | 0.00 | 0.039 | 0.000 | 24.958 | 0.00 | 6.27 |
| 45.00 | 1 5/8" Fiber | Yes | 0.25 | 0.000 | 2.00 | 0.04 | 0.00 | 0.040 | 0.000 | 24.987 | 0.00 | 0.33 |
| 50.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.041 | 0.000 | 25.547 | 0.00 | 6.60 |
| 51.00 | 1 5/8" Fiber | Yes | 1.00 | 0.000 | 2.00 | 0.17 | 0.00 | 0.041 | 0.000 | 25.654 | 0.00 | 1.32 |
| 55.00 | 1 5/8" Fiber | Yes | 4.00 | 0.000 | 2.00 | 0.67 | 0.00 | 0.041 | 0.000 | 26.065 | 0.00 | 5.28 |
| 60.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.042 | 0.000 | 26.547 | 0.00 | 6.60 |
| 65.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.043 | 0.000 | 26.998 | 0.00 | 6.60 |
| 70.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.045 | 0.000 | 27.423 | 0.00 | 6.60 |
| 75.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.046 | 0.000 | 27.824 | 0.00 | 6.60 |
| 80.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.047 | 0.000 | 28.204 | 0.00 | 6.60 |
| 85.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.049 | 0.000 | 28.567 | 0.00 | 6.60 |
| 90.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.050 | 0.000 | 28.912 | 0.00 | 6.60 |
| 90.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.051 | 0.000 | 28.963 | 0.00 | 0.99 |
| 95.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 0.71 | 0.00 | 0.052 | 0.000 | 29.243 | 0.00 | 5.61 |
| 95.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.053 | 0.000 | 29.292 | 0.00 | 0.99 |
| 100.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 0.71 | 0.00 | 0.053 | 0.000 | 29.561 | 0.00 | 5.61 |
| 105.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.055 | 0.000 | 29.866 | 0.00 | 6.60 |
| 110.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.057 | 0.000 | 30.160 | 0.00 | 6.60 |
| 115.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.060 | 0.000 | 30.444 | 0.00 | 6.60 |
| 120.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.062 | 0.000 | 30.718 | 0.00 | 6.60 |
| 125.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.065 | 0.000 | 30.983 | 0.00 | 6.60 |
| 127.00 | 1 5/8" Fiber | Yes | 2.00 | 0.000 | 2.00 | 0.33 | 0.00 | 0.067 | 0.000 | 31.087 | 0.00 | 2.64 |
| 130.00 | 1 5/8" Fiber | Yes | 3.00 | 0.000 | 2.00 | 0.50 | 0.00 | 0.068 | 0.000 | 31.240 | 0.00 | 3.96 |
| 130.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.069 | 0.000 | 31.278 | 0.00 | 0.99 |
| 133.00 | 1 5/8" Fiber | Yes | 2.25 | 0.000 | 2.00 | 0.38 | 0.00 | 0.069 | 0.000 | 31.390 | 0.00 | 2.97 |
| Totals: | | | | | | | | | | | 0.0 | 175.6 |

Calculated Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Code: EIA/TIA-222-G 10/17/2016
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II



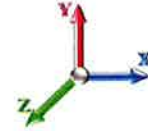
Page: 12

Load Case: 1.2D + 1.6W 98 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60

Iterations 23



| Seg Elev (ft) | P _u F _□ (-) (kips) | □ _u F _□ (-) (kips) | T _u M _□ (-) (ft-kips) | M _u M _□ (ft-kips) | M _u M _□ (ft-kips) | Resultant Moment (ft-kips) | phi P _n (kips) | phi □ _n (kips) | phi T _n (ft-kips) | phi M _n (ft-kips) | Total Deflect (in) | Rotation S _□ ay (deg) | Rotation T _□ ist (deg) | Stress Ratio |
|---------------|--|--|---|---|---|----------------------------|---------------------------|---------------------------|------------------------------|------------------------------|--------------------|----------------------------------|-----------------------------------|--------------|
| 0.00 | -47.10 | -30.67 | 0.00 | -3160.2 | 0.00 | 3160.20 | 5604.23 | 2802.12 | 13924.9 | 6972.80 | 0.00 | 0.000 | 0.000 | 0.462 |
| 5.00 | -45.07 | -30.18 | 0.00 | -3006.8 | 0.00 | 3006.84 | 5529.79 | 2764.90 | 13444.5 | 6732.24 | 0.06 | -0.113 | 0.000 | 0.455 |
| 10.00 | -43.08 | -29.70 | 0.00 | -2855.9 | 0.00 | 2855.93 | 5453.38 | 2726.69 | 12967.3 | 6493.32 | 0.24 | -0.228 | 0.000 | 0.448 |
| 15.00 | -41.12 | -29.22 | 0.00 | -2707.4 | 0.00 | 2707.44 | 5374.99 | 2687.50 | 12493.8 | 6256.19 | 0.54 | -0.345 | 0.000 | 0.441 |
| 20.00 | -39.21 | -28.71 | 0.00 | -2561.3 | 0.00 | 2561.35 | 5294.63 | 2647.32 | 12024.1 | 6021.01 | 0.97 | -0.463 | 0.000 | 0.433 |
| 25.00 | -37.33 | -28.19 | 0.00 | -2417.7 | 0.00 | 2417.79 | 5212.30 | 2606.15 | 11558.7 | 5787.94 | 1.52 | -0.582 | 0.000 | 0.425 |
| 30.00 | -35.49 | -27.64 | 0.00 | -2276.8 | 0.00 | 2276.87 | 5128.00 | 2564.00 | 11097.7 | 5557.14 | 2.19 | -0.703 | 0.000 | 0.417 |
| 35.00 | -33.69 | -27.09 | 0.00 | -2138.6 | 0.00 | 2138.65 | 5041.73 | 2520.86 | 10641.7 | 5328.76 | 3.00 | -0.826 | 0.000 | 0.408 |
| 40.00 | -31.93 | -26.53 | 0.00 | -2003.2 | 0.00 | 2003.20 | 4953.48 | 2476.74 | 10190.8 | 5102.98 | 3.93 | -0.949 | 0.000 | 0.399 |
| 44.75 | -30.31 | -25.96 | 0.00 | -1877.2 | 0.00 | 1877.20 | 4867.82 | 2433.91 | 9767.51 | 4891.01 | 4.93 | -1.068 | 0.000 | 0.390 |
| 45.00 | -30.14 | -25.96 | 0.00 | -1870.7 | 0.00 | 1870.71 | 4863.26 | 2431.63 | 9745.37 | 4879.93 | 4.99 | -1.075 | 0.000 | 0.390 |
| 50.00 | -27.29 | -25.33 | 0.00 | -1740.9 | 0.00 | 1740.90 | 4771.07 | 2385.54 | 9305.74 | 4659.79 | 6.18 | -1.200 | 0.000 | 0.379 |
| 51.00 | -26.70 | -25.23 | 0.00 | -1715.5 | 0.00 | 1715.57 | 3927.98 | 1963.99 | 7761.51 | 3886.53 | 6.44 | -1.226 | 0.000 | 0.448 |
| 55.00 | -25.52 | -24.77 | 0.00 | -1614.6 | 0.00 | 1614.66 | 3872.44 | 1936.22 | 7486.25 | 3748.69 | 7.51 | -1.329 | 0.000 | 0.437 |
| 60.00 | -24.07 | -24.20 | 0.00 | -1490.7 | 0.00 | 1490.79 | 3801.23 | 1900.62 | 7145.52 | 3578.07 | 8.98 | -1.470 | 0.000 | 0.423 |
| 65.00 | -22.65 | -23.62 | 0.00 | -1369.8 | 0.00 | 1369.80 | 3728.06 | 1864.03 | 6808.79 | 3409.45 | 10.59 | -1.611 | 0.000 | 0.408 |
| 70.00 | -21.27 | -23.05 | 0.00 | -1251.6 | 0.00 | 1251.69 | 3652.91 | 1826.46 | 6476.38 | 3243.00 | 12.36 | -1.752 | 0.000 | 0.392 |
| 75.00 | -19.93 | -22.48 | 0.00 | -1136.4 | 0.00 | 1136.45 | 3575.79 | 1787.90 | 6148.62 | 3078.88 | 14.27 | -1.892 | 0.000 | 0.375 |
| 80.00 | -18.62 | -21.91 | 0.00 | -1024.0 | 0.00 | 1024.06 | 3496.70 | 1748.35 | 5825.81 | 2917.23 | 16.32 | -2.031 | 0.000 | 0.357 |
| 85.00 | -17.16 | -18.99 | 0.00 | -911.25 | 0.00 | 911.25 | 3415.64 | 1707.82 | 5508.27 | 2758.23 | 18.53 | -2.168 | 0.000 | 0.336 |
| 90.00 | -15.96 | -18.42 | 0.00 | -816.31 | 0.00 | 816.31 | 3332.60 | 1666.30 | 5196.32 | 2602.02 | 20.87 | -2.303 | 0.000 | 0.319 |
| 90.75 | -15.76 | -18.35 | 0.00 | -802.50 | 0.00 | 802.50 | 3319.98 | 1659.99 | 5150.02 | 2578.84 | 21.23 | -2.323 | 0.000 | 0.316 |
| 95.00 | -14.25 | -17.84 | 0.00 | -724.52 | 0.00 | 724.52 | 3247.59 | 1623.80 | 4890.27 | 2448.77 | 23.35 | -2.437 | 0.000 | 0.300 |
| 95.75 | -13.97 | -17.77 | 0.00 | -711.14 | 0.00 | 711.14 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 23.74 | -2.457 | 0.000 | 0.494 |
| 100.00 | -13.22 | -17.32 | 0.00 | -635.62 | 0.00 | 635.62 | 1878.47 | 939.23 | 2786.43 | 1395.29 | 25.98 | -2.568 | 0.000 | 0.463 |
| 105.00 | -12.37 | -16.81 | 0.00 | -549.01 | 0.00 | 549.01 | 1837.85 | 918.92 | 2627.99 | 1315.95 | 28.76 | -2.748 | 0.000 | 0.424 |
| 110.00 | -11.53 | -16.30 | 0.00 | -464.98 | 0.00 | 464.98 | 1795.26 | 897.63 | 2471.18 | 1237.43 | 31.73 | -2.919 | 0.000 | 0.383 |
| 115.00 | -10.73 | -15.80 | 0.00 | -383.49 | 0.00 | 383.49 | 1750.70 | 875.35 | 2316.31 | 1159.88 | 34.88 | -3.079 | 0.000 | 0.337 |
| 120.00 | -9.95 | -15.31 | 0.00 | -304.50 | 0.00 | 304.50 | 1704.17 | 852.08 | 2163.70 | 1083.46 | 38.18 | -3.225 | 0.000 | 0.287 |
| 125.00 | -9.21 | -14.82 | 0.00 | -227.96 | 0.00 | 227.96 | 1655.66 | 827.83 | 2013.66 | 1008.33 | 41.63 | -3.353 | 0.000 | 0.232 |
| 127.00 | -8.91 | -14.64 | 0.00 | -198.31 | 0.00 | 198.31 | 1635.71 | 817.85 | 1954.43 | 978.67 | 43.04 | -3.400 | 0.000 | 0.208 |
| 130.00 | -8.27 | -14.34 | 0.00 | -154.40 | 0.00 | 154.40 | 1605.19 | 802.59 | 1866.51 | 934.64 | 45.20 | -3.461 | 0.000 | 0.171 |
| 130.75 | -8.11 | -14.27 | 0.00 | -143.65 | 0.00 | 143.65 | 1090.28 | 545.14 | 1281.57 | 641.74 | 45.75 | -3.475 | 0.000 | 0.232 |
| 133.00 | -5.93 | -7.98 | 0.00 | -111.56 | 0.00 | 111.56 | 1077.75 | 538.87 | 1240.93 | 621.39 | 47.39 | -3.511 | 0.000 | 0.185 |
| 135.00 | -5.73 | -7.80 | 0.00 | -95.60 | 0.00 | 95.60 | 1066.28 | 533.14 | 1204.93 | 603.36 | 48.87 | -3.547 | 0.000 | 0.164 |
| 140.00 | -5.25 | -7.36 | 0.00 | -56.61 | 0.00 | 56.61 | 1036.22 | 518.11 | 1115.60 | 558.63 | 52.62 | -3.616 | 0.000 | 0.107 |
| 143.00 | -2.80 | -3.41 | 0.00 | -34.53 | 0.00 | 34.53 | 1017.23 | 508.62 | 1062.55 | 532.07 | 54.91 | -3.645 | 0.000 | 0.068 |
| 145.00 | -2.65 | -3.25 | 0.00 | -27.70 | 0.00 | 27.70 | 1004.18 | 502.09 | 1027.46 | 514.49 | 56.44 | -3.660 | 0.000 | 0.057 |
| 150.00 | -2.30 | -2.85 | 0.00 | -11.46 | 0.00 | 11.46 | 970.18 | 485.09 | 940.83 | 471.12 | 60.28 | -3.684 | 0.000 | 0.027 |
| 154.00 | -0.05 | -0.07 | 0.00 | -0.07 | 0.00 | 0.07 | 941.55 | 470.78 | 872.83 | 437.06 | 63.37 | -3.690 | 0.000 | 0.000 |
| 155.00 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 934.20 | 467.10 | 856.03 | 428.65 | 64.14 | -3.690 | 0.000 | 0.000 |

Wind Loading - Shaft

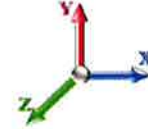
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 23

| Elev (ft) | Description | □□ | □□ | q□ (psf) | q□Gh (psf) | C (mph-ft) | Cf | Ice Thick (in) | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force □ (lb) | Dead Load Ice (lb) | Tot Dead Load (lb) |
|------------------------|-------------|------|------|----------|------------|------------|-------|----------------|----------------|---------|-----------|-------------------|--------------------|--------------------|
| 0.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 465.38 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 455.51 | 0.650 | 0.000 | 5.00 | 25.481 | 16.56 | 578.7 | 0.0 | 1271.2 |
| 10.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 445.65 | 0.650 | 0.000 | 5.00 | 24.935 | 16.21 | 566.3 | 0.0 | 1243.8 |
| 15.00 | | 1.00 | 0.85 | 19.853 | 21.84 | 435.79 | 0.650 | 0.000 | 5.00 | 24.389 | 15.85 | 553.9 | 0.0 | 1216.4 |
| 20.00 | | 1.00 | 0.90 | 21.065 | 23.17 | 438.73 | 0.650 | 0.000 | 5.00 | 23.843 | 15.50 | 574.6 | 0.0 | 1188.9 |
| 25.00 | | 1.00 | 0.95 | 22.078 | 24.29 | 438.76 | 0.650 | 0.000 | 5.00 | 23.297 | 15.14 | 588.4 | 0.0 | 1161.5 |
| 30.00 | | 1.00 | 0.98 | 22.942 | 25.24 | 436.65 | 0.650 | 0.000 | 5.00 | 22.752 | 14.79 | 597.1 | 0.0 | 1134.1 |
| 35.00 | | 1.00 | 1.01 | 23.699 | 26.07 | 433.02 | 0.650 | 0.000 | 5.00 | 22.206 | 14.43 | 602.0 | 0.0 | 1106.6 |
| 40.00 | | 1.00 | 1.04 | 24.375 | 26.81 | 428.22 | 0.650 | 0.000 | 5.00 | 21.660 | 14.08 | 604.0 | 0.0 | 1079.2 |
| 44.75 Bot - Section 2 | | 1.00 | 1.07 | 24.958 | 27.45 | 422.80 | 0.650 | 0.000 | 4.75 | 20.071 | 13.05 | 573.1 | 0.0 | 999.8 |
| 45.00 | | 1.00 | 1.07 | 24.987 | 27.49 | 422.50 | 0.650 | 0.000 | 0.25 | 1.059 | 0.69 | 30.3 | 0.0 | 97.2 |
| 50.00 | | 1.00 | 1.09 | 25.547 | 28.10 | 416.02 | 0.650 | 0.000 | 5.00 | 20.885 | 13.58 | 610.4 | 0.0 | 1917.2 |
| 51.00 Top - Section 1 | | 1.00 | 1.10 | 25.654 | 28.22 | 414.64 | 0.650 | 0.000 | 1.00 | 4.112 | 2.67 | 120.7 | 0.0 | 377.3 |
| 55.00 | | 1.00 | 1.12 | 26.065 | 28.67 | 415.48 | 0.650 | 0.000 | 4.00 | 16.228 | 10.55 | 483.9 | 0.0 | 693.6 |
| 60.00 | | 1.00 | 1.14 | 26.547 | 29.20 | 407.90 | 0.650 | 0.000 | 5.00 | 19.794 | 12.87 | 601.1 | 0.0 | 845.8 |
| 65.00 | | 1.00 | 1.16 | 26.998 | 29.70 | 399.85 | 0.650 | 0.000 | 5.00 | 19.248 | 12.51 | 594.5 | 0.0 | 822.3 |
| 70.00 | | 1.00 | 1.17 | 27.423 | 30.16 | 391.39 | 0.650 | 0.000 | 5.00 | 18.702 | 12.16 | 586.7 | 0.0 | 798.8 |
| 75.00 | | 1.00 | 1.19 | 27.824 | 30.61 | 382.56 | 0.650 | 0.000 | 5.00 | 18.156 | 11.80 | 577.9 | 0.0 | 775.3 |
| 80.00 | | 1.00 | 1.21 | 28.204 | 31.02 | 373.41 | 0.650 | 0.000 | 5.00 | 17.610 | 11.45 | 568.2 | 0.0 | 751.7 |
| 85.00 Appurtenance(s) | | 1.00 | 1.22 | 28.567 | 31.42 | 363.97 | 0.650 | 0.000 | 5.00 | 17.064 | 11.09 | 557.7 | 0.0 | 728.2 |
| 90.00 | | 1.00 | 1.24 | 28.912 | 31.80 | 354.26 | 0.650 | 0.000 | 5.00 | 16.519 | 10.74 | 546.4 | 0.0 | 704.7 |
| 90.75 Bot - Section 3 | | 1.00 | 1.24 | 28.963 | 31.86 | 352.79 | 0.650 | 0.000 | 0.75 | 2.431 | 1.58 | 80.5 | 0.0 | 103.7 |
| 95.00 | | 1.00 | 1.25 | 29.243 | 32.17 | 344.31 | 0.650 | 0.000 | 4.25 | 13.722 | 8.92 | 459.1 | 0.0 | 969.0 |
| 95.75 Top - Section 2 | | 1.00 | 1.25 | 29.292 | 32.22 | 342.80 | 0.650 | 0.000 | 0.75 | 2.381 | 1.55 | 79.8 | 0.0 | 168.1 |
| 100.00 | | 1.00 | 1.27 | 29.561 | 32.52 | 338.81 | 0.650 | 0.000 | 4.25 | 13.258 | 8.62 | 448.3 | 0.0 | 378.1 |
| 105.00 | | 1.00 | 1.28 | 29.866 | 32.85 | 328.45 | 0.650 | 0.000 | 5.00 | 15.092 | 9.81 | 515.7 | 0.0 | 430.4 |
| 110.00 | | 1.00 | 1.29 | 30.160 | 33.18 | 317.91 | 0.650 | 0.000 | 5.00 | 14.547 | 9.46 | 501.9 | 0.0 | 414.7 |
| 115.00 | | 1.00 | 1.30 | 30.444 | 33.49 | 307.18 | 0.650 | 0.000 | 5.00 | 14.001 | 9.10 | 487.6 | 0.0 | 399.0 |
| 120.00 | | 1.00 | 1.32 | 30.718 | 33.79 | 296.29 | 0.650 | 0.000 | 5.00 | 13.455 | 8.75 | 472.8 | 0.0 | 383.3 |
| 125.00 | | 1.00 | 1.33 | 30.983 | 34.08 | 285.25 | 0.650 | 0.000 | 5.00 | 12.909 | 8.39 | 457.6 | 0.0 | 367.7 |
| 127.00 Bot - Section 4 | | 1.00 | 1.33 | 31.087 | 34.20 | 280.79 | 0.650 | 0.000 | 2.00 | 5.011 | 3.26 | 178.2 | 0.0 | 142.7 |
| 130.00 | | 1.00 | 1.34 | 31.240 | 34.36 | 274.05 | 0.650 | 0.000 | 3.00 | 7.448 | 4.84 | 266.2 | 0.0 | 368.7 |
| 130.75 Top - Section 3 | | 1.00 | 1.34 | 31.278 | 34.41 | 272.36 | 0.650 | 0.000 | 0.75 | 1.831 | 1.19 | 65.5 | 0.0 | 90.6 |
| 133.00 Appurtenance(s) | | 1.00 | 1.34 | 31.390 | 34.53 | 270.88 | 0.650 | 0.000 | 2.25 | 5.420 | 3.52 | 194.6 | 0.0 | 116.0 |
| 135.00 | | 1.00 | 1.35 | 31.489 | 34.64 | 266.33 | 0.650 | 0.000 | 2.00 | 4.725 | 3.07 | 170.2 | 0.0 | 101.1 |
| 140.00 | | 1.00 | 1.36 | 31.731 | 34.90 | 254.89 | 0.650 | 0.000 | 5.00 | 11.430 | 7.43 | 414.9 | 0.0 | 244.5 |
| 143.00 Appurtenance(s) | | 1.00 | 1.36 | 31.873 | 35.06 | 247.96 | 0.650 | 0.000 | 3.00 | 6.596 | 4.29 | 240.5 | 0.0 | 141.0 |
| 145.00 | | 1.00 | 1.37 | 31.966 | 35.16 | 243.31 | 0.650 | 0.000 | 2.00 | 4.288 | 2.79 | 156.8 | 0.0 | 91.7 |
| 150.00 | | 1.00 | 1.38 | 32.195 | 35.41 | 231.62 | 0.650 | 0.000 | 5.00 | 10.338 | 6.72 | 380.8 | 0.0 | 221.0 |
| 154.00 Appurtenance(s) | | 1.00 | 1.39 | 32.374 | 35.61 | 222.19 | 0.650 | 0.000 | 4.00 | 7.878 | 5.12 | 291.8 | 0.0 | 168.3 |
| 155.00 | | 1.00 | 1.39 | 32.418 | 35.66 | 219.82 | 0.650 | 0.000 | 1.00 | 1.915 | 1.24 | 71.0 | 0.0 | 40.9 |
| Totals: | | | | | | | | | 155.00 | | | 16,449.7 | | 24,254.0 |

