

Date: **February 23, 2024**



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|                                      |                                                                                                                                                               |                    |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Subject:</b>                      | <b>Structural Analysis Report</b>                                                                                                                             |                    |
| <b>Carrier Designation:</b>          | <b>Site Number:</b>                                                                                                                                           | 9JK2338S           |
|                                      | <b>Site Name:</b>                                                                                                                                             | 9JK2338S           |
| <b>Crown Castle Designation:</b>     | <b>BU Number:</b>                                                                                                                                             | 877744             |
|                                      | <b>Site Name:</b>                                                                                                                                             | WILBURN            |
|                                      | <b>JDE Job Number:</b>                                                                                                                                        | 2106061            |
|                                      | <b>Work Order Number:</b>                                                                                                                                     | 2285547            |
|                                      | <b>Order Number:</b>                                                                                                                                          | 661293 Rev. 0      |
| <b>Engineering Firm Designation:</b> | <b>B+T Group Project Number:</b>                                                                                                                              | 151403.002.01.0001 |
| <b>Site Data:</b>                    | <b>703 NE Harrington Ct, Lake City, Columbia County, FL</b><br><b>Latitude 30° 13' 46.6", Longitude -82° 33' 5.2"</b><br><b>235 Foot - Self Support Tower</b> |                    |

B+T Group is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

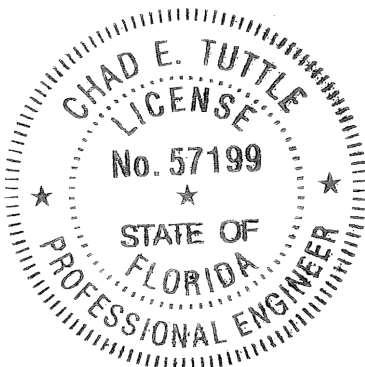
LC5: Proposed Equipment Configuration

**Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 118 mph as required by the 2023 Florida Building Code, 8th Edition. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Karishma Caiado

Respectfully submitted by: B+T Engineering, Inc.  
COA: 27496;



2/262024

Chad E. Tuttle, P.E.

tnxTower Report - version 8.2.2.0

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## 1) INTRODUCTION

This tower is a 235 ft Self Support tower designed by Sabre Communications.

## 2) ANALYSIS CRITERIA

|                            |           |
|----------------------------|-----------|
| <b>TIA-222 Revision:</b>   | TIA-222-H |
| <b>Risk Category:</b>      | II        |
| <b>Wind Speed:</b>         | 118 mph   |
| <b>Exposure Category:</b>  | B         |
| <b>Topographic Factor:</b> | 1         |
| <b>Service Wind Speed:</b> | 60 mph    |

**Table 1 - Proposed Equipment Configuration**

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model             | Number of Feed Lines | Feed Line Size (in)   |
|---------------------|----------------------------|--------------------|----------------------|---------------------------|----------------------|-----------------------|
| 238.0               | 240.0                      | 2                  | Ceragon              | FIBEAIR IP-20A_RFU-D      | 1<br>3<br>1<br>1     | 2-1/8<br>1-5/8<br>1/2 |
|                     |                            | 1                  | Commscope            | VHLP3-11W/A               |                      |                       |
|                     | 238.0                      | 3                  | Commscope            | FFVV-65C-R3-V1_TMO        |                      |                       |
|                     |                            | 3                  | Ericsson             | AIR6449 B41_T-MOBILE      |                      |                       |
|                     |                            | 3                  | Ericsson             | RADIO 4460 B2/B25 B66_TMO |                      |                       |
|                     |                            | 3                  | Ericsson             | RADIO 4480 B71_TMO        |                      |                       |
|                     |                            | 1                  | --                   | Sector Mount [SM 502-3]   |                      |                       |

**Table 2 - Other Considered Equipment**

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model             | Number of Feed Lines | Feed Line Size (in) |
|---------------------|----------------------------|--------------------|----------------------|---------------------------|----------------------|---------------------|
| 217.0               | 223.0                      | 3                  | Antel                | BCD-80010                 | 3                    | 1-5/8               |
|                     | 217.0                      | 1                  | --                   | Side Arm Mount [SO 308-3] |                      |                     |
| 150.0               | 150.0                      | 1                  | Radiowaves           | HPD3-11                   | 2                    | 3/8                 |
|                     |                            | 1                  | Radiowaves           | HPD6-5.9                  |                      |                     |
|                     |                            | 2                  | Ceragon              | ODU 5-11 GHZ              |                      |                     |
|                     |                            | 2                  | --                   | Pipe Mount [PM 601-1]     |                      |                     |

## 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

| Document                   | Reference        | Source    |
|----------------------------|------------------|-----------|
| Tower Manufacturer Drawing | 1548521          | CCI Sites |
| Foundation Drawing         | 1456952          | CCI Sites |
| Geotech Report             | 1549664          | CCI Sites |
| Crown CAD Package          | Date: 02/22/2024 | CCI Sites |

### 3.1) Analysis Method

tnxTower (version 8.2.2.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

### 3.2) Assumptions

- 1) The tower and structures were maintained in accordance with the - TIA-222 standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

## 4) ANALYSIS RESULTS

**Table 4 - Section Capacity (Summary)**

| Section No. | Elevation (ft) | Component Type | Size                  | Critical Element | P (K)    | SF*P_allow (K) | % Capacity | Pass / Fail |
|-------------|----------------|----------------|-----------------------|------------------|----------|----------------|------------|-------------|
| T1          | 235 - 220      | Leg            | Sabre 2.375"x0.154"   | 3                | -16.900  | 33.198         | 50.9       | Pass        |
| T2          | 220 - 200      | Leg            | Sabre 2.875"x0.375"   | 27               | -47.025  | 100.096        | 47.0       | Pass        |
| T3          | 200 - 180      | Leg            | Sabre 3.5"x0.437"     | 57               | -65.488  | 159.342        | 41.1       | Pass        |
| T4          | 180 - 160      | Leg            | Sabre 3.5" x 0.6"     | 87               | -80.137  | 202.990        | 39.5       | Pass        |
| T5          | 160 - 140      | Leg            | Sabre 4.5"x0.5310"    | 114              | -95.202  | 247.512        | 38.5       | Pass        |
| T6          | 140 - 120      | Leg            | Sabre 5.5625" x 0.5"  | 135              | -112.267 | 324.977        | 34.5       | Pass        |
| T7          | 120 - 100      | Leg            | Sabre 6.625"x0.432"   | 156              | -129.760 | 360.255        | 36.0       | Pass        |
| T8          | 100 - 80       | Leg            | Sabre 6.625" x 0.562" | 177              | -146.315 | 402.699        | 36.3       | Pass        |
| T9          | 80 - 60        | Leg            | Sabre 8.625"x0.5"     | 192              | -164.389 | 530.833        | 31.0       | Pass        |
| T10         | 60 - 40        | Leg            | Sabre 8.625"x0.5"     | 207              | -182.575 | 530.833        | 34.4       | Pass        |
| T11         | 40 - 20        | Leg            | Sabre 8.625"x0.5"     | 222              | -200.870 | 530.833        | 37.8       | Pass        |
| T12         | 20 - 0         | Leg            | Sabre 8.625"x0.5"     | 237              | -214.376 | 584.115        | 36.7       | Pass        |
| T1          | 235 - 220      | Diagonal       | L1 3/4x1 3/4x3/16     | 12               | -2.597   | 13.687         | 19.0       | Pass        |
| T2          | 220 - 200      | Diagonal       | L1 3/4x1 3/4x1/4      | 33               | -3.853   | 17.962         | 21.5       | Pass        |
| T3          | 200 - 180      | Diagonal       | L1 3/4x1 3/4x3/16     | 63               | -2.128   | 9.419          | 22.6       | Pass        |
| T4          | 180 - 160      | Diagonal       | L1 3/4x1 3/4x3/16     | 90               | -2.349   | 6.448          | 36.4       | Pass        |
| T5          | 160 - 140      | Diagonal       | L2 1/2x2 1/2x3/16     | 120              | -3.839   | 12.316         | 31.2       | Pass        |
| T6          | 140 - 120      | Diagonal       | L2 1/2x2 1/2x3/16     | 141              | -4.003   | 9.582          | 41.8       | Pass        |
| T7          | 120 - 100      | Diagonal       | L3x3x3/16             | 162              | -4.367   | 13.316         | 32.8       | Pass        |
| T8          | 100 - 80       | Diagonal       | L3x3x1/4              | 183              | -5.217   | 11.740         | 44.4       | Pass        |
| T9          | 80 - 60        | Diagonal       | L3x3 1/2x1/4          | 195              | -5.669   | 12.349         | 45.9       | Pass        |
| T10         | 60 - 40        | Diagonal       | L3 1/2x3 1/2x1/4      | 210              | -6.170   | 13.694         | 45.1       | Pass        |
| T11         | 40 - 20        | Diagonal       | L4x4x1/4              | 225              | -6.769   | 17.634         | 38.4       | Pass        |
| T12         | 20 - 0         | Diagonal       | L3x3x1/4              | 246              | -8.989   | 10.749         | 83.6       | Pass        |
| T12         | 20 - 0         | Horizontal     | L3 1/2x3 1/2x1/4      | 245              | -6.686   | 12.537         | 53.3       | Pass        |
| T1          | 235 - 220      | Top Girt       | C4x5.4                | 4                | -0.386   | 22.727         | 1.7        | Pass        |
| T2          | 220 - 200      | Top Girt       | L1 3/4x1 3/4x1/4      | 29               | -0.814   | 9.895          | 8.2        | Pass        |

| Section No. | Elevation (ft) | Component Type        | Size              | Critical Element | P (K)  | SF*P_allow (K)              | % Capacity | Pass / Fail |
|-------------|----------------|-----------------------|-------------------|------------------|--------|-----------------------------|------------|-------------|
| T3          | 200 - 180      | Top Girt              | L1 3/4x1 3/4x3/16 | 59               | -1.136 | 7.838                       | 14.5       | Pass        |
| T12         | 20 - 0         | Redund Horz 1 Bracing | L3x3x1/4          | 250              | -3.718 | 32.056                      | 11.6       | Pass        |
| T12         | 20 - 0         | Redund Diag 1 Bracing | L3x3x1/4          | 255              | -2.361 | 20.631                      | 11.4       | Pass        |
| T12         | 20 - 0         | Inner Bracing         | L3x3x3/16         | 259              | -0.007 | 5.612                       | 0.2        | Pass        |
|             |                |                       |                   |                  |        |                             | Summary    |             |
|             |                |                       |                   |                  |        | Leg (T1)                    | 50.9       | Pass        |
|             |                |                       |                   |                  |        | Diagonal (T12)              | 83.6       | Pass        |
|             |                |                       |                   |                  |        | Horizontal (T12)            | 53.3       | Pass        |
|             |                |                       |                   |                  |        | Top Girt (T3)               | 14.5       | Pass        |
|             |                |                       |                   |                  |        | Redund Horz 1 Bracing (T12) | 11.6       | Pass        |
|             |                |                       |                   |                  |        | Redund Diag 1 Bracing (T12) | 11.4       | Pass        |
|             |                |                       |                   |                  |        | Inner Bracing (T12)         | 0.2        | Pass        |
|             |                |                       |                   |                  |        | Bolt Checks                 | 41.3       | Pass        |
|             |                |                       |                   |                  |        | Rating =                    | 83.6       | Pass        |

**Table 5 - Tower Component Stresses vs. Capacity – LC5**

| Notes | Component                          | Elevation (ft) | % Capacity | Pass / Fail |
|-------|------------------------------------|----------------|------------|-------------|
| 1,2   | Anchor Rods                        | Base           | 30.7       | Pass        |
| 1,2   | Base Foundation (Structure)        | Base           | 8.5        | Pass        |
| 1,2   | Base Foundation (Soil Interaction) | Base           | 64.2       | Pass        |

|                                                     |              |
|-----------------------------------------------------|--------------|
| <b>Structure Rating (max from all components) =</b> | <b>83.6%</b> |
|-----------------------------------------------------|--------------|

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
- 2) Rating per TIA-222-H Section 15.5.

#### 4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

The result of the tilt and twist values for a 60 mph 3-second gust service wind speed per the TIA-222-H Standard are given below:

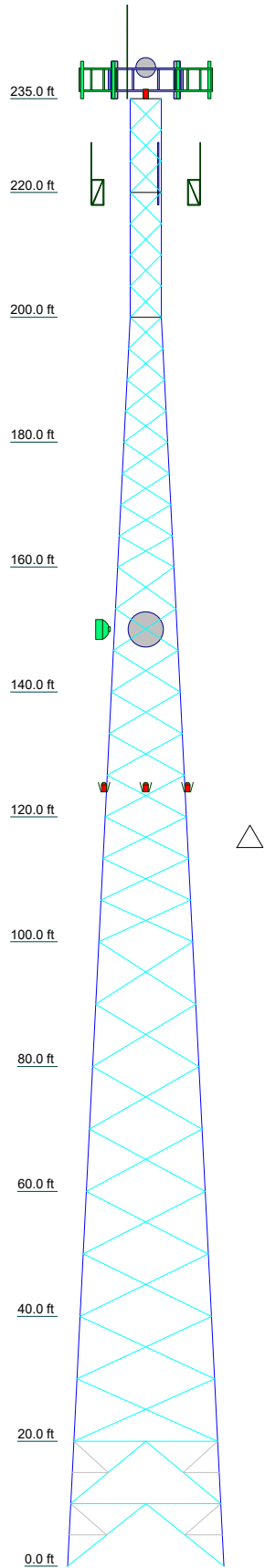
**Table 6 – Proposed Equipment Tilt-Sway Results for 60 mph Service Wind – LC5**

| Elevation (ft) | Dish Model  | Diameter (ft) | Tilt (°) | Twist (°) |
|----------------|-------------|---------------|----------|-----------|
| 240.0          | VHLP3-11W/A | 3.275         | 0.268    | 0.089     |

## **APPENDIX A**

### **TNXTOWER OUTPUT**

|                  |    |    |    |    |    |    |    |    |    |     |     |     |  |
|------------------|----|----|----|----|----|----|----|----|----|-----|-----|-----|--|
| Section          | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 |  |
| Legs             | A  | B  |    |    |    |    |    |    |    |     |     |     |  |
| Leg Grade        |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Diagonals        |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Diagonal Grade   |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Top Girts        |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Horizontals      |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Red. Horizontals |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Red. Diagonals   |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Inner Bracing    |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Face Width (ft)  | 5  |    |    |    |    |    |    |    |    |     |     |     |  |
| # Panels @ (ft)  |    |    |    |    |    |    |    |    |    |     |     |     |  |
| Weight (K)       |    |    |    |    |    |    |    |    |    |     |     |     |  |



| MARK | SIZE                 | MARK | SIZE                  |
|------|----------------------|------|-----------------------|
| A    | Sabre 2.375"x0.154"  | D    | Sabre 6.625"x0.432"   |
| B    | Sabre 2.875"x0.375"  | E    | Sabre 6.625" x 0.562" |
| C    | Sabre 5.5625" x 0.5" | F    | L1 3/4x1 3/4x3/16     |

| GRADE   | Fy     | Fu     | GRADE | Fy     | Fu     |
|---------|--------|--------|-------|--------|--------|
| A572-50 | 50 ksi | 65 ksi | A36   | 36 ksi | 58 ksi |

- TOWER DESIGN NOTES**
1. Tower is located in Columbia County, Florida.
  2. Tower designed for Exposure B to the TIA-222-H Standard.
  3. Tower designed for a 118 mph basic wind in accordance with the TIA-222-H Standard.
  4. Deflections are based upon a 60 mph wind.
  5. Tower Risk Category II.
  6. Topographic Category 1 with Crest Height of 0'
  7. TIA-222-H Annex S
  8. TOWER RATING: 83.6%

ALL REACTIONS  
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:  
DOWN: 224 K  
SHEAR: 22 K

UPLIFT: -177 K  
SHEAR: 18 K

AXIAL  
58 K

SHEAR  
36 K

MOMENT  
4422 kip-ft

TORQUE 57 kip-ft  
REACTIONS - 118 mph WIND



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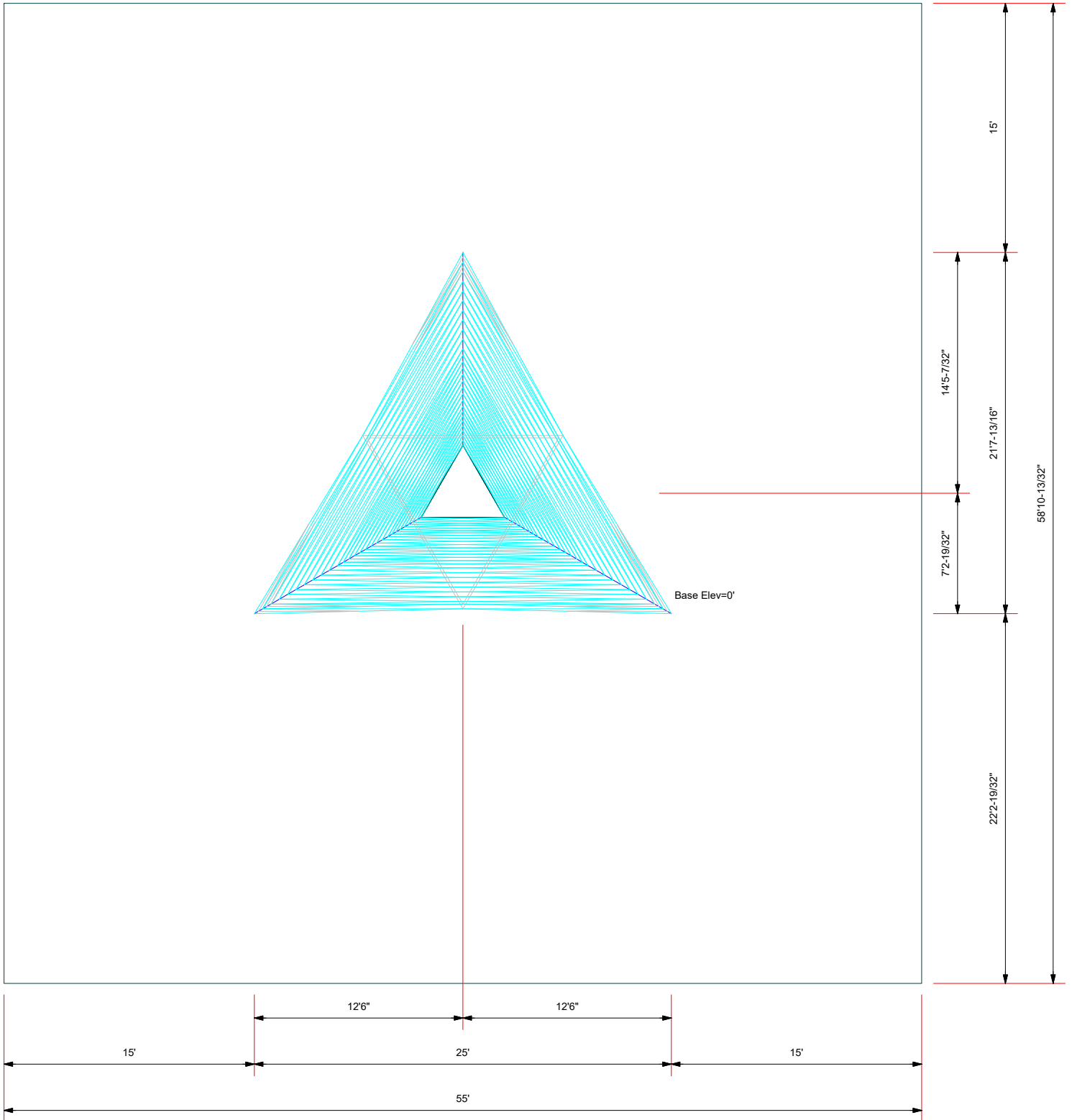
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Project:  
Client: Crown Castle  
Code: TIA-222-H  
Path: C:\Users\T\Documents\Feb 23 15\1403\_877744\_Wilburn-Sahana-Shiba-Given for QC\TruTower\151403\_002\_01\_0001\_Wilburn\_Floor