Discrete Appurtenance Forces

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

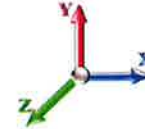


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Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

| No. | Elev (ft) | Description | Qty | q (psf) | q Gh (psf) | CaAa x a | CaAa a | Total CaAa (sf) | Dead Load (lb) | Hori Ecc (ft) | Vert Ecc (ft) | Wind F (lb) | Mom (lb-ft) | Mom (lb-ft) |
|----------------|-----------|-----------------------|-----|---------|------------|----------|--------|-----------------|-----------------|---------------|---------------|------------------|-------------|-------------|
| 1 | 154.00 | KRY 112 144/1 | 3 | 32.374 | 35.611 | 0.54 | 0.80 | 0.66 | 29.70 | 0.000 | 0.000 | 37.56 | 0.00 | 0.00 |
| 2 | 154.00 | AIR 21 B4A B2P | 3 | 32.374 | 35.611 | 0.69 | 0.80 | 12.57 | 244.08 | 0.000 | 0.000 | 716.20 | 0.00 | 0.00 |
| 3 | 154.00 | AIR 21 B2A B4P | 3 | 32.374 | 35.611 | 0.69 | 0.80 | 12.57 | 247.05 | 0.000 | 0.000 | 716.20 | 0.00 | 0.00 |
| 4 | 154.00 | T-Arm | 3 | 32.374 | 35.611 | 0.50 | 0.75 | 15.08 | 1080.00 | 0.000 | 0.000 | 858.95 | 0.00 | 0.00 |
| 5 | 143.00 | DC6-48-60-18-8F | 1 | 31.873 | 35.060 | 0.56 | 0.75 | 0.52 | 28.62 | 0.000 | 0.000 | 29.03 | 0.00 | 0.00 |
| 6 | 143.00 | T-Arm | 3 | 31.873 | 35.060 | 0.50 | 0.75 | 15.08 | 1080.00 | 0.000 | 0.000 | 845.65 | 0.00 | 0.00 |
| 7 | 143.00 | RRUS 11 | 6 | 31.873 | 35.060 | 0.57 | 0.80 | 8.59 | 273.78 | 0.000 | 0.000 | 481.76 | 0.00 | 0.00 |
| 8 | 143.00 | LGP21401 | 6 | 31.873 | 35.060 | 0.54 | 0.80 | 4.15 | 76.14 | 0.000 | 0.000 | 232.72 | 0.00 | 0.00 |
| 9 | 143.00 | 7770.00 | 6 | 31.873 | 35.060 | 0.58 | 0.80 | 19.27 | 189.00 | 0.000 | 0.000 | 1081.09 | 0.00 | 0.00 |
| 10 | 143.00 | AM-X-CD-16-65-00T-RET | 3 | 31.873 | 35.060 | 0.60 | 0.80 | 14.44 | 130.95 | 0.000 | 0.000 | 809.81 | 0.00 | 0.00 |
| 11 | 143.00 | LGP13519 | 6 | 31.873 | 35.060 | 0.54 | 0.80 | 1.09 | 28.62 | 0.000 | 0.000 | 61.34 | 0.00 | 0.00 |
| 12 | 133.00 | T-Arm | 3 | 31.390 | 34.529 | 0.50 | 0.75 | 12.06 | 945.00 | 0.000 | 0.000 | 666.27 | 0.00 | 0.00 |
| 13 | 133.00 | DB-T1-6Z-8AB-0Z | 2 | 31.390 | 34.529 | 0.57 | 0.80 | 5.45 | 79.20 | 0.000 | 0.000 | 301.25 | 0.00 | 0.00 |
| 14 | 133.00 | RRH2X60-700 | 3 | 31.390 | 34.529 | 0.61 | 0.80 | 6.38 | 162.00 | 0.000 | 0.000 | 352.69 | 0.00 | 0.00 |
| 15 | 133.00 | RRH2X60-AWS | 3 | 31.390 | 34.529 | 0.61 | 0.80 | 6.38 | 162.00 | 0.000 | 0.000 | 352.69 | 0.00 | 0.00 |
| 16 | 133.00 | BXA-171063-12CF | 3 | 31.390 | 34.529 | 0.67 | 0.80 | 9.64 | 40.50 | 0.000 | 0.000 | 532.38 | 0.00 | 0.00 |
| 17 | 133.00 | LPA-80080-6CF | 6 | 31.390 | 34.529 | 1.36 | 0.80 | 35.33 | 113.40 | 0.000 | 0.000 | 1952.02 | 0.00 | 0.00 |
| 18 | 133.00 | SBNHH-1D65B | 6 | 31.390 | 34.529 | 0.66 | 0.80 | 32.51 | 216.00 | 0.000 | 0.000 | 1796.04 | 0.00 | 0.00 |
| 19 | 85.00 | DB408 | 1 | 28.893 | 31.782 | 1.00 | 1.00 | 2.90 | 15.30 | 0.000 | 4.708 | 147.47 | 0.00 | 694.33 |
| 20 | 85.00 | SD222 | 2 | 28.896 | 31.785 | 1.00 | 1.00 | 10.60 | 30.60 | 0.000 | 4.750 | 539.08 | 0.00 | 2560.61 |
| 21 | 85.00 | SP4-4.7NS RD4 | 1 | 28.567 | 31.423 | 1.00 | 1.00 | 23.14 | 54.00 | 0.000 | 0.000 | 1163.42 | 0.00 | 0.00 |
| 22 | 85.00 | Pipe Mount | 2 | 28.567 | 31.423 | 1.00 | 1.00 | 10.00 | 108.00 | 0.000 | 0.000 | 502.77 | 0.00 | 0.00 |
| Totals: | | | | | | | | | 5,333.94 | | | 14,176.39 | | |

Total Applied Force Summary

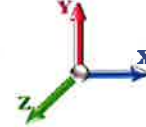
| | | |
|---------------------------------|--|-----------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Page: 15 |
| | Struct Class: II | |



Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

| Elev (ft) | Description | Lateral F _x (-) (lb) | Axial F _y (-) (lb) | Torsion M _z (lb-ft) | Moment M _x (lb-ft) |
|----------------|------------------|---------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | | 578.73 | 1478.32 | 0.00 | 0.00 |
| 10.00 | | 566.33 | 1450.89 | 0.00 | 0.00 |
| 15.00 | | 553.93 | 1423.46 | 0.00 | 0.00 |
| 20.00 | | 574.59 | 1396.03 | 0.00 | 0.00 |
| 25.00 | | 588.44 | 1368.59 | 0.00 | 0.00 |
| 30.00 | | 597.14 | 1341.16 | 0.00 | 0.00 |
| 35.00 | | 602.04 | 1313.73 | 0.00 | 0.00 |
| 40.00 | | 603.98 | 1286.30 | 0.00 | 0.00 |
| 44.75 | | 573.06 | 1196.57 | 0.00 | 0.00 |
| 45.00 | | 30.26 | 107.55 | 0.00 | 0.00 |
| 50.00 | | 610.40 | 2124.25 | 0.00 | 0.00 |
| 51.00 | | 120.67 | 418.74 | 0.00 | 0.00 |
| 55.00 | | 483.89 | 859.23 | 0.00 | 0.00 |
| 60.00 | | 601.13 | 1052.88 | 0.00 | 0.00 |
| 65.00 | | 594.48 | 1029.37 | 0.00 | 0.00 |
| 70.00 | | 586.71 | 1005.85 | 0.00 | 0.00 |
| 75.00 | | 577.92 | 982.34 | 0.00 | 0.00 |
| 80.00 | | 568.21 | 958.83 | 0.00 | 0.00 |
| 85.00 | (6) attachments | 2910.40 | 1143.21 | 0.00 | 3254.94 |
| 90.00 | | 546.36 | 897.76 | 0.00 | 0.00 |
| 90.75 | | 80.54 | 132.64 | 0.00 | 0.00 |
| 95.00 | | 459.06 | 1133.08 | 0.00 | 0.00 |
| 95.75 | | 79.77 | 197.02 | 0.00 | 0.00 |
| 100.00 | | 448.35 | 542.24 | 0.00 | 0.00 |
| 105.00 | | 515.66 | 623.42 | 0.00 | 0.00 |
| 110.00 | | 501.90 | 607.75 | 0.00 | 0.00 |
| 115.00 | | 487.61 | 592.07 | 0.00 | 0.00 |
| 120.00 | | 472.82 | 576.40 | 0.00 | 0.00 |
| 125.00 | | 457.55 | 560.72 | 0.00 | 0.00 |
| 127.00 | | 178.20 | 219.90 | 0.00 | 0.00 |
| 130.00 | | 266.16 | 484.53 | 0.00 | 0.00 |
| 130.75 | | 65.52 | 119.59 | 0.00 | 0.00 |
| 133.00 | (26) attachments | 6147.97 | 1920.94 | 0.00 | 0.00 |
| 135.00 | | 170.21 | 151.88 | 0.00 | 0.00 |
| 140.00 | | 414.92 | 371.46 | 0.00 | 0.00 |
| 143.00 | (31) attachments | 3781.91 | 2024.34 | 0.00 | 0.00 |
| 145.00 | | 156.82 | 116.12 | 0.00 | 0.00 |
| 150.00 | | 380.78 | 282.07 | 0.00 | 0.00 |
| 154.00 | (12) attachments | 2620.68 | 1818.02 | 0.00 | 0.00 |
| 155.00 | | 71.01 | 40.90 | 0.00 | 0.00 |
| Totals: | | 30,626.10 | 35,350.15 | 0.00 | 3,254.94 |

Linear Appurtenance Segment Forces (Factored)

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |

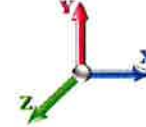


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Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

| Top Elev (ft) | Description | Wind Exposed | Length (ft) | Ca | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra | Cf Adjust Factor | q (psf) | F (lb) | Dead Load (lb) |
|----------------|--------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|---------|------------|----------------|
| 5.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.033 | 0.000 | 19.853 | 0.00 | 4.95 |
| 10.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.033 | 0.000 | 19.853 | 0.00 | 4.95 |
| 15.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.034 | 0.000 | 19.853 | 0.00 | 4.95 |
| 20.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.035 | 0.000 | 21.065 | 0.00 | 4.95 |
| 25.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.036 | 0.000 | 22.078 | 0.00 | 4.95 |
| 30.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.037 | 0.000 | 22.942 | 0.00 | 4.95 |
| 35.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.038 | 0.000 | 23.699 | 0.00 | 4.95 |
| 40.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.038 | 0.000 | 24.375 | 0.00 | 4.95 |
| 44.75 | 1 5/8" Fiber | Yes | 4.75 | 0.000 | 2.00 | 0.79 | 0.00 | 0.039 | 0.000 | 24.958 | 0.00 | 4.70 |
| 45.00 | 1 5/8" Fiber | Yes | 0.25 | 0.000 | 2.00 | 0.04 | 0.00 | 0.040 | 0.000 | 24.987 | 0.00 | 0.25 |
| 50.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.041 | 0.000 | 25.547 | 0.00 | 4.95 |
| 51.00 | 1 5/8" Fiber | Yes | 1.00 | 0.000 | 2.00 | 0.17 | 0.00 | 0.041 | 0.000 | 25.654 | 0.00 | 0.99 |
| 55.00 | 1 5/8" Fiber | Yes | 4.00 | 0.000 | 2.00 | 0.67 | 0.00 | 0.041 | 0.000 | 26.065 | 0.00 | 3.96 |
| 60.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.042 | 0.000 | 26.547 | 0.00 | 4.95 |
| 65.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.043 | 0.000 | 26.998 | 0.00 | 4.95 |
| 70.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.045 | 0.000 | 27.423 | 0.00 | 4.95 |
| 75.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.046 | 0.000 | 27.824 | 0.00 | 4.95 |
| 80.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.047 | 0.000 | 28.204 | 0.00 | 4.95 |
| 85.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.049 | 0.000 | 28.567 | 0.00 | 4.95 |
| 90.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.050 | 0.000 | 28.912 | 0.00 | 4.95 |
| 90.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.051 | 0.000 | 28.963 | 0.00 | 0.74 |
| 95.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 0.71 | 0.00 | 0.052 | 0.000 | 29.243 | 0.00 | 4.21 |
| 95.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.053 | 0.000 | 29.292 | 0.00 | 0.74 |
| 100.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 0.71 | 0.00 | 0.053 | 0.000 | 29.561 | 0.00 | 4.21 |
| 105.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.055 | 0.000 | 29.866 | 0.00 | 4.95 |
| 110.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.057 | 0.000 | 30.160 | 0.00 | 4.95 |
| 115.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.060 | 0.000 | 30.444 | 0.00 | 4.95 |
| 120.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.062 | 0.000 | 30.718 | 0.00 | 4.95 |
| 125.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.065 | 0.000 | 30.983 | 0.00 | 4.95 |
| 127.00 | 1 5/8" Fiber | Yes | 2.00 | 0.000 | 2.00 | 0.33 | 0.00 | 0.067 | 0.000 | 31.087 | 0.00 | 1.98 |
| 130.00 | 1 5/8" Fiber | Yes | 3.00 | 0.000 | 2.00 | 0.50 | 0.00 | 0.068 | 0.000 | 31.240 | 0.00 | 2.97 |
| 130.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.069 | 0.000 | 31.278 | 0.00 | 0.74 |
| 133.00 | 1 5/8" Fiber | Yes | 2.25 | 0.000 | 2.00 | 0.38 | 0.00 | 0.069 | 0.000 | 31.390 | 0.00 | 2.23 |
| Totals: | | | | | | | | | | | 0.0 | 131.7 |

Calculated Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

10/17/2016

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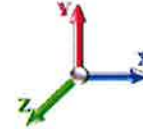


Load Case: 0.9D + 1.6W 98 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60

Iterations 23



| Seg Elev (ft) | Pu F□ (-) (kips) | □u F□ (-) (kips) | Tu M□ (-) (ft-kips) | Mu M□ (ft-kips) | Mu M□ (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi □n (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation □ay (deg) | Rotation T□ist (deg) | Stress Ratio |
|---------------|------------------|------------------|---------------------|-----------------|-----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|--------------------|----------------------|--------------|
| 0.00 | -35.32 | -30.66 | 0.00 | -3140.1 | 0.00 | 3140.14 | 5604.23 | 2802.12 | 13924.9 | 6972.80 | 0.00 | 0.000 | 0.000 | 0.457 |
| 5.00 | -33.78 | -30.15 | 0.00 | -2986.8 | 0.00 | 2986.83 | 5529.79 | 2764.90 | 13444.5 | 6732.24 | 0.06 | -0.113 | 0.000 | 0.450 |
| 10.00 | -32.27 | -29.64 | 0.00 | -2836.0 | 0.00 | 2836.09 | 5453.38 | 2726.69 | 12967.3 | 6493.32 | 0.24 | -0.227 | 0.000 | 0.443 |
| 15.00 | -30.79 | -29.14 | 0.00 | -2687.8 | 0.00 | 2687.88 | 5374.99 | 2687.50 | 12493.8 | 6256.19 | 0.54 | -0.342 | 0.000 | 0.435 |
| 20.00 | -29.34 | -28.62 | 0.00 | -2542.1 | 0.00 | 2542.17 | 5294.63 | 2647.32 | 12024.1 | 6021.01 | 0.96 | -0.460 | 0.000 | 0.428 |
| 25.00 | -27.92 | -28.08 | 0.00 | -2399.0 | 0.00 | 2399.07 | 5212.30 | 2606.15 | 11558.7 | 5787.94 | 1.51 | -0.578 | 0.000 | 0.420 |
| 30.00 | -26.53 | -27.52 | 0.00 | -2258.6 | 0.00 | 2258.68 | 5128.00 | 2564.00 | 11097.7 | 5557.14 | 2.18 | -0.698 | 0.000 | 0.412 |
| 35.00 | -25.17 | -26.96 | 0.00 | -2121.0 | 0.00 | 2121.08 | 5041.73 | 2520.86 | 10641.7 | 5328.76 | 2.98 | -0.820 | 0.000 | 0.403 |
| 40.00 | -23.83 | -26.38 | 0.00 | -1986.3 | 0.00 | 1986.30 | 4953.48 | 2476.74 | 10190.8 | 5102.98 | 3.90 | -0.942 | 0.000 | 0.394 |
| 44.75 | -22.62 | -25.81 | 0.00 | -1860.9 | 0.00 | 1860.99 | 4867.82 | 2433.91 | 9767.51 | 4891.01 | 4.90 | -1.060 | 0.000 | 0.385 |
| 45.00 | -22.48 | -25.81 | 0.00 | -1854.5 | 0.00 | 1854.54 | 4863.26 | 2431.63 | 9745.37 | 4879.93 | 4.95 | -1.066 | 0.000 | 0.385 |
| 50.00 | -20.34 | -25.18 | 0.00 | -1725.5 | 0.00 | 1725.51 | 4771.07 | 2385.54 | 9305.74 | 4659.79 | 6.14 | -1.191 | 0.000 | 0.375 |
| 51.00 | -19.89 | -25.07 | 0.00 | -1700.3 | 0.00 | 1700.33 | 3927.98 | 1963.99 | 7761.51 | 3886.53 | 6.39 | -1.217 | 0.000 | 0.443 |
| 55.00 | -18.99 | -24.61 | 0.00 | -1600.0 | 0.00 | 1600.04 | 3872.44 | 1936.22 | 7486.25 | 3748.69 | 7.45 | -1.318 | 0.000 | 0.432 |
| 60.00 | -17.90 | -24.03 | 0.00 | -1476.9 | 0.00 | 1476.99 | 3801.23 | 1900.62 | 7145.52 | 3578.07 | 8.91 | -1.458 | 0.000 | 0.418 |
| 65.00 | -16.83 | -23.45 | 0.00 | -1356.8 | 0.00 | 1356.85 | 3728.06 | 1864.03 | 6808.79 | 3409.45 | 10.51 | -1.598 | 0.000 | 0.403 |
| 70.00 | -15.78 | -22.87 | 0.00 | -1239.6 | 0.00 | 1239.62 | 3652.91 | 1826.46 | 6476.38 | 3243.00 | 12.26 | -1.737 | 0.000 | 0.387 |
| 75.00 | -14.77 | -22.30 | 0.00 | -1125.2 | 0.00 | 1125.27 | 3575.79 | 1787.90 | 6148.62 | 3078.88 | 14.16 | -1.876 | 0.000 | 0.370 |
| 80.00 | -13.77 | -21.73 | 0.00 | -1013.7 | 0.00 | 1013.79 | 3496.70 | 1748.35 | 5825.81 | 2917.23 | 16.20 | -2.014 | 0.000 | 0.352 |
| 85.00 | -12.69 | -18.81 | 0.00 | -901.89 | 0.00 | 901.89 | 3415.64 | 1707.82 | 5508.27 | 2758.23 | 18.38 | -2.150 | 0.000 | 0.331 |
| 90.00 | -11.79 | -18.24 | 0.00 | -807.84 | 0.00 | 807.84 | 3332.60 | 1666.30 | 5196.32 | 2602.02 | 20.70 | -2.283 | 0.000 | 0.314 |
| 90.75 | -11.64 | -18.17 | 0.00 | -794.16 | 0.00 | 794.16 | 3319.98 | 1659.99 | 5150.02 | 2578.84 | 21.06 | -2.303 | 0.000 | 0.312 |
| 95.00 | -10.51 | -17.68 | 0.00 | -716.93 | 0.00 | 716.93 | 3247.59 | 1623.80 | 4890.27 | 2448.77 | 23.16 | -2.416 | 0.000 | 0.296 |
| 95.75 | -10.30 | -17.60 | 0.00 | -703.67 | 0.00 | 703.67 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 23.55 | -2.436 | 0.000 | 0.487 |
| 100.00 | -9.73 | -17.16 | 0.00 | -628.86 | 0.00 | 628.86 | 1878.47 | 939.23 | 2786.43 | 1395.29 | 25.76 | -2.546 | 0.000 | 0.456 |
| 105.00 | -9.08 | -16.64 | 0.00 | -543.09 | 0.00 | 543.09 | 1837.85 | 918.92 | 2627.99 | 1315.95 | 28.53 | -2.723 | 0.000 | 0.418 |
| 110.00 | -8.45 | -16.13 | 0.00 | -459.89 | 0.00 | 459.89 | 1795.26 | 897.63 | 2471.18 | 1237.43 | 31.47 | -2.892 | 0.000 | 0.377 |
| 115.00 | -7.85 | -15.64 | 0.00 | -379.23 | 0.00 | 379.23 | 1750.70 | 875.35 | 2316.31 | 1159.88 | 34.59 | -3.051 | 0.000 | 0.332 |
| 120.00 | -7.26 | -15.15 | 0.00 | -301.05 | 0.00 | 301.05 | 1704.17 | 852.08 | 2163.70 | 1083.46 | 37.86 | -3.195 | 0.000 | 0.282 |
| 125.00 | -6.70 | -14.67 | 0.00 | -225.31 | 0.00 | 225.31 | 1655.66 | 827.83 | 2013.66 | 1008.33 | 41.28 | -3.322 | 0.000 | 0.228 |
| 127.00 | -6.48 | -14.49 | 0.00 | -195.96 | 0.00 | 195.96 | 1635.71 | 817.85 | 1954.43 | 978.67 | 42.68 | -3.368 | 0.000 | 0.205 |
| 130.00 | -6.01 | -14.20 | 0.00 | -152.51 | 0.00 | 152.51 | 1605.19 | 802.59 | 1866.51 | 934.64 | 44.81 | -3.428 | 0.000 | 0.167 |
| 130.75 | -5.88 | -14.13 | 0.00 | -141.86 | 0.00 | 141.86 | 1090.28 | 545.14 | 1281.57 | 641.74 | 45.35 | -3.442 | 0.000 | 0.227 |
| 133.00 | -4.33 | -7.88 | 0.00 | -110.08 | 0.00 | 110.08 | 1077.75 | 538.87 | 1240.93 | 621.39 | 46.99 | -3.478 | 0.000 | 0.181 |
| 135.00 | -4.18 | -7.70 | 0.00 | -94.33 | 0.00 | 94.33 | 1066.28 | 533.14 | 1204.93 | 603.36 | 48.45 | -3.513 | 0.000 | 0.160 |
| 140.00 | -3.83 | -7.27 | 0.00 | -55.83 | 0.00 | 55.83 | 1036.22 | 518.11 | 1115.60 | 558.63 | 52.17 | -3.582 | 0.000 | 0.104 |
| 143.00 | -2.05 | -3.37 | 0.00 | -34.03 | 0.00 | 34.03 | 1017.23 | 508.62 | 1062.55 | 532.07 | 54.43 | -3.610 | 0.000 | 0.066 |
| 145.00 | -1.94 | -3.20 | 0.00 | -27.30 | 0.00 | 27.30 | 1004.18 | 502.09 | 1027.46 | 514.49 | 55.94 | -3.624 | 0.000 | 0.055 |
| 150.00 | -1.68 | -2.80 | 0.00 | -11.29 | 0.00 | 11.29 | 970.18 | 485.09 | 940.83 | 471.12 | 59.75 | -3.648 | 0.000 | 0.026 |
| 154.00 | -0.04 | -0.07 | 0.00 | -0.07 | 0.00 | 0.07 | 941.55 | 470.78 | 872.83 | 437.06 | 62.81 | -3.655 | 0.000 | 0.000 |
| 155.00 | 0.00 | -0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 934.20 | 467.10 | 856.03 | 428.65 | 63.57 | -3.655 | 0.000 | 0.000 |

Wind Loading - Shaft

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

10/17/2016

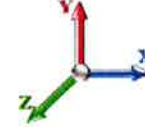
Page: 18



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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 22

| Elev (ft) | Description | □□ | □□ | q□ (psf) | q□Gh (psf) | C (mph-ft) | Cf | Ice Thick (in) | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force □ (lb) | Dead Load Ice (lb) | Tot Dead Load (lb) |
|----------------|-----------------|------|------|----------|------------|------------|-------|----------------|----------------|---------|-----------|-------------------|--------------------|--------------------|
| 0.00 | | 1.00 | 0.85 | 5.168 | 5.68 | 0.00 | 1.200 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 5.168 | 5.68 | 0.00 | 1.200 | 1.242 | 5.00 | 26.516 | 31.82 | 180.9 | 473.3 | 2168.2 |
| 10.00 | | 1.00 | 0.85 | 5.168 | 5.68 | 0.00 | 1.200 | 1.331 | 5.00 | 26.044 | 31.25 | 177.7 | 497.2 | 2155.6 |
| 15.00 | | 1.00 | 0.85 | 5.168 | 5.68 | 0.00 | 1.200 | 1.386 | 5.00 | 25.544 | 30.65 | 174.3 | 507.0 | 2128.9 |
| 20.00 | | 1.00 | 0.90 | 5.483 | 6.03 | 0.00 | 1.200 | 1.427 | 5.00 | 25.032 | 30.04 | 181.2 | 510.7 | 2095.9 |
| 25.00 | | 1.00 | 0.95 | 5.747 | 6.32 | 0.00 | 1.200 | 1.459 | 5.00 | 24.513 | 29.42 | 186.0 | 510.7 | 2059.3 |
| 30.00 | | 1.00 | 0.98 | 5.972 | 6.57 | 0.00 | 1.200 | 1.486 | 5.00 | 23.990 | 28.79 | 189.1 | 508.3 | 2020.4 |
| 35.00 | | 1.00 | 1.01 | 6.169 | 6.79 | 0.00 | 1.200 | 1.509 | 5.00 | 23.463 | 28.16 | 191.1 | 504.2 | 1979.7 |
| 40.00 | | 1.00 | 1.04 | 6.345 | 6.98 | 0.00 | 1.200 | 1.529 | 5.00 | 22.934 | 27.52 | 192.1 | 498.8 | 1937.8 |
| 44.75 | Bot - Section 2 | 1.00 | 1.07 | 6.497 | 7.15 | 0.00 | 1.200 | 1.546 | 4.75 | 21.295 | 25.55 | 182.6 | 468.1 | 1801.2 |
| 45.00 | | 1.00 | 1.07 | 6.504 | 7.15 | 0.00 | 1.200 | 1.547 | 0.25 | 1.123 | 1.35 | 9.6 | 25.0 | 154.6 |
| 50.00 | | 1.00 | 1.09 | 6.650 | 7.32 | 0.00 | 1.200 | 1.564 | 5.00 | 22.188 | 26.63 | 194.8 | 492.5 | 3048.7 |
| 51.00 | Top - Section 1 | 1.00 | 1.10 | 6.678 | 7.35 | 0.00 | 1.200 | 1.567 | 1.00 | 4.373 | 5.25 | 38.5 | 98.2 | 601.3 |
| 55.00 | | 1.00 | 1.12 | 6.785 | 7.46 | 0.00 | 1.200 | 1.579 | 4.00 | 17.280 | 20.74 | 154.8 | 387.7 | 1312.4 |
| 60.00 | | 1.00 | 1.14 | 6.910 | 7.60 | 0.00 | 1.200 | 1.592 | 5.00 | 21.121 | 25.34 | 192.7 | 476.1 | 1603.8 |
| 65.00 | | 1.00 | 1.16 | 7.028 | 7.73 | 0.00 | 1.200 | 1.605 | 5.00 | 20.586 | 24.70 | 191.0 | 467.0 | 1563.4 |
| 70.00 | | 1.00 | 1.17 | 7.138 | 7.85 | 0.00 | 1.200 | 1.617 | 5.00 | 20.050 | 24.06 | 188.9 | 457.6 | 1522.6 |
| 75.00 | | 1.00 | 1.19 | 7.243 | 7.97 | 0.00 | 1.200 | 1.628 | 5.00 | 19.513 | 23.42 | 186.6 | 447.7 | 1481.3 |
| 80.00 | | 1.00 | 1.21 | 7.342 | 8.08 | 0.00 | 1.200 | 1.639 | 5.00 | 18.976 | 22.77 | 183.9 | 437.4 | 1439.7 |
| 85.00 | Appurtenance(s) | 1.00 | 1.22 | 7.436 | 8.18 | 0.00 | 1.200 | 1.649 | 5.00 | 18.438 | 22.13 | 181.0 | 426.9 | 1397.8 |
| 90.00 | | 1.00 | 1.24 | 7.526 | 8.28 | 0.00 | 1.200 | 1.658 | 5.00 | 17.900 | 21.48 | 177.8 | 416.0 | 1355.6 |
| 90.75 | Bot - Section 3 | 1.00 | 1.24 | 7.539 | 8.29 | 0.00 | 1.200 | 1.660 | 0.75 | 2.638 | 3.17 | 26.3 | 62.2 | 200.4 |
| 95.00 | | 1.00 | 1.25 | 7.612 | 8.37 | 0.00 | 1.200 | 1.667 | 4.25 | 14.903 | 17.88 | 149.7 | 348.6 | 1640.6 |
| 95.75 | Top - Section 2 | 1.00 | 1.25 | 7.625 | 8.39 | 0.00 | 1.200 | 1.669 | 0.75 | 2.589 | 3.11 | 26.1 | 61.3 | 285.3 |
| 100.00 | | 1.00 | 1.27 | 7.695 | 8.46 | 0.00 | 1.200 | 1.676 | 4.25 | 14.445 | 17.33 | 146.7 | 338.9 | 843.1 |
| 105.00 | | 1.00 | 1.28 | 7.774 | 8.55 | 0.00 | 1.200 | 1.684 | 5.00 | 16.496 | 19.80 | 169.3 | 387.2 | 961.0 |
| 110.00 | | 1.00 | 1.29 | 7.851 | 8.64 | 0.00 | 1.200 | 1.692 | 5.00 | 15.957 | 19.15 | 165.4 | 375.4 | 928.3 |
| 115.00 | | 1.00 | 1.30 | 7.925 | 8.72 | 0.00 | 1.200 | 1.699 | 5.00 | 15.417 | 18.50 | 161.3 | 363.4 | 895.4 |
| 120.00 | | 1.00 | 1.32 | 7.996 | 8.80 | 0.00 | 1.200 | 1.707 | 5.00 | 14.877 | 17.85 | 157.0 | 351.2 | 862.3 |
| 125.00 | | 1.00 | 1.33 | 8.065 | 8.87 | 0.00 | 1.200 | 1.714 | 5.00 | 14.337 | 17.20 | 152.6 | 338.9 | 829.1 |
| 127.00 | Bot - Section 4 | 1.00 | 1.33 | 8.092 | 8.90 | 0.00 | 1.200 | 1.716 | 2.00 | 5.583 | 6.70 | 59.6 | 133.5 | 323.8 |
| 130.00 | | 1.00 | 1.34 | 8.132 | 8.95 | 0.00 | 1.200 | 1.720 | 3.00 | 8.308 | 9.97 | 89.2 | 198.2 | 689.8 |
| 130.75 | Top - Section 3 | 1.00 | 1.34 | 8.142 | 8.96 | 0.00 | 1.200 | 1.721 | 0.75 | 2.046 | 2.46 | 22.0 | 49.3 | 170.1 |
| 133.00 | Appurtenance(s) | 1.00 | 1.34 | 8.171 | 8.99 | 0.00 | 1.200 | 1.724 | 2.25 | 6.067 | 7.28 | 65.4 | 145.3 | 299.9 |
| 135.00 | | 1.00 | 1.35 | 8.197 | 9.02 | 0.00 | 1.200 | 1.727 | 2.00 | 5.301 | 6.36 | 57.4 | 127.1 | 261.9 |
| 140.00 | | 1.00 | 1.36 | 8.260 | 9.09 | 0.00 | 1.200 | 1.733 | 5.00 | 12.874 | 15.45 | 140.4 | 305.0 | 630.9 |
| 143.00 | Appurtenance(s) | 1.00 | 1.36 | 8.297 | 9.13 | 0.00 | 1.200 | 1.737 | 3.00 | 7.465 | 8.96 | 81.7 | 178.3 | 366.4 |
| 145.00 | | 1.00 | 1.37 | 8.321 | 9.15 | 0.00 | 1.200 | 1.739 | 2.00 | 4.868 | 5.84 | 53.5 | 116.8 | 239.0 |
| 150.00 | | 1.00 | 1.38 | 8.381 | 9.22 | 0.00 | 1.200 | 1.745 | 5.00 | 11.793 | 14.15 | 130.5 | 279.0 | 573.6 |
| 154.00 | Appurtenance(s) | 1.00 | 1.39 | 8.427 | 9.27 | 0.00 | 1.200 | 1.750 | 4.00 | 9.044 | 10.85 | 100.6 | 214.8 | 439.2 |
| 155.00 | | 1.00 | 1.39 | 8.439 | 9.28 | 0.00 | 1.200 | 1.751 | 1.00 | 2.207 | 2.65 | 24.6 | 53.2 | 107.7 |
| Totals: | | | | | | | | | 155.00 | | | 5,333.6 | | 45,376.1 |

Discrete Appurtenance Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

10/17/2016

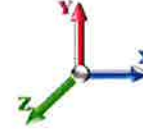
Page: 19



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

Dead Load Factor 1.20
Wind Load Factor 1.00

Iterations 22



| No. | Elev (ft) | Description | Qty | q (psf) | q Gh (psf) | CaAa x a | a | Total CaAa (sf) | Dead Load (lb) | Hori Ecc (ft) | Vert Ecc (ft) | Wind F (lb) | Mom (lb-ft) | Mom (lb-ft) |
|----------------|-----------|-----------------------|-----|---------|------------|----------|------|------------------|----------------|---------------|---------------|-----------------|-------------|-------------|
| 1 | 154.00 | KRY 112 144/1 | 3 | 8.427 | 9.270 | 0.56 | 0.80 | 1.49 | 62.73 | 0.000 | 0.000 | 13.80 | 0.00 | 0.00 |
| 2 | 154.00 | AIR 21 B4A B2P | 3 | 8.427 | 9.270 | 0.69 | 0.80 | 14.84 | 833.70 | 0.000 | 0.000 | 137.57 | 0.00 | 0.00 |
| 3 | 154.00 | AIR 21 B2A B4P | 3 | 8.427 | 9.270 | 0.69 | 0.80 | 14.84 | 837.66 | 0.000 | 0.000 | 137.57 | 0.00 | 0.00 |
| 4 | 154.00 | T-Arm | 3 | 8.427 | 9.270 | 0.50 | 0.75 | 28.26 | 2039.91 | 0.000 | 0.000 | 262.01 | 0.00 | 0.00 |
| 5 | 143.00 | DC6-48-60-18-8F | 1 | 8.297 | 9.126 | 0.56 | 0.75 | 0.76 | 81.99 | 0.000 | 0.000 | 6.96 | 0.00 | 0.00 |
| 6 | 143.00 | T-Arm | 3 | 8.297 | 9.126 | 0.50 | 0.75 | 28.17 | 2033.71 | 0.000 | 0.000 | 257.06 | 0.00 | 0.00 |
| 7 | 143.00 | RRUS 11 | 6 | 8.297 | 9.126 | 0.57 | 0.80 | 10.80 | 897.08 | 0.000 | 0.000 | 98.53 | 0.00 | 0.00 |
| 8 | 143.00 | LGP21401 | 6 | 8.297 | 9.126 | 0.54 | 0.80 | 6.82 | 208.21 | 0.000 | 0.000 | 62.27 | 0.00 | 0.00 |
| 9 | 143.00 | 7770.00 | 6 | 8.297 | 9.126 | 0.58 | 0.80 | 22.99 | 1058.30 | 0.000 | 0.000 | 209.77 | 0.00 | 0.00 |
| 10 | 143.00 | AM-X-CD-16-65-00T-RET | 3 | 8.297 | 9.126 | 0.60 | 0.80 | 19.44 | 519.61 | 0.000 | 0.000 | 177.42 | 0.00 | 0.00 |
| 11 | 143.00 | LGP13519 | 6 | 8.297 | 9.126 | 0.54 | 0.80 | 2.55 | 78.67 | 0.000 | 0.000 | 23.24 | 0.00 | 0.00 |
| 12 | 133.00 | T-Arm | 3 | 8.171 | 8.988 | 0.50 | 0.75 | 22.46 | 1774.23 | 0.000 | 0.000 | 201.86 | 0.00 | 0.00 |
| 13 | 133.00 | DB-T1-6Z-8AB-OZ | 2 | 8.171 | 8.988 | 0.57 | 0.80 | 6.43 | 389.01 | 0.000 | 0.000 | 57.82 | 0.00 | 0.00 |
| 14 | 133.00 | RRH2X60-700 | 3 | 8.171 | 8.988 | 0.61 | 0.80 | 7.81 | 429.44 | 0.000 | 0.000 | 70.16 | 0.00 | 0.00 |
| 15 | 133.00 | RRH2X60-AWS | 3 | 8.171 | 8.988 | 0.61 | 0.80 | 7.81 | 429.44 | 0.000 | 0.000 | 70.16 | 0.00 | 0.00 |
| 16 | 133.00 | BXA-171063-12CF | 3 | 8.171 | 8.988 | 0.67 | 0.80 | 14.34 | 255.53 | 0.000 | 0.000 | 128.85 | 0.00 | 0.00 |
| 17 | 133.00 | LPA-80080-6CF | 6 | 8.171 | 8.988 | 1.36 | 0.80 | 46.42 | 859.88 | 0.000 | 0.000 | 417.24 | 0.00 | 0.00 |
| 18 | 133.00 | SBNHH-1D65B | 6 | 8.171 | 8.988 | 0.66 | 0.80 | 37.62 | 1489.47 | 0.000 | 0.000 | 338.16 | 0.00 | 0.00 |
| 19 | 85.00 | DB408 | 1 | 7.521 | 8.273 | 1.00 | 1.00 | 11.63 | 111.54 | 0.000 | 4.708 | 96.24 | 0.00 | 453.15 |
| 20 | 85.00 | SD222 | 2 | 7.522 | 8.274 | 1.00 | 1.00 | 26.09 | 227.82 | 0.000 | 4.750 | 215.83 | 0.00 | 1025.18 |
| 21 | 85.00 | SP4-4.7NS RD4 | 1 | 7.436 | 8.180 | 1.00 | 1.00 | 26.19 | 227.13 | 0.000 | 0.000 | 214.25 | 0.00 | 0.00 |
| 22 | 85.00 | Pipe Mount | 2 | 7.436 | 8.180 | 1.00 | 1.00 | 16.60 | -541.03 | 0.000 | 0.000 | 135.75 | 0.00 | 0.00 |
| Totals: | | | | | | | | 14,304.02 | | | | 3,332.55 | | |

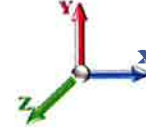
Total Applied Force Summary

| | | |
|---------------------------------|--|-----------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Page: 20 |
| | Struct Class: II | |