Drawn by: Sahana  
Date: 02/23/24  
Scale: NTS  
Dwg No. E-1

# Plot Plan

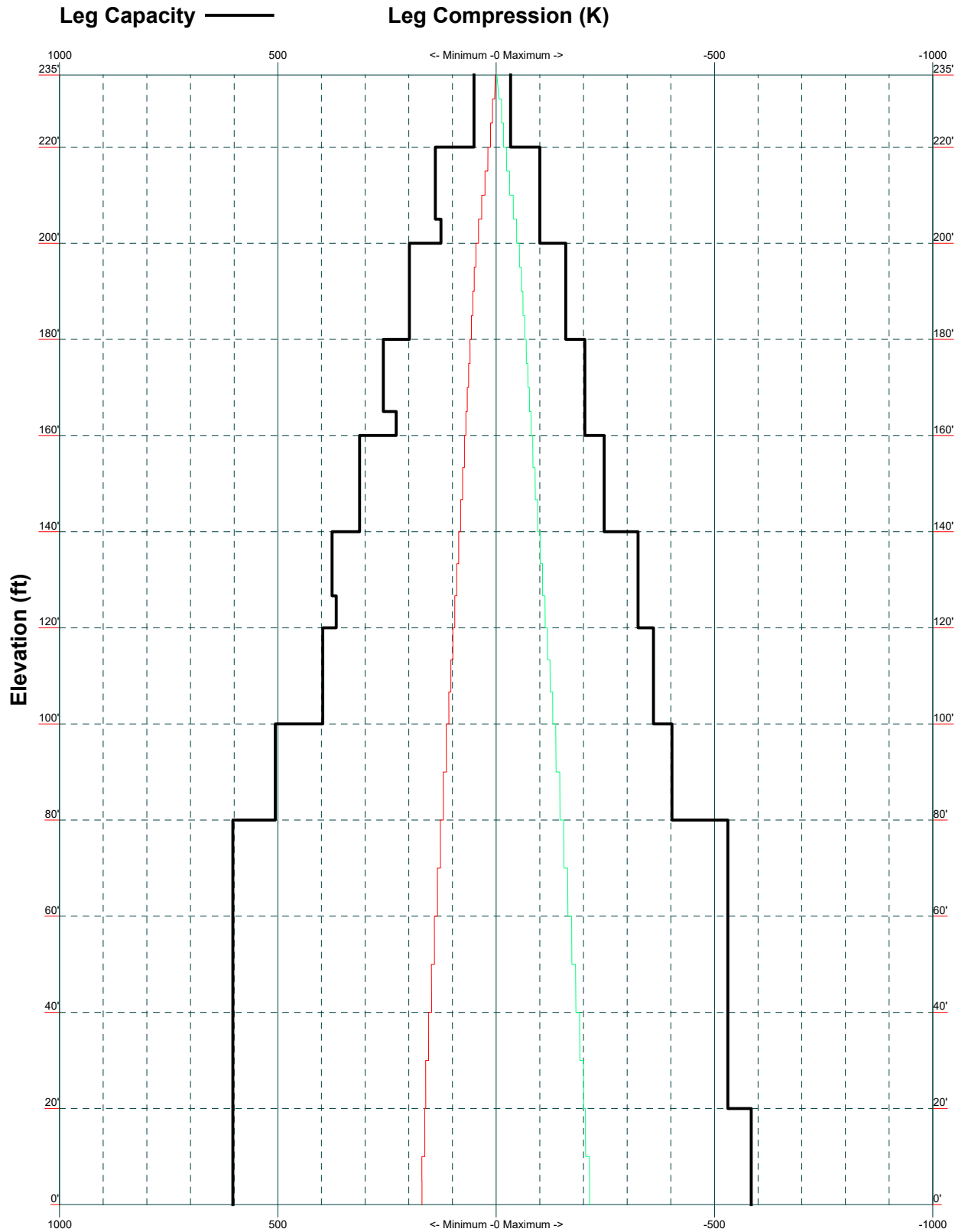
Total Area - 0.07 Acres



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 Project:  
 Client: Crown Castle  
 Code: TIA-222-H  
 Path:  
 Drawn by: Sahana  
 Date: 02/23/24  
 App'd:  
 Scale: NTS  
 Dwg No. E-2

# TIA-222-H - 118 mph Exposure B



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|                                                          |                  |            |
|----------------------------------------------------------|------------------|------------|
| Job: <b>151403.002.01.0001- Wilburn, FL (BU# 877744)</b> |                  |            |
| Project:                                                 |                  |            |
| Client: Crown Castle                                     | Drawn by: Sahana | App'd:     |
| Code: TIA-222-H                                          | Date: 02/23/24   | Scale: NTS |
| Path:                                                    | Dwg No. E-3      |            |

# TIA-222-H - 118 mph Exposure B

Maximum Values

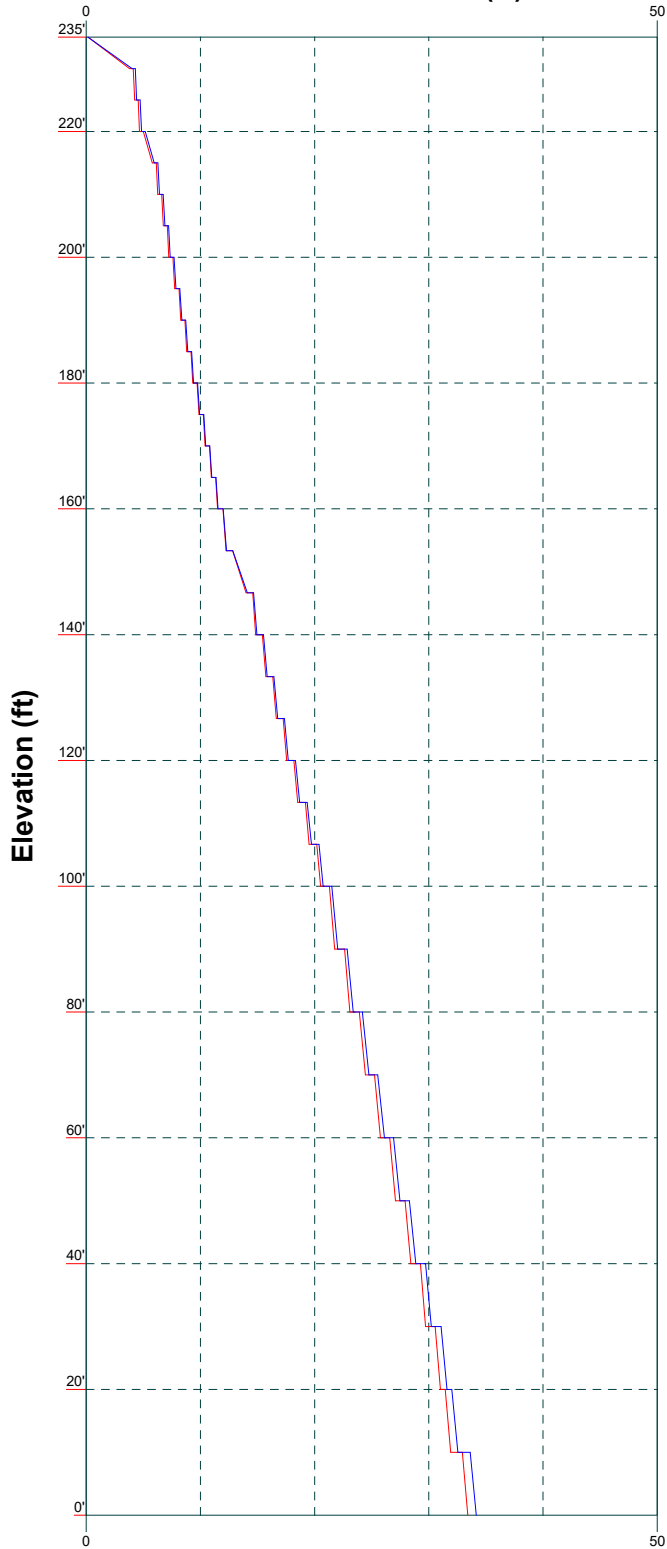
Vx

Vz

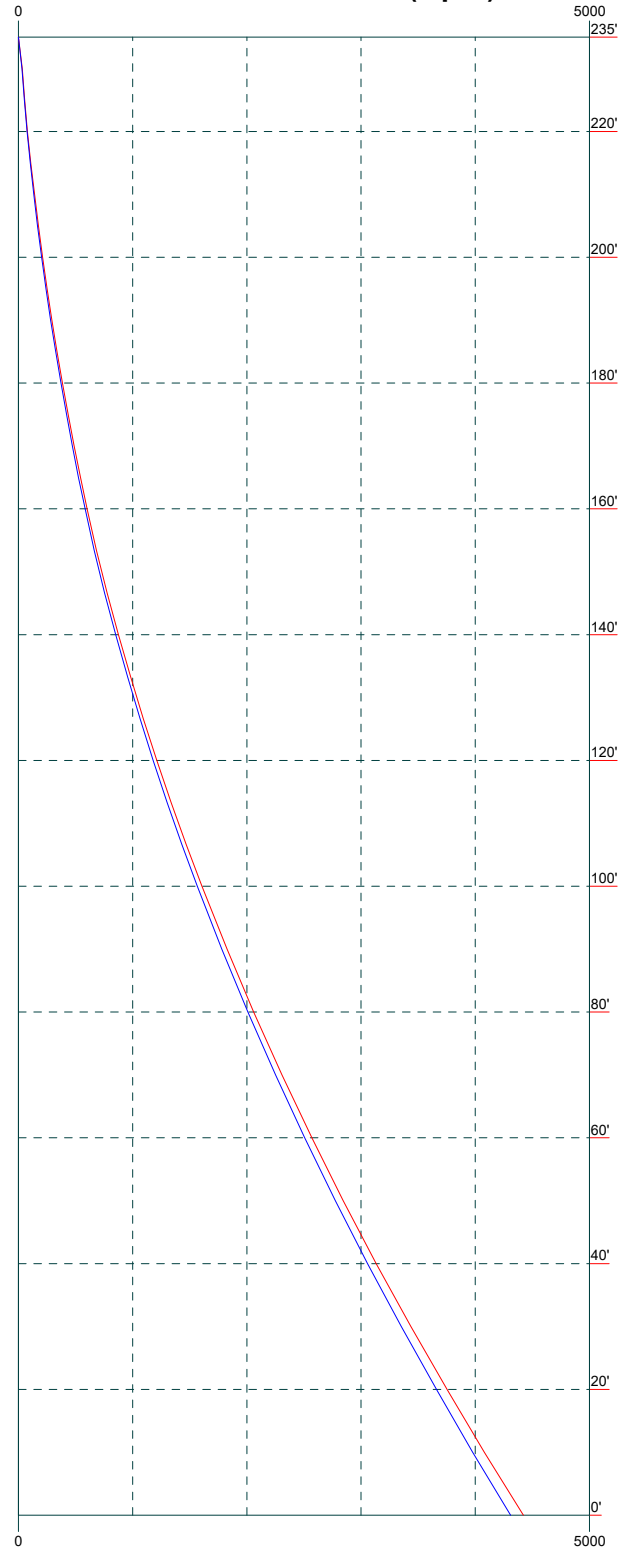
Mx

Mz

## Global Mast Shear (K)



## Global Mast Moment (kip-ft)



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Job: **151403.002.01.0001- Wilburn, FL (BU# 877744)**

Project:

Client: Crown Castle

Drawn by: Sahana

App'd:

Code: TIA-222-H

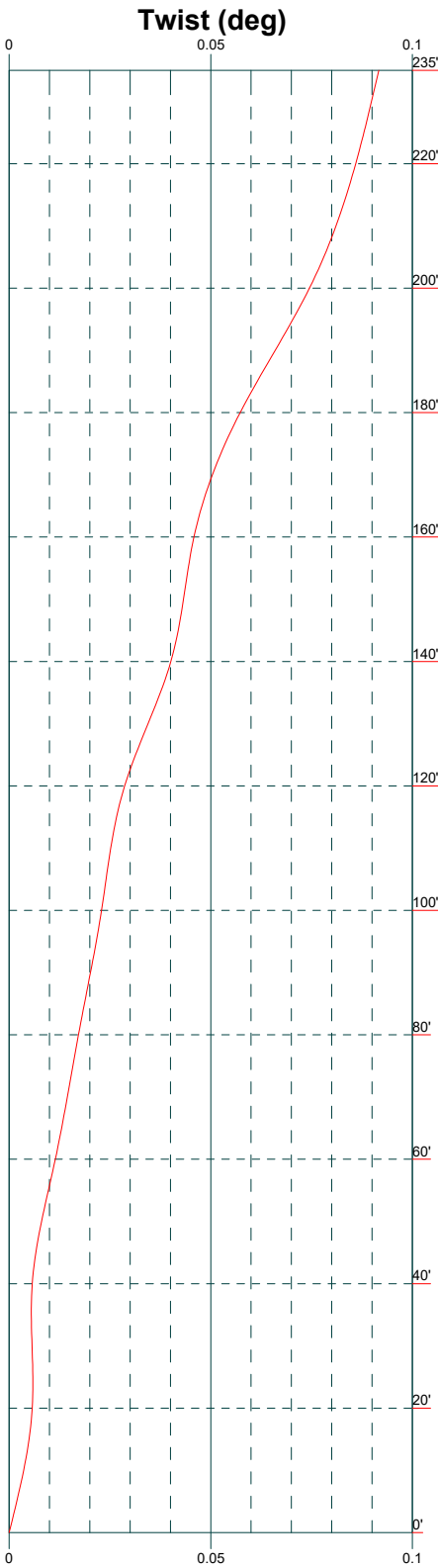
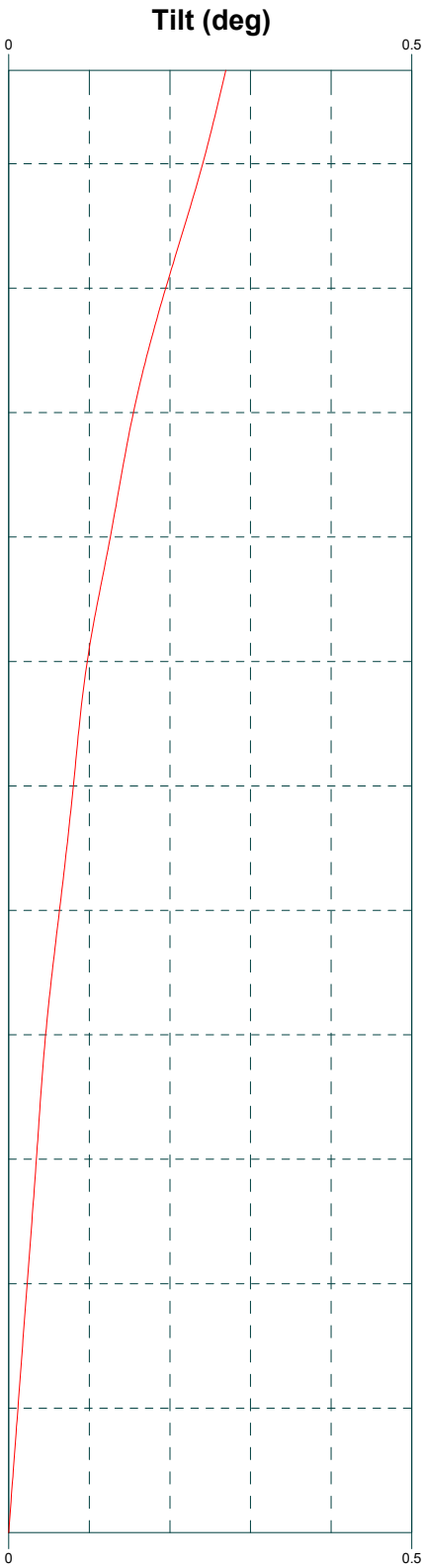
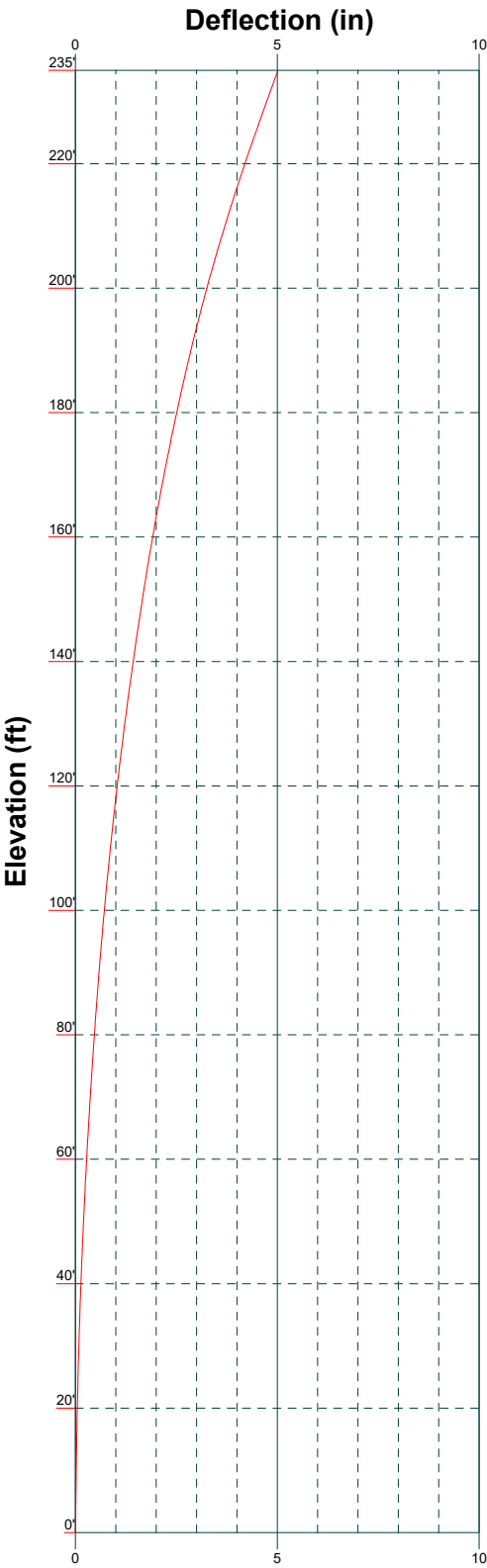
Date: 02/23/24

Scale: NTS

Path:

Dwg No. E-4

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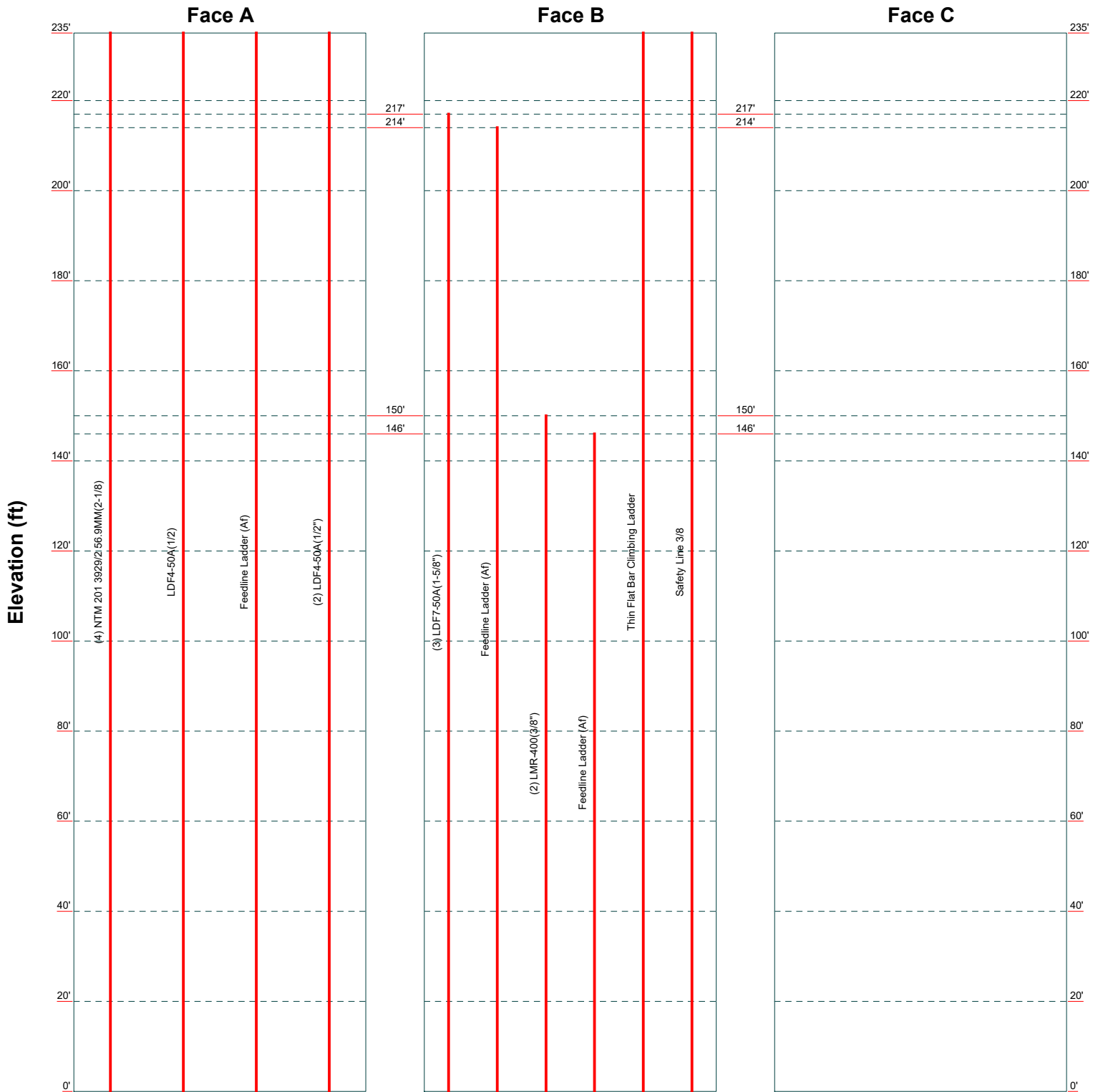
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|----------------------------------------------------------|------------------|------------|
| Job: <b>151403.002.01.0001- Wilburn, FL (BU# 877744)</b> |                  |            |
| Project:                                                 |                  |            |
| Client: Crown Castle                                     | Drawn by: Sahana | App'd:     |
| Code: TIA-222-H                                          | Date: 02/23/24   | Scale: NTS |
| Path:                                                    | Dwg No. E-5      |            |

# Feed Line Distribution Chart

## 0' - 235'

Round Flat App In Face App Out Face Truss Leg



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|----------------------------------------------------------|------------------|------------|
| Job: <b>151403.002.01.0001- Wilburn, FL (BU# 877744)</b> |                  |            |
| Project:                                                 |                  |            |
| Client: Crown Castle                                     | Drawn by: Sahana | App'd:     |
| Code: TIA-222-H                                          | Date: 02/23/24   | Scale: NTS |
| Path:                                                    | Dwg No. E-7      |            |

|                                                                                                                                          |                                                            |                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b><br>151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b><br>1 of 32           |
|                                                                                                                                          | <b>Project</b>                                             | <b>Date</b><br>14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b><br>Crown Castle                              | <b>Designed by</b><br>Sahana     |

## Tower Input Data

The main tower is a 3x free standing tower with an overall height of 235' above the ground line.