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

| Elev (ft) | Description | Lateral F _x (-) (lb) | Axial F _y (-) (lb) | Torsion M _z (lb-ft) | Moment M _x (lb-ft) |
|----------------|------------------|---------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | | 180.88 | 2465.11 | 0.00 | 0.00 |
| 10.00 | | 177.67 | 2454.56 | 0.00 | 0.00 |
| 15.00 | | 174.26 | 2429.17 | 0.00 | 0.00 |
| 20.00 | | 181.19 | 2397.22 | 0.00 | 0.00 |
| 25.00 | | 185.96 | 2361.48 | 0.00 | 0.00 |
| 30.00 | | 189.11 | 2323.22 | 0.00 | 0.00 |
| 35.00 | | 191.06 | 2283.16 | 0.00 | 0.00 |
| 40.00 | | 192.08 | 2241.73 | 0.00 | 0.00 |
| 44.75 | | 182.62 | 2090.42 | 0.00 | 0.00 |
| 45.00 | | 9.64 | 169.80 | 0.00 | 0.00 |
| 50.00 | | 194.77 | 3353.57 | 0.00 | 0.00 |
| 51.00 | | 38.54 | 662.27 | 0.00 | 0.00 |
| 55.00 | | 154.77 | 1556.64 | 0.00 | 0.00 |
| 60.00 | | 192.66 | 1909.45 | 0.00 | 0.00 |
| 65.00 | | 190.97 | 1869.42 | 0.00 | 0.00 |
| 70.00 | | 188.92 | 1828.92 | 0.00 | 0.00 |
| 75.00 | | 186.55 | 1787.99 | 0.00 | 0.00 |
| 80.00 | | 183.90 | 1746.69 | 0.00 | 0.00 |
| 85.00 | (6) attachments | 843.05 | 1730.51 | 0.00 | 1478.33 |
| 90.00 | | 177.83 | 1644.37 | 0.00 | 0.00 |
| 90.75 | | 26.25 | 243.71 | 0.00 | 0.00 |
| 95.00 | | 149.75 | 1886.22 | 0.00 | 0.00 |
| 95.75 | | 26.06 | 328.70 | 0.00 | 0.00 |
| 100.00 | | 146.72 | 1088.99 | 0.00 | 0.00 |
| 105.00 | | 169.28 | 1250.48 | 0.00 | 0.00 |
| 110.00 | | 165.36 | 1218.01 | 0.00 | 0.00 |
| 115.00 | | 161.27 | 1185.33 | 0.00 | 0.00 |
| 120.00 | | 157.03 | 1152.47 | 0.00 | 0.00 |
| 125.00 | | 152.63 | 1119.42 | 0.00 | 0.00 |
| 127.00 | | 59.63 | 439.96 | 0.00 | 0.00 |
| 130.00 | | 89.18 | 864.15 | 0.00 | 0.00 |
| 130.75 | | 21.99 | 213.70 | 0.00 | 0.00 |
| 133.00 | (26) attachments | 1349.69 | 6057.66 | 0.00 | 0.00 |
| 135.00 | | 57.35 | 329.60 | 0.00 | 0.00 |
| 140.00 | | 140.37 | 800.24 | 0.00 | 0.00 |
| 143.00 | (31) attachments | 917.02 | 5345.56 | 0.00 | 0.00 |
| 145.00 | | 53.47 | 271.64 | 0.00 | 0.00 |
| 150.00 | | 130.46 | 655.07 | 0.00 | 0.00 |
| 154.00 | (12) attachments | 651.57 | 4278.34 | 0.00 | 0.00 |
| 155.00 | | 24.58 | 107.69 | 0.00 | 0.00 |
| Totals: | | 8,666.12 | 68,142.65 | 0.00 | 1,478.33 |

Linear Appurtenance Segment Forces (Factored)

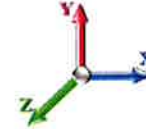
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



Page: 21

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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 22

| Top Elev (ft) | Description | Wind Exposed | Length (ft) | Ca | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra | Cf Adjust Factor | q (psf) | F (lb) | Dead Load (lb) |
|----------------|--------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|---------|------------|----------------|
| 5.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 1.87 | 0.00 | 0.033 | 0.000 | 5.168 | 0.00 | 27.35 |
| 10.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 1.94 | 0.00 | 0.033 | 0.000 | 5.168 | 0.00 | 29.45 |
| 15.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 1.99 | 0.00 | 0.034 | 0.000 | 5.168 | 0.00 | 30.79 |
| 20.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.02 | 0.00 | 0.035 | 0.000 | 5.483 | 0.00 | 31.80 |
| 25.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.05 | 0.00 | 0.036 | 0.000 | 5.747 | 0.00 | 32.62 |
| 30.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.07 | 0.00 | 0.037 | 0.000 | 5.972 | 0.00 | 33.31 |
| 35.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.09 | 0.00 | 0.038 | 0.000 | 6.169 | 0.00 | 33.91 |
| 40.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.11 | 0.00 | 0.038 | 0.000 | 6.345 | 0.00 | 34.45 |
| 44.75 | 1 5/8" Fiber | Yes | 4.75 | 0.000 | 2.00 | 2.02 | 0.00 | 0.039 | 0.000 | 6.497 | 0.00 | 33.16 |
| 45.00 | 1 5/8" Fiber | Yes | 0.25 | 0.000 | 2.00 | 0.11 | 0.00 | 0.040 | 0.000 | 6.504 | 0.00 | 1.75 |
| 50.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.14 | 0.00 | 0.041 | 0.000 | 6.650 | 0.00 | 35.37 |
| 51.00 | 1 5/8" Fiber | Yes | 1.00 | 0.000 | 2.00 | 0.43 | 0.00 | 0.041 | 0.000 | 6.678 | 0.00 | 7.09 |
| 55.00 | 1 5/8" Fiber | Yes | 4.00 | 0.000 | 2.00 | 1.72 | 0.00 | 0.041 | 0.000 | 6.785 | 0.00 | 28.62 |
| 60.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.16 | 0.00 | 0.042 | 0.000 | 6.910 | 0.00 | 36.14 |
| 65.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.17 | 0.00 | 0.043 | 0.000 | 7.028 | 0.00 | 36.49 |
| 70.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.18 | 0.00 | 0.045 | 0.000 | 7.138 | 0.00 | 36.82 |
| 75.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.19 | 0.00 | 0.046 | 0.000 | 7.243 | 0.00 | 37.13 |
| 80.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.20 | 0.00 | 0.047 | 0.000 | 7.342 | 0.00 | 37.42 |
| 85.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.21 | 0.00 | 0.049 | 0.000 | 7.436 | 0.00 | 37.70 |
| 90.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.22 | 0.00 | 0.050 | 0.000 | 7.526 | 0.00 | 37.97 |
| 90.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.33 | 0.00 | 0.051 | 0.000 | 7.539 | 0.00 | 5.70 |
| 95.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 1.89 | 0.00 | 0.052 | 0.000 | 7.612 | 0.00 | 32.49 |
| 95.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.33 | 0.00 | 0.053 | 0.000 | 7.625 | 0.00 | 5.74 |
| 100.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 1.90 | 0.00 | 0.053 | 0.000 | 7.695 | 0.00 | 32.69 |
| 105.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.24 | 0.00 | 0.055 | 0.000 | 7.774 | 0.00 | 38.69 |
| 110.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.24 | 0.00 | 0.057 | 0.000 | 7.851 | 0.00 | 38.92 |
| 115.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.25 | 0.00 | 0.060 | 0.000 | 7.925 | 0.00 | 39.13 |
| 120.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.26 | 0.00 | 0.062 | 0.000 | 7.996 | 0.00 | 39.34 |
| 125.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 2.26 | 0.00 | 0.065 | 0.000 | 8.065 | 0.00 | 39.54 |
| 127.00 | 1 5/8" Fiber | Yes | 2.00 | 0.000 | 2.00 | 0.91 | 0.00 | 0.067 | 0.000 | 8.092 | 0.00 | 15.85 |
| 130.00 | 1 5/8" Fiber | Yes | 3.00 | 0.000 | 2.00 | 1.36 | 0.00 | 0.068 | 0.000 | 8.132 | 0.00 | 23.84 |
| 130.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.34 | 0.00 | 0.069 | 0.000 | 8.142 | 0.00 | 5.96 |
| 133.00 | 1 5/8" Fiber | Yes | 2.25 | 0.000 | 2.00 | 1.02 | 0.00 | 0.069 | 0.000 | 8.171 | 0.00 | 17.93 |
| Totals: | | | | | | | | | | | 0.0 | 955.1 |

Calculated Forces

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

10/17/2016

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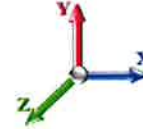


Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 22

Dead Load Factor 1.20

Wind Load Factor 1.00



| Seg Elev (ft) | Pu F (-) (kips) | Qu F (-) (kips) | Tu M (-) (ft-kips) | Mu M (ft-kips) | Mu M (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Qn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|-----------------|-----------------|--------------------|----------------|----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00 | -68.14 | -8.68 | 0.00 | -870.97 | 0.00 | 870.97 | 5604.23 | 2802.12 | 13924.9 | 6972.80 | 0.00 | 0.000 | 0.000 | 0.137 |
| 5.00 | -65.67 | -8.54 | 0.00 | -827.55 | 0.00 | 827.55 | 5529.79 | 2764.90 | 13444.5 | 6732.24 | 0.02 | -0.031 | 0.000 | 0.135 |
| 10.00 | -63.21 | -8.39 | 0.00 | -784.86 | 0.00 | 784.86 | 5453.38 | 2726.69 | 12967.3 | 6493.32 | 0.07 | -0.063 | 0.000 | 0.132 |
| 15.00 | -60.78 | -8.25 | 0.00 | -742.89 | 0.00 | 742.89 | 5374.99 | 2687.50 | 12493.8 | 6256.19 | 0.15 | -0.095 | 0.000 | 0.130 |
| 20.00 | -58.38 | -8.10 | 0.00 | -701.63 | 0.00 | 701.63 | 5294.63 | 2647.32 | 12024.1 | 6021.01 | 0.27 | -0.127 | 0.000 | 0.128 |
| 25.00 | -56.01 | -7.94 | 0.00 | -661.14 | 0.00 | 661.14 | 5212.30 | 2606.15 | 11558.7 | 5787.94 | 0.42 | -0.160 | 0.000 | 0.125 |
| 30.00 | -53.68 | -7.77 | 0.00 | -621.45 | 0.00 | 621.45 | 5128.00 | 2564.00 | 11097.7 | 5557.14 | 0.60 | -0.193 | 0.000 | 0.122 |
| 35.00 | -51.40 | -7.60 | 0.00 | -582.58 | 0.00 | 582.58 | 5041.73 | 2520.86 | 10641.7 | 5328.76 | 0.82 | -0.226 | 0.000 | 0.120 |
| 40.00 | -49.15 | -7.43 | 0.00 | -544.57 | 0.00 | 544.57 | 4953.48 | 2476.74 | 10190.8 | 5102.98 | 1.08 | -0.260 | 0.000 | 0.117 |
| 44.75 | -47.06 | -7.25 | 0.00 | -509.27 | 0.00 | 509.27 | 4867.82 | 2433.91 | 9767.51 | 4891.01 | 1.35 | -0.292 | 0.000 | 0.114 |
| 45.00 | -46.89 | -7.26 | 0.00 | -507.46 | 0.00 | 507.46 | 4863.26 | 2431.63 | 9745.37 | 4879.93 | 1.37 | -0.294 | 0.000 | 0.114 |
| 50.00 | -43.53 | -7.06 | 0.00 | -471.18 | 0.00 | 471.18 | 4771.07 | 2385.54 | 9305.74 | 4659.79 | 1.70 | -0.328 | 0.000 | 0.110 |
| 51.00 | -42.87 | -7.03 | 0.00 | -464.12 | 0.00 | 464.12 | 3927.98 | 1963.99 | 7761.51 | 3886.53 | 1.76 | -0.335 | 0.000 | 0.130 |
| 55.00 | -41.31 | -6.89 | 0.00 | -436.00 | 0.00 | 436.00 | 3872.44 | 1936.22 | 7486.25 | 3748.69 | 2.06 | -0.363 | 0.000 | 0.127 |
| 60.00 | -39.40 | -6.71 | 0.00 | -401.56 | 0.00 | 401.56 | 3801.23 | 1900.62 | 7145.52 | 3578.07 | 2.46 | -0.401 | 0.000 | 0.123 |
| 65.00 | -37.52 | -6.53 | 0.00 | -368.01 | 0.00 | 368.01 | 3728.06 | 1864.03 | 6808.79 | 3409.45 | 2.90 | -0.439 | 0.000 | 0.118 |
| 70.00 | -35.69 | -6.35 | 0.00 | -335.36 | 0.00 | 335.36 | 3652.91 | 1826.46 | 6476.38 | 3243.00 | 3.38 | -0.477 | 0.000 | 0.113 |
| 75.00 | -33.90 | -6.17 | 0.00 | -303.62 | 0.00 | 303.62 | 3575.79 | 1787.90 | 6148.62 | 3078.88 | 3.90 | -0.514 | 0.000 | 0.108 |
| 80.00 | -32.15 | -5.99 | 0.00 | -272.77 | 0.00 | 272.77 | 3496.70 | 1748.35 | 5825.81 | 2917.23 | 4.46 | -0.551 | 0.000 | 0.103 |
| 85.00 | -30.43 | -5.15 | 0.00 | -241.34 | 0.00 | 241.34 | 3415.64 | 1707.82 | 5508.27 | 2758.23 | 5.05 | -0.588 | 0.000 | 0.096 |
| 90.00 | -28.78 | -4.96 | 0.00 | -215.59 | 0.00 | 215.59 | 3332.60 | 1666.30 | 5196.32 | 2602.02 | 5.69 | -0.623 | 0.000 | 0.092 |
| 90.75 | -28.54 | -4.94 | 0.00 | -211.87 | 0.00 | 211.87 | 3319.98 | 1659.99 | 5150.02 | 2578.84 | 5.79 | -0.629 | 0.000 | 0.091 |
| 95.00 | -26.65 | -4.78 | 0.00 | -190.86 | 0.00 | 190.86 | 3247.59 | 1623.80 | 4890.27 | 2448.77 | 6.36 | -0.659 | 0.000 | 0.086 |
| 95.75 | -26.32 | -4.76 | 0.00 | -187.27 | 0.00 | 187.27 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 6.46 | -0.664 | 0.000 | 0.142 |
| 100.00 | -25.23 | -4.62 | 0.00 | -167.04 | 0.00 | 167.04 | 1878.47 | 939.23 | 2786.43 | 1395.29 | 7.07 | -0.693 | 0.000 | 0.133 |
| 105.00 | -23.98 | -4.45 | 0.00 | -143.96 | 0.00 | 143.96 | 1837.85 | 918.92 | 2627.99 | 1315.95 | 7.82 | -0.740 | 0.000 | 0.122 |
| 110.00 | -22.76 | -4.29 | 0.00 | -121.70 | 0.00 | 121.70 | 1795.26 | 897.63 | 2471.18 | 1237.43 | 8.62 | -0.785 | 0.000 | 0.111 |
| 115.00 | -21.58 | -4.12 | 0.00 | -100.27 | 0.00 | 100.27 | 1750.70 | 875.35 | 2316.31 | 1159.88 | 9.47 | -0.827 | 0.000 | 0.099 |
| 120.00 | -20.42 | -3.96 | 0.00 | -79.65 | 0.00 | 79.65 | 1704.17 | 852.08 | 2163.70 | 1083.46 | 10.35 | -0.865 | 0.000 | 0.086 |
| 125.00 | -19.31 | -3.80 | 0.00 | -59.84 | 0.00 | 59.84 | 1655.66 | 827.83 | 2013.66 | 1008.33 | 11.28 | -0.899 | 0.000 | 0.071 |
| 127.00 | -18.87 | -3.74 | 0.00 | -52.24 | 0.00 | 52.24 | 1635.71 | 817.85 | 1954.43 | 978.67 | 11.66 | -0.911 | 0.000 | 0.065 |
| 130.00 | -18.00 | -3.64 | 0.00 | -41.02 | 0.00 | 41.02 | 1605.19 | 802.59 | 1866.51 | 934.64 | 12.24 | -0.927 | 0.000 | 0.055 |
| 130.75 | -17.79 | -3.62 | 0.00 | -38.29 | 0.00 | 38.29 | 1090.28 | 545.14 | 1281.57 | 641.74 | 12.38 | -0.931 | 0.000 | 0.076 |
| 133.00 | -11.75 | -2.17 | 0.00 | -30.16 | 0.00 | 30.16 | 1077.75 | 538.87 | 1240.93 | 621.39 | 12.82 | -0.941 | 0.000 | 0.059 |
| 135.00 | -11.42 | -2.11 | 0.00 | -25.82 | 0.00 | 25.82 | 1066.28 | 533.14 | 1204.93 | 603.36 | 13.22 | -0.950 | 0.000 | 0.054 |
| 140.00 | -10.63 | -1.96 | 0.00 | -15.27 | 0.00 | 15.27 | 1036.22 | 518.11 | 1115.60 | 558.63 | 14.23 | -0.969 | 0.000 | 0.038 |
| 143.00 | -5.30 | -0.95 | 0.00 | -9.40 | 0.00 | 9.40 | 1017.23 | 508.62 | 1062.55 | 532.07 | 14.84 | -0.977 | 0.000 | 0.023 |
| 145.00 | -5.03 | -0.89 | 0.00 | -7.50 | 0.00 | 7.50 | 1004.18 | 502.09 | 1027.46 | 514.49 | 15.25 | -0.981 | 0.000 | 0.020 |
| 150.00 | -4.37 | -0.75 | 0.00 | -3.03 | 0.00 | 3.03 | 970.18 | 485.09 | 940.83 | 471.12 | 16.28 | -0.987 | 0.000 | 0.011 |
| 154.00 | -0.11 | -0.03 | 0.00 | -0.03 | 0.00 | 0.03 | 941.55 | 470.78 | 872.83 | 437.06 | 17.11 | -0.989 | 0.000 | 0.000 |
| 155.00 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 934.20 | 467.10 | 856.03 | 428.65 | 17.31 | -0.989 | 0.000 | 0.000 |

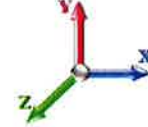
Seismic Segment Forces (Factored)

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| | | | | | |
|-------------------------------|------|----------------------------|------|------------|---------------------------------------|
| Load Case: 1.2D + 1.0E | | | | | Iterations 20 |
| Gust Response Factor | 1.10 | Sds | 0.14 | Ss | 0.18 |
| Dead Load Factor | 1.20 | Seismic Load Factor | 1.00 | Sd1 | 0.07 |
| Wind Load Factor | 0.00 | Structure Frequency | 0.46 | SA | 0.03 |
| | | | | | Seismic Importance Factor 1.00 |



| Top Elev (ft) | Description | W (lb) | a | b | c | Lateral Fs (lb) | R: 1.50 |
|----------------|-----------------|-----------------|------|-------|------|-----------------|-----------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5.00 | | 1412.4 | 0.00 | 0.03 | 0.02 | 16.52 | |
| 10.00 | | 1382.0 | 0.01 | 0.05 | 0.03 | 24.21 | |
| 15.00 | | 1351.5 | 0.02 | 0.06 | 0.04 | 27.79 | |
| 20.00 | | 1321.0 | 0.03 | 0.07 | 0.04 | 29.33 | |
| 25.00 | | 1290.5 | 0.05 | 0.07 | 0.04 | 29.90 | |
| 30.00 | | 1260.0 | 0.07 | 0.07 | 0.04 | 30.07 | |
| 35.00 | | 1229.6 | 0.10 | 0.07 | 0.04 | 30.10 | |
| 40.00 | | 1199.1 | 0.13 | 0.07 | 0.03 | 30.05 | |
| 44.75 | Bot - Section 2 | 1110.9 | 0.16 | 0.07 | 0.03 | 28.34 | |
| 45.00 | | 107.99 | 0.16 | 0.07 | 0.03 | 2.76 | |
| 50.00 | | 2130.1 | 0.20 | 0.06 | 0.02 | 54.72 | |
| 51.00 | Top - Section 1 | 419.24 | 0.20 | 0.06 | 0.02 | 10.76 | |
| 55.00 | | 770.62 | 0.24 | 0.06 | 0.02 | 19.46 | |
| 60.00 | | 939.77 | 0.28 | 0.05 | 0.01 | 22.42 | |
| 65.00 | | 913.64 | 0.33 | 0.04 | 0.01 | 19.30 | |
| 70.00 | | 887.52 | 0.39 | 0.02 | 0.01 | 14.85 | |
| 75.00 | | 861.39 | 0.44 | 0.00 | 0.01 | 9.15 | |
| 80.00 | | 835.26 | 0.50 | -0.02 | 0.01 | 2.60 | |
| 85.00 | Appurtenance(s) | 1040.1 | 0.57 | -0.04 | 0.01 | -5.17 | |
| 90.00 | | 783.01 | 0.64 | -0.07 | 0.02 | -9.74 | |
| 90.75 | Bot - Section 3 | 115.20 | 0.65 | -0.07 | 0.02 | -1.55 | |
| 95.00 | | 1076.6 | 0.71 | -0.09 | 0.03 | -19.52 | |
| 95.75 | Top - Section 2 | 186.73 | 0.72 | -0.09 | 0.03 | -3.50 | |
| 100.00 | | 420.16 | 0.79 | -0.11 | 0.05 | -8.86 | |
| 105.00 | | 478.19 | 0.87 | -0.12 | 0.08 | -9.95 | |
| 110.00 | | 460.78 | 0.95 | -0.12 | 0.11 | -7.84 | |
| 115.00 | | 443.36 | 1.04 | -0.10 | 0.15 | -4.28 | |
| 120.00 | | 425.94 | 1.13 | -0.05 | 0.21 | 0.57 | |
| 125.00 | | 408.53 | 1.23 | 0.03 | 0.28 | 6.51 | |
| 127.00 | Bot - Section 4 | 158.53 | 1.27 | 0.08 | 0.31 | 3.61 | |
| 130.00 | | 409.66 | 1.33 | 0.16 | 0.36 | 14.00 | |
| 130.75 | Top - Section 3 | 100.70 | 1.34 | 0.19 | 0.38 | 3.75 | |
| 133.00 | Appurtenance(s) | 2037.8 | 1.39 | 0.27 | 0.42 | 95.52 | |
| 135.00 | | 112.31 | 1.43 | 0.35 | 0.47 | 6.30 | |
| 140.00 | | 271.63 | 1.54 | 0.61 | 0.59 | 22.19 | |
| 143.00 | Appurtenance(s) | 2164.6 | 1.61 | 0.81 | 0.68 | 214.04 | |
| 145.00 | | 101.86 | 1.65 | 0.96 | 0.75 | 11.32 | |
| 150.00 | | 245.51 | 1.77 | 1.41 | 0.93 | 35.44 | |
| 154.00 | Appurtenance(s) | 1965.7 | 1.87 | 1.85 | 1.09 | 341.63 | |
| 155.00 | | 45.44 | 1.89 | 1.98 | 1.14 | 8.25 | |
| Totals: | | 32,875.5 | | | | 1,095.0 | Total Wind: 30,626.1 |

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

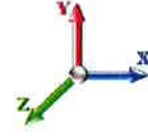
Calculated Forces

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.2D + 1.0E



Iterations 20

| | | |
|----------------------------------|---------------------------------|---------------------------------------|
| Gust Response Factor 1.10 | Sds 0.14 | Ss 0.18 |
| Dead Load Factor 1.20 | Seismic Load Factor 1.00 | Sd1 0.07 |
| Wind Load Factor 0.00 | Structure Frequency 0.46 | SA 0.03 |
| | | Seismic Importance Factor 1.00 |

| Seg Elev (ft) | Pu F (-) (kips) | Qu F (-) (kips) | Tu M (-) (ft-kips) | Mu M (ft-kips) | Mu M (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Qn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation S (deg) | Rotation T (deg) | Stress Ratio |
|---------------|-----------------|-----------------|--------------------|----------------|----------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|------------------|------------------|--------------|
| 0.00 | -47.13 | -1.17 | 0.00 | -130.74 | 0.00 | 130.74 | 5604.23 | 2802.12 | 13924.9 | 6972.80 | 0.00 | 0.00 | 0.00 | 0.027 |
| 5.00 | -45.16 | -1.15 | 0.00 | -124.91 | 0.00 | 124.91 | 5529.79 | 2764.90 | 13444.5 | 6732.24 | 0.00 | 0.00 | 0.00 | 0.027 |
| 10.00 | -43.23 | -1.13 | 0.00 | -119.14 | 0.00 | 119.14 | 5453.38 | 2726.69 | 12967.3 | 6493.32 | 0.01 | -0.01 | 0.00 | 0.026 |
| 15.00 | -41.33 | -1.11 | 0.00 | -113.48 | 0.00 | 113.48 | 5374.99 | 2687.50 | 12493.8 | 6256.19 | 0.02 | -0.01 | 0.00 | 0.026 |
| 20.00 | -39.47 | -1.08 | 0.00 | -107.94 | 0.00 | 107.94 | 5294.63 | 2647.32 | 12024.1 | 6021.01 | 0.04 | -0.02 | 0.00 | 0.025 |
| 25.00 | -37.64 | -1.05 | 0.00 | -102.53 | 0.00 | 102.53 | 5212.30 | 2606.15 | 11558.7 | 5787.94 | 0.06 | -0.02 | 0.00 | 0.025 |
| 30.00 | -35.86 | -1.03 | 0.00 | -97.26 | 0.00 | 97.26 | 5128.00 | 2564.00 | 11097.7 | 5557.14 | 0.09 | -0.03 | 0.00 | 0.024 |
| 35.00 | -34.10 | -1.00 | 0.00 | -92.12 | 0.00 | 92.12 | 5041.73 | 2520.86 | 10641.7 | 5328.76 | 0.13 | -0.03 | 0.00 | 0.024 |
| 40.00 | -32.39 | -0.97 | 0.00 | -87.13 | 0.00 | 87.13 | 4953.48 | 2476.74 | 10190.8 | 5102.98 | 0.16 | -0.04 | 0.00 | 0.024 |
| 44.75 | -30.79 | -0.94 | 0.00 | -82.52 | 0.00 | 82.52 | 4867.82 | 2433.91 | 9767.51 | 4891.01 | 0.21 | -0.05 | 0.00 | 0.023 |
| 45.00 | -30.65 | -0.94 | 0.00 | -82.28 | 0.00 | 82.28 | 4863.26 | 2431.63 | 9745.37 | 4879.93 | 0.21 | -0.05 | 0.00 | 0.023 |
| 50.00 | -27.82 | -0.89 | 0.00 | -77.58 | 0.00 | 77.58 | 4771.07 | 2385.54 | 9305.74 | 4659.79 | 0.26 | -0.05 | 0.00 | 0.022 |
| 51.00 | -27.26 | -0.88 | 0.00 | -76.69 | 0.00 | 76.69 | 3927.98 | 1963.99 | 7761.51 | 3886.53 | 0.27 | -0.05 | 0.00 | 0.027 |
| 55.00 | -26.11 | -0.86 | 0.00 | -73.19 | 0.00 | 73.19 | 3872.44 | 1936.22 | 7486.25 | 3748.69 | 0.32 | -0.06 | 0.00 | 0.026 |
| 60.00 | -24.71 | -0.84 | 0.00 | -68.90 | 0.00 | 68.90 | 3801.23 | 1900.62 | 7145.52 | 3578.07 | 0.38 | -0.06 | 0.00 | 0.026 |
| 65.00 | -23.34 | -0.82 | 0.00 | -64.72 | 0.00 | 64.72 | 3728.06 | 1864.03 | 6808.79 | 3409.45 | 0.45 | -0.07 | 0.00 | 0.025 |
| 70.00 | -22.00 | -0.80 | 0.00 | -60.62 | 0.00 | 60.62 | 3652.91 | 1826.46 | 6476.38 | 3243.00 | 0.53 | -0.08 | 0.00 | 0.025 |
| 75.00 | -20.69 | -0.80 | 0.00 | -56.60 | 0.00 | 56.60 | 3575.79 | 1787.90 | 6148.62 | 3078.88 | 0.61 | -0.08 | 0.00 | 0.024 |
| 80.00 | -19.41 | -0.79 | 0.00 | -52.62 | 0.00 | 52.62 | 3496.70 | 1748.35 | 5825.81 | 2917.23 | 0.70 | -0.09 | 0.00 | 0.024 |
| 85.00 | -17.88 | -0.79 | 0.00 | -48.65 | 0.00 | 48.65 | 3415.64 | 1707.82 | 5508.27 | 2758.23 | 0.80 | -0.10 | 0.00 | 0.023 |
| 90.00 | -16.69 | -0.79 | 0.00 | -44.68 | 0.00 | 44.68 | 3332.60 | 1666.30 | 5196.32 | 2602.02 | 0.91 | -0.11 | 0.00 | 0.022 |
| 90.75 | -16.51 | -0.79 | 0.00 | -44.08 | 0.00 | 44.08 | 3319.98 | 1659.99 | 5150.02 | 2578.84 | 0.92 | -0.11 | 0.00 | 0.022 |
| 95.00 | -15.00 | -0.79 | 0.00 | -40.71 | 0.00 | 40.71 | 3247.59 | 1623.80 | 4890.27 | 2448.77 | 1.02 | -0.11 | 0.00 | 0.021 |
| 95.75 | -14.73 | -0.79 | 0.00 | -40.12 | 0.00 | 40.12 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 1.04 | -0.11 | 0.00 | 0.035 |
| 100.00 | -14.01 | -0.79 | 0.00 | -36.75 | 0.00 | 36.75 | 1878.47 | 939.23 | 2786.43 | 1395.29 | 1.14 | -0.12 | 0.00 | 0.034 |
| 105.00 | -13.18 | -0.79 | 0.00 | -32.78 | 0.00 | 32.78 | 1837.85 | 918.92 | 2627.99 | 1315.95 | 1.27 | -0.13 | 0.00 | 0.032 |
| 110.00 | -12.37 | -0.79 | 0.00 | -28.82 | 0.00 | 28.82 | 1795.26 | 897.63 | 2471.18 | 1237.43 | 1.42 | -0.14 | 0.00 | 0.030 |
| 115.00 | -11.58 | -0.79 | 0.00 | -24.85 | 0.00 | 24.85 | 1750.70 | 875.35 | 2316.31 | 1159.88 | 1.57 | -0.15 | 0.00 | 0.028 |
| 120.00 | -10.81 | -0.79 | 0.00 | -20.88 | 0.00 | 20.88 | 1704.17 | 852.08 | 2163.70 | 1083.46 | 1.73 | -0.16 | 0.00 | 0.026 |
| 125.00 | -10.06 | -0.79 | 0.00 | -16.91 | 0.00 | 16.91 | 1655.66 | 827.83 | 2013.66 | 1008.33 | 1.91 | -0.17 | 0.00 | 0.023 |
| 127.00 | -9.77 | -0.78 | 0.00 | -15.34 | 0.00 | 15.34 | 1635.71 | 817.85 | 1954.43 | 978.67 | 1.98 | -0.17 | 0.00 | 0.022 |
| 130.00 | -9.12 | -0.77 | 0.00 | -12.99 | 0.00 | 12.99 | 1605.19 | 802.59 | 1866.51 | 934.64 | 2.09 | -0.18 | 0.00 | 0.020 |
| 130.75 | -8.97 | -0.76 | 0.00 | -12.42 | 0.00 | 12.42 | 1090.28 | 545.14 | 1281.57 | 641.74 | 2.12 | -0.18 | 0.00 | 0.028 |
| 133.00 | -6.40 | -0.66 | 0.00 | -10.70 | 0.00 | 10.70 | 1077.75 | 538.87 | 1240.93 | 621.39 | 2.20 | -0.18 | 0.00 | 0.023 |
| 135.00 | -6.20 | -0.65 | 0.00 | -9.39 | 0.00 | 9.39 | 1066.28 | 533.14 | 1204.93 | 603.36 | 2.28 | -0.19 | 0.00 | 0.021 |
| 140.00 | -5.71 | -0.63 | 0.00 | -6.12 | 0.00 | 6.12 | 1036.22 | 518.11 | 1115.60 | 558.63 | 2.48 | -0.19 | 0.00 | 0.016 |
| 143.00 | -3.01 | -0.41 | 0.00 | -4.23 | 0.00 | 4.23 | 1017.23 | 508.62 | 1062.55 | 532.07 | 2.60 | -0.20 | 0.00 | 0.011 |
| 145.00 | -2.85 | -0.40 | 0.00 | -3.42 | 0.00 | 3.42 | 1004.18 | 502.09 | 1027.46 | 514.49 | 2.68 | -0.20 | 0.00 | 0.009 |
| 150.00 | -2.48 | -0.36 | 0.00 | -1.44 | 0.00 | 1.44 | 970.18 | 485.09 | 940.83 | 471.12 | 2.89 | -0.20 | 0.00 | 0.006 |
| 154.00 | -0.05 | -0.01 | 0.00 | -0.01 | 0.00 | 0.01 | 941.55 | 470.78 | 872.83 | 437.06 | 3.06 | -0.20 | 0.00 | 0.000 |
| 155.00 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 934.20 | 467.10 | 856.03 | 428.65 | 3.11 | -0.20 | 0.00 | 0.000 |

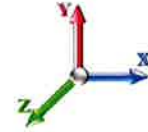
Seismic Segment Forces (Factored)

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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| | | | | |
|-------------------------------|------|----------------------------|------|---------------------------------------|
| Load Case: 0.9D + 1.0E | | | | Iterations 20 |
| Gust Response Factor | 1.10 | Sds | 0.14 | Ss 0.18 |
| Dead Load Factor | 0.90 | Seismic Load Factor | 1.00 | S1 0.06 |
| Wind Load Factor | 0.00 | Structure Frequency | 0.46 | SA 0.03 |
| | | | | Seismic Importance Factor 1.00 |



| Top Elev (ft) | Description | W (lb) | a | b | c | Lateral Fs (lb) | R: 1.50 |
|----------------|-----------------|-----------------|------|-------|------|-----------------|-----------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5.00 | | 1412.4 | 0.00 | 0.03 | 0.02 | 16.52 | |
| 10.00 | | 1382.0 | 0.01 | 0.05 | 0.03 | 24.21 | |
| 15.00 | | 1351.5 | 0.02 | 0.06 | 0.04 | 27.79 | |
| 20.00 | | 1321.0 | 0.03 | 0.07 | 0.04 | 29.33 | |
| 25.00 | | 1290.5 | 0.05 | 0.07 | 0.04 | 29.90 | |
| 30.00 | | 1260.0 | 0.07 | 0.07 | 0.04 | 30.07 | |
| 35.00 | | 1229.6 | 0.10 | 0.07 | 0.04 | 30.10 | |
| 40.00 | | 1199.1 | 0.13 | 0.07 | 0.03 | 30.05 | |
| 44.75 | Bot - Section 2 | 1110.9 | 0.16 | 0.07 | 0.03 | 28.34 | |
| 45.00 | | 107.99 | 0.16 | 0.07 | 0.03 | 2.76 | |
| 50.00 | | 2130.1 | 0.20 | 0.06 | 0.02 | 54.72 | |
| 51.00 | Top - Section 1 | 419.24 | 0.20 | 0.06 | 0.02 | 10.76 | |
| 55.00 | | 770.62 | 0.24 | 0.06 | 0.02 | 19.46 | |
| 60.00 | | 939.77 | 0.28 | 0.05 | 0.01 | 22.42 | |
| 65.00 | | 913.64 | 0.33 | 0.04 | 0.01 | 19.30 | |
| 70.00 | | 887.52 | 0.39 | 0.02 | 0.01 | 14.85 | |
| 75.00 | | 861.39 | 0.44 | 0.00 | 0.01 | 9.15 | |
| 80.00 | | 835.26 | 0.50 | -0.02 | 0.01 | 2.60 | |
| 85.00 | Appurtenance(s) | 1040.1 | 0.57 | -0.04 | 0.01 | -5.17 | |
| 90.00 | | 783.01 | 0.64 | -0.07 | 0.02 | -9.74 | |
| 90.75 | Bot - Section 3 | 115.20 | 0.65 | -0.07 | 0.02 | -1.55 | |
| 95.00 | | 1076.6 | 0.71 | -0.09 | 0.03 | -19.52 | |
| 95.75 | Top - Section 2 | 186.73 | 0.72 | -0.09 | 0.03 | -3.50 | |
| 100.00 | | 420.16 | 0.79 | -0.11 | 0.05 | -8.86 | |
| 105.00 | | 478.19 | 0.87 | -0.12 | 0.08 | -9.95 | |
| 110.00 | | 460.78 | 0.95 | -0.12 | 0.11 | -7.84 | |
| 115.00 | | 443.36 | 1.04 | -0.10 | 0.15 | -4.28 | |
| 120.00 | | 425.94 | 1.13 | -0.05 | 0.21 | 0.57 | |
| 125.00 | | 408.53 | 1.23 | 0.03 | 0.28 | 6.51 | |
| 127.00 | Bot - Section 4 | 158.53 | 1.27 | 0.08 | 0.31 | 3.61 | |
| 130.00 | | 409.66 | 1.33 | 0.16 | 0.36 | 14.00 | |
| 130.75 | Top - Section 3 | 100.70 | 1.34 | 0.19 | 0.38 | 3.75 | |
| 133.00 | Appurtenance(s) | 2037.8 | 1.39 | 0.27 | 0.42 | 95.52 | |
| 135.00 | | 112.31 | 1.43 | 0.35 | 0.47 | 6.30 | |
| 140.00 | | 271.63 | 1.54 | 0.61 | 0.59 | 22.19 | |
| 143.00 | Appurtenance(s) | 2164.6 | 1.61 | 0.81 | 0.68 | 214.04 | |
| 145.00 | | 101.86 | 1.65 | 0.96 | 0.75 | 11.32 | |
| 150.00 | | 245.51 | 1.77 | 1.41 | 0.93 | 35.44 | |
| 154.00 | Appurtenance(s) | 1965.7 | 1.87 | 1.85 | 1.09 | 341.63 | |
| 155.00 | | 45.44 | 1.89 | 1.98 | 1.14 | 8.25 | |
| Totals: | | 32,875.5 | | | | 1,095.0 | Total Wind: 30,626.1 |

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

Calculated Forces

Structure: CT13610-A-SBA **Code:** EIA/TIA-222-G 10/17/2016
Site Name: ARTEC **Exposure:** C
Height: 155.00 (ft) **Crest Height:** 0.00
Base Elev: 0.000 (ft) **Site Class:** C - Very Dense Soil
Gh: 1.1 **Topography:** 1 **Struct Class:** II Page: 26



Load Case: 0.9D + 1.0E

Gust Response Factor 1.10 **Sds** 0.14 **Iterations** 20
Dead Load Factor 0.90 **Seismic Load Factor** 1.00 **Sd1** 0.07 **Ss** 0.18
Wind Load Factor 0.00 **Structure Frequency** 0.46 **SA** 0.03 **Seismic Importance Factor** 1.00
S1 0.06