The base of the tower is set at an elevation of 0' above the ground line.

The face width of the tower is 5' at the top and 25' at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Columbia County, Florida.

Tower base elevation above sea level: 151'.

Basic wind speed of 118 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0'.

Deflections calculated using a wind speed of 60 mph.

TIA-222-H Annex S.

Pressures are calculated at each section.

Stress ratio used in tower member design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used:  $K_{es}(F_w) = 0.95$ .

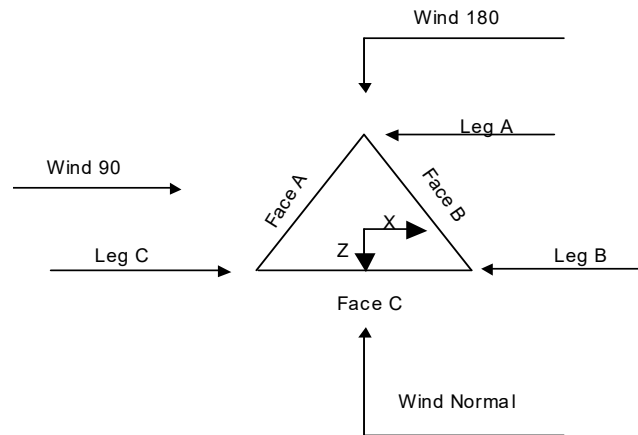
Maximum demand-capacity ratio is: 1.05.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

|                                     |                                       |                                           |
|-------------------------------------|---------------------------------------|-------------------------------------------|
| Consider Moments - Legs             | Assume Legs Pinned                    | ✓ Calculate Redundant Bracing Forces      |
| Consider Moments - Horizontals      | ✓ Assume Rigid Index Plate            | Ignore Redundant Members in FEA           |
| Consider Moments - Diagonals        | ✓ Use Clear Spans For Wind Area       | ✓ SR Leg Bolts Resist Compression         |
| Use Moment Magnification            | ✓ Use Clear Spans For KL/r            | All Leg Panels Have Same Allowable        |
| ✓ Use Code Stress Ratios            | Retension Guys To Initial Tension     | Offset Girt At Foundation                 |
| ✓ Use Code Safety Factors - Guys    | ✓ Bypass Mast Stability Checks        | ✓ Consider Feed Line Torque               |
| Escalate Ice                        | ✓ Use Azimuth Dish Coefficients       | ✓ Include Angle Block Shear Check         |
| Always Use Max Kz                   | ✓ Project Wind Area of Appurtenances  | Use TIA-222-H Bracing Resist. Exemption   |
| Use Special Wind Profile            | ✓ Alternative Appurt. EPA Calculation | Use TIA-222-H Tension Splice Exemption    |
| Include Bolts In Member Capacity    | Autocalc Torque Arm Areas             |                                           |
| Leg Bolts Are At Top Of Section     | Add IBC .6D+W Combination             | <b>Poles</b>                              |
| ✓ Secondary Horizontal Braces Leg   | ✓ Sort Capacity Reports By Component  | Include Shear-Torsion Interaction         |
| Use Diamond Inner Bracing (4 Sided) | Triangulate Diamond Inner Bracing     | Always Use Sub-Critical Flow              |
| SR Members Have Cut Ends            | Treat Feed Line Bundles As Cylinder   | Use Top Mounted Sockets                   |
| SR Members Are Concentric           | Ignore KL/ry For 60 Deg. Angle Legs   | Pole Without Linear Attachments           |
| Distribute Leg Loads As Uniform     | Use ASCE 10 X-Brace Ly Rules          | Pole With Shroud Or No Appurtenances      |
|                                     |                                       | Outside and Inside Corner Radii Are Known |

|                                                                                                                                          |                                                            |                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------|
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|                                                                                                                                          | <b>Client</b><br>Crown Castle                              | <b>Designed by</b><br>Sahana     |



**Triangular Tower**

## Tower Section Geometry

| Tower Section | Tower Elevation | Assembly Database | Description | Section Width | Number of Sections | Section Length |
|---------------|-----------------|-------------------|-------------|---------------|--------------------|----------------|
|               | ft              |                   |             | ft            |                    | ft             |
| T1            | 235'-220'       |                   |             | 5'            | 1                  | 15'            |
| T2            | 220'-200'       |                   |             | 5'            | 1                  | 20'            |
| T3            | 200'-180'       |                   |             | 5'            | 1                  | 20'            |
| T4            | 180'-160'       |                   |             | 7'            | 1                  | 20'            |
| T5            | 160'-140'       |                   |             | 9'            | 1                  | 20'            |
| T6            | 140'-120'       |                   |             | 11'           | 1                  | 20'            |
| T7            | 120'-100'       |                   |             | 13'           | 1                  | 20'            |
| T8            | 100'-80'        |                   |             | 15'           | 1                  | 20'            |
| T9            | 80'-60'         |                   |             | 17'           | 1                  | 20'            |
| T10           | 60'-40'         |                   |             | 19'           | 1                  | 20'            |
| T11           | 40'-20'         |                   |             | 21'           | 1                  | 20'            |
| T12           | 20'-0'          |                   |             | 23'           | 1                  | 20'            |

## Tower Section Geometry (cont'd)

| Tower Section | Tower Elevation | Diagonal Spacing | Bracing Type | Has K Brace End Panels | Has Horizontals | Top Girt Offset | Bottom Girt Offset |
|---------------|-----------------|------------------|--------------|------------------------|-----------------|-----------------|--------------------|
|               | ft              | ft               |              |                        |                 | in              | in                 |
| T1            | 235'-220'       | 5'               | X Brace      | No                     | Yes             | 0.000           | 0.000              |
| T2            | 220'-200'       | 5'               | X Brace      | No                     | Yes             | 0.000           | 0.000              |
| T3            | 200'-180'       | 5'               | X Brace      | No                     | Yes             | 0.000           | 0.000              |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Tower Section | Tower Elevation | Diagonal Spacing | Bracing Type | Has K Brace End Panels | Has Horizontals | Top Girt Offset | Bottom Girt Offset |
|---------------|-----------------|------------------|--------------|------------------------|-----------------|-----------------|--------------------|
|               | ft              | ft               |              |                        |                 | in              | in                 |
| T4            | 180'-160'       | 5'               | X Brace      | No                     | No              | 0.000           | 0.000              |
| T5            | 160'-140'       | 6'8"             | X Brace      | No                     | No              | 0.000           | 0.000              |
| T6            | 140'-120'       | 6'8"             | X Brace      | No                     | No              | 0.000           | 0.000              |
| T7            | 120'-100'       | 6'8"             | X Brace      | No                     | No              | 0.000           | 0.000              |
| T8            | 100'-80'        | 10'              | X Brace      | No                     | No              | 0.000           | 0.000              |
| T9            | 80'-60'         | 10'              | X Brace      | No                     | No              | 0.000           | 0.000              |
| T10           | 60'-40'         | 10'              | X Brace      | No                     | No              | 0.000           | 0.000              |
| T11           | 40'-20'         | 10'              | X Brace      | No                     | No              | 0.000           | 0.000              |
| T12           | 20'-0'          | 10'              | K1 Down      | No                     | Yes             | 0.000           | 0.000              |

### Tower Section Geometry (cont'd)

| Tower Elevation<br>ft | Leg Type | Leg Size              | Leg Grade           | Diagonal Type | Diagonal Size     | Diagonal Grade  |
|-----------------------|----------|-----------------------|---------------------|---------------|-------------------|-----------------|
| T1 235'-220'          | Pipe     | Sabre 2.375"x0.154"   | A572-50<br>(50 ksi) | Equal Angle   | L1 3/4x1 3/4x3/16 | A36<br>(36 ksi) |
| T2 220'-200'          | Pipe     | Sabre 2.875"x0.375"   | A572-50<br>(50 ksi) | Equal Angle   | L1 3/4x1 3/4x1/4  | A36<br>(36 ksi) |
| T3 200'-180'          | Pipe     | Sabre 3.5"x0.437"     | A572-50<br>(50 ksi) | Equal Angle   | L1 3/4x1 3/4x3/16 | A36<br>(36 ksi) |
| T4 180'-160'          | Pipe     | Sabre 3.5" x 0.6"     | A572-50<br>(50 ksi) | Equal Angle   | L1 3/4x1 3/4x3/16 | A36<br>(36 ksi) |
| T5 160'-140'          | Pipe     | Sabre 4.5"x0.5310"    | A572-50<br>(50 ksi) | Equal Angle   | L2 1/2x2 1/2x3/16 | A36<br>(36 ksi) |
| T6 140'-120'          | Pipe     | Sabre 5.5625" x 0.5"  | A572-50<br>(50 ksi) | Equal Angle   | L2 1/2x2 1/2x3/16 | A36<br>(36 ksi) |
| T7 120'-100'          | Pipe     | Sabre 6.625"x0.432"   | A572-50<br>(50 ksi) | Equal Angle   | L3x3x3/16         | A36<br>(36 ksi) |
| T8 100'-80'           | Pipe     | Sabre 6.625" x 0.562" | A572-50<br>(50 ksi) | Equal Angle   | L3x3x1/4          | A36<br>(36 ksi) |
| T9 80'-60'            | Pipe     | Sabre 8.625"x0.5"     | A572-50<br>(50 ksi) | Single Angle  | L3x3 1/2x1/4      | A36<br>(36 ksi) |
| T10 60'-40'           | Pipe     | Sabre 8.625"x0.5"     | A572-50<br>(50 ksi) | Equal Angle   | L3 1/2x3 1/2x1/4  | A36<br>(36 ksi) |
| T11 40'-20'           | Pipe     | Sabre 8.625"x0.5"     | A572-50<br>(50 ksi) | Equal Angle   | L4x4x1/4          | A36<br>(36 ksi) |
| T12 20'-0'            | Pipe     | Sabre 8.625"x0.5"     | A572-50<br>(50 ksi) | Equal Angle   | L3x3x1/4          | A36<br>(36 ksi) |

### Tower Section Geometry (cont'd)

| Tower Elevation<br>ft | Top Girt Type | Top Girt Size     | Top Girt Grade  | Bottom Girt Type | Bottom Girt Size | Bottom Girt Grade |
|-----------------------|---------------|-------------------|-----------------|------------------|------------------|-------------------|
| T1 235'-220'          | Channel       | C4x5.4            | A36<br>(36 ksi) | Pipe             |                  | A36<br>(36 ksi)   |
| T2 220'-200'          | Equal Angle   | L1 3/4x1 3/4x1/4  | A36<br>(36 ksi) | Pipe             |                  | A36<br>(36 ksi)   |
| T3 200'-180'          | Equal Angle   | L1 3/4x1 3/4x3/16 | A36<br>(36 ksi) | Pipe             |                  | A36<br>(36 ksi)   |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

### Tower Section Geometry (cont'd)

| Tower Elevation | No. of Mid Girts | Mid Girt Type | Mid Girt Size | Mid Girt Grade  | Horizontal Type | Horizontal Size  | Horizontal Grade |
|-----------------|------------------|---------------|---------------|-----------------|-----------------|------------------|------------------|
| ft              |                  |               |               |                 |                 |                  |                  |
| T12 20'-0'      | None             | Flat Bar      |               | A36<br>(36 ksi) | Equal Angle     | L3 1/2x3 1/2x1/4 | A36<br>(36 ksi)  |

### Tower Section Geometry (cont'd)

| Tower Elevation | Secondary Horizontal Type | Secondary Horizontal Size | Secondary Horizontal Grade | Inner Bracing Type | Inner Bracing Size | Inner Bracing Grade |
|-----------------|---------------------------|---------------------------|----------------------------|--------------------|--------------------|---------------------|
| ft              |                           |                           |                            |                    |                    |                     |
| T12 20'-0'      | Pipe                      |                           | A36<br>(36 ksi)            | Equal Angle        | L3x3x3/16          | A36<br>(36 ksi)     |

### Tower Section Geometry (cont'd)

| Tower Elevation | Redundant Bracing Grade | Redundant Type | Redundant Size | K Factor |
|-----------------|-------------------------|----------------|----------------|----------|
| ft              |                         |                |                |          |
| T12 20'-0'      | A36 (36 ksi)            | Horizontal (1) | Equal Angle    | 1        |
|                 | A36 (36 ksi)            | Diagonal (1)   | Equal Angle    | 1        |

### Tower Section Geometry (cont'd)

| Tower Elevation | Gusset Area (per face) | Gusset Thickness | Gusset Grade    | Adjust. Factor $A_f$ | Adjust. Factor $A_r$ | Weight Mult. | Double Angle Stitch Bolt Spacing Diagonals in | Double Angle Stitch Bolt Spacing Horizontals in | Double Angle Stitch Bolt Spacing Redundants in |
|-----------------|------------------------|------------------|-----------------|----------------------|----------------------|--------------|-----------------------------------------------|-------------------------------------------------|------------------------------------------------|
| ft              | ft <sup>2</sup>        | in               |                 |                      |                      |              |                                               |                                                 |                                                |
| T1 235'-220'    | 0.000                  | 0.375            | A36<br>(36 ksi) | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T2 220'-200'    | 0.000                  | 0.375            | A36<br>(36 ksi) | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T3 200'-180'    | 0.000                  | 0.375            | A36<br>(36 ksi) | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T4 180'-160'    | 0.000                  | 0.375            | A36<br>(36 ksi) | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T5 160'-140'    | 0.000                  | 0.375            | A36<br>(36 ksi) | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T6 140'-120'    | 0.000                  | 0.375            | A36<br>(36 ksi) | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T7 120'-100'    | 0.000                  | 0.375            | A36             | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Tower Elevation | Gusset Area (per face) | Gusset Thickness | Gusset Grade    | Adjust. Factor $A_f$ | Adjust. Factor $A_r$ | Weight Mult. | Double Angle Stitch Bolt Spacing Diagonals in | Double Angle Stitch Bolt Spacing Horizontals in | Double Angle Stitch Bolt Spacing Redundants in |
|-----------------|------------------------|------------------|-----------------|----------------------|----------------------|--------------|-----------------------------------------------|-------------------------------------------------|------------------------------------------------|
| ft              | ft <sup>2</sup>        | in               |                 |                      |                      |              |                                               |                                                 |                                                |
| T8 100'-80'     | 0.000                  | 0.375            | (36 ksi)<br>A36 | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T9 80'-60'      | 0.000                  | 0.375            | (36 ksi)<br>A36 | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T10 60'-40'     | 0.000                  | 0.375            | (36 ksi)<br>A36 | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T11 40'-20'     | 0.000                  | 0.375            | (36 ksi)<br>A36 | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |
| T12 20'-0'      | 0.000                  | 0.375            | (36 ksi)<br>A36 | 1.05                 | 1                    | 1.05         | Mid-Pt                                        | Mid-Pt                                          | Mid-Pt                                         |

## Tower Section Geometry (cont'd)

| Tower Elevation | Calc K Single Angles | Calc K Solid Rounds | Legs | K Factors <sup>1</sup> |               |              |        |        |             |             |
|-----------------|----------------------|---------------------|------|------------------------|---------------|--------------|--------|--------|-------------|-------------|
|                 |                      |                     |      | X Brace Diags          | K Brace Diags | Single Diags | Girts  | Horiz. | Sec. Horiz. | Inner Brace |
|                 |                      |                     |      | X<br>Y                 | X<br>Y        | X<br>Y       | X<br>Y | X<br>Y | X<br>Y      | X<br>Y      |
| T1 235'-220'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T2 220'-200'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T3 200'-180'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T4 180'-160'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T5 160'-140'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T6 140'-120'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T7 120'-100'    | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T8 100'-80'     | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T9 80'-60'      | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T10 60'-40'     | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T11 40'-20'     | Yes                  | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |
| T12 20'-0'      | No                   | No                  | 1    | 1                      | 1             | 1            | 1      | 1      | 1           | 1           |

<sup>1</sup>Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

## Tower Section Geometry (cont'd)

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Tower<br>Elevation<br>ft | Leg                       |   | Diagonal                  |      | Top Girt                  |      | Bottom Girt               |      | Mid Girt                  |      | Long Horizontal           |      | Short Horizontal          |      |
|--------------------------|---------------------------|---|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|---------------------------|------|
|                          | Net Width<br>Deduct<br>in | U | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U    |
| T1 235'-220'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T2 220'-200'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T3 200'-180'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T4 180'-160'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T5 160'-140'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T6 140'-120'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T7 120'-100'             | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T8 100'-80'              | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T9 80'-60'               | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T10 60'-40'              | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T11 40'-20'              | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |
| T12 20'-0'               | 0.000                     | 1 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 |

| Tower<br>Elevation<br>ft | Redundant<br>Horizontal   |          | Redundant<br>Diagonal     |          | Redundant<br>Sub-Diagonal |      | Redundant<br>Sub-Horizontal |      | Redundant Vertical        | Redundant Hip             |          | Redundant Hip<br>Diagonal |          |
|--------------------------|---------------------------|----------|---------------------------|----------|---------------------------|------|-----------------------------|------|---------------------------|---------------------------|----------|---------------------------|----------|
|                          | Net Width<br>Deduct<br>in | U        | Net Width<br>Deduct<br>in | U        | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in   | U    | Net Width<br>Deduct<br>in | Net Width<br>Deduct<br>in | U        | Net Width<br>Deduct<br>in | U        |
| T1 235'-220'             | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 (1)                  |          | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
|                          | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |                           |      |                             |      |                           | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
| T2 220'-200'             | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 (1)                  |          | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
|                          | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |                           |      |                             |      |                           | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
| T3 200'-180'             | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 (1)                  |          | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
|                          | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |                           |      |                             |      |                           | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
| T4 180'-160'             | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 (1)                  |          | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
|                          | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |                           |      |                             |      |                           | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
| T5 160'-140'             | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 (1)                  |          | 0.000                     | 0.75 (1) |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
|                                                                                                                                          | 151403.002.01.0001- Wilburn, FL (BU# 877744) | 7 of 32            |
|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Tower<br>Elevation<br>ft | Redundant<br>Horizontal   |          | Redundant<br>Diagonal     |          | Redundant<br>Sub-Diagonal |      | Redundant<br>Sub-Horizontal |      | Redundant Vertical        |      | Redundant Hip             |          | Redundant Hip<br>Diagonal |          |
|--------------------------|---------------------------|----------|---------------------------|----------|---------------------------|------|-----------------------------|------|---------------------------|------|---------------------------|----------|---------------------------|----------|
|                          | Net Width<br>Deduct<br>in | U        | Net Width<br>Deduct<br>in | U        | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in   | U    | Net Width<br>Deduct<br>in | U    | Net Width<br>Deduct<br>in | U        | Net Width<br>Deduct<br>in | U        |
| T6 140'-120'             | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
|                          | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
| T7 120'-100'             | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
| T8 100'-80'              | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
| T9 80'-60'               | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
| T10 60'-40'              | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
| T11 40'-20'              | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |
|                          | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (2) | 0.000                     | 0.75 (2) |
|                          | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (3) | 0.000                     | 0.75 (3) |
| T12 20'-0'               | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) | 0.000                     | 0.75 | 0.000                       | 0.75 | 0.000                     | 0.75 | 0.000                     | 0.75 (4) | 0.000                     | 0.75 (4) |
|                          | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |                           |      |                             |      |                           |      | 0.000                     | 0.75 (1) | 0.000                     | 0.75 (1) |