| Seg Elev (ft) | Pu F (-) (kips) | Qu F (-) (kips) | Tu M (-) (ft-kips) | Mu M (-) (ft-kips) | Mu M (-) (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Qn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation S (deg) | Rotation T (deg) | Stress Ratio |
|---------------|-----------------|-----------------|--------------------|--------------------|--------------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|------------------|------------------|--------------|
| 0.00 | -35.35 | -1.17 | 0.00 | -129.82 | 0.00 | 129.82 | 5604.23 | 2802.12 | 13924.9 | 6972.80 | 0.00 | 0.00 | 0.00 | 0.025 |
| 5.00 | -33.87 | -1.15 | 0.00 | -123.99 | 0.00 | 123.99 | 5529.79 | 2764.90 | 13444.5 | 6732.24 | 0.00 | 0.00 | 0.00 | 0.025 |
| 10.00 | -32.42 | -1.13 | 0.00 | -118.23 | 0.00 | 118.23 | 5453.38 | 2726.69 | 12967.3 | 6493.32 | 0.01 | -0.01 | 0.024 | 0.024 |
| 15.00 | -31.00 | -1.10 | 0.00 | -112.58 | 0.00 | 112.58 | 5374.99 | 2687.50 | 12493.8 | 6256.19 | 0.02 | -0.01 | 0.024 | 0.024 |
| 20.00 | -29.60 | -1.08 | 0.00 | -107.06 | 0.00 | 107.06 | 5294.63 | 2647.32 | 12024.1 | 6021.01 | 0.04 | -0.02 | 0.023 | 0.023 |
| 25.00 | -28.23 | -1.05 | 0.00 | -101.67 | 0.00 | 101.67 | 5212.30 | 2606.15 | 11558.7 | 5787.94 | 0.06 | -0.02 | 0.023 | 0.023 |
| 30.00 | -26.89 | -1.02 | 0.00 | -96.42 | 0.00 | 96.42 | 5128.00 | 2564.00 | 11097.7 | 5557.14 | 0.09 | -0.03 | 0.023 | 0.023 |
| 35.00 | -25.58 | -0.99 | 0.00 | -91.31 | 0.00 | 91.31 | 5041.73 | 2520.86 | 10641.7 | 5328.76 | 0.12 | -0.03 | 0.022 | 0.022 |
| 40.00 | -24.29 | -0.96 | 0.00 | -86.35 | 0.00 | 86.35 | 4953.48 | 2476.74 | 10190.8 | 5102.98 | 0.16 | -0.04 | 0.022 | 0.022 |
| 44.75 | -23.09 | -0.94 | 0.00 | -81.76 | 0.00 | 81.76 | 4867.82 | 2433.91 | 9767.51 | 4891.01 | 0.21 | -0.04 | 0.021 | 0.021 |
| 45.00 | -22.99 | -0.93 | 0.00 | -81.53 | 0.00 | 81.53 | 4863.26 | 2431.63 | 9745.37 | 4879.93 | 0.21 | -0.05 | 0.021 | 0.021 |
| 50.00 | -20.86 | -0.88 | 0.00 | -76.86 | 0.00 | 76.86 | 4771.07 | 2385.54 | 9305.74 | 4659.79 | 0.26 | -0.05 | 0.021 | 0.021 |
| 51.00 | -20.44 | -0.87 | 0.00 | -75.98 | 0.00 | 75.98 | 3927.98 | 1963.99 | 7761.51 | 3886.53 | 0.27 | -0.05 | 0.025 | 0.025 |
| 55.00 | -19.58 | -0.85 | 0.00 | -72.50 | 0.00 | 72.50 | 3872.44 | 1936.22 | 7486.25 | 3748.69 | 0.31 | -0.06 | 0.024 | 0.024 |
| 60.00 | -18.53 | -0.83 | 0.00 | -68.25 | 0.00 | 68.25 | 3801.23 | 1900.62 | 7145.52 | 3578.07 | 0.38 | -0.06 | 0.024 | 0.024 |
| 65.00 | -17.50 | -0.81 | 0.00 | -64.10 | 0.00 | 64.10 | 3728.06 | 1864.03 | 6808.79 | 3409.45 | 0.45 | -0.07 | 0.023 | 0.023 |
| 70.00 | -16.50 | -0.80 | 0.00 | -60.04 | 0.00 | 60.04 | 3652.91 | 1826.46 | 6476.38 | 3243.00 | 0.52 | -0.08 | 0.023 | 0.023 |
| 75.00 | -15.51 | -0.79 | 0.00 | -56.06 | 0.00 | 56.06 | 3575.79 | 1787.90 | 6148.62 | 3078.88 | 0.61 | -0.08 | 0.023 | 0.023 |
| 80.00 | -14.55 | -0.79 | 0.00 | -52.12 | 0.00 | 52.12 | 3496.70 | 1748.35 | 5825.81 | 2917.23 | 0.70 | -0.09 | 0.022 | 0.022 |
| 85.00 | -13.41 | -0.79 | 0.00 | -48.19 | 0.00 | 48.19 | 3415.64 | 1707.82 | 5508.27 | 2758.23 | 0.79 | -0.10 | 0.021 | 0.021 |
| 90.00 | -12.51 | -0.79 | 0.00 | -44.26 | 0.00 | 44.26 | 3332.60 | 1666.30 | 5196.32 | 2602.02 | 0.90 | -0.10 | 0.021 | 0.021 |
| 90.75 | -12.38 | -0.79 | 0.00 | -43.67 | 0.00 | 43.67 | 3319.98 | 1659.99 | 5150.02 | 2578.84 | 0.92 | -0.11 | 0.021 | 0.021 |
| 95.00 | -11.25 | -0.78 | 0.00 | -40.33 | 0.00 | 40.33 | 3247.59 | 1623.80 | 4890.27 | 2448.77 | 1.01 | -0.11 | 0.020 | 0.020 |
| 95.75 | -11.05 | -0.78 | 0.00 | -39.75 | 0.00 | 39.75 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 1.03 | -0.11 | 0.033 | 0.033 |
| 100.00 | -10.51 | -0.79 | 0.00 | -36.41 | 0.00 | 36.41 | 1878.47 | 939.23 | 2786.43 | 1395.29 | 1.13 | -0.12 | 0.032 | 0.032 |
| 105.00 | -9.88 | -0.79 | 0.00 | -32.48 | 0.00 | 32.48 | 1837.85 | 918.92 | 2627.99 | 1315.95 | 1.26 | -0.13 | 0.030 | 0.030 |
| 110.00 | -9.28 | -0.79 | 0.00 | -28.56 | 0.00 | 28.56 | 1795.26 | 897.63 | 2471.18 | 1237.43 | 1.40 | -0.14 | 0.028 | 0.028 |
| 115.00 | -8.68 | -0.79 | 0.00 | -24.63 | 0.00 | 24.63 | 1750.70 | 875.35 | 2316.31 | 1159.88 | 1.56 | -0.15 | 0.026 | 0.026 |
| 120.00 | -8.11 | -0.79 | 0.00 | -20.70 | 0.00 | 20.70 | 1704.17 | 852.08 | 2163.70 | 1083.46 | 1.72 | -0.16 | 0.024 | 0.024 |
| 125.00 | -7.55 | -0.78 | 0.00 | -16.77 | 0.00 | 16.77 | 1655.66 | 827.83 | 2013.66 | 1008.33 | 1.89 | -0.17 | 0.021 | 0.021 |
| 127.00 | -7.33 | -0.77 | 0.00 | -15.22 | 0.00 | 15.22 | 1635.71 | 817.85 | 1954.43 | 978.67 | 1.96 | -0.17 | 0.020 | 0.020 |
| 130.00 | -6.84 | -0.76 | 0.00 | -12.89 | 0.00 | 12.89 | 1605.19 | 802.59 | 1866.51 | 934.64 | 2.07 | -0.18 | 0.018 | 0.018 |
| 130.75 | -6.72 | -0.76 | 0.00 | -12.33 | 0.00 | 12.33 | 1090.28 | 545.14 | 1281.57 | 641.74 | 2.10 | -0.18 | 0.025 | 0.025 |
| 133.00 | -4.80 | -0.65 | 0.00 | -10.63 | 0.00 | 10.63 | 1077.75 | 538.87 | 1240.93 | 621.39 | 2.18 | -0.18 | 0.022 | 0.022 |
| 135.00 | -4.65 | -0.65 | 0.00 | -9.32 | 0.00 | 9.32 | 1066.28 | 533.14 | 1204.93 | 603.36 | 2.26 | -0.18 | 0.020 | 0.020 |
| 140.00 | -4.28 | -0.62 | 0.00 | -6.08 | 0.00 | 6.08 | 1036.22 | 518.11 | 1115.60 | 558.63 | 2.46 | -0.19 | 0.015 | 0.015 |
| 143.00 | -2.26 | -0.40 | 0.00 | -4.20 | 0.00 | 4.20 | 1017.23 | 508.62 | 1062.55 | 532.07 | 2.58 | -0.19 | 0.010 | 0.010 |
| 145.00 | -2.14 | -0.39 | 0.00 | -3.40 | 0.00 | 3.40 | 1004.18 | 502.09 | 1027.46 | 514.49 | 2.66 | -0.20 | 0.009 | 0.009 |
| 150.00 | -1.86 | -0.36 | 0.00 | -1.43 | 0.00 | 1.43 | 970.18 | 485.09 | 940.83 | 471.12 | 2.87 | -0.20 | 0.005 | 0.005 |
| 154.00 | -0.04 | -0.01 | 0.00 | -0.01 | 0.00 | 0.01 | 941.55 | 470.78 | 872.83 | 437.06 | 3.04 | -0.20 | 0.000 | 0.000 |
| 155.00 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 934.20 | 467.10 | 856.03 | 428.65 | 3.08 | -0.20 | 0.000 | 0.000 |

Wind Loading - Shaft

Structure: CT13610-A-SBA
Site Name: ARTEC
Height: 155.00 (ft)
Base Elev: 0.000 (ft)
Gh: 1.1

Topography: 1

Code: EIA/TIA-222-G
Exposure: C
Crest Height: 0.00
Site Class: C - Very Dense Soil
Struct Class: II

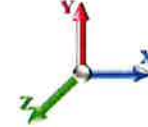
10/17/2016

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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| Elev (ft) | Description | □□ | □□ | q□ (psf) | q□Gh (psf) | C (mph-ft) | Cf | Ice Thick (in) | Tributary (ft) | Aa (sf) | CfAa (sf) | Wind Force □ (lb) | Dead Load Ice (lb) | Tot Dead Load (lb) |
|----------------|-----------------|------|------|----------|------------|------------|-------|----------------|----------------|---------|-----------|-------------------|--------------------|--------------------|
| 0.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 284.93 | 0.650 | 0.000 | 0.00 | 0.000 | 0.00 | 0.0 | 0.0 | 0.0 |
| 5.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 278.89 | 0.650 | 0.000 | 5.00 | 25.481 | 16.56 | 135.6 | 0.0 | 1412.5 |
| 10.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 272.85 | 0.650 | 0.000 | 5.00 | 24.935 | 16.21 | 132.7 | 0.0 | 1382.0 |
| 15.00 | | 1.00 | 0.85 | 7.442 | 8.19 | 266.81 | 0.650 | 0.000 | 5.00 | 24.389 | 15.85 | 129.8 | 0.0 | 1351.5 |
| 20.00 | | 1.00 | 0.90 | 7.896 | 8.69 | 268.61 | 0.650 | 0.000 | 5.00 | 23.843 | 15.50 | 134.6 | 0.0 | 1321.0 |
| 25.00 | | 1.00 | 0.95 | 8.276 | 9.10 | 268.63 | 0.650 | 0.000 | 5.00 | 23.297 | 15.14 | 137.9 | 0.0 | 1290.6 |
| 30.00 | | 1.00 | 0.98 | 8.600 | 9.46 | 267.34 | 0.650 | 0.000 | 5.00 | 22.752 | 14.79 | 139.9 | 0.0 | 1260.1 |
| 35.00 | | 1.00 | 1.01 | 8.883 | 9.77 | 265.11 | 0.650 | 0.000 | 5.00 | 22.206 | 14.43 | 141.0 | 0.0 | 1229.6 |
| 40.00 | | 1.00 | 1.04 | 9.137 | 10.05 | 262.18 | 0.650 | 0.000 | 5.00 | 21.660 | 14.08 | 141.5 | 0.0 | 1199.1 |
| 44.75 | Bot - Section 2 | 1.00 | 1.07 | 9.355 | 10.29 | 258.86 | 0.650 | 0.000 | 4.75 | 20.071 | 13.05 | 134.3 | 0.0 | 1110.9 |
| 45.00 | | 1.00 | 1.07 | 9.366 | 10.30 | 258.67 | 0.650 | 0.000 | 0.25 | 1.059 | 0.69 | 7.1 | 0.0 | 108.0 |
| 50.00 | | 1.00 | 1.09 | 9.576 | 10.53 | 254.71 | 0.650 | 0.000 | 5.00 | 20.885 | 13.58 | 143.0 | 0.0 | 2130.2 |
| 51.00 | Top - Section 1 | 1.00 | 1.10 | 9.616 | 10.58 | 253.86 | 0.650 | 0.000 | 1.00 | 4.112 | 2.67 | 28.3 | 0.0 | 419.2 |
| 55.00 | | 1.00 | 1.12 | 9.770 | 10.75 | 254.38 | 0.650 | 0.000 | 4.00 | 16.228 | 10.55 | 113.4 | 0.0 | 770.6 |
| 60.00 | | 1.00 | 1.14 | 9.951 | 10.95 | 249.73 | 0.650 | 0.000 | 5.00 | 19.794 | 12.87 | 140.8 | 0.0 | 939.8 |
| 65.00 | | 1.00 | 1.16 | 10.120 | 11.13 | 244.80 | 0.650 | 0.000 | 5.00 | 19.248 | 12.51 | 139.3 | 0.0 | 913.6 |
| 70.00 | | 1.00 | 1.17 | 10.279 | 11.31 | 239.62 | 0.650 | 0.000 | 5.00 | 18.702 | 12.16 | 137.5 | 0.0 | 887.5 |
| 75.00 | | 1.00 | 1.19 | 10.430 | 11.47 | 234.22 | 0.650 | 0.000 | 5.00 | 18.156 | 11.80 | 135.4 | 0.0 | 861.4 |
| 80.00 | | 1.00 | 1.21 | 10.572 | 11.63 | 228.62 | 0.650 | 0.000 | 5.00 | 17.610 | 11.45 | 133.1 | 0.0 | 835.3 |
| 85.00 | Appurtenance(s) | 1.00 | 1.22 | 10.708 | 11.78 | 222.84 | 0.650 | 0.000 | 5.00 | 17.064 | 11.09 | 130.6 | 0.0 | 809.1 |
| 90.00 | | 1.00 | 1.24 | 10.838 | 11.92 | 216.90 | 0.650 | 0.000 | 5.00 | 16.519 | 10.74 | 128.0 | 0.0 | 783.0 |
| 90.75 | Bot - Section 3 | 1.00 | 1.24 | 10.857 | 11.94 | 215.99 | 0.650 | 0.000 | 0.75 | 2.431 | 1.58 | 18.9 | 0.0 | 115.2 |
| 95.00 | | 1.00 | 1.25 | 10.962 | 12.06 | 210.80 | 0.650 | 0.000 | 4.25 | 13.722 | 8.92 | 107.5 | 0.0 | 1076.7 |
| 95.75 | Top - Section 2 | 1.00 | 1.25 | 10.980 | 12.08 | 209.88 | 0.650 | 0.000 | 0.75 | 2.381 | 1.55 | 18.7 | 0.0 | 186.7 |
| 100.00 | | 1.00 | 1.27 | 11.081 | 12.19 | 207.43 | 0.650 | 0.000 | 4.25 | 13.258 | 8.62 | 105.0 | 0.0 | 420.2 |
| 105.00 | | 1.00 | 1.28 | 11.195 | 12.31 | 201.09 | 0.650 | 0.000 | 5.00 | 15.092 | 9.81 | 120.8 | 0.0 | 478.2 |
| 110.00 | | 1.00 | 1.29 | 11.305 | 12.44 | 194.64 | 0.650 | 0.000 | 5.00 | 14.547 | 9.46 | 117.6 | 0.0 | 460.8 |
| 115.00 | | 1.00 | 1.30 | 11.412 | 12.55 | 188.07 | 0.650 | 0.000 | 5.00 | 14.001 | 9.10 | 114.2 | 0.0 | 443.4 |
| 120.00 | | 1.00 | 1.32 | 11.514 | 12.67 | 181.40 | 0.650 | 0.000 | 5.00 | 13.455 | 8.75 | 110.8 | 0.0 | 425.9 |
| 125.00 | | 1.00 | 1.33 | 11.614 | 12.78 | 174.64 | 0.650 | 0.000 | 5.00 | 12.909 | 8.39 | 107.2 | 0.0 | 408.5 |
| 127.00 | Bot - Section 4 | 1.00 | 1.33 | 11.653 | 12.82 | 171.91 | 0.650 | 0.000 | 2.00 | 5.011 | 3.26 | 41.7 | 0.0 | 158.5 |
| 130.00 | | 1.00 | 1.34 | 11.710 | 12.88 | 167.79 | 0.650 | 0.000 | 3.00 | 7.448 | 4.84 | 62.4 | 0.0 | 409.7 |
| 130.75 | Top - Section 3 | 1.00 | 1.34 | 11.724 | 12.90 | 166.75 | 0.650 | 0.000 | 0.75 | 1.831 | 1.19 | 15.4 | 0.0 | 100.7 |
| 133.00 | Appurtenance(s) | 1.00 | 1.34 | 11.766 | 12.94 | 165.84 | 0.650 | 0.000 | 2.25 | 5.420 | 3.52 | 45.6 | 0.0 | 128.8 |
| 135.00 | | 1.00 | 1.35 | 11.803 | 12.98 | 163.06 | 0.650 | 0.000 | 2.00 | 4.725 | 3.07 | 39.9 | 0.0 | 112.3 |
| 140.00 | | 1.00 | 1.36 | 11.894 | 13.08 | 156.05 | 0.650 | 0.000 | 5.00 | 11.430 | 7.43 | 97.2 | 0.0 | 271.6 |
| 143.00 | Appurtenance(s) | 1.00 | 1.36 | 11.947 | 13.14 | 151.81 | 0.650 | 0.000 | 3.00 | 6.596 | 4.29 | 56.3 | 0.0 | 156.7 |
| 145.00 | | 1.00 | 1.37 | 11.982 | 13.18 | 148.97 | 0.650 | 0.000 | 2.00 | 4.288 | 2.79 | 36.7 | 0.0 | 101.9 |
| 150.00 | | 1.00 | 1.38 | 12.068 | 13.27 | 141.81 | 0.650 | 0.000 | 5.00 | 10.338 | 6.72 | 89.2 | 0.0 | 245.5 |
| 154.00 | Appurtenance(s) | 1.00 | 1.39 | 12.135 | 13.35 | 136.03 | 0.650 | 0.000 | 4.00 | 7.878 | 5.12 | 68.4 | 0.0 | 187.0 |
| 155.00 | | 1.00 | 1.39 | 12.152 | 13.37 | 134.58 | 0.650 | 0.000 | 1.00 | 1.915 | 1.24 | 16.6 | 0.0 | 45.4 |
| Totals: | | | | | | | | | 155.00 | | | 3,853.8 | | 26,948.9 |

Discrete Appurtenance Forces

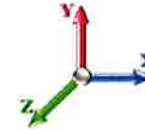
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| No. | Elev (ft) | Description | Qty | q (psf) | q Gh (psf) | CaAa x a | a | Total CaAa (sf) | Dead Load (lb) | Hori Ecc (ft) | Vert Ecc (ft) | Wind F (lb) | Mom (lb-ft) | Mom (lb-ft) |
|----------------|-----------|-----------------------|-----|---------|------------|----------|------|-----------------|----------------|---------------|---------------|-----------------|-------------|-------------|
| 1 | 154.00 | KRY 112 144/1 | 3 | 12.135 | 13.349 | 0.54 | 0.80 | 0.66 | 33.00 | 0.000 | 0.000 | 8.80 | 0.00 | 0.00 |
| 2 | 154.00 | AIR 21 B4A B2P | 3 | 12.135 | 13.349 | 0.69 | 0.80 | 12.57 | 271.20 | 0.000 | 0.000 | 167.79 | 0.00 | 0.00 |
| 3 | 154.00 | AIR 21 B2A B4P | 3 | 12.135 | 13.349 | 0.69 | 0.80 | 12.57 | 274.50 | 0.000 | 0.000 | 167.79 | 0.00 | 0.00 |
| 4 | 154.00 | T-Arm | 3 | 12.135 | 13.349 | 0.50 | 0.75 | 15.08 | 1200.00 | 0.000 | 0.000 | 201.23 | 0.00 | 0.00 |
| 5 | 143.00 | DC6-48-60-18-8F | 1 | 11.947 | 13.142 | 0.56 | 0.75 | 0.52 | 31.80 | 0.000 | 0.000 | 6.80 | 0.00 | 0.00 |
| 6 | 143.00 | T-Arm | 3 | 11.947 | 13.142 | 0.50 | 0.75 | 15.08 | 1200.00 | 0.000 | 0.000 | 198.12 | 0.00 | 0.00 |
| 7 | 143.00 | RRUS 11 | 6 | 11.947 | 13.142 | 0.57 | 0.80 | 8.59 | 304.20 | 0.000 | 0.000 | 112.87 | 0.00 | 0.00 |
| 8 | 143.00 | LGP21401 | 6 | 11.947 | 13.142 | 0.54 | 0.80 | 4.15 | 84.60 | 0.000 | 0.000 | 54.52 | 0.00 | 0.00 |
| 9 | 143.00 | 7770.00 | 6 | 11.947 | 13.142 | 0.58 | 0.80 | 19.27 | 210.00 | 0.000 | 0.000 | 253.27 | 0.00 | 0.00 |
| 10 | 143.00 | AM-X-CD-16-65-00T-RET | 3 | 11.947 | 13.142 | 0.60 | 0.80 | 14.44 | 145.50 | 0.000 | 0.000 | 189.72 | 0.00 | 0.00 |
| 11 | 143.00 | LGP13519 | 6 | 11.947 | 13.142 | 0.54 | 0.80 | 1.09 | 31.80 | 0.000 | 0.000 | 14.37 | 0.00 | 0.00 |
| 12 | 133.00 | T-Arm | 3 | 11.766 | 12.943 | 0.50 | 0.75 | 12.06 | 1050.00 | 0.000 | 0.000 | 156.09 | 0.00 | 0.00 |
| 13 | 133.00 | DB-T1-6Z-8AB-0Z | 2 | 11.766 | 12.943 | 0.57 | 0.80 | 5.45 | 88.00 | 0.000 | 0.000 | 70.58 | 0.00 | 0.00 |
| 14 | 133.00 | RRH2X60-700 | 3 | 11.766 | 12.943 | 0.61 | 0.80 | 6.38 | 180.00 | 0.000 | 0.000 | 82.63 | 0.00 | 0.00 |
| 15 | 133.00 | RRH2X60-AWS | 3 | 11.766 | 12.943 | 0.61 | 0.80 | 6.38 | 180.00 | 0.000 | 0.000 | 82.63 | 0.00 | 0.00 |
| 16 | 133.00 | BXA-171063-12CF | 3 | 11.766 | 12.943 | 0.67 | 0.80 | 9.64 | 45.00 | 0.000 | 0.000 | 124.73 | 0.00 | 0.00 |
| 17 | 133.00 | LPA-80080-6CF | 6 | 11.766 | 12.943 | 1.36 | 0.80 | 35.33 | 126.00 | 0.000 | 0.000 | 457.31 | 0.00 | 0.00 |
| 18 | 133.00 | SBNHH-1D65B | 6 | 11.766 | 12.943 | 0.66 | 0.80 | 32.51 | 240.00 | 0.000 | 0.000 | 420.77 | 0.00 | 0.00 |
| 19 | 85.00 | DB408 | 1 | 10.830 | 11.913 | 1.00 | 1.00 | 2.90 | 17.00 | 0.000 | 4.708 | 34.55 | 0.00 | 162.67 |
| 20 | 85.00 | SD222 | 2 | 10.831 | 11.914 | 1.00 | 1.00 | 10.60 | 34.00 | 0.000 | 4.750 | 126.29 | 0.00 | 599.89 |
| 21 | 85.00 | SP4-4.7NS RD4 | 1 | 10.708 | 11.779 | 1.00 | 1.00 | 23.14 | 60.00 | 0.000 | 0.000 | 272.56 | 0.00 | 0.00 |
| 22 | 85.00 | Pipe Mount | 2 | 10.708 | 11.779 | 1.00 | 1.00 | 10.00 | 120.00 | 0.000 | 0.000 | 117.79 | 0.00 | 0.00 |
| Totals: | | | | | | | | 5,926.60 | | | | 3,321.21 | | |