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|       |          |
|-------|----------|
| 0.000 | 0.75 (2) |
|-------|----------|

0.000 0.75 (3)

|       |          |
|-------|----------|
| 0.000 | 0.75 (4) |
|-------|----------|

| Tower Section Geometry (cont'd) |  |  |  |  |  |  |  |  |  |
|---------------------------------|--|--|--|--|--|--|--|--|--|
|---------------------------------|--|--|--|--|--|--|--|--|--|

| Tower<br>Elevation<br>ft | Leg<br>Connection<br>Type | Leg             |     | Diagonal        |     | Top Girt        |     | Bottom Girt     |     | Mid Girt        |     | Long Horizontal |     | Short Horizontal |     |
|--------------------------|---------------------------|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|------------------|-----|
|                          |                           | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in | No. | Bolt Size<br>in  | No. |
| T1 235'-220'             | Flange                    | 0.750           | 4   | 0.625           | 1   | 0.625           | 3   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T2 220'-200'             | Flange                    | A325N           |     | A325X           |     | A325X           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 0.750           | 4   | 0.625           | 1   | 0.625           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T3 200'-180'             | Flange                    | A325N           |     | A325X           |     | A325X           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.000           | 4   | 0.625           | 1   | 0.625           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T4 180'-160'             | Flange                    | A325N           |     | A325X           |     | A325X           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.000           | 4   | 0.625           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T5 160'-140'             | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.250           | 4   | 0.625           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T6 140'-120'             | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.250           | 4   | 0.625           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T7 120'-100'             | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.250           | 6   | 0.750           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T8 100'-80'              | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.250           | 6   | 0.750           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T9 80'-60'               | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.375           | 6   | 0.750           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T10 60'-40'              | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.375           | 6   | 0.750           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T11 40'-20'              | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.375           | 6   | 0.750           | 1   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625            | 0   |
| T12 20'-0'               | Flange                    | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |
|                          |                           | 1.500           | 0   | 0.625           | 2   | 0.000           | 0   | 0.625           | 0   | 0.625           | 0   | 0.625           | 2   | 0.625            | 0   |
|                          |                           | A572-50         |     | A325X           |     | A325N           |     | A325X           |     | A325N           |     | A325X           |     | A325N            |     |

| Tower Section Geometry (cont'd) |     |
|---------------------------------|-----|
| 1                               | 2   |
| 3                               | 4   |
| 5                               | 6   |
| 7                               | 8   |
| 9                               | 10  |
| 11                              | 12  |
| 13                              | 14  |
| 15                              | 16  |
| 17                              | 18  |
| 19                              | 20  |
| 21                              | 22  |
| 23                              | 24  |
| 25                              | 26  |
| 27                              | 28  |
| 29                              | 30  |
| 31                              | 32  |
| 33                              | 34  |
| 35                              | 36  |
| 37                              | 38  |
| 39                              | 40  |
| 41                              | 42  |
| 43                              | 44  |
| 45                              | 46  |
| 47                              | 48  |
| 49                              | 50  |
| 51                              | 52  |
| 53                              | 54  |
| 55                              | 56  |
| 57                              | 58  |
| 59                              | 60  |
| 61                              | 62  |
| 63                              | 64  |
| 65                              | 66  |
| 67                              | 68  |
| 69                              | 70  |
| 71                              | 72  |
| 73                              | 74  |
| 75                              | 76  |
| 77                              | 78  |
| 79                              | 80  |
| 81                              | 82  |
| 83                              | 84  |
| 85                              | 86  |
| 87                              | 88  |
| 89                              | 90  |
| 91                              | 92  |
| 93                              | 94  |
| 95                              | 96  |
| 97                              | 98  |
| 99                              | 100 |

| Tower<br>Elevation<br>ft | Redundant<br>Horizontal |       | Redundant<br>Diagonal |       | Redundant<br>Sub-Diagonal |     | Redundant<br>Sub-Horizontal |     | Redundant Vertical |     | Redundant Hip   |       | Redundant Hip<br>Diagonal |       |
|--------------------------|-------------------------|-------|-----------------------|-------|---------------------------|-----|-----------------------------|-----|--------------------|-----|-----------------|-------|---------------------------|-------|
|                          | Bolt Size<br>in         | No.   | Bolt Size<br>in       | No.   | Bolt Size<br>in           | No. | Bolt Size<br>in             | No. | Bolt Size<br>in    | No. | Bolt Size<br>in | No.   | Bolt Size<br>in           | No.   |
| T1 235'-220'             | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) | 0.625<br>A325N            | 0   | 0.625<br>A325N              | 0   | 0.625<br>A325N     | 0   | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
|                                                                                                                                          | 151403.002.01.0001- Wilburn, FL (BU# 877744) | 9 of 32            |
|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Tower<br>Elevation<br>ft | Redundant<br>Horizontal |       | Redundant<br>Diagonal |       | Redundant<br>Sub-Diagonal |     | Redundant<br>Sub-Horizontal |     | Redundant Vertical |     | Redundant Hip   |       | Redundant Hip<br>Diagonal |       |
|--------------------------|-------------------------|-------|-----------------------|-------|---------------------------|-----|-----------------------------|-----|--------------------|-----|-----------------|-------|---------------------------|-------|
|                          | Bolt Size<br>in         | No.   | Bolt Size<br>in       | No.   | Bolt Size<br>in           | No. | Bolt Size<br>in             | No. | Bolt Size<br>in    | No. | Bolt Size<br>in | No.   | Bolt Size<br>in           | No.   |
| T2 220'-200'             | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
| T3 200'-180'             | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
| T4 180'-160'             | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
| T5 160'-140'             | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
| T6 140'-120'             | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
| T7 120'-100'             | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (3) | 0.625                 | 0 (3) |                           |     |                             |     |                    |     | 0.625           | 0 (3) | 0.625                     | 0 (3) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
| T8 100'-80'              | 0.625                   | 0 (4) | 0.625                 | 0 (4) |                           |     |                             |     |                    |     | 0.625           | 0 (4) | 0.625                     | 0 (4) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (1) | 0.625                 | 0 (1) | 0.625                     | 0   | 0.625                       | 0   | 0.625              | 0   | 0.625           | 0 (1) | 0.625                     | 0 (1) |
|                          | A325N                   |       | A325N                 |       | A325N                     |     | A325N                       |     | A325N              |     | A325N           |       | A325N                     |       |
|                          | 0.625                   | 0 (2) | 0.625                 | 0 (2) |                           |     |                             |     |                    |     | 0.625           | 0 (2) | 0.625                     | 0 (2) |
|                          | A325N                   |       | A325N                 |       |                           |     |                             |     |                    |     | A325N           |       | A325N                     |       |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
|                                                                                                                                          | 151403.002.01.0001- Wilburn, FL (BU# 877744) | 10 of 32           |
|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Tower<br>Elevation<br>ft | Redundant<br>Horizontal |       | Redundant<br>Diagonal |       | Redundant<br>Sub-Diagonal |     | Redundant<br>Sub-Horizontal |     | Redundant Vertical |     | Redundant Hip   |       | Redundant Hip<br>Diagonal |       |
|--------------------------|-------------------------|-------|-----------------------|-------|---------------------------|-----|-----------------------------|-----|--------------------|-----|-----------------|-------|---------------------------|-------|
|                          | Bolt Size<br>in         | No.   | Bolt Size<br>in       | No.   | Bolt Size<br>in           | No. | Bolt Size<br>in             | No. | Bolt Size<br>in    | No. | Bolt Size<br>in | No.   | Bolt Size<br>in           | No.   |
| T9 80'-60'               | 0.625<br>A325N          | 0 (3) | 0.625<br>A325N        | 0 (3) | 0.625<br>A325N            | 0   | 0.625<br>A325N              | 0   | 0.625<br>A325N     | 0   | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325N          | 0 (4) | 0.625<br>A325N        | 0 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |
|                          | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325N          | 0 (2) | 0.625<br>A325N        | 0 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
|                          | 0.625<br>A325N          | 0 (3) | 0.625<br>A325N        | 0 (3) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325N          | 0 (4) | 0.625<br>A325N        | 0 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |
|                          | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325N          | 0 (2) | 0.625<br>A325N        | 0 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
| T10 60'-40'              | 0.625<br>A325N          | 0 (3) | 0.625<br>A325N        | 0 (3) | 0.625<br>A325N            | 0   | 0.625<br>A325N              | 0   | 0.625<br>A325N     | 0   | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325N          | 0 (4) | 0.625<br>A325N        | 0 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |
|                          | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325N          | 0 (2) | 0.625<br>A325N        | 0 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
|                          | 0.625<br>A325N          | 0 (3) | 0.625<br>A325N        | 0 (3) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325N          | 0 (4) | 0.625<br>A325N        | 0 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |
|                          | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325N          | 0 (2) | 0.625<br>A325N        | 0 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
| T11 40'-20'              | 0.625<br>A325N          | 0 (3) | 0.625<br>A325N        | 0 (3) | 0.625<br>A325N            | 0   | 0.625<br>A325N              | 0   | 0.625<br>A325N     | 0   | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325N          | 0 (4) | 0.625<br>A325N        | 0 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |
|                          | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325N          | 0 (2) | 0.625<br>A325N        | 0 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
|                          | 0.625<br>A325N          | 0 (3) | 0.625<br>A325N        | 0 (3) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325N          | 0 (4) | 0.625<br>A325N        | 0 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |
|                          | 0.625<br>A325N          | 0 (1) | 0.625<br>A325N        | 0 (1) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325N          | 0 (2) | 0.625<br>A325N        | 0 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
| T12 20'-0'               | 0.625<br>A325X          | 1 (1) | 0.625<br>A325X        | 1 (1) | 0.625<br>A325N            | 0   | 0.625<br>A325N              | 0   | 0.625<br>A325N     | 0   | 0.625<br>A325N  | 0 (1) | 0.625<br>A325N            | 0 (1) |
|                          | 0.625<br>A325X          | 1 (2) | 0.625<br>A325X        | 1 (2) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (2) | 0.625<br>A325N            | 0 (2) |
|                          | 0.625<br>A325X          | 1 (3) | 0.625<br>A325X        | 1 (3) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (3) | 0.625<br>A325N            | 0 (3) |
|                          | 0.625<br>A325X          | 1 (4) | 0.625<br>A325X        | 1 (4) |                           |     |                             |     |                    |     | 0.625<br>A325N  | 0 (4) | 0.625<br>A325N            | 0 (4) |

## Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description                       | Face<br>or<br>Leg | Allow<br>Shield | Exclude<br>From<br>Torque<br>Calculation | Component<br>Type | Placement<br>ft | Face<br>Offset<br>in | Lateral<br>Offset<br>(Frac FW) | # | #<br>Per<br>Row | Clear<br>Spacing<br>in | Width or<br>Diameter<br>in | Perimeter<br>in | Weight<br>klf |
|-----------------------------------|-------------------|-----------------|------------------------------------------|-------------------|-----------------|----------------------|--------------------------------|---|-----------------|------------------------|----------------------------|-----------------|---------------|
| NTM 201<br>3929/2<br>56.9MM(2-1/8 | A                 | No              | No                                       | Ar (CaAa)         | 235' - 0'       | 0.000                | 0.43                           | 4 | 4               | 0.850<br>0.750         | 2.240                      |                 | 0.002         |

|                                                                                                                                          |                                                            |                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b><br>151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b><br>11 of 32          |
|                                                                                                                                          | <b>Project</b>                                             | <b>Date</b><br>14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b><br>Crown Castle                              | <b>Designed by</b><br>Sahana     |

| Description                         | Face<br>or<br>Leg | Allow<br>Shield | Exclude<br>From<br>Torque<br>Calculation | Component<br>Type | Placement<br>ft | Face<br>Offset<br>in | Lateral<br>Offset<br>(Frac FW) | # | #<br>Per<br>Row | Clear<br>Spacing<br>in | Width or<br>Diameter<br>in | Perimeter<br>in | Weight<br>klf |
|-------------------------------------|-------------------|-----------------|------------------------------------------|-------------------|-----------------|----------------------|--------------------------------|---|-----------------|------------------------|----------------------------|-----------------|---------------|
| )                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |
| LDF4-50A(1/2)                       | A                 | No              | No                                       | Ar (CaAa)         | 235' - 0'       | 0.000                | 0.405                          | 1 | 1               | 0.625                  | 0.625                      |                 | 0.000         |
| Feedline<br>Ladder (Af)             | A                 | No              | No                                       | Af (CaAa)         | 235' - 0'       | 0.000                | 0.45                           | 1 | 1               | 3.000                  | 3.000                      |                 | 0.008         |
| *                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |
| LDF4-50A(1/2")                      | A                 | No              | No                                       | Ar (CaAa)         | 235' - 0'       | -0.750               | 0.47                           | 2 | 1               | 0.100<br>1.000         | 0.630                      |                 | 0.000         |
| *                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |
| LDF7-50A(1-5/8")                    | B                 | No              | No                                       | Ar (CaAa)         | 217' - 0'       | 0.000                | -0.43                          | 3 | 3               | 0.750<br>1.000         | 1.980                      |                 | 0.001         |
| Feedline<br>Ladder (Af)             | B                 | No              | No                                       | Af (CaAa)         | 214' - 0'       | 0.000                | -0.42                          | 1 | 1               | 3.000                  | 3.000                      |                 | 0.008         |
| *                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |
| LMR-400(3/8")                       | B                 | No              | No                                       | Ar (CaAa)         | 150' - 0'       | 0.000                | 0.44                           | 2 | 2               | 1.000                  | 0.405                      |                 | 0.000         |
| )                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |
| Feedline<br>Ladder (Af)             | B                 | No              | No                                       | Af (CaAa)         | 146' - 0'       | 0.000                | 0.43                           | 1 | 1               | 3.000                  | 3.000                      |                 | 0.008         |
| *                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |
| Thin Flat Bar<br>Climbing<br>Ladder | B                 | No              | No                                       | Af (CaAa)         | 235' - 0'       | 0.000                | 0                              | 1 | 1               | 2.000                  | 2.000                      |                 | 0.004         |
| Safety Line<br>3/8                  | B                 | No              | No                                       | Ar (CaAa)         | 235' - 0'       | 0.000                | 0.01                           | 1 | 1               | 0.375                  | 0.375                      |                 | 0.000         |
| *                                   |                   |                 |                                          |                   |                 |                      |                                |   |                 |                        |                            |                 |               |

### Feed Line/Linear Appurtenances - Entered As Area

| Description | Face<br>or<br>Leg | Allow<br>Shield | Exclude<br>From<br>Torque<br>Calculation | Component<br>Type | Placement<br>ft | Total<br>Number | C <sub>A</sub> A <sub>A</sub><br>ft <sup>2</sup> /ft | Weight<br>klf |
|-------------|-------------------|-----------------|------------------------------------------|-------------------|-----------------|-----------------|------------------------------------------------------|---------------|
| *           |                   |                 |                                          |                   |                 |                 |                                                      |               |

### Feed Line/Linear Appurtenances Section Areas

| Tower<br>Section | Tower<br>Elevation<br>ft | Face | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>F</sub><br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>In Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out Face<br>ft <sup>2</sup> | Weight<br>K |
|------------------|--------------------------|------|-----------------------------------|-----------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|-------------|
| T1               | 235'-220'                | A    | 0.000                             | 0.000                             | 23.767                                                      | 0.000                                                        | 0.247       |
|                  |                          | B    | 0.000                             | 0.000                             | 5.562                                                       | 0.000                                                        | 0.063       |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
| T2               | 220'-200'                | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|                  |                          | B    | 0.000                             | 0.000                             | 24.515                                                      | 0.000                                                        | 0.244       |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
| T3               | 200'-180'                | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|                  |                          | B    | 0.000                             | 0.000                             | 29.297                                                      | 0.000                                                        | 0.302       |
|                  |                          | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
| T4               | 180'-160'                | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|                  |                          | B    | 0.000                             | 0.000                             | 29.297                                                      | 0.000                                                        | 0.302       |

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>     | 151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b>        | 12 of 32          |
|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

| Tower Section | Tower Elevation<br>ft | Face | A <sub>R</sub><br>ft <sup>2</sup> | A <sub>F</sub><br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>In Face<br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Out Face<br>ft <sup>2</sup> | Weight<br>K |
|---------------|-----------------------|------|-----------------------------------|-----------------------------------|-------------------------------------------------------------|--------------------------------------------------------------|-------------|
| T5            | 160'-140'             | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 33.107                                                      | 0.000                                                        | 0.353       |
| T6            | 140'-120'             | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |
| T7            | 120'-100'             | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |
| T8            | 100'-80'              | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |
| T9            | 80'-60'               | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |
| T10           | 60'-40'               | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |
| T11           | 40'-20'               | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |
| T12           | 20'-0'                | C    | 0.000                             | 0.000                             | 0.000                                                       | 0.000                                                        | 0.000       |
|               |                       | A    | 0.000                             | 0.000                             | 31.690                                                      | 0.000                                                        | 0.329       |
|               |                       | B    | 0.000                             | 0.000                             | 40.917                                                      | 0.000                                                        | 0.472       |

### Feed Line Center of Pressure

| Section | Elevation<br>ft | CP <sub>x</sub><br>in | CP <sub>z</sub><br>in | CP <sub>x</sub><br>Ice<br>in | CP <sub>z</sub><br>Ice<br>in |
|---------|-----------------|-----------------------|-----------------------|------------------------------|------------------------------|
| T1      | 235'-220'       | 0.307                 | -10.352               | 0.307                        | -10.352                      |
| T2      | 220'-200'       | 0.663                 | -13.489               | 0.663                        | -13.489                      |
| T3      | 200'-180'       | 0.828                 | -15.640               | 0.828                        | -15.640                      |
| T4      | 180'-160'       | 1.022                 | -19.481               | 1.022                        | -19.481                      |
| T5      | 160'-140'       | 2.240                 | -19.794               | 2.211                        | -19.540                      |
| T6      | 140'-120'       | 4.609                 | -19.885               | 4.463                        | -19.247                      |
| T7      | 120'-100'       | 4.567                 | -20.069               | 4.357                        | -19.120                      |
| T8      | 100'-80'        | 5.598                 | -24.353               | 5.308                        | -23.065                      |
| T9      | 80'-60'         | 5.883                 | -25.696               | 5.337                        | -23.258                      |
| T10     | 60'-40'         | 5.765                 | -25.558               | 5.309                        | -23.466                      |
| T11     | 40'-20'         | 5.572                 | -25.019               | 5.237                        | -23.441                      |
| T12     | 20'-0'          | 5.173                 | -23.605               | 4.916                        | -22.357                      |

### Shielding Factor Ka

| Tower Section | Feed Line Record No. | Description    | Feed Line Segment Elev. | K <sub>a</sub><br>No Ice | K <sub>a</sub><br>Ice |
|---------------|----------------------|----------------|-------------------------|--------------------------|-----------------------|
| T1            | 1                    | NTM 201 3929/2 | 220.00 -                | 0.6000                   | 0.6000                |
|               |                      | 56.9MM(2-1/8)  | 235.00                  |                          |                       |
| T1            | 3                    | LDF4-50A(1/2)  | 220.00 -                | 0.6000                   | 0.6000                |
|               |                      |                | 235.00                  |                          |                       |

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>     | 151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b>        | 13 of 32          |
|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

| <i>Tower<br/>Section</i> | <i>Feed Line<br/>Record No.</i> | <i>Description</i>               | <i>Feed Line<br/>Segment Elev.</i> | <i>K<sub>o</sub><br/>No Ice</i> | <i>K<sub>o</sub><br/>Ice</i> |
|--------------------------|---------------------------------|----------------------------------|------------------------------------|---------------------------------|------------------------------|
| T1                       | 4                               | Feedline Ladder (Af)             | 220.00 -<br>235.00                 | 0.6000                          | 0.6000                       |
| T1                       | 6                               | LDF4-50A(1/2")                   | 220.00 -<br>235.00                 | 0.6000                          | 0.6000                       |
| T1                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 220.00 -<br>235.00                 | 0.6000                          | 0.6000                       |
| T1                       | 15                              | Safety Line 3/8                  | 220.00 -<br>235.00                 | 0.6000                          | 0.6000                       |
| T2                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 200.00 -<br>220.00                 | 0.6000                          | 0.6000                       |
| T2                       | 3                               | LDF4-50A(1/2)                    | 200.00 -<br>220.00                 | 0.6000                          | 0.6000                       |
| T2                       | 4                               | Feedline Ladder (Af)             | 200.00 -<br>220.00                 | 0.6000                          | 0.6000                       |
| T2                       | 6                               | LDF4-50A(1/2")                   | 200.00 -<br>220.00                 | 0.6000                          | 0.6000                       |
| T2                       | 8                               | LDF7-50A(1-5/8")                 | 200.00 -<br>217.00                 | 0.6000                          | 0.6000                       |
| T2                       | 9                               | Feedline Ladder (Af)             | 200.00 -<br>214.00                 | 0.6000                          | 0.6000                       |
| T2                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 200.00 -<br>220.00                 | 0.6000                          | 0.6000                       |
| T2                       | 15                              | Safety Line 3/8                  | 200.00 -<br>220.00                 | 0.6000                          | 0.6000                       |
| T3                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 3                               | LDF4-50A(1/2)                    | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 4                               | Feedline Ladder (Af)             | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 6                               | LDF4-50A(1/2")                   | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 8                               | LDF7-50A(1-5/8")                 | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 9                               | Feedline Ladder (Af)             | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T3                       | 15                              | Safety Line 3/8                  | 180.00 -<br>200.00                 | 0.6000                          | 0.6000                       |
| T4                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 3                               | LDF4-50A(1/2)                    | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 4                               | Feedline Ladder (Af)             | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 6                               | LDF4-50A(1/2")                   | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 8                               | LDF7-50A(1-5/8")                 | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 9                               | Feedline Ladder (Af)             | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T4                       | 15                              | Safety Line 3/8                  | 160.00 -<br>180.00                 | 0.6000                          | 0.6000                       |
| T5                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T5                       | 3                               | LDF4-50A(1/2)                    | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T5                       | 4                               | Feedline Ladder (Af)             | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>     | 151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b>        | 14 of 32          |
|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

| <i>Tower<br/>Section</i> | <i>Feed Line<br/>Record No.</i> | <i>Description</i>               | <i>Feed Line<br/>Segment Elev.</i> | <i>K<sub>o</sub><br/>No Ice</i> | <i>K<sub>o</sub><br/>Ice</i> |
|--------------------------|---------------------------------|----------------------------------|------------------------------------|---------------------------------|------------------------------|
| T5                       | 6                               | LDF4-50A(1/2")                   | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T5                       | 8                               | LDF7-50A(1-5/8")                 | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T5                       | 9                               | Feedline Ladder (Af)             | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T5                       | 11                              | LMR-400(3/8")                    | 140.00 -<br>150.00                 | 0.6000                          | 0.6000                       |
| T5                       | 12                              | Feedline Ladder (Af)             | 140.00 -<br>146.00                 | 0.6000                          | 0.6000                       |
| T5                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T5                       | 15                              | Safety Line 3/8                  | 140.00 -<br>160.00                 | 0.6000                          | 0.6000                       |
| T6                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 3                               | LDF4-50A(1/2)                    | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 4                               | Feedline Ladder (Af)             | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 6                               | LDF4-50A(1/2")                   | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 8                               | LDF7-50A(1-5/8")                 | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 9                               | Feedline Ladder (Af)             | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 11                              | LMR-400(3/8")                    | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 12                              | Feedline Ladder (Af)             | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T6                       | 15                              | Safety Line 3/8                  | 120.00 -<br>140.00                 | 0.6000                          | 0.6000                       |
| T7                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 3                               | LDF4-50A(1/2)                    | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 4                               | Feedline Ladder (Af)             | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 6                               | LDF4-50A(1/2")                   | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 8                               | LDF7-50A(1-5/8")                 | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 9                               | Feedline Ladder (Af)             | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 11                              | LMR-400(3/8")                    | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 12                              | Feedline Ladder (Af)             | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 14                              | Thin Flat Bar Climbing<br>Ladder | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T7                       | 15                              | Safety Line 3/8                  | 100.00 -<br>120.00                 | 0.6000                          | 0.6000                       |
| T8                       | 1                               | NTM 201 3929/2<br>56.9MM(2-1/8)  | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |
| T8                       | 3                               | LDF4-50A(1/2)                    | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |
| T8                       | 4                               | Feedline Ladder (Af)             | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |
| T8                       | 6                               | LDF4-50A(1/2")                   | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |
| T8                       | 8                               | LDF7-50A(1-5/8")                 | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |
| T8                       | 9                               | Feedline Ladder (Af)             | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |
| T8                       | 11                              | LMR-400(3/8")                    | 80.00 - 100.00                     | 0.6000                          | 0.6000                       |

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>     | 151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b>        | 15 of 32          |
|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

| Tower Section | Feed Line Record No. | Description                   | Feed Line Segment Elev. | K <sub>o</sub> No Ice | K <sub>o</sub> Ice |
|---------------|----------------------|-------------------------------|-------------------------|-----------------------|--------------------|
| T8            | 12                   | Feedline Ladder (Af)          | 80.00 - 100.00          | 0.6000                | 0.6000             |
| T8            | 14                   | Thin Flat Bar Climbing Ladder | 80.00 - 100.00          | 0.6000                | 0.6000             |
| T8            | 15                   | Safety Line 3/8               | 80.00 - 100.00          | 0.6000                | 0.6000             |
| T9            | 1                    | NTM 201 3929/2                | 60.00 - 80.00           | 0.6000                | 0.6000             |
|               |                      | 56.9MM(2-1/8)                 |                         |                       |                    |
| T9            | 3                    | LDF4-50A(1/2)                 | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 4                    | Feedline Ladder (Af)          | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 6                    | LDF4-50A(1/2")                | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 8                    | LDF7-50A(1-5/8")              | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 9                    | Feedline Ladder (Af)          | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 11                   | LMR-400(3/8")                 | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 12                   | Feedline Ladder (Af)          | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 14                   | Thin Flat Bar Climbing Ladder | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T9            | 15                   | Safety Line 3/8               | 60.00 - 80.00           | 0.6000                | 0.6000             |
| T10           | 1                    | NTM 201 3929/2                | 40.00 - 60.00           | 0.6000                | 0.6000             |
|               |                      | 56.9MM(2-1/8)                 |                         |                       |                    |
| T10           | 3                    | LDF4-50A(1/2)                 | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 4                    | Feedline Ladder (Af)          | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 6                    | LDF4-50A(1/2")                | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 8                    | LDF7-50A(1-5/8")              | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 9                    | Feedline Ladder (Af)          | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 11                   | LMR-400(3/8")                 | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 12                   | Feedline Ladder (Af)          | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 14                   | Thin Flat Bar Climbing Ladder | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T10           | 15                   | Safety Line 3/8               | 40.00 - 60.00           | 0.6000                | 0.6000             |
| T11           | 1                    | NTM 201 3929/2                | 20.00 - 40.00           | 0.6000                | 0.6000             |
|               |                      | 56.9MM(2-1/8)                 |                         |                       |                    |
| T11           | 3                    | LDF4-50A(1/2)                 | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 4                    | Feedline Ladder (Af)          | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 6                    | LDF4-50A(1/2")                | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 8                    | LDF7-50A(1-5/8")              | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 9                    | Feedline Ladder (Af)          | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 11                   | LMR-400(3/8")                 | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 12                   | Feedline Ladder (Af)          | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 14                   | Thin Flat Bar Climbing Ladder | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T11           | 15                   | Safety Line 3/8               | 20.00 - 40.00           | 0.6000                | 0.6000             |
| T12           | 1                    | NTM 201 3929/2                | 0.00 - 20.00            | 0.6000                | 0.6000             |
|               |                      | 56.9MM(2-1/8)                 |                         |                       |                    |
| T12           | 3                    | LDF4-50A(1/2)                 | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 4                    | Feedline Ladder (Af)          | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 6                    | LDF4-50A(1/2")                | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 8                    | LDF7-50A(1-5/8")              | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 9                    | Feedline Ladder (Af)          | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 11                   | LMR-400(3/8")                 | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 12                   | Feedline Ladder (Af)          | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 14                   | Thin Flat Bar Climbing Ladder | 0.00 - 20.00            | 0.6000                | 0.6000             |
| T12           | 15                   | Safety Line 3/8               | 0.00 - 20.00            | 0.6000                | 0.6000             |

## Discrete Tower Loads

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Description                         | Face<br>or<br>Leg | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft<br>ft<br>ft | Azimuth<br>Adjustment<br><br>° | Placement<br><br>ft |        | C <sub>A</sub> A <sub>A</sub><br>Front<br><br>ft <sup>2</sup> | C <sub>A</sub> A <sub>A</sub><br>Side<br><br>ft <sup>2</sup> | Weight<br><br>K |
|-------------------------------------|-------------------|----------------|-------------------------------------------------------|--------------------------------|---------------------|--------|---------------------------------------------------------------|--------------------------------------------------------------|-----------------|
| Lightning Rod 5/8x4'                | C                 | From Leg       | 0.500<br>0'<br>2'                                     | 0.000                          | 246'                | No Ice | 0.250                                                         | 0.250                                                        | 0.031           |
| 11' x 2" Mount Pipe                 | C                 | From Leg       | 0.500<br>0'<br>5'6"                                   | 0.000                          | 235'                | No Ice | 2.200                                                         | 2.200                                                        | 0.085           |
| Flash Beacon Lighting               | C                 | None           |                                                       | 0.000                          | 235'                | No Ice | 2.700                                                         | 2.700                                                        | 0.050           |
| Side Lighting                       | A                 | From Leg       | 0.500<br>0'<br>0'                                     | 0.000                          | 124'                | No Ice | 0.133                                                         | 0.133                                                        | 0.005           |
| Side Lighting                       | B                 | From Leg       | 0.500<br>0'<br>0'                                     | 0.000                          | 124'                | No Ice | 0.133                                                         | 0.133                                                        | 0.005           |
| Side Lighting                       | C                 | From Leg       | 0.500<br>0'<br>0'                                     | 0.000                          | 124'                | No Ice | 0.133                                                         | 0.133                                                        | 0.005           |
| Sabre Top Hat<br>*                  | C                 | None           |                                                       | 0.000                          | 237'6"              | No Ice | 5.500                                                         | 5.500                                                        | 0.775           |
| AIR6449 B41_T-MOBILE                | A                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 5.272                                                         | 2.033                                                        | 0.115           |
| AIR6449 B41_T-MOBILE                | B                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 5.272                                                         | 2.033                                                        | 0.115           |
| AIR6449 B41_T-MOBILE                | C                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 5.272                                                         | 2.033                                                        | 0.115           |
| FFVV-65C-R3-V1_TMO w/<br>Mount Pipe | A                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 12.970                                                        | 6.196                                                        | 0.157           |
| FFVV-65C-R3-V1_TMO w/<br>Mount Pipe | B                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 12.970                                                        | 6.196                                                        | 0.157           |
| FFVV-65C-R3-V1_TMO w/<br>Mount Pipe | C                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 12.969                                                        | 6.196                                                        | 0.157           |
| (2) RADIO 4480 B71_TMO              | A                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 2.852                                                         | 1.383                                                        | 0.093           |
| RADIO 4480 B71_TMO                  | B                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 2.852                                                         | 1.383                                                        | 0.093           |
| RADIO 4460 B2/B25<br>B66_TMO        | A                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 2.139                                                         | 1.686                                                        | 0.109           |
| (2) RADIO 4460 B2/B25<br>B66_TMO    | C                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 2.139                                                         | 1.686                                                        | 0.109           |
| FIBEAIR IP-20A_RFU-D                | A                 | From Leg       | 4.000<br>0'<br>2'                                     | 0.000                          | 238'                | No Ice | 0.692                                                         | 0.290                                                        | 0.014           |
| FIBEAIR IP-20A_RFU-D                | B                 | From Leg       | 4.000<br>0'<br>2'                                     | 0.000                          | 238'                | No Ice | 0.692                                                         | 0.290                                                        | 0.014           |
| (3) 8' x 2" Mount Pipe              | A                 | From Leg       | 4.000<br>0'<br>0'                                     | 0.000                          | 238'                | No Ice | 1.900                                                         | 1.900                                                        | 0.029           |



|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
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|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

## Dishes

| Description | Face<br>or<br>Leg | Dish<br>Type                | Offset<br>Type | Offsets:<br>Horz<br>Lateral<br>Vert<br>ft | Azimuth<br>Adjustment<br>° | 3 dB<br>Beam<br>Width<br>° | Elevation<br>ft | Outside<br>Diameter<br>ft | Aperture<br>Area<br>ft <sup>2</sup> | Weight<br>K |
|-------------|-------------------|-----------------------------|----------------|-------------------------------------------|----------------------------|----------------------------|-----------------|---------------------------|-------------------------------------|-------------|
| VHLP3-11W/A | A                 | Paraboloid<br>w/Shroud (HP) | From<br>Leg    | 1.000<br>0'<br>2'                         | 5.000                      |                            | 238'            | 3.275                     | No Ice<br>8.424                     | 0.037       |
| *           |                   |                             |                |                                           |                            |                            |                 |                           |                                     |             |
| HPD6-5.9    | A                 | Paraboloid<br>w/Shroud (HP) | From<br>Leg    | 1.000<br>0'<br>0'                         | 40.000                     |                            | 150'            | 5.833                     | No Ice<br>26.730                    | 0.250       |
| HPD3-11     | C                 | Paraboloid<br>w/Shroud (HP) | From<br>Leg    | 1.000<br>0'<br>0'                         | -40.000                    |                            | 150'            | 3.167                     | No Ice<br>7.880                     | 0.050       |
| *           |                   |                             |                |                                           |                            |                            |                 |                           |                                     |             |

## Load Combinations

| Comb.<br>No. | Description                        |
|--------------|------------------------------------|
| 1            | Dead Only                          |
| 2            | 1.2 Dead+1.0 Wind 0 deg - No Ice   |
| 3            | 0.9 Dead+1.0 Wind 0 deg - No Ice   |
| 4            | 1.2 Dead+1.0 Wind 30 deg - No Ice  |
| 5            | 0.9 Dead+1.0 Wind 30 deg - No Ice  |
| 6            | 1.2 Dead+1.0 Wind 60 deg - No Ice  |
| 7            | 0.9 Dead+1.0 Wind 60 deg - No Ice  |
| 8            | 1.2 Dead+1.0 Wind 90 deg - No Ice  |
| 9            | 0.9 Dead+1.0 Wind 90 deg - No Ice  |
| 10           | 1.2 Dead+1.0 Wind 120 deg - No Ice |
| 11           | 0.9 Dead+1.0 Wind 120 deg - No Ice |
| 12           | 1.2 Dead+1.0 Wind 150 deg - No Ice |
| 13           | 0.9 Dead+1.0 Wind 150 deg - No Ice |
| 14           | 1.2 Dead+1.0 Wind 180 deg - No Ice |
| 15           | 0.9 Dead+1.0 Wind 180 deg - No Ice |
| 16           | 1.2 Dead+1.0 Wind 210 deg - No Ice |
| 17           | 0.9 Dead+1.0 Wind 210 deg - No Ice |
| 18           | 1.2 Dead+1.0 Wind 240 deg - No Ice |
| 19           | 0.9 Dead+1.0 Wind 240 deg - No Ice |
| 20           | 1.2 Dead+1.0 Wind 270 deg - No Ice |
| 21           | 0.9 Dead+1.0 Wind 270 deg - No Ice |
| 22           | 1.2 Dead+1.0 Wind 300 deg - No Ice |
| 23           | 0.9 Dead+1.0 Wind 300 deg - No Ice |
| 24           | 1.2 Dead+1.0 Wind 330 deg - No Ice |
| 25           | 0.9 Dead+1.0 Wind 330 deg - No Ice |
| 26           | Dead+Wind 0 deg - Service          |
| 27           | Dead+Wind 30 deg - Service         |
| 28           | Dead+Wind 60 deg - Service         |
| 29           | Dead+Wind 90 deg - Service         |
| 30           | Dead+Wind 120 deg - Service        |
| 31           | Dead+Wind 150 deg - Service        |
| 32           | Dead+Wind 180 deg - Service        |
| 33           | Dead+Wind 210 deg - Service        |
| 34           | Dead+Wind 240 deg - Service        |
| 35           | Dead+Wind 270 deg - Service        |
| 36           | Dead+Wind 300 deg - Service        |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Comb. No. | Description                 |
|-----------|-----------------------------|
| 37        | Dead+Wind 330 deg - Service |