Total Applied Force Summary

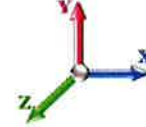
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| Elev (ft) | Description | Lateral F _x (-) (lb) | Axial F _y (-) (lb) | Torsion M _z (lb-ft) | Moment M _x (lb-ft) |
|--------------|------------------|---------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| 5.00 | | 135.58 | 1642.58 | 0.00 | 0.00 |
| 10.00 | | 132.68 | 1612.10 | 0.00 | 0.00 |
| 15.00 | | 129.77 | 1581.62 | 0.00 | 0.00 |
| 20.00 | | 134.61 | 1551.14 | 0.00 | 0.00 |
| 25.00 | | 137.86 | 1520.66 | 0.00 | 0.00 |
| 30.00 | | 139.90 | 1490.18 | 0.00 | 0.00 |
| 35.00 | | 141.04 | 1459.70 | 0.00 | 0.00 |
| 40.00 | | 141.50 | 1429.22 | 0.00 | 0.00 |
| 44.75 | | 134.26 | 1329.53 | 0.00 | 0.00 |
| 45.00 | | 7.09 | 119.50 | 0.00 | 0.00 |
| 50.00 | | 143.00 | 2360.28 | 0.00 | 0.00 |
| 51.00 | | 28.27 | 465.26 | 0.00 | 0.00 |
| 55.00 | | 113.36 | 954.70 | 0.00 | 0.00 |
| 60.00 | | 140.83 | 1169.87 | 0.00 | 0.00 |
| 65.00 | | 139.27 | 1143.74 | 0.00 | 0.00 |
| 70.00 | | 137.45 | 1117.62 | 0.00 | 0.00 |
| 75.00 | | 135.39 | 1091.49 | 0.00 | 0.00 |
| 80.00 | | 133.12 | 1065.36 | 0.00 | 0.00 |
| 85.00 | (6) attachments | 681.84 | 1270.24 | 0.00 | 762.56 |
| 90.00 | | 128.00 | 997.51 | 0.00 | 0.00 |
| 90.75 | | 18.87 | 147.37 | 0.00 | 0.00 |
| 95.00 | | 107.55 | 1258.98 | 0.00 | 0.00 |
| 95.75 | | 18.69 | 218.91 | 0.00 | 0.00 |
| 100.00 | | 105.04 | 602.48 | 0.00 | 0.00 |
| 105.00 | | 120.81 | 692.69 | 0.00 | 0.00 |
| 110.00 | | 117.58 | 675.28 | 0.00 | 0.00 |
| 115.00 | | 114.24 | 657.86 | 0.00 | 0.00 |
| 120.00 | | 110.77 | 640.44 | 0.00 | 0.00 |
| 125.00 | | 107.19 | 623.03 | 0.00 | 0.00 |
| 127.00 | | 41.75 | 244.33 | 0.00 | 0.00 |
| 130.00 | | 62.36 | 538.36 | 0.00 | 0.00 |
| 130.75 | | 15.35 | 132.88 | 0.00 | 0.00 |
| 133.00 | (26) attachments | 1440.33 | 2134.37 | 0.00 | 0.00 |
| 135.00 | | 39.88 | 168.75 | 0.00 | 0.00 |
| 140.00 | | 97.21 | 412.73 | 0.00 | 0.00 |
| 143.00 | (31) attachments | 886.01 | 2249.27 | 0.00 | 0.00 |
| 145.00 | | 36.74 | 129.02 | 0.00 | 0.00 |
| 150.00 | | 89.21 | 313.41 | 0.00 | 0.00 |
| 154.00 | (12) attachments | 613.97 | 2020.02 | 0.00 | 0.00 |
| 155.00 | | 16.64 | 45.44 | 0.00 | 0.00 |
| | Totals: | 7,175.00 | 39,277.95 | 0.00 | 762.56 |

Linear Appurtenance Segment Forces (Factored)

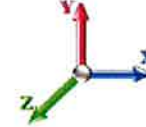
| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 22

| Top Elev (ft) | Description | Wind Exposed | Length (ft) | Ca | Exposed Width (in) | Area (sqft) | CaAa (sqft) | Ra | Cf Adjust Factor | q (psf) | F (lb) | Dead Load (lb) |
|----------------|--------------|--------------|-------------|-------|--------------------|-------------|-------------|-------|------------------|---------|------------|----------------|
| 5.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.033 | 0.000 | 7.442 | 0.00 | 5.50 |
| 10.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.033 | 0.000 | 7.442 | 0.00 | 5.50 |
| 15.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.034 | 0.000 | 7.442 | 0.00 | 5.50 |
| 20.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.035 | 0.000 | 7.896 | 0.00 | 5.50 |
| 25.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.036 | 0.000 | 8.276 | 0.00 | 5.50 |
| 30.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.037 | 0.000 | 8.600 | 0.00 | 5.50 |
| 35.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.038 | 0.000 | 8.883 | 0.00 | 5.50 |
| 40.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.038 | 0.000 | 9.137 | 0.00 | 5.50 |
| 44.75 | 1 5/8" Fiber | Yes | 4.75 | 0.000 | 2.00 | 0.79 | 0.00 | 0.039 | 0.000 | 9.355 | 0.00 | 5.23 |
| 45.00 | 1 5/8" Fiber | Yes | 0.25 | 0.000 | 2.00 | 0.04 | 0.00 | 0.040 | 0.000 | 9.366 | 0.00 | 0.28 |
| 50.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.041 | 0.000 | 9.576 | 0.00 | 5.50 |
| 51.00 | 1 5/8" Fiber | Yes | 1.00 | 0.000 | 2.00 | 0.17 | 0.00 | 0.041 | 0.000 | 9.616 | 0.00 | 1.10 |
| 55.00 | 1 5/8" Fiber | Yes | 4.00 | 0.000 | 2.00 | 0.67 | 0.00 | 0.041 | 0.000 | 9.770 | 0.00 | 4.40 |
| 60.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.042 | 0.000 | 9.951 | 0.00 | 5.50 |
| 65.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.043 | 0.000 | 10.120 | 0.00 | 5.50 |
| 70.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.045 | 0.000 | 10.279 | 0.00 | 5.50 |
| 75.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.046 | 0.000 | 10.430 | 0.00 | 5.50 |
| 80.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.047 | 0.000 | 10.572 | 0.00 | 5.50 |
| 85.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.049 | 0.000 | 10.708 | 0.00 | 5.50 |
| 90.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.050 | 0.000 | 10.838 | 0.00 | 5.50 |
| 90.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.051 | 0.000 | 10.857 | 0.00 | 0.83 |
| 95.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 0.71 | 0.00 | 0.052 | 0.000 | 10.962 | 0.00 | 4.68 |
| 95.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.053 | 0.000 | 10.980 | 0.00 | 0.83 |
| 100.00 | 1 5/8" Fiber | Yes | 4.25 | 0.000 | 2.00 | 0.71 | 0.00 | 0.053 | 0.000 | 11.081 | 0.00 | 4.68 |
| 105.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.055 | 0.000 | 11.195 | 0.00 | 5.50 |
| 110.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.057 | 0.000 | 11.305 | 0.00 | 5.50 |
| 115.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.060 | 0.000 | 11.412 | 0.00 | 5.50 |
| 120.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.062 | 0.000 | 11.514 | 0.00 | 5.50 |
| 125.00 | 1 5/8" Fiber | Yes | 5.00 | 0.000 | 2.00 | 0.83 | 0.00 | 0.065 | 0.000 | 11.614 | 0.00 | 5.50 |
| 127.00 | 1 5/8" Fiber | Yes | 2.00 | 0.000 | 2.00 | 0.33 | 0.00 | 0.067 | 0.000 | 11.653 | 0.00 | 2.20 |
| 130.00 | 1 5/8" Fiber | Yes | 3.00 | 0.000 | 2.00 | 0.50 | 0.00 | 0.068 | 0.000 | 11.710 | 0.00 | 3.30 |
| 130.75 | 1 5/8" Fiber | Yes | 0.75 | 0.000 | 2.00 | 0.13 | 0.00 | 0.069 | 0.000 | 11.724 | 0.00 | 0.83 |
| 133.00 | 1 5/8" Fiber | Yes | 2.25 | 0.000 | 2.00 | 0.38 | 0.00 | 0.069 | 0.000 | 11.766 | 0.00 | 2.48 |
| Totals: | | | | | | | | | | | 0.0 | 146.3 |

Calculated Forces

Structure: CT13610-A-SBA

Code: EIA/TIA-222-G

10/17/2016

Site Name: ARTEC

Exposure: C

Height: 155.00 (ft)

Crest Height: 0.00

Base Elev: 0.000 (ft)

Site Class: C - Very Dense Soil

Gh: 1.1

Topography: 1

Struct Class: II

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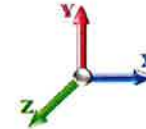


Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 22

Dead Load Factor 1.00

Wind Load Factor 1.00



| Seg Elev (ft) | Pu F _u (-) (kips) | Qu F _u (-) (kips) | Tu M _u (-) (ft-kips) | Mu M _u (ft-kips) | Mu M _u (ft-kips) | Resultant Moment (ft-kips) | phi Pn (kips) | phi Qn (kips) | phi Tn (ft-kips) | phi Mn (ft-kips) | Total Deflect (in) | Rotation Sway (deg) | Rotation Twist (deg) | Stress Ratio |
|---------------|------------------------------|------------------------------|---------------------------------|-----------------------------|-----------------------------|----------------------------|---------------|---------------|------------------|------------------|--------------------|---------------------|----------------------|--------------|
| 0.00 | -39.28 | -7.18 | 0.00 | -737.55 | 0.00 | 737.55 | 5604.23 | 2802.12 | 13924.9 | 6972.80 | 0.00 | 0.000 | 0.000 | 0.113 |
| 5.00 | -37.63 | -7.07 | 0.00 | -701.63 | 0.00 | 701.63 | 5529.79 | 2764.90 | 13444.5 | 6732.24 | 0.01 | -0.026 | 0.000 | 0.111 |
| 10.00 | -36.02 | -6.95 | 0.00 | -666.31 | 0.00 | 666.31 | 5453.38 | 2726.69 | 12967.3 | 6493.32 | 0.06 | -0.053 | 0.000 | 0.109 |
| 15.00 | -34.43 | -6.83 | 0.00 | -631.56 | 0.00 | 631.56 | 5374.99 | 2687.50 | 12493.8 | 6256.19 | 0.13 | -0.080 | 0.000 | 0.107 |
| 20.00 | -32.88 | -6.71 | 0.00 | -597.40 | 0.00 | 597.40 | 5294.63 | 2647.32 | 12024.1 | 6021.01 | 0.23 | -0.108 | 0.000 | 0.105 |
| 25.00 | -31.35 | -6.59 | 0.00 | -563.84 | 0.00 | 563.84 | 5212.30 | 2606.15 | 11558.7 | 5787.94 | 0.35 | -0.136 | 0.000 | 0.103 |
| 30.00 | -29.86 | -6.46 | 0.00 | -530.91 | 0.00 | 530.91 | 5128.00 | 2564.00 | 11097.7 | 5557.14 | 0.51 | -0.164 | 0.000 | 0.101 |
| 35.00 | -28.40 | -6.33 | 0.00 | -498.62 | 0.00 | 498.62 | 5041.73 | 2520.86 | 10641.7 | 5328.76 | 0.70 | -0.193 | 0.000 | 0.099 |
| 40.00 | -26.97 | -6.19 | 0.00 | -466.99 | 0.00 | 466.99 | 4953.48 | 2476.74 | 10190.8 | 5102.98 | 0.92 | -0.221 | 0.000 | 0.097 |
| 44.75 | -25.63 | -6.06 | 0.00 | -437.57 | 0.00 | 437.57 | 4867.82 | 2433.91 | 9767.51 | 4891.01 | 1.15 | -0.249 | 0.000 | 0.095 |
| 45.00 | -25.51 | -6.06 | 0.00 | -436.06 | 0.00 | 436.06 | 4863.26 | 2431.63 | 9745.37 | 4879.93 | 1.16 | -0.251 | 0.000 | 0.095 |
| 50.00 | -23.15 | -5.91 | 0.00 | -405.77 | 0.00 | 405.77 | 4771.07 | 2385.54 | 9305.74 | 4659.79 | 1.44 | -0.280 | 0.000 | 0.092 |
| 51.00 | -22.69 | -5.89 | 0.00 | -399.85 | 0.00 | 399.85 | 3927.98 | 1963.99 | 7761.51 | 3886.53 | 1.50 | -0.286 | 0.000 | 0.109 |
| 55.00 | -21.73 | -5.78 | 0.00 | -376.31 | 0.00 | 376.31 | 3872.44 | 1936.22 | 7486.25 | 3748.69 | 1.75 | -0.310 | 0.000 | 0.106 |
| 60.00 | -20.56 | -5.64 | 0.00 | -347.41 | 0.00 | 347.41 | 3801.23 | 1900.62 | 7145.52 | 3578.07 | 2.09 | -0.343 | 0.000 | 0.103 |
| 65.00 | -19.41 | -5.51 | 0.00 | -319.19 | 0.00 | 319.19 | 3728.06 | 1864.03 | 6808.79 | 3409.45 | 2.47 | -0.376 | 0.000 | 0.099 |
| 70.00 | -18.29 | -5.37 | 0.00 | -291.64 | 0.00 | 291.64 | 3652.91 | 1826.46 | 6476.38 | 3243.00 | 2.88 | -0.408 | 0.000 | 0.095 |
| 75.00 | -17.20 | -5.24 | 0.00 | -264.77 | 0.00 | 264.77 | 3575.79 | 1787.90 | 6148.62 | 3078.88 | 3.33 | -0.441 | 0.000 | 0.091 |
| 80.00 | -16.13 | -5.11 | 0.00 | -238.57 | 0.00 | 238.57 | 3496.70 | 1748.35 | 5825.81 | 2917.23 | 3.81 | -0.474 | 0.000 | 0.086 |
| 85.00 | -14.86 | -4.42 | 0.00 | -212.27 | 0.00 | 212.27 | 3415.64 | 1707.82 | 5508.27 | 2758.23 | 4.32 | -0.505 | 0.000 | 0.081 |
| 90.00 | -13.87 | -4.29 | 0.00 | -190.16 | 0.00 | 190.16 | 3332.60 | 1666.30 | 5196.32 | 2602.02 | 4.87 | -0.537 | 0.000 | 0.077 |
| 90.75 | -13.72 | -4.27 | 0.00 | -186.94 | 0.00 | 186.94 | 3319.98 | 1659.99 | 5150.02 | 2578.84 | 4.95 | -0.542 | 0.000 | 0.077 |
| 95.00 | -12.46 | -4.16 | 0.00 | -168.77 | 0.00 | 168.77 | 3247.59 | 1623.80 | 4890.27 | 2448.77 | 5.45 | -0.568 | 0.000 | 0.073 |
| 95.75 | -12.24 | -4.14 | 0.00 | -165.65 | 0.00 | 165.65 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 5.54 | -0.573 | 0.000 | 0.120 |
| 100.00 | -11.63 | -4.04 | 0.00 | -148.06 | 0.00 | 148.06 | 1878.47 | 939.23 | 2786.43 | 1395.29 | 6.06 | -0.599 | 0.000 | 0.112 |
| 105.00 | -10.94 | -3.92 | 0.00 | -127.88 | 0.00 | 127.88 | 1837.85 | 918.92 | 2627.99 | 1315.95 | 6.71 | -0.640 | 0.000 | 0.103 |
| 110.00 | -10.26 | -3.80 | 0.00 | -108.30 | 0.00 | 108.30 | 1795.26 | 897.63 | 2471.18 | 1237.43 | 7.40 | -0.680 | 0.000 | 0.093 |
| 115.00 | -9.61 | -3.68 | 0.00 | -89.32 | 0.00 | 89.32 | 1750.70 | 875.35 | 2316.31 | 1159.88 | 8.13 | -0.718 | 0.000 | 0.083 |
| 120.00 | -8.96 | -3.57 | 0.00 | -70.91 | 0.00 | 70.91 | 1704.17 | 852.08 | 2163.70 | 1083.46 | 8.90 | -0.752 | 0.000 | 0.071 |
| 125.00 | -8.34 | -3.45 | 0.00 | -53.08 | 0.00 | 53.08 | 1655.66 | 827.83 | 2013.66 | 1008.33 | 9.71 | -0.781 | 0.000 | 0.058 |
| 127.00 | -8.10 | -3.41 | 0.00 | -46.17 | 0.00 | 46.17 | 1635.71 | 817.85 | 1954.43 | 978.67 | 10.04 | -0.792 | 0.000 | 0.052 |
| 130.00 | -7.56 | -3.34 | 0.00 | -35.94 | 0.00 | 35.94 | 1605.19 | 802.59 | 1866.51 | 934.64 | 10.54 | -0.806 | 0.000 | 0.043 |
| 130.75 | -7.43 | -3.33 | 0.00 | -33.43 | 0.00 | 33.43 | 1090.28 | 545.14 | 1281.57 | 641.74 | 10.67 | -0.810 | 0.000 | 0.059 |
| 133.00 | -5.31 | -1.86 | 0.00 | -25.95 | 0.00 | 25.95 | 1077.75 | 538.87 | 1240.93 | 621.39 | 11.05 | -0.818 | 0.000 | 0.047 |
| 135.00 | -5.14 | -1.81 | 0.00 | -22.24 | 0.00 | 22.24 | 1066.28 | 533.14 | 1204.93 | 603.36 | 11.40 | -0.827 | 0.000 | 0.042 |
| 140.00 | -4.73 | -1.71 | 0.00 | -13.16 | 0.00 | 13.16 | 1036.22 | 518.11 | 1115.60 | 558.63 | 12.27 | -0.843 | 0.000 | 0.028 |
| 143.00 | -2.50 | -0.79 | 0.00 | -8.03 | 0.00 | 8.03 | 1017.23 | 508.62 | 1062.55 | 532.07 | 12.80 | -0.849 | 0.000 | 0.018 |
| 145.00 | -2.37 | -0.76 | 0.00 | -6.44 | 0.00 | 6.44 | 1004.18 | 502.09 | 1027.46 | 514.49 | 13.16 | -0.853 | 0.000 | 0.015 |
| 150.00 | -2.06 | -0.66 | 0.00 | -2.66 | 0.00 | 2.66 | 970.18 | 485.09 | 940.83 | 471.12 | 14.06 | -0.858 | 0.000 | 0.008 |
| 154.00 | -0.05 | -0.02 | 0.00 | -0.02 | 0.00 | 0.02 | 941.55 | 470.78 | 872.83 | 437.06 | 14.78 | -0.860 | 0.000 | 0.000 |
| 155.00 | 0.00 | -0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 934.20 | 467.10 | 856.03 | 428.65 | 14.96 | -0.860 | 0.000 | 0.000 |

Final Analysis Summary

| | | |
|---------------------------------|--|-------------------------|
| Structure: CT13610-A-SBA | Code: EIA/TIA-222-G | 10/17/2016 |
| Site Name: ARTEC | Exposure: C | |
| Height: 155.00 (ft) | Crest Height: 0.00 | |
| Base Elev: 0.000 (ft) | Site Class: C - Very Dense Soil | |
| Gh: 1.1 | Topography: 1 | Struct Class: II |