## Maximum Member Forces

| Section No. | Elevation ft | Component Type | Condition        | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| T1          | 235 - 220    | Leg            | Max Tension      | 15              | 13.026  | -0.000                   | -0.012                   |
|             |              |                | Max. Compression | 2               | -16.900 | 0.000                    | 0.107                    |
|             |              |                | Max. Mx          | 18              | -16.062 | 0.084                    | -0.065                   |
|             |              |                | Max. My          | 2               | -16.900 | 0.000                    | 0.107                    |
|             |              |                | Max. Vy          | 8               | -1.332  | 0.000                    | 0.000                    |
|             |              | Diagonal       | Max. Vx          | 14              | -1.330  | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 16              | 2.325   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 18              | -2.597  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | 1.637   | 0.023                    | -0.003                   |
|             |              |                | Max. My          | 20              | 1.734   | 0.018                    | -0.005                   |
|             |              | Top Girt       | Max. Vy          | 2               | -0.010  | 0.023                    | -0.003                   |
|             |              |                | Max. Vx          | 20              | -0.001  | 0.015                    | -0.005                   |
|             |              |                | Max Tension      | 10              | 0.511   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 15              | -0.386  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | -0.134  | 0.021                    | 0.000                    |
|             |              |                | Max. Vy          | 2               | -0.017  | 0.000                    | 0.000                    |
| T2          | 220 - 200    | Leg            | Max Tension      | 15              | 40.306  | -0.001                   | -0.042                   |
|             |              |                | Max. Compression | 2               | -47.025 | -0.001                   | 0.249                    |
|             |              |                | Max. Mx          | 20              | -3.053  | 0.267                    | -0.013                   |
|             |              |                | Max. My          | 2               | -47.025 | -0.001                   | 0.249                    |
|             |              |                | Max. Vy          | 20              | -0.225  | 0.267                    | -0.013                   |
|             |              | Diagonal       | Max. Vx          | 2               | -0.191  | -0.039                   | 0.229                    |
|             |              |                | Max Tension      | 23              | 3.675   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 10              | -3.853  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | 2.712   | 0.030                    | -0.004                   |
|             |              |                | Max. My          | 20              | -2.761  | -0.011                   | -0.008                   |
|             |              | Top Girt       | Max. Vy          | 2               | -0.013  | 0.030                    | -0.004                   |
|             |              |                | Max. Vx          | 20              | -0.002  | -0.013                   | -0.008                   |
|             |              |                | Max Tension      | 22              | 0.441   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 3               | -0.289  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | 0.263   | -0.011                   | 0.000                    |
|             |              |                | Max. Vy          | 2               | 0.009   | 0.000                    | 0.000                    |
| T3          | 200 - 180    | Leg            | Max Tension      | 23              | 56.664  | -0.131                   | -0.026                   |
|             |              |                | Max. Compression | 2               | -65.488 | 0.151                    | -0.001                   |
|             |              |                | Max. Mx          | 2               | -53.324 | 0.249                    | 0.001                    |
|             |              |                | Max. My          | 20              | -3.974  | -0.025                   | -0.344                   |
|             |              |                | Max. Vy          | 18              | 0.063   | 0.241                    | -0.052                   |
|             |              | Diagonal       | Max. Vx          | 20              | 0.121   | -0.025                   | -0.344                   |
|             |              |                | Max Tension      | 10              | 2.115   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 10              | -2.265  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | 1.557   | 0.017                    | -0.002                   |
|             |              |                | Max. My          | 6               | -1.636  | -0.006                   | 0.005                    |
|             |              | Top Girt       | Max. Vy          | 2               | -0.008  | 0.017                    | -0.002                   |
|             |              |                | Max. Vx          | 6               | -0.002  | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 15              | 0.059   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 2               | -0.105  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | 0.014   | -0.008                   | 0.000                    |
|             |              |                | Max. My          | 2               | -0.105  | 0.000                    | 0.000                    |
| T4          | 180 - 160    | Leg            | Max. Vy          | 2               | -0.007  | 0.000                    | 0.000                    |
|             |              |                | Max. Vx          | 2               | -0.000  | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 23              | 69.210  | -0.124                   | -0.015                   |
|             |              |                | Max. Compression | 2               | -80.137 | 0.166                    | -0.022                   |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Section No. | Elevation ft | Component Type | Condition        | Gov. Load Comb. | Axial K  | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|----------|--------------------------|--------------------------|
| T5          | 160 - 140    | Diagonal       | Max. Mx          | 11              | -77.870  | 0.181                    | 0.039                    |
|             |              |                | Max. My          | 9               | -4.651   | -0.020                   | 0.256                    |
|             |              |                | Max. Vy          | 22              | 0.039    | -0.179                   | -0.043                   |
|             |              |                | Max. Vx          | 20              | 0.093    | 0.015                    | -0.256                   |
|             |              |                | Max Tension      | 10              | 2.359    | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 10              | -2.368   | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 22              | 0.976    | 0.013                    | -0.002                   |
|             |              |                | Max. My          | 8               | -1.727   | 0.008                    | 0.003                    |
|             |              |                | Max. Vy          | 22              | 0.009    | 0.013                    | -0.002                   |
|             |              |                | Max. Vx          | 8               | -0.001   | 0.000                    | 0.000                    |
|             |              | Leg            | Max Tension      | 23              | 81.252   | -0.343                   | -0.090                   |
|             |              |                | Max. Compression | 2               | -95.202  | 0.198                    | -0.042                   |
|             |              |                | Max. Mx          | 14              | 69.636   | -0.437                   | -0.170                   |
|             |              |                | Max. My          | 19              | 38.272   | -0.282                   | 0.602                    |
|             |              |                | Max. Vy          | 14              | -0.245   | -0.437                   | -0.170                   |
|             |              |                | Max. Vx          | 19              | -0.371   | -0.282                   | -0.522                   |
|             |              |                | Max Tension      | 18              | 3.652    | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 18              | -3.839   | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | 2.658    | 0.031                    | -0.001                   |
|             |              |                | Max. My          | 20              | -2.986   | 0.017                    | -0.007                   |
| T6          | 140 - 120    | Diagonal       | Max. Vy          | 22              | 0.015    | 0.030                    | -0.006                   |
|             |              |                | Max. Vx          | 8               | -0.002   | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 23              | 94.792   | -0.291                   | -0.022                   |
|             |              |                | Max. Compression | 2               | -112.267 | 0.515                    | 0.002                    |
|             |              |                | Max. Mx          | 18              | -110.339 | 0.520                    | -0.062                   |
|             |              |                | Max. My          | 8               | -10.211  | 0.016                    | 0.512                    |
|             |              |                | Max. Vy          | 19              | -0.090   | 0.518                    | -0.063                   |
|             |              |                | Max. Vx          | 8               | -0.107   | 0.016                    | 0.512                    |
|             |              |                | Max Tension      | 18              | 3.883    | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 18              | -4.003   | 0.000                    | 0.000                    |
|             |              | Leg            | Max. Mx          | 2               | 2.545    | 0.033                    | 0.003                    |
|             |              |                | Max. My          | 8               | 1.684    | 0.028                    | 0.007                    |
|             |              |                | Max. Vy          | 22              | 0.017    | 0.032                    | -0.006                   |
|             |              |                | Max. Vx          | 8               | -0.001   | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 23              | 108.461  | -0.440                   | -0.004                   |
|             |              |                | Max. Compression | 2               | -129.760 | 0.749                    | 0.001                    |
|             |              |                | Max. Mx          | 19              | -126.161 | 0.766                    | -0.127                   |
|             |              |                | Max. My          | 21              | -5.936   | -0.024                   | -0.814                   |
|             |              |                | Max. Vy          | 14              | 0.108    | -0.728                   | -0.005                   |
|             |              |                | Max. Vx          | 20              | 0.159    | -0.028                   | -0.814                   |
|             |              |                | Max Tension      | 18              | 4.347    | 0.000                    | 0.000                    |
| T7          | 120 - 100    | Diagonal       | Max. Compression | 18              | -4.382   | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 22              | 2.024    | 0.050                    | -0.008                   |
|             |              |                | Max. My          | 8               | -2.992   | 0.021                    | 0.010                    |
|             |              |                | Max. Vy          | 22              | 0.024    | 0.050                    | -0.008                   |
|             |              |                | Max. Vx          | 8               | -0.002   | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 23              | 121.133  | -0.432                   | -0.051                   |
|             |              |                | Max. Compression | 2               | -146.315 | 0.784                    | -0.008                   |
|             |              |                | Max. Mx          | 18              | -144.732 | 0.796                    | -0.068                   |
|             |              |                | Max. My          | 21              | -5.866   | -0.024                   | -0.814                   |
|             |              |                | Max. Vy          | 14              | 0.123    | -0.732                   | 0.008                    |
|             |              | Leg            | Max. Vx          | 20              | -0.139   | -0.028                   | -0.814                   |
|             |              |                | Max Tension      | 18              | 5.091    | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 18              | -5.217   | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 22              | 2.517    | 0.082                    | -0.013                   |
|             |              |                | Max. My          | 8               | 3.082    | 0.076                    | 0.014                    |
|             |              |                | Max. Vy          | 22              | 0.034    | 0.082                    | -0.013                   |
|             |              |                | Max. Vx          | 8               | -0.002   | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 23              | 134.611  | -0.909                   | -0.044                   |
|             |              |                | Max. Compression | 2               | -164.389 | 1.015                    | -0.002                   |
|             |              |                | Max. Mx          | 18              | -162.937 | 1.026                    | -0.068                   |
| T8          | 100 - 80     | Leg            |                  |                 |          |                          |                          |
|             |              |                |                  |                 |          |                          |                          |
|             |              |                |                  |                 |          |                          |                          |
| T9          | 80 - 60      | Leg            |                  |                 |          |                          |                          |
|             |              |                |                  |                 |          |                          |                          |
|             |              |                |                  |                 |          |                          |                          |

|                                                                                                                                          |                                              |                    |
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|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Section No. | Elevation ft | Component Type        | Condition        | Gov. Load Comb. | Axial K  | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|-----------------------|------------------|-----------------|----------|--------------------------|--------------------------|
| T10         | 60 - 40      | Diagonal              | Max. My          | 8               | -16.168  | -0.037                   | 0.971                    |
|             |              |                       | Max. Vy          | 14              | 0.124    | -0.918                   | 0.001                    |
|             |              |                       | Max. Vx          | 8               | -0.164   | -0.037                   | 0.971                    |
|             |              |                       | Max Tension      | 10              | 5.423    | 0.000                    | 0.000                    |
|             |              |                       | Max. Compression | 10              | -5.669   | 0.000                    | 0.000                    |
|             |              |                       | Max. Mx          | 6               | 2.897    | 0.100                    | 0.015                    |
|             |              | Leg                   | Max. My          | 8               | -3.716   | 0.084                    | 0.017                    |
|             |              |                       | Max. Vy          | 6               | 0.041    | 0.100                    | 0.015                    |
|             |              |                       | Max. Vx          | 8               | -0.003   | 0.000                    | 0.000                    |
|             |              |                       | Max Tension      | 7               | 148.097  | -0.802                   | 0.037                    |
|             |              |                       | Max. Compression | 2               | -182.575 | 1.181                    | -0.008                   |
|             |              |                       | Max. Mx          | 18              | -181.216 | 1.194                    | -0.074                   |
|             |              | Diagonal              | Max. My          | 8               | -18.135  | -0.072                   | 1.064                    |
|             |              |                       | Max. Vy          | 18              | -0.130   | 1.194                    | -0.074                   |
|             |              |                       | Max. Vx          | 8               | 0.166    | -0.072                   | 1.064                    |
|             |              |                       | Max Tension      | 10              | 5.778    | 0.000                    | 0.000                    |
|             |              |                       | Max. Compression | 10              | -6.170   | 0.000                    | 0.000                    |
|             |              |                       | Max. Mx          | 6               | 3.231    | 0.130                    | 0.018                    |
| T11         | 40 - 20      | Leg                   | Max. My          | 8               | 3.830    | 0.122                    | 0.020                    |
|             |              |                       | Max. Vy          | 6               | 0.049    | 0.130                    | 0.018                    |
|             |              |                       | Max. Vx          | 8               | -0.003   | 0.000                    | 0.000                    |
|             |              |                       | Max Tension      | 7               | 161.369  | -0.925                   | 0.055                    |
|             |              |                       | Max. Compression | 2               | -200.870 | -0.468                   | 0.015                    |
|             |              |                       | Max. Mx          | 18              | -190.198 | 1.194                    | -0.074                   |
|             |              | Diagonal              | Max. My          | 8               | -20.646  | -0.062                   | 1.429                    |
|             |              |                       | Max. Vy          | 19              | 0.204    | 0.873                    | -0.041                   |
|             |              |                       | Max. Vx          | 8               | -0.189   | -0.062                   | 1.429                    |
|             |              |                       | Max Tension      | 10              | 6.231    | 0.000                    | 0.000                    |
|             |              |                       | Max. Compression | 10              | -6.769   | 0.000                    | 0.000                    |
|             |              |                       | Max. Mx          | 2               | 4.856    | 0.179                    | 0.021                    |
|             |              | Leg                   | Max. My          | 8               | 4.026    | 0.176                    | 0.029                    |
|             |              |                       | Max. Vy          | 8               | 0.062    | 0.176                    | 0.029                    |
|             |              |                       | Max. Vx          | 8               | -0.004   | 0.000                    | 0.000                    |
|             |              |                       | Max Tension      | 7               | 170.110  | 2.030                    | 0.502                    |
|             |              |                       | Max. Compression | 2               | -214.376 | 0.000                    | -0.000                   |
|             |              |                       | Max. Mx          | 2               | -204.624 | 4.446                    | 0.054                    |
| T12         | 20 - 0       | Diagonal              | Max. My          | 21              | -11.508  | -0.490                   | -3.458                   |
|             |              |                       | Max. Vy          | 2               | 1.573    | 4.446                    | 0.054                    |
|             |              |                       | Max. Vx          | 20              | -1.166   | -0.672                   | -3.457                   |
|             |              |                       | Max Tension      | 11              | 7.902    | 0.000                    | 0.000                    |
|             |              |                       | Max. Compression | 10              | -8.989   | 0.000                    | 0.000                    |
|             |              |                       | Max. Mx          | 10              | -0.560   | 0.060                    | 0.011                    |
|             |              | Horizontal            | Max. My          | 14              | 0.061    | 0.017                    | -0.011                   |
|             |              |                       | Max. Vy          | 10              | 0.027    | 0.060                    | 0.011                    |
|             |              |                       | Max. Vx          | 18              | -0.002   | 0.000                    | 0.000                    |
|             |              |                       | Max Tension      | 10              | 6.213    | 0.134                    | 0.002                    |
|             |              |                       | Max. Compression | 10              | -6.686   | 0.143                    | 0.003                    |
|             |              |                       | Max. Mx          | 6               | -1.746   | 0.152                    | 0.008                    |
|             |              | Redund Horz 1 Bracing | Max. My          | 18              | 1.722    | 0.114                    | -0.017                   |
|             |              |                       | Max. Vy          | 6               | -0.056   | 0.152                    | 0.008                    |
|             |              |                       | Max. Vx          | 18              | -0.003   | 0.114                    | -0.017                   |
|             |              |                       | Max Tension      | 22              | 2.162    | 0.000                    | 0.000                    |
|             |              |                       | Max. Compression | 11              | -1.860   | 0.000                    | 0.000                    |
|             |              |                       | Max. Mx          | 2               | 1.384    | -0.028                   | 0.000                    |
|             |              | Redund Diag 1 Bracing | Max. My          | 2               | -1.309   | 0.000                    | 0.001                    |
|             |              |                       | Max. Vy          | 2               | -0.019   | 0.000                    | 0.000                    |
|             |              |                       | Max. Vx          | 2               | -0.001   | 0.000                    | 0.000                    |
|             |              |                       | Max Tension      | 11              | 1.278    | 0.000                    | 0.000                    |
|             |              |                       | Max. Compression | 22              | -1.341   | 0.000                    | 0.000                    |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Section No. | Elevation ft | Component Type | Condition        | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
|             |              | Inner Bracing  | Max. Mx          | 2               | -0.785  | -0.034                   | 0.000                    |
|             |              |                | Max. My          | 2               | 0.933   | 0.000                    | -0.001                   |
|             |              |                | Max. Vy          | 2               | 0.018   | 0.000                    | 0.000                    |
|             |              |                | Max. Vx          | 2               | 0.001   | 0.000                    | 0.000                    |
|             |              |                | Max Tension      | 1               | 0.000   | 0.000                    | 0.000                    |
|             |              |                | Max. Compression | 22              | -0.007  | 0.000                    | 0.000                    |
|             |              |                | Max. Mx          | 2               | -0.006  | -0.084                   | 0.000                    |
|             |              |                | Max. Vy          | 2               | 0.028   | 0.000                    | 0.000                    |

### Maximum Reactions

| Location | Condition           | Gov. Load Comb. | Vertical K | Horizontal, X K | Horizontal, Z K |
|----------|---------------------|-----------------|------------|-----------------|-----------------|
| Leg C    | Max. Vert           | 18              | 222.448    | 18.901          | -12.012         |
|          | Max. H <sub>x</sub> | 18              | 222.448    | 18.901          | -12.012         |
|          | Max. H <sub>z</sub> | 7               | -177.130   | -15.229         | 9.829           |
|          | Min. Vert           | 7               | -177.130   | -15.229         | 9.829           |
|          | Min. H <sub>x</sub> | 7               | -177.130   | -15.229         | 9.829           |
|          | Min. H <sub>z</sub> | 18              | 222.448    | 18.901          | -12.012         |
| Leg B    | Max. Vert           | 10              | 222.937    | -18.784         | -12.159         |
|          | Max. H <sub>x</sub> | 23              | -176.730   | 15.170          | 9.995           |
|          | Max. H <sub>z</sub> | 23              | -176.730   | 15.170          | 9.995           |
|          | Min. Vert           | 23              | -176.730   | 15.170          | 9.995           |
|          | Min. H <sub>x</sub> | 10              | 222.937    | -18.784         | -12.159         |
|          | Min. H <sub>z</sub> | 10              | 222.937    | -18.784         | -12.159         |
| Leg A    | Max. Vert           | 2               | 223.558    | 0.123           | 22.077          |
|          | Max. H <sub>x</sub> | 20              | 18.201     | 4.126           | 1.182           |
|          | Max. H <sub>z</sub> | 2               | 223.558    | 0.123           | 22.077          |
|          | Min. Vert           | 15              | -173.462   | -0.083          | -17.902         |
|          | Min. H <sub>x</sub> | 9               | 19.667     | -4.106          | 1.407           |
|          | Min. H <sub>z</sub> | 15              | -173.462   | -0.083          | -17.902         |

### Tower Mast Reaction Summary

| Load Combination                  | Vertical K | Shear <sub>x</sub> K | Shear <sub>z</sub> K | Overturning Moment, M <sub>x</sub> kip-ft | Overturning Moment, M <sub>z</sub> kip-ft | Torque kip-ft |
|-----------------------------------|------------|----------------------|----------------------|-------------------------------------------|-------------------------------------------|---------------|
| Dead Only                         | 48.302     | 0.000                | 0.000                | -44.589                                   | -11.691                                   | 0.000         |
| 1.2 Dead+1.0 Wind 0 deg - No Ice  | 57.962     | 0.357                | -35.220              | -4421.863                                 | -67.407                                   | 5.812         |
| 0.9 Dead+1.0 Wind 0 deg - No Ice  | 43.472     | 0.357                | -35.220              | -4408.486                                 | -63.899                                   | 5.812         |
| 1.2 Dead+1.0 Wind 30 deg - No Ice | 57.962     | 16.248               | -28.296              | -3608.615                                 | -2042.242                                 | -14.782       |
| 0.9 Dead+1.0 Wind 30 deg - No Ice | 43.472     | 16.248               | -28.296              | -3595.238                                 | -2038.734                                 | -14.782       |
| 1.2 Dead+1.0 Wind 60 deg - No Ice | 57.962     | 28.160               | -16.706              | -2174.213                                 | -3546.452                                 | -39.217       |
| 0.9 Dead+1.0 Wind 60 deg - No Ice | 43.472     | 28.160               | -16.706              | -2160.837                                 | -3542.945                                 | -39.217       |
| 1.2 Dead+1.0 Wind 90 deg - No Ice | 57.962     | 34.346               | -0.460               | -125.445                                  | -4309.993                                 | -56.943       |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Load Combination                   | Vertical<br>K | Shear <sub>x</sub><br>K | Shear <sub>z</sub><br>K | Overturning<br>Moment, M <sub>x</sub><br>kip-ft | Overturning<br>Moment, M <sub>z</sub><br>kip-ft | Torque<br>kip-ft |
|------------------------------------|---------------|-------------------------|-------------------------|-------------------------------------------------|-------------------------------------------------|------------------|
| 0.9 Dead+1.0 Wind 90 deg - No Ice  | 43.472        | 34.346                  | -0.460                  | -112.069                                        | -4306.486                                       | -56.943          |
| 1.2 Dead+1.0 Wind 120 deg - No Ice | 57.962        | 30.960                  | 17.948                  | 2180.466                                        | -3831.525                                       | -48.034          |
| 0.9 Dead+1.0 Wind 120 deg - No Ice | 43.472        | 30.960                  | 17.948                  | 2193.842                                        | -3828.017                                       | -48.034          |
| 1.2 Dead+1.0 Wind 150 deg - No Ice | 57.962        | 16.170                  | 29.170                  | 3634.195                                        | -2027.200                                       | -27.631          |
| 0.9 Dead+1.0 Wind 150 deg - No Ice | 43.472        | 16.170                  | 29.170                  | 3647.571                                        | -2023.692                                       | -27.631          |
| 1.2 Dead+1.0 Wind 180 deg - No Ice | 57.962        | -0.424                  | 32.444                  | 4055.924                                        | 49.815                                          | -4.953           |
| 0.9 Dead+1.0 Wind 180 deg - No Ice | 43.472        | -0.424                  | 32.444                  | 4069.300                                        | 53.322                                          | -4.953           |
| 1.2 Dead+1.0 Wind 210 deg - No Ice | 57.962        | -16.369                 | 28.458                  | 3531.950                                        | 2033.885                                        | 15.532           |
| 0.9 Dead+1.0 Wind 210 deg - No Ice | 43.472        | -16.369                 | 28.458                  | 3545.327                                        | 2037.392                                        | 15.532           |
| 1.2 Dead+1.0 Wind 240 deg - No Ice | 57.962        | -30.812                 | 18.332                  | 2240.832                                        | 3784.438                                        | 39.460           |
| 0.9 Dead+1.0 Wind 240 deg - No Ice | 43.472        | -30.812                 | 18.332                  | 2254.208                                        | 3787.945                                        | 39.460           |
| 1.2 Dead+1.0 Wind 270 deg - No Ice | 57.962        | -34.443                 | 0.521                   | 24.249                                          | 4295.848                                        | 56.814           |
| 0.9 Dead+1.0 Wind 270 deg - No Ice | 43.472        | -34.443                 | 0.521                   | 37.625                                          | 4299.356                                        | 56.814           |
| 1.2 Dead+1.0 Wind 300 deg - No Ice | 57.962        | -28.399                 | -16.450                 | -2134.439                                       | 3552.414                                        | 47.840           |
| 0.9 Dead+1.0 Wind 300 deg - No Ice | 43.472        | -28.399                 | -16.450                 | -2121.063                                       | 3555.921                                        | 47.840           |
| 1.2 Dead+1.0 Wind 330 deg - No Ice | 57.962        | -16.235                 | -29.104                 | -3725.591                                       | 2008.106                                        | 28.589           |
| 0.9 Dead+1.0 Wind 330 deg - No Ice | 43.472        | -16.235                 | -29.104                 | -3712.214                                       | 2011.613                                        | 28.589           |
| Dead+Wind 0 deg - Service          | 48.302        | 0.097                   | -9.930                  | -1256.136                                       | -26.218                                         | 1.582            |
| Dead+Wind 30 deg - Service         | 48.302        | 4.594                   | -8.000                  | -1031.769                                       | -575.018                                        | -4.023           |
| Dead+Wind 60 deg - Service         | 48.302        | 7.963                   | -4.719                  | -633.089                                        | -992.697                                        | -10.673          |
| Dead+Wind 90 deg - Service         | 48.302        | 9.692                   | -0.125                  | -64.167                                         | -1203.537                                       | -15.497          |
| Dead+Wind 120 deg - Service        | 48.302        | 8.724                   | 5.057                   | 574.737                                         | -1070.281                                       | -13.073          |
| Dead+Wind 150 deg - Service        | 48.302        | 4.573                   | 8.237                   | 978.677                                         | -570.925                                        | -7.520           |
| Dead+Wind 180 deg - Service        | 48.302        | -0.115                  | 9.175                   | 1096.491                                        | 5.684                                           | -1.348           |
| Dead+Wind 210 deg - Service        | 48.302        | -4.627                  | 8.044                   | 950.851                                         | 556.998                                         | 4.227            |
| Dead+Wind 240 deg - Service        | 48.302        | -8.684                  | 5.162                   | 591.166                                         | 1041.720                                        | 10.739           |
| Dead+Wind 270 deg - Service        | 48.302        | -9.719                  | 0.142                   | -23.427                                         | 1183.941                                        | 15.462           |
| Dead+Wind 300 deg - Service        | 48.302        | -8.028                  | -4.649                  | -622.264                                        | 978.574                                         | 13.020           |
| Dead+Wind 330 deg - Service        | 48.302        | -4.591                  | -8.219                  | -1063.604                                       | 549.982                                         | 7.781            |

## Solution Summary

| Load Comb. | Sum of Applied Forces |         |         | Sum of Reactions |         |         | % Error |
|------------|-----------------------|---------|---------|------------------|---------|---------|---------|
|            | PX<br>K               | PY<br>K | PZ<br>K | PX<br>K          | PY<br>K | PZ<br>K |         |
| 1          | 0.000                 | -48.302 | 0.000   | 0.000            | 48.302  | -0.000  | 0.000%  |
| 2          | 0.357                 | -57.962 | -35.220 | -0.357           | 57.962  | 35.220  | 0.000%  |
| 3          | 0.357                 | -43.472 | -35.220 | -0.357           | 43.472  | 35.220  | 0.000%  |
| 4          | 16.248                | -57.962 | -28.296 | -16.248          | 57.962  | 28.296  | 0.000%  |
| 5          | 16.248                | -43.472 | -28.296 | -16.248          | 43.472  | 28.296  | 0.000%  |
| 6          | 28.160                | -57.962 | -16.706 | -28.160          | 57.962  | 16.706  | 0.000%  |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | 14:43:50 02/23/24  |
|                                                                                                                                          | Crown Castle                                 | <b>Designed by</b> |
|                                                                                                                                          |                                              | Sahana             |

| Load Comb. | Sum of Applied Forces |         |         | Sum of Reactions |         |         | % Error |
|------------|-----------------------|---------|---------|------------------|---------|---------|---------|
|            | PX<br>K               | PY<br>K | PZ<br>K | PX<br>K          | PY<br>K | PZ<br>K |         |
| 7          | 28.160                | -43.472 | -16.706 | -28.160          | 43.472  | 16.706  | 0.000%  |
| 8          | 34.346                | -57.962 | -0.460  | -34.346          | 57.962  | 0.460   | 0.000%  |
| 9          | 34.346                | -43.472 | -0.460  | -34.346          | 43.472  | 0.460   | 0.000%  |
| 10         | 30.960                | -57.962 | 17.948  | -30.960          | 57.962  | -17.948 | 0.000%  |
| 11         | 30.960                | -43.472 | 17.948  | -30.960          | 43.472  | -17.948 | 0.000%  |
| 12         | 16.170                | -57.962 | 29.170  | -16.170          | 57.962  | -29.170 | 0.000%  |
| 13         | 16.170                | -43.472 | 29.170  | -16.170          | 43.472  | -29.170 | 0.000%  |
| 14         | -0.424                | -57.962 | 32.444  | 0.424            | 57.962  | -32.444 | 0.000%  |
| 15         | -0.424                | -43.472 | 32.444  | 0.424            | 43.472  | -32.444 | 0.000%  |
| 16         | -16.369               | -57.962 | 28.458  | 16.369           | 57.962  | -28.458 | 0.000%  |
| 17         | -16.369               | -43.472 | 28.458  | 16.369           | 43.472  | -28.458 | 0.000%  |
| 18         | -30.812               | -57.962 | 18.332  | 30.812           | 57.962  | -18.332 | 0.000%  |
| 19         | -30.812               | -43.472 | 18.332  | 30.812           | 43.472  | -18.332 | 0.000%  |
| 20         | -34.443               | -57.962 | 0.521   | 34.443           | 57.962  | -0.521  | 0.000%  |
| 21         | -34.443               | -43.472 | 0.521   | 34.443           | 43.472  | -0.521  | 0.000%  |
| 22         | -28.399               | -57.962 | -16.450 | 28.399           | 57.962  | 16.450  | 0.000%  |
| 23         | -28.399               | -43.472 | -16.450 | 28.399           | 43.472  | 16.450  | 0.000%  |
| 24         | -16.235               | -57.962 | -29.104 | 16.235           | 57.962  | 29.104  | 0.000%  |
| 25         | -16.235               | -43.472 | -29.104 | 16.235           | 43.472  | 29.104  | 0.000%  |
| 26         | 0.097                 | -48.302 | -9.930  | -0.097           | 48.302  | 9.930   | 0.000%  |
| 27         | 4.594                 | -48.302 | -8.000  | -4.594           | 48.302  | 8.000   | 0.000%  |
| 28         | 7.963                 | -48.302 | -4.719  | -7.963           | 48.302  | 4.719   | 0.000%  |
| 29         | 9.692                 | -48.302 | -0.125  | -9.692           | 48.302  | 0.125   | 0.000%  |
| 30         | 8.724                 | -48.302 | 5.057   | -8.724           | 48.302  | -5.057  | 0.000%  |
| 31         | 4.573                 | -48.302 | 8.237   | -4.573           | 48.302  | -8.237  | 0.000%  |
| 32         | -0.115                | -48.302 | 9.175   | 0.115            | 48.302  | -9.175  | 0.000%  |
| 33         | -4.627                | -48.302 | 8.044   | 4.627            | 48.302  | -8.044  | 0.000%  |
| 34         | -8.684                | -48.302 | 5.162   | 8.684            | 48.302  | -5.162  | 0.000%  |
| 35         | -9.719                | -48.302 | 0.142   | 9.719            | 48.302  | -0.142  | 0.000%  |
| 36         | -8.028                | -48.302 | -4.649  | 8.028            | 48.302  | 4.649   | 0.000%  |
| 37         | -4.591                | -48.302 | -8.219  | 4.591            | 48.302  | 8.219   | 0.000%  |

### Maximum Tower Deflections - Service Wind

| Section No. | Elevation<br>ft | Horz.<br>Deflection<br>in | Gov.<br>Load<br>Comb. | Tilt<br>° | Twist<br>° |
|-------------|-----------------|---------------------------|-----------------------|-----------|------------|
| T1          | 235 - 220       | 5.017                     | 26                    | 0.268     | 0.089      |
| T2          | 220 - 200       | 4.199                     | 26                    | 0.240     | 0.084      |
| T3          | 200 - 180       | 3.255                     | 26                    | 0.197     | 0.075      |
| T4          | 180 - 160       | 2.509                     | 26                    | 0.154     | 0.060      |
| T5          | 160 - 140       | 1.913                     | 26                    | 0.124     | 0.047      |
| T6          | 140 - 120       | 1.430                     | 26                    | 0.100     | 0.038      |
| T7          | 120 - 100       | 1.034                     | 26                    | 0.081     | 0.029      |
| T8          | 100 - 80        | 0.716                     | 26                    | 0.062     | 0.021      |
| T9          | 80 - 60         | 0.470                     | 26                    | 0.048     | 0.016      |
| T10         | 60 - 40         | 0.278                     | 26                    | 0.036     | 0.012      |
| T11         | 40 - 20         | 0.136                     | 26                    | 0.024     | 0.008      |
| T12         | 20 - 0          | 0.047                     | 34                    | 0.012     | 0.005      |

### Critical Deflections and Radius of Curvature - Service Wind

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>     | 151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b>        | 25 of 32          |
|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

| Elevation | Appurtenance         | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------|----------------------|-----------------|---------------|--------|---------|------------------------|
| ft        |                      |                 |               |        |         |                        |
| 246'      | Lightning Rod 5/8x4' | 26              | 5.017         | 0.268  | 0.089   | 75214                  |
| 240'      | VHLP3-11W/A          | 26              | 5.017         | 0.268  | 0.089   | 75214                  |
| 238'      | AIR6449 B41_T-MOBILE | 26              | 5.017         | 0.268  | 0.089   | 75214                  |
| 237'6"    | Sabre Top Hat        | 26              | 5.017         | 0.268  | 0.089   | 75214                  |
| 235'      | 11' x 2" Mount Pipe  | 26              | 5.017         | 0.268  | 0.089   | 75214                  |
| 217'      | BCD-80010            | 26              | 4.045         | 0.234  | 0.083   | 24743                  |
| 150'      | HPD6-5.9             | 26              | 1.659         | 0.112  | 0.043   | 48705                  |
| 124'      | Side Lighting        | 26              | 1.107         | 0.085  | 0.031   | 61553                  |

### Maximum Tower Deflections - Design Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|--------------|---------------------|-----------------|--------|---------|
| T1          | 235 - 220    | 17.805              | 2               | 0.946  | 0.327   |
| T2          | 220 - 200    | 14.909              | 2               | 0.850  | 0.310   |
| T3          | 200 - 180    | 11.558              | 2               | 0.698  | 0.274   |
| T4          | 180 - 160    | 8.909               | 2               | 0.548  | 0.220   |
| T5          | 160 - 140    | 6.789               | 2               | 0.440  | 0.174   |
| T6          | 140 - 120    | 5.075               | 2               | 0.355  | 0.141   |
| T7          | 120 - 100    | 3.668               | 2               | 0.286  | 0.105   |
| T8          | 100 - 80     | 2.538               | 19              | 0.221  | 0.078   |
| T9          | 80 - 60      | 1.669               | 19              | 0.170  | 0.060   |
| T10         | 60 - 40      | 0.991               | 19              | 0.127  | 0.044   |
| T11         | 40 - 20      | 0.488               | 19              | 0.084  | 0.030   |
| T12         | 20 - 0       | 0.164               | 18              | 0.041  | 0.018   |

### Critical Deflections and Radius of Curvature - Design Wind

| Elevation | Appurtenance         | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------|----------------------|-----------------|---------------|--------|---------|------------------------|
| ft        |                      |                 |               |        |         |                        |
| 246'      | Lightning Rod 5/8x4' | 2               | 17.805        | 0.946  | 0.327   | 21902                  |
| 240'      | VHLP3-11W/A          | 2               | 17.805        | 0.946  | 0.327   | 21902                  |
| 238'      | AIR6449 B41_T-MOBILE | 2               | 17.805        | 0.946  | 0.327   | 21902                  |
| 237'6"    | Sabre Top Hat        | 2               | 17.805        | 0.946  | 0.327   | 21902                  |
| 235'      | 11' x 2" Mount Pipe  | 2               | 17.805        | 0.946  | 0.327   | 21902                  |
| 217'      | BCD-80010            | 2               | 14.362        | 0.829  | 0.306   | 7152                   |
| 150'      | HPD6-5.9             | 2               | 5.888         | 0.396  | 0.157   | 13702                  |
| 124'      | Side Lighting        | 2               | 3.927         | 0.299  | 0.112   | 17297                  |

### Bolt Design Data

| Section No. | Elevation ft | Component Type | Bolt Grade | Bolt Size in | Number Of Bolts | Maximum Load per Bolt K | Allowable Load per Bolt K | Ratio Load Allowable                                                                        | Allowable Ratio | Criteria     |
|-------------|--------------|----------------|------------|--------------|-----------------|-------------------------|---------------------------|---------------------------------------------------------------------------------------------|-----------------|--------------|
| T1          | 235          | Leg            | A325N      | 0.750        | 4               | 3.257                   | 30.101                    | 0.108  | 1.05            | Bolt Tension |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Section No. | Elevation<br>ft | Component Type        | Bolt Grade | Bolt Size<br>in | Number Of Bolts | Maximum Load per Bolt<br>K | Allowable Load per Bolt<br>K | Ratio Load<br>Allowable | Allowable Ratio | Criteria           |
|-------------|-----------------|-----------------------|------------|-----------------|-----------------|----------------------------|------------------------------|-------------------------|-----------------|--------------------|
| T2          | 220             | Diagonal              | A325X      | 0.625           | 1               | 2.325                      | 7.875                        | 0.295                   | 1.05            | Member Block Shear |
|             |                 | Top Girt              | A325X      | 0.625           | 3               | 0.170                      | 11.099                       | 0.015                   | 1.05            | Member Bearing     |
|             |                 | Leg                   | A325N      | 0.750           | 4               | 10.077                     | 30.101                       | 0.335                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.625           | 1               | 3.675                      | 10.500                       | 0.350                   | 1.05            | Member Block Shear |
| T3          | 200             | Top Girt              | A325X      | 0.625           | 1               | 0.814                      | 10.500                       | 0.078                   | 1.05            | Member Block Shear |
|             |                 | Leg                   | A325N      | 1.000           | 4               | 14.166                     | 54.517                       | 0.260                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.625           | 1               | 2.115                      | 7.875                        | 0.269                   | 1.05            | Member Block Shear |
| T4          | 180             | Top Girt              | A325X      | 0.625           | 1               | 1.136                      | 7.875                        | 0.144                   | 1.05            | Member Block Shear |
|             |                 | Leg                   | A325N      | 1.000           | 4               | 17.302                     | 54.517                       | 0.317                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.625           | 1               | 2.359                      | 7.875                        | 0.300                   | 1.05            | Member Block Shear |
| T5          | 160             | Leg                   | A325N      | 1.250           | 4               | 20.313                     | 87.220                       | 0.233                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.625           | 1               | 3.652                      | 9.914                        | 0.368                   | 1.05            | Member Block Shear |
| T6          | 140             | Leg                   | A325N      | 1.250           | 4               | 23.698                     | 87.220                       | 0.272                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.625           | 1               | 3.883                      | 9.914                        | 0.392                   | 1.05            | Member Block Shear |
| T7          | 120             | Leg                   | A325N      | 1.250           | 6               | 18.077                     | 87.220                       | 0.207                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.750           | 1               | 4.347                      | 10.424                       | 0.417                   | 1.05            | Member Block Shear |
| T8          | 100             | Leg                   | A325N      | 1.250           | 6               | 20.189                     | 87.220                       | 0.231                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.750           | 1               | 5.091                      | 13.898                       | 0.366                   | 1.05            | Member Block Shear |
| T9          | 80              | Leg                   | A325N      | 1.375           | 6               | 22.435                     | 103.939                      | 0.216                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.750           | 1               | 5.423                      | 13.898                       | 0.390                   | 1.05            | Member Block Shear |
| T10         | 60              | Leg                   | A325N      | 1.375           | 6               | 24.683                     | 103.939                      | 0.237                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.750           | 1               | 5.778                      | 14.355                       | 0.402                   | 1.05            | Member Bearing     |
| T11         | 40              | Leg                   | A325N      | 1.375           | 6               | 26.895                     | 103.939                      | 0.259                   | 1.05            | Bolt Tension       |
|             |                 | Diagonal              | A325X      | 0.750           | 1               | 6.231                      | 14.355                       | 0.434                   | 1.05            | Member Bearing     |
| T12         | 20              | Diagonal              | A325X      | 0.625           | 2               | 3.951                      | 11.086                       | 0.356                   | 1.05            | Member Block Shear |
|             |                 | Horizontal            | A325X      | 0.625           | 2               | 3.106                      | 12.445                       | 0.250                   | 1.05            | Member Block Shear |
|             |                 | Redund Horz 1 Bracing | A325X      | 0.625           | 1               | 3.718                      | 14.578                       | 0.255                   | 1.05            | Member Block Shear |
|             |                 | Redund Diag 1 Bracing | A325X      | 0.625           | 1               | 2.403                      | 14.578                       | 0.165                   | 1.05            | Member Block Shear |

## Compression Checks

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

### Leg Design Data (Compression)

| Section No. | Elevation | Size                  | L         | L <sub>u</sub> | Kl/r           | A               | P <sub>u</sub> | φP <sub>n</sub> | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------|-----------------------|-----------|----------------|----------------|-----------------|----------------|-----------------|---------------------------------|
|             | ft        |                       | ft        | ft             |                | in <sup>2</sup> | K              | K               |                                 |
| T1          | 235 - 220 | Sabre 2.375"x0.154"   | 15'       | 5'             | 76.2<br>K=1.00 | 1.075           | -16.900        | 31.617          | 0.535 <sup>1</sup><br>✓         |
| T2          | 220 - 200 | Sabre 2.875"x0.375"   | 20'       | 5'             | 67.1<br>K=1.00 | 2.945           | -47.025        | 95.330          | 0.493 <sup>1</sup><br>✓         |
| T3          | 200 - 180 | Sabre 3.5"x0.437"     | 20'13/32" | 5'3/32"        | 54.9<br>K=1.00 | 4.205           | -65.488        | 151.754         | 0.432 <sup>1</sup><br>✓         |
| T4          | 180 - 160 | Sabre 3.5" x 0.6"     | 20'13/32" | 5'3/32"        | 57.4<br>K=1.00 | 5.466           | -80.137        | 193.324         | 0.415 <sup>1</sup><br>✓         |
| T5          | 160 - 140 | Sabre 4.5"x0.5310"    | 20'13/32" | 6'8-1/8"       | 56.6<br>K=1.00 | 6.621           | -95.202        | 235.726         | 0.404 <sup>1</sup><br>✓         |
| T6          | 140 - 120 | Sabre 5.5625" x 0.5"  | 20'13/32" | 6'8-1/8"       | 44.6<br>K=1.00 | 7.952           | -112.267       | 309.502         | 0.363 <sup>1</sup><br>✓         |
| T7          | 120 - 100 | Sabre 6.625"x0.432"   | 20'13/32" | 6'8-1/8"       | 36.5<br>K=1.00 | 8.405           | -129.760       | 343.100         | 0.378 <sup>1</sup><br>✓         |
| T8          | 100 - 80  | Sabre 6.625" x 0.562" | 20'13/32" | 10'7/32"       | 55.8<br>K=1.00 | 10.705          | -146.315       | 383.523         | 0.382 <sup>1</sup><br>✓         |
| T9          | 80 - 60   | Sabre 8.625"x0.5"     | 20'13/32" | 10'7/32"       | 41.8<br>K=1.00 | 12.763          | -164.389       | 505.555         | 0.325 <sup>1</sup><br>✓         |
| T10         | 60 - 40   | Sabre 8.625"x0.5"     | 20'13/32" | 10'7/32"       | 41.8<br>K=1.00 | 12.763          | -182.575       | 505.555         | 0.361 <sup>1</sup><br>✓         |
| T11         | 40 - 20   | Sabre 8.625"x0.5"     | 20'13/32" | 10'7/32"       | 41.8<br>K=1.00 | 12.763          | -200.870       | 505.555         | 0.397 <sup>1</sup><br>✓         |
| T12         | 20 - 0    | Sabre 8.625"x0.5"     | 20'13/32" | 5'3/32"        | 20.9<br>K=1.00 | 12.763          | -214.376       | 556.300         | 0.385 <sup>1</sup><br>✓         |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Compression)

| Section No. | Elevation | Size              | L           | L <sub>u</sub> | Kl/r            | A               | P <sub>u</sub> | φP <sub>n</sub> | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------|-------------------|-------------|----------------|-----------------|-----------------|----------------|-----------------|---------------------------------|
|             | ft        |                   | ft          | ft             |                 | in <sup>2</sup> | K              | K               |                                 |
| T1          | 235 - 220 | L1 3/4x1 3/4x3/16 | 7'27/32"    | 3'3"           | 115.2<br>K=1.01 | 0.621           | -2.597         | 13.035          | 0.199 <sup>1</sup><br>✓         |
| T2          | 220 - 200 | L1 3/4x1 3/4x1/4  | 7'27/32"    | 3'2-5/8"       | 114.9<br>K=1.02 | 0.812           | -3.853         | 17.107          | 0.225 <sup>1</sup><br>✓         |
| T3          | 200 - 180 | L1 3/4x1 3/4x3/16 | 8'4-13/16"  | 4'11/32"       | 140.8<br>K=1.00 | 0.621           | -2.128         | 8.971           | 0.237 <sup>1</sup><br>✓         |
| T4          | 180 - 160 | L1 3/4x1 3/4x3/16 | 10'15/16"   | 4'10-7/16"     | 170.1<br>K=1.00 | 0.621           | -2.349         | 6.141           | 0.382 <sup>1</sup><br>✓         |
| T5          | 160 - 140 | L2 1/2x2 1/2x3/16 | 12'6-31/32" | 6'1-7/16"      | 148.4<br>K=1.00 | 0.902           | -3.839         | 11.730          | 0.327 <sup>1</sup><br>✓         |
| T6          | 140 - 120 | L2 1/2x2 1/2x3/16 | 14'3-25/32" | 6'11-1/4"      | 168.2<br>K=1.00 | 0.902           | -4.003         | 9.125           | 0.439 <sup>1</sup><br>✓         |
| T7          | 120 - 100 | L3x3x3/16         | 16'1-11/32" | 7'9-15/32"     | 156.8<br>K=1.00 | 1.090           | -4.367         | 12.682          | 0.344 <sup>1</sup><br>✓         |
| T8          | 100 - 80  | L3x3x1/4          | 19'3-9/16"  | 9'5-21/32"     | 192.0<br>K=1.00 | 1.440           | -5.217         | 11.181          | 0.467 <sup>1</sup><br>✓         |