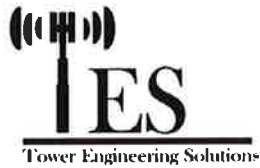
Page: 32

Reactions

| Load Case | Shear F _x (kips) | Shear F _y (kips) | Axial F _z (kips) | Moment M _x (ft-kips) | Moment M _y (ft-kips) | Moment M _z (ft-kips) |
|----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| 1.2D + 1.6W 98 mph Wind | 30.7 | 0.00 | 47.10 | 0.00 | 0.00 | 3160.20 |
| 0.9D + 1.6W 98 mph Wind | 30.7 | 0.00 | 35.32 | 0.00 | 0.00 | 3140.14 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | 8.7 | 0.00 | 68.14 | 0.00 | 0.00 | 870.97 |
| 1.2D + 1.0E | 1.2 | 0.00 | 47.13 | 0.00 | 0.00 | 130.74 |
| 0.9D + 1.0E | 1.2 | 0.00 | 35.35 | 0.00 | 0.00 | 129.82 |
| 1.0D + 1.0W 60 mph Wind | 7.2 | 0.00 | 39.28 | 0.00 | 0.00 | 737.55 |

Max Stresses

| Load Case | P _u F _x (-) (kips) | Q _u F _y (-) (kips) | T _u M _x (-) (ft-kips) | M _u M _y (ft-kips) | M _u M _z (ft-kips) | Resultant Moment (ft-kips) | phi P _n (kips) | phi Q _n (kips) | phi T _n (ft-kips) | phi M _n (ft-kips) | Elev (ft) | Stress Ratio |
|----------------------------------|--|--|---|---|---|----------------------------------|---------------------------------|---------------------------------|------------------------------------|------------------------------------|--------------|-----------------|
| 1.2D + 1.6W 98 mph Wind | -13.97 | -17.77 | 0.00 | -711.14 | 0.00 | -711.14 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 95.75 | 0.494 |
| 0.9D + 1.6W 98 mph Wind | -10.30 | -17.60 | 0.00 | -703.67 | 0.00 | -703.67 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 95.75 | 0.487 |
| 1.2D + 1.0Di + 1.0Wi 50 mph Wind | -26.32 | -4.76 | 0.00 | -187.27 | 0.00 | -187.27 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 95.75 | 0.142 |
| 1.2D + 1.0E | -14.73 | -0.79 | 0.00 | -40.12 | 0.00 | -40.12 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 95.75 | 0.035 |
| 0.9D + 1.0E | -11.05 | -0.78 | 0.00 | -39.75 | 0.00 | -39.75 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 95.75 | 0.033 |
| 1.0D + 1.0W 60 mph Wind | -12.24 | -4.14 | 0.00 | -165.65 | 0.00 | -165.65 | 1911.44 | 955.72 | 2922.15 | 1463.25 | 95.75 | 0.120 |



Monopole Mat Foundation Design

Date
10/17/2016

| | | | |
|----------------|---------------|-------------------------|-------------|
| Customer Name: | Verizon | EIA/TIA Standard: | EIA-222-G |
| Site Name: | Artec | Structure Height (Ft.): | 155 |
| Site Number: | CT13610-A-SBA | Engineer Name: | Arinyedokia |
| Engr. Number: | 26933 | Engineer Login ID: | |

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

Base Reactions (Factored):

| | | | |
|----------------------|------|---------------------|--------|
| Axial Load (Kips): | 47.1 | Shear Force (Kips): | 30.7 |
| Uplift Force (Kips): | 0.0 | Moment (Kips-ft): | 3160.2 |

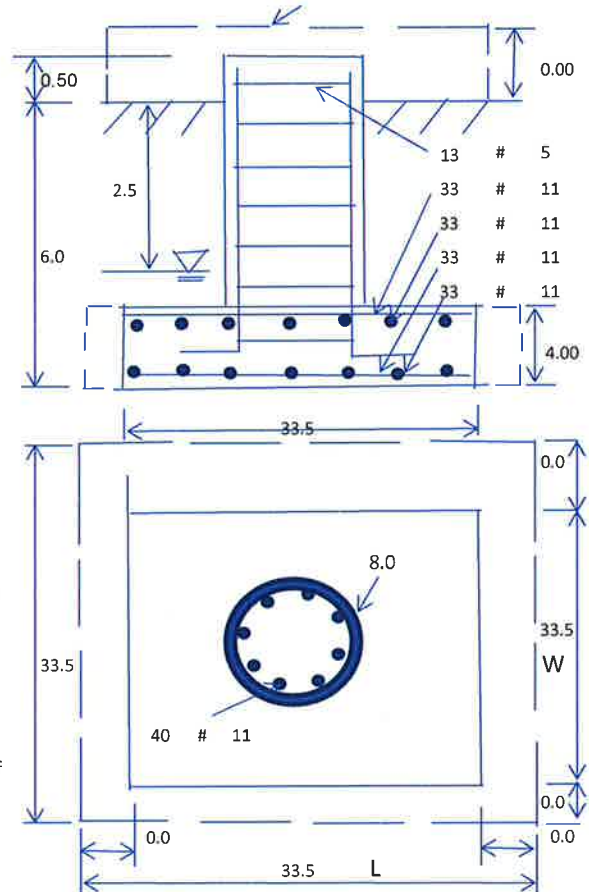
Foundation Geometries:

| | | | |
|-----------------------------|------|-----------------------------|------|
| Diameter of Pier (ft.): | 8.0 | Depth of Base BG (ft.): | 6.0 |
| Pier Height A. G. (ft.): | 0.50 | Thickness of Pad (ft): | 4.00 |
| Length of Pad (ft.): | 33.5 | Width of Pad (ft.): | 33.5 |
| Final Length of pad (ft) | 33.5 | Final width of pad (ft): | 33.5 |
| Control Value for Cell D18: | 0 | Control Value for Cell F18: | 0 |

Mods required -Yes/No?: No

Material Properties and Rebar Info:

| | | | | |
|--|------|---------------------------|-------|-----|
| Concrete Strength (psi): | 3000 | Steel Elastic Modulus: | 29000 | ksi |
| Vertical bar yield (ksi) | 60 | Tie steel yield (ksi): | 40 | |
| Vertical Rebar Size #: | 11 | Tie / Stirrup Size #: | 5 | |
| Qty. of Vertical Rebars: | 40 | Tie Spacing (in): | 6.0 | |
| Pad Rebar Yield (Ksi): | 60 | Pad Steel Rebar Size (#): | 11 | |
| 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): | 33 | Qty. of Rebar in Pad (W): | 33 | |
| Rebar at the top of the concrete pad: | | | | |
| Qty. of Rebar in Pad (L): | 33 | Qty. of Rebar in Pad (W): | 33 | |



Soil Design Parameters:

| | | | | |
|--------------------------------------|-------|--|------|-----|
| Soil Unit Weight (pcf): | 115.0 | Soil Buoyant Weight: | 52.6 | Pcf |
| Water Table B.G.S. (ft): | 2.5 | Unit Weight of Water: | 62.4 | pcf |
| Ultimate Bearing Pressure (psf): | 16000 | Ultimate Skin Friction: | 0 | Psf |
| Consider Friction for O.T.M. (Y/N): | No | Consider Friction for bearing (Y/N): | No | |
| Consider soil hor. resist. for OTM.: | No | Reduction factor on the maximum soil bearing pressure: | 1.00 | |
| | | Angle from Top of Pad: | 30 | |
| | | Angle from Bottom of Pad: | 25 | |
| | | Angle from Bottom of Pad: | 25 | |

Foundation Analysis and Design:

| | | | |
|--|---------|--|--------|
| Uplift Strength Reduction Factor: | 0.75 | Compression Strength Reduction Factor: | 0.75 |
| Total Dry Soil Volume (cu. Ft.): | 2143.97 | Total Dry Soil Weight (Kips): | 246.56 |
| Total Buoyant Soil Volume (cu. Ft.): | 0.00 | Total Buoyant Soil Weight (Kips): | 0.00 |
| Total Effective Soil Weight (Kips): | 246.56 | Weight from the Concrete Block at Top (K): | 0.00 |
| Total Dry Concrete Volume (cu. Ft.): | 686.79 | Total Dry Concrete Weight (Kips): | 103.02 |
| Total Buoyant Concrete Volume (cu. Ft.): | 3927.88 | Total Buoyant Concrete Weight (Kips): | 344.08 |
| Total Effective Concrete Weight (Kips): | 447.10 | Total Vertical Load on Base (Kips): | 740.76 |

Check Soil Capacities:

| | | | | | | |
|--|---------|---|--|-------|------|-----|
| Calculated Maxium Net Soil Pressure under the base (psf): | 1106 | < | Allowable Factored Soil Bearing (psf): | 12000 | 0.09 | OK! |
| Allowable Foundation Overturning Resistance (kips-ft.): | 11245.8 | > | Design Factored Momont (kips-ft): | 3360 | 0.30 | OK! |
| Factor of Safety Against Overturning (O. R. Moment/Design Moment): | 3.35 | | | | | OK! |

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

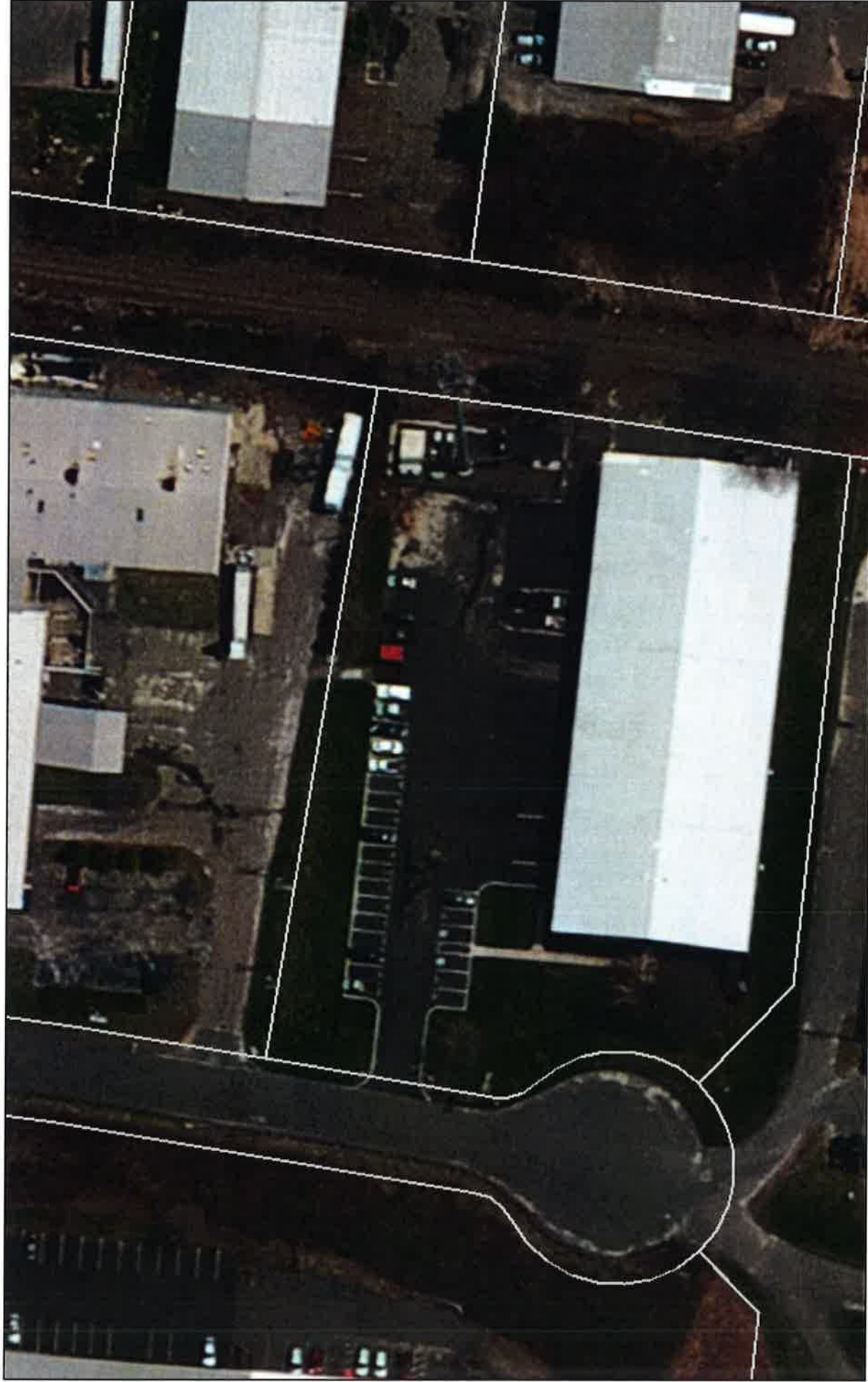
| | | | | | |
|--|---------|--|--------|----------------------------|-----|
| Strength reduction factor (Flexure and axial tension): | 0.90 | Strength reduction factor (Shear): | 0.75 | | |
| Strength reduction factor (Axial compression): | 0.65 | Wind Load Factor on Concrete Design: | 1.00 | | |
| | | | | Load/ Capacity Ratio | |
| (1) Concrete Pier: | | | | | |
| Vertical Steel Rebar Area (sq. in./each): | 1.56 | Tie / Stirrup Area (sq. in./each): | 0.31 | | |
| Calculated Moment Capacity (Mn, Kips-Ft): | 11470.4 | > Design Factored Moment (Mu, Kips-Ft) | 3237.0 | 0.28 | OK! |
| Calculated Shear Capacity (Kips): | 912.1 | > Design Factored Shear (Kips): | 30.7 | 0.03 | OK! |
| Calculated Tension Capacity (Tn, Kips): | 3369.6 | > Design Factored Tension (Tu Kips): | 0.0 | 0.00 | OK! |
| Calculated Compression Capacity (Pn, Kips): | 9515.1 | > Design Factored Axial Load (Pu Kips): | 47.1 | 0.00 | OK! |
| Moment & Axial Strength Combination: | 0.28 | OK! Check Tie Spacing (Design/Required): | | 0.5 | OK! |
| Pier Reinforcement Ratio: | 0.009 | Reinforcement Ratio is satisfied per ACI | | | |

(2) Concrete Pad:

| | | | | | |
|---|---------|--|--------|------|-----|
| One-Way Design Shear Capacity (L-Direction, Kips): | 1463.5 | > One-Way Factored Shear (L-D. Kips): | 207.4 | 0.14 | OK! |
| One-Way Design Shear Capacity (W-Direction, Kips): | 1463.5 | > One-Way Factored Shear (W-D., Kips) | 207.4 | 0.14 | OK! |
| One-Way Design Shear Capacity (Corner-Corner, Kips): | 1720.3 | > One-Way Factored Shear (C-C, Kips): | 193.1 | 0.11 | OK! |
| Lower Steel Pad Reinforcement Ratio (L-Direct.): | 0.0029 | OK! Lower Steel Pad Reinf. Ratio (W-Direct | 0.0029 | | |
| Lower Steel Pad Moment Capacity (L-Direction, Kips-ft): | 9916.4 | > Moment at Bottom (L-Direct. K-Ft): | 939.3 | 0.09 | OK! |
| Lower Steel Pad Moment Capacity (W-Direction, Kips-ft): | 9916.4 | > Moment at Bottom (W-Direct. K-Ft): | 939.3 | 0.09 | OK! |
| Lower Steel Pad Moment Capacity (Corner-Corner, K-ft): | 13923.7 | > Moment at Bottom (C-C Dir. K-Ft): | 1328.4 | 0.10 | OK! |
| Upper Steel Pad Reinforcement Ratio (L-Direct.): | 0.0029 | OK! Upper Steel Reinf. Ratio (W-Direct.): | 0.0029 | | |
| Upper Steel Pad Moment Capacity (L-Direction, Kips-ft): | 9916.4 | > Moment at the top (L-Dir Kips-Ft): | 52.5 | 0.01 | OK! |
| Upper Steel Pad Moment Capacity (W-Direction, Kips-ft): | 9916.4 | > Moment at the top (W-Dir Kips-Ft): | 52.5 | 0.01 | OK! |
| Upper Steel Pad Moment Capacity (Corner-Corner, K-ft): | 13923.7 | > Moment at the top (C-C Direc. K-Ft): | 158.9 | 0.01 | OK! |

ATTACHMENT 4

ArcGIS Web Map- 26 commerce drive, north branford



October 19, 2016

Parcels

Town Boundary

1:1,128



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

26 COMMERCE DR

Location 26 COMMERCE DR

Mblu 19/C 13-5/ / /

Acct# 000156

Owner ARTEC PROPERTIES LLC

Assessment \$906,400

Appraisal \$1,294,800

PID 1373

Building Count 1

Current Value

| Appraisal | | | |
|----------------|--------------|-----------|-------------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$787,700 | \$507,100 | \$1,294,800 |

| Assessment | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$551,400 | \$355,000 | \$906,400 |

Owner of Record

Owner ARTEC PROPERTIES LLC

Sale Price \$0

Co-Owner

Certificate

Address 26 COMMERCE DR

Book & Page 472/1180

NORTH BRANFORD, CT 06471-1250

Sale Date 12/30/2014

Ownership History

| Ownership History | | | | |
|----------------------|------------|-------------|-------------|------------|
| Owner | Sale Price | Certificate | Book & Page | Sale Date |
| ARTEC PROPERTIES LLC | \$0 | | 472/1180 | 12/30/2014 |
| ARTEC MACHINERY CORP | \$0 | | 140/ 074 | 06/17/1982 |

Building Information

Building 1 : Section 1

Year Built: 1984

Living Area: 27,700

Replacement Cost: \$1,576,753

Building Percent 63

Good:

Replacement Cost

Less Depreciation: \$993,400

Building Attributes

| Field | Description |
|------------------|-------------------|
| STYLE | Pre-Eng Mfg |
| MODEL | Ind or Comm |
| Grade | Average |
| Stories: | 1 |
| Occupancy | 5 |
| Exterior Wall 1 | Pre-finish Metl |
| Exterior Wall 2 | Brick Veneer |
| Roof Structure | Gable/Hip |
| Roof Cover | Metal/Tin |
| Interior Wall 1 | Minim/Masonry |
| Interior Wall 2 | Drywall/Sheet |
| Interior Floor 1 | Concr-Finished |
| Interior Floor 2 | Carpet |
| Heating Fuel | Gas |
| Heating Type | Forced Air-Duc |
| AC Type | None |
| Bldg Use | INDUSTRIAL MDL-96 |
| Total Rooms | |
| Total Bedrms | 00 |
| Total Baths | 0 |
| 1st Floor Use: | 4000 |
| Heat/AC | NONE |
| Frame Type | STEEL |
| Baths/Plumbing | AVERAGE |
| Ceiling/Wall | NONE |
| Rooms/Prtns | AVERAGE |
| Wall Height | 16 |
| % Comn Wall | 0 |

Building Photo



(<http://images.vgsi.com/photos/NorthBranfordCTPhotos//\00\01>)

Building Layout



| Building Sub-Areas (sq ft) | | | Legend |
|----------------------------|-------------------|------------|-------------|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 22,700 | 22,700 |
| AOF | Office, (Average) | 5,000 | 5,000 |
| | | 27,700 | 27,700 |

Extra Features

| Extra Features | | | | Legend |
|----------------|---------------|------------|---------|--------|
| Code | Description | Size | Value | Bldg # |
| MEZ1 | MEZZANINE-UNF | 250 S.F. | \$3,200 | 1 |
| A/C | AIR CONDITION | 2500 UNITS | \$3,500 | 1 |
| LFT2 | LIFT-HEAVY | 1 UNITS | \$3,200 | 1 |
| LDL1 | LOAD LEVELERS | 2 UNITS | \$3,800 | 1 |

Land

Land Use

Land Line Valuation

Use Code 4000
Description INDUSTRIAL MDL-96
Zone I2
Neighborhood
Alt Land Appr No
Category

Size (Acres) 2.02
Frontage 0
Depth 0
Assessed Value \$355,000
Appraised Value \$507,100

Outbuildings

| Outbuildings | | | | | | Legend |
|--------------|----------------------|----------|-----------------|------------|-----------|--------|
| Code | Description | Sub Code | Sub Description | Size | Value | Bldg # |
| TW1 | CELL TOWER | | | 155 HEIGHT | \$104,600 | 1 |
| ELCB | ELECTRONIC COMM BLDG | | | 360 S.F. | \$60,800 | 1 |
| ELCB | ELECTRONIC COMM BLDG | | | 180 S.F. | \$30,400 | 1 |
| FN4 | FENCE-8' CHAIN | | | 192 L.F. | \$3,400 | 1 |
| | CONCRETE PAD | | | 9 | \$0 | 1 |

Valuation History

| Appraisal | | | |
|----------------|--------------|-----------|-------------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$787,700 | \$507,100 | \$1,294,800 |
| 2014 | \$1,010,200 | \$400,600 | \$1,410,800 |
| 2013 | \$1,010,200 | \$400,600 | \$1,410,800 |

| Assessment | | | |
|----------------|--------------|-----------|-----------|
| Valuation Year | Improvements | Land | Total |
| 2015 | \$551,400 | \$355,000 | \$906,400 |
| 2014 | \$707,200 | \$280,400 | \$987,600 |
| 2013 | \$707,200 | \$280,400 | \$987,600 |