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
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|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

| Section No.          | Elevation<br>ft | Size             | L<br>ft     | L <sub>u</sub><br>ft | Kl/r            | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|----------------------|-----------------|------------------|-------------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T9                   | 80 - 60         | L3x3 1/2x1/4     | 21'3/8"     | 10'2-15/16"          | 194.8<br>K=1.00 | 1.560                | -5.669              | 11.761               | 0.482 <sup>1</sup><br>✓         |
| T10                  | 60 - 40         | L3 1/2x3 1/2x1/4 | 22'9-23/32" | 11'1-21/32"          | 192.6<br>K=1.00 | 1.690                | -6.170              | 13.042               | 0.473 <sup>1</sup><br>✓         |
| T11                  | 40 - 20         | L4x4x1/4         | 24'7-1/2"   | 12'9/16"             | 181.8<br>K=1.00 | 1.940                | -6.769              | 16.794               | 0.403 <sup>1</sup><br>✓         |
| T12                  | 20 - 0          | L3x3x1/4         | 16'1/8"     | 15'6-19/32"          | 200.6<br>K=1.00 | 1.440                | -8.989              | 10.237               | 0.878 <sup>1</sup><br>✓         |
| KL/R > 200 (C) - 246 |                 |                  |             |                      |                 |                      |                     |                      |                                 |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Compression)

| Section No.          | Elevation<br>ft | Size             | L<br>ft | L <sub>u</sub><br>ft | Kl/r            | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|----------------------|-----------------|------------------|---------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T12                  | 20 - 0          | L3 1/2x3 1/2x1/4 | 24'     | 11'7-11/16"          | 201.3<br>K=1.00 | 1.690                | -6.686              | 11.940               | 0.560 <sup>1</sup><br>✓         |
| KL/R > 200 (C) - 245 |                 |                  |         |                      |                 |                      |                     |                      |                                 |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | Kl/r            | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1          | 235 - 220       | C4x5.4            | 5'      | 4'9-5/8"             | 128.3<br>K=1.00 | 1.590                | -0.386              | 21.645               | 0.018 <sup>1</sup><br>✓         |
| T2          | 220 - 200       | L1 3/4x1 3/4x1/4  | 5'      | 4'5-5/8"             | 157.1<br>K=1.00 | 0.812                | -0.814              | 9.423                | 0.086 <sup>1</sup><br>✓         |
| T3          | 200 - 180       | L1 3/4x1 3/4x3/16 | 5'      | 4'5"                 | 154.3<br>K=1.00 | 0.621                | -1.136              | 7.465                | 0.152 <sup>1</sup><br>✓         |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Redundant Horizontal (1) Design Data (Compression)

| Section No. | Elevation<br>ft | Size     | L<br>ft | L <sub>u</sub><br>ft | Kl/r            | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | φP <sub>n</sub><br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|---------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T12         | 20 - 0          | L3x3x1/4 | 6'      | 5'7-11/16"           | 114.3<br>K=1.00 | 1.440                | -3.718              | 30.530               | 0.122 <sup>1</sup><br>✓         |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
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|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Redundant Diagonal (1) Design Data (Compression)

| Section No. | Elevation | Size     | L          | L <sub>u</sub> | Kl/r            | A               | P <sub>u</sub> | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------|----------|------------|----------------|-----------------|-----------------|----------------|------------|------------------------------|
|             | ft        |          | ft         | ft             |                 | in <sup>2</sup> | K              | K          |                              |
| T12         | 20 - 0    | L3x3x1/4 | 7'7"-7/16' | 7'1"-3/4"      | 144.8<br>K=1.00 | 1.440           | -2.361         | 19.648     | 0.120 <sup>1</sup><br>✓      |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Inner Bracing Design Data (Compression)

| Section No. | Elevation | Size      | L   | L <sub>u</sub> | Kl/r            | A               | P <sub>u</sub> | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------|-----------|-----|----------------|-----------------|-----------------|----------------|------------|------------------------------|
|             | ft        |           | ft  | ft             |                 | in <sup>2</sup> | K              | K          |                              |
| T12         | 20 - 0    | L3x3x3/16 | 12' | 12'            | 241.6<br>K=1.00 | 1.090           | -0.007         | 5.344      | 0.001 <sup>1</sup><br>✓      |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Tension Checks

### Leg Design Data (Tension)

| Section No. | Elevation | Size                  | L         | L <sub>u</sub> | Kl/r | A               | P <sub>u</sub> | $\phi P_n$ | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------|-----------------------|-----------|----------------|------|-----------------|----------------|------------|------------------------------|
|             | ft        |                       | ft        | ft             |      | in <sup>2</sup> | K              | K          |                              |
| T1          | 235 - 220 | Sabre 2.375"x0.154"   | 15'       | 5'             | 76.2 | 1.075           | 13.026         | 48.354     | 0.269 <sup>1</sup><br>✓      |
| T2          | 220 - 200 | Sabre 2.875"x0.375"   | 20'       | 5'             | 67.1 | 2.945           | 40.306         | 132.536    | 0.304 <sup>1</sup><br>✓      |
| T3          | 200 - 180 | Sabre 3.5"x0.437"     | 20'13/32" | 5'3/32"        | 54.9 | 4.205           | 56.664         | 189.230    | 0.299 <sup>1</sup><br>✓      |
| T4          | 180 - 160 | Sabre 3.5" x 0.6"     | 20'13/32" | 5'3/32"        | 57.4 | 5.466           | 69.210         | 245.987    | 0.281 <sup>1</sup><br>✓      |
| T5          | 160 - 140 | Sabre 4.5"x0.5310"    | 20'13/32" | 6'8"-1/8"      | 56.6 | 6.621           | 81.252         | 297.946    | 0.273 <sup>1</sup><br>✓      |
| T6          | 140 - 120 | Sabre 5.5625" x 0.5"  | 20'13/32" | 6'8"-1/8"      | 44.6 | 7.952           | 94.792         | 357.847    | 0.265 <sup>1</sup><br>✓      |
| T7          | 120 - 100 | Sabre 6.625"x0.432"   | 20'13/32" | 6'8"-1/8"      | 36.5 | 8.405           | 108.461        | 378.222    | 0.287 <sup>1</sup><br>✓      |
| T8          | 100 - 80  | Sabre 6.625" x 0.562" | 20'13/32" | 10'7/32"       | 55.8 | 10.705          | 121.133        | 481.711    | 0.251 <sup>1</sup><br>✓      |
| T9          | 80 - 60   | Sabre 8.625"x0.5"     | 20'13/32" | 10'7/32"       | 41.8 | 12.763          | 134.611        | 574.322    | 0.234 <sup>1</sup><br>✓      |
| T10         | 60 - 40   | Sabre 8.625"x0.5"     | 20'13/32" | 10'7/32"       | 41.8 | 12.763          | 148.097        | 574.322    | 0.258 <sup>1</sup><br>✓      |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
|                                                                                                                                          | 151403.002.01.0001- Wilburn, FL (BU# 877744) | 30 of 32           |
|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Section No. | Elevation | Size              | L         | L <sub>u</sub> | Kl/r | A               | P <sub>u</sub> | φP <sub>n</sub> | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------|-------------------|-----------|----------------|------|-----------------|----------------|-----------------|---------------------------------|
|             | ft        |                   | ft        | ft             |      | in <sup>2</sup> | K              | K               |                                 |
| T11         | 40 - 20   | Sabre 8.625"x0.5" | 20'13/32" | 10'7/32"       | 41.8 | 12.763          | 161.369        | 574.322         | 0.281 <sup>1</sup>              |
| T12         | 20 - 0    | Sabre 8.625"x0.5" | 20'13/32" | 5'3/32"        | 20.9 | 12.763          | 170.110        | 574.322         | 0.296 <sup>1</sup>              |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Tension)

| Section No. | Elevation | Size              | L           | L <sub>u</sub> | Kl/r  | A               | P <sub>u</sub> | φP <sub>n</sub> | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------|-------------------|-------------|----------------|-------|-----------------|----------------|-----------------|---------------------------------|
|             | ft        |                   | ft          | ft             |       | in <sup>2</sup> | K              | K               |                                 |
| T1          | 235 - 220 | L1 3/4x1 3/4x3/16 | 7'27/32"    | 3'3"           | 75.9  | 0.360           | 2.325          | 15.675          | 0.148 <sup>1</sup>              |
| T2          | 220 - 200 | L1 3/4x1 3/4x1/4  | 7'27/32"    | 3'2-5/8"       | 76.4  | 0.469           | 3.675          | 20.391          | 0.180 <sup>1</sup>              |
| T3          | 200 - 180 | L1 3/4x1 3/4x3/16 | 7'7-7/16'   | 3'7-25/32"     | 84.8  | 0.360           | 2.115          | 15.675          | 0.135 <sup>1</sup>              |
| T4          | 180 - 160 | L1 3/4x1 3/4x3/16 | 10'15/16"   | 4'10-7/16"     | 112.1 | 0.360           | 2.359          | 15.675          | 0.150 <sup>1</sup>              |
| T5          | 160 - 140 | L2 1/2x2 1/2x3/16 | 12'6-31/32" | 6'1-7/16'      | 96.6  | 0.571           | 3.652          | 24.840          | 0.147 <sup>1</sup>              |
| T6          | 140 - 120 | L2 1/2x2 1/2x3/16 | 14'3-25/32" | 6'11-1/4'      | 109.3 | 0.571           | 3.883          | 24.840          | 0.156 <sup>1</sup>              |
| T7          | 120 - 100 | L3x3x3/16         | 16'1-11/32" | 7'9-15/32"     | 101.4 | 0.694           | 4.347          | 30.209          | 0.144 <sup>1</sup>              |
| T8          | 100 - 80  | L3x3x1/4          | 19'3-9/16"  | 9'5-21/32"     | 124.1 | 0.916           | 5.091          | 39.843          | 0.128 <sup>1</sup>              |
| T9          | 80 - 60   | L3x3 1/2x1/4      | 21'3/8"     | 10'2-15/16"    | 136.6 | 1.006           | 5.423          | 43.758          | 0.124 <sup>1</sup>              |
| T10         | 60 - 40   | L3 1/2x3 1/2x1/4  | 22'9-23/32" | 11'1-21/32"    | 124.2 | 1.103           | 5.778          | 47.999          | 0.120 <sup>1</sup>              |
| T11         | 40 - 20   | L4x4x1/4          | 23'8-9/16"  | 11'7-1/8'      | 112.7 | 1.291           | 6.231          | 56.156          | 0.111 <sup>1</sup>              |
| T12         | 20 - 0    | L3x3x1/4          | 16'1/8"     | 15'6-19/32"    | 200.6 | 0.939           | 7.902          | 40.863          | 0.193 <sup>1</sup>              |

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Horizontal Design Data (Tension)

| Section No. | Elevation | Size             | L   | L <sub>u</sub> | Kl/r  | A               | P <sub>u</sub> | φP <sub>n</sub> | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------|------------------|-----|----------------|-------|-----------------|----------------|-----------------|---------------------------------|
|             | ft        |                  | ft  | ft             |       | in <sup>2</sup> | K              | K               |                                 |
| T12         | 20 - 0    | L3 1/2x3 1/2x1/4 | 23' | 11'1-11/16"    | 122.6 | 1.127           | 6.213          | 49.019          | 0.127 <sup>1</sup>              |

|                                                                                                                                          |                |                                              |                    |                   |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------|--------------------|-------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>     | 151403.002.01.0001- Wilburn, FL (BU# 877744) | <b>Page</b>        | 31 of 32          |
|                                                                                                                                          | <b>Project</b> |                                              | <b>Date</b>        | 14:43:50 02/23/24 |
|                                                                                                                                          | <b>Client</b>  | Crown Castle                                 | <b>Designed by</b> | Sahana            |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Top Girt Design Data (Tension)

| Section No. | Elevation<br>ft | Size              | L<br>ft | L <sub>u</sub><br>ft | Kl/r  | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|-------|----------------------|---------------------|-----------------|---------------------------------|
| T1          | 235 - 220       | C4x5.4            | 5'      | 4'9-5/8"             | 128.3 | 1.089                | 0.511               | 47.371          | 0.011 <sup>1</sup>              |
| T2          | 220 - 200       | L1 3/4x1 3/4x1/4  | 5'      | 4'5-5/8"             | 108.0 | 0.469                | 0.814               | 20.391          | 0.040 <sup>1</sup> ✓            |
| T3          | 200 - 180       | L1 3/4x1 3/4x3/16 | 5'      | 4'5"                 | 105.2 | 0.360                | 1.136               | 15.675          | 0.072 <sup>1</sup> ✓            |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Redundant Horizontal (1) Design Data (Tension)

| Section No. | Elevation<br>ft | Size     | L<br>ft | L <sub>u</sub><br>ft | Kl/r | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|---------|----------------------|------|----------------------|---------------------|-----------------|---------------------------------|
| T12         | 20 - 0          | L3x3x1/4 | 6'      | 5'7-11/16"           | 72.8 | 0.939                | 3.718               | 40.863          | 0.091 <sup>1</sup> ✓            |

<sup>1</sup>  $P_u / \phi P_n$  controls

### Redundant Diagonal (1) Design Data (Tension)

| Section No. | Elevation<br>ft | Size     | L<br>ft   | L <sub>u</sub><br>ft | Kl/r | A<br>in <sup>2</sup> | P <sub>u</sub><br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|-----------|----------------------|------|----------------------|---------------------|-----------------|---------------------------------|
| T12         | 20 - 0          | L3x3x1/4 | 7'5-7/32" | 6'11-1/2"            | 89.8 | 0.939                | 2.403               | 40.863          | 0.059 <sup>1</sup> ✓            |

<sup>1</sup>  $P_u / \phi P_n$  controls

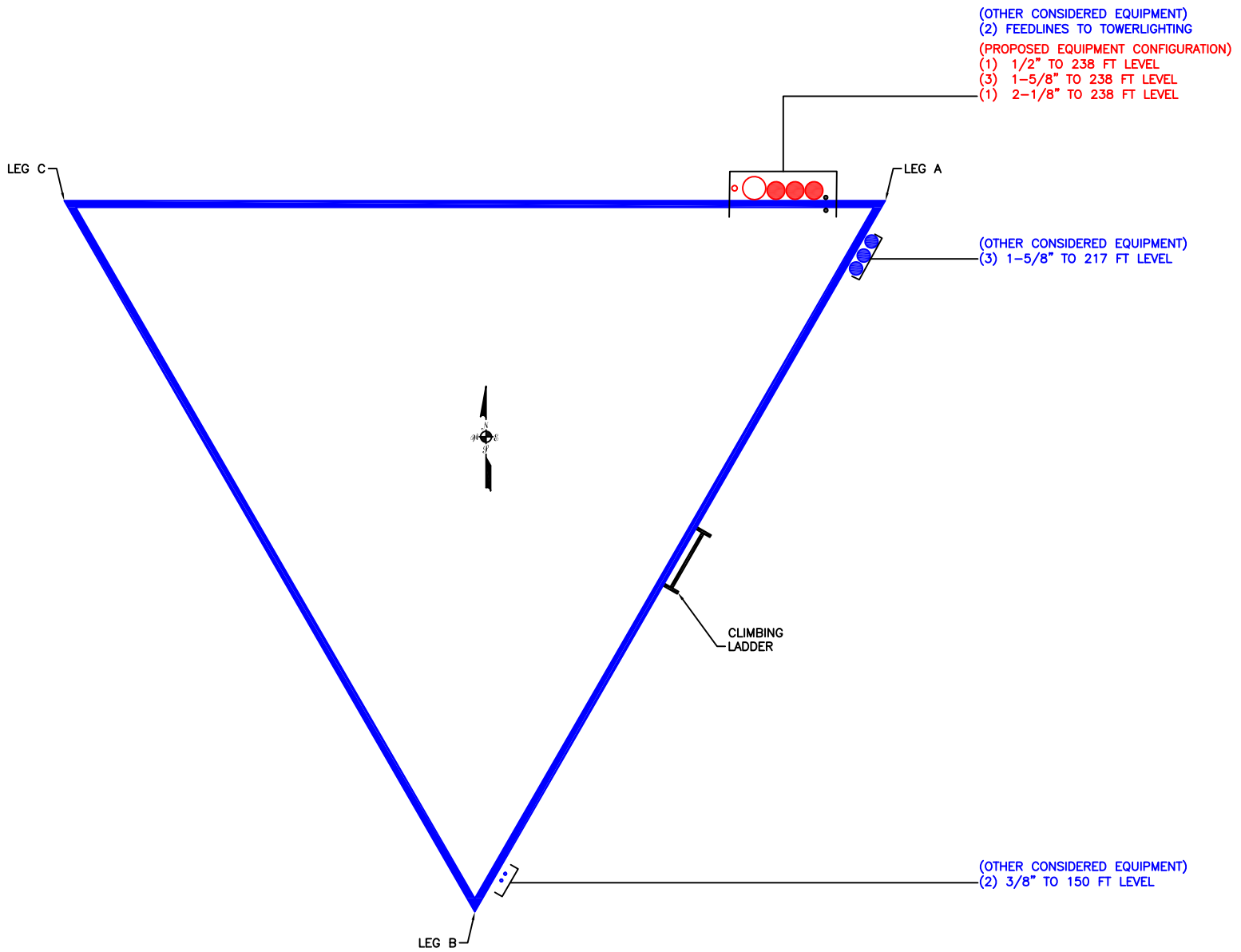
### Section Capacity Table

| Section No. | Elevation<br>ft | Component Type | Size                  | Critical Element | P<br>K   | $\phi P_{allow}$<br>K | %<br>Capacity | Pass<br>Fail |
|-------------|-----------------|----------------|-----------------------|------------------|----------|-----------------------|---------------|--------------|
| T1          | 235 - 220       | Leg            | Sabre 2.375"x0.154"   | 3                | -16.900  | 33.198                | 50.9          | Pass         |
| T2          | 220 - 200       | Leg            | Sabre 2.875"x0.375"   | 27               | -47.025  | 100.096               | 47.0          | Pass         |
| T3          | 200 - 180       | Leg            | Sabre 3.5"x0.437"     | 57               | -65.488  | 159.342               | 41.1          | Pass         |
| T4          | 180 - 160       | Leg            | Sabre 3.5" x 0.6"     | 87               | -80.137  | 202.990               | 39.5          | Pass         |
| T5          | 160 - 140       | Leg            | Sabre 4.5"x0.5310"    | 114              | -95.202  | 247.512               | 38.5          | Pass         |
| T6          | 140 - 120       | Leg            | Sabre 5.5625" x 0.5"  | 135              | -112.267 | 324.977               | 34.5          | Pass         |
| T7          | 120 - 100       | Leg            | Sabre 6.625"x0.432"   | 156              | -129.760 | 360.255               | 36.0          | Pass         |
| T8          | 100 - 80        | Leg            | Sabre 6.625" x 0.562" | 177              | -146.315 | 402.699               | 36.3          | Pass         |

|                                                                                                                                          |                                              |                    |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------------|
| <b>tnxTower</b><br><br><b>B+T Group</b><br>1717 S. Boulder, Suite 300<br>Tulsa, OK 74119<br>Phone: (918) 587-4630<br>FAX: (918) 295-0265 | <b>Job</b>                                   | <b>Page</b>        |
|                                                                                                                                          | 151403.002.01.0001- Wilburn, FL (BU# 877744) | 32 of 32           |
|                                                                                                                                          | <b>Project</b>                               | <b>Date</b>        |
|                                                                                                                                          | <b>Client</b>                                | <b>Designed by</b> |
|                                                                                                                                          | Crown Castle                                 | Sahana             |

| Section No. | Elevation ft | Component Type        | Size              | Critical Element | P K      | $\phi P_{allow}$ K | % Capacity                  | Pass Fail   |
|-------------|--------------|-----------------------|-------------------|------------------|----------|--------------------|-----------------------------|-------------|
| T9          | 80 - 60      | Leg                   | Sabre 8.625"x0.5" | 192              | -164.389 | 530.833            | 31.0                        | Pass        |
| T10         | 60 - 40      | Leg                   | Sabre 8.625"x0.5" | 207              | -182.575 | 530.833            | 34.4                        | Pass        |
| T11         | 40 - 20      | Leg                   | Sabre 8.625"x0.5" | 222              | -200.870 | 530.833            | 37.8                        | Pass        |
| T12         | 20 - 0       | Leg                   | Sabre 8.625"x0.5" | 237              | -214.376 | 584.115            | 36.7                        | Pass        |
| T1          | 235 - 220    | Diagonal              | L1 3/4x1 3/4x3/16 | 12               | -2.597   | 13.687             | 19.0                        | Pass        |
| T2          | 220 - 200    | Diagonal              | L1 3/4x1 3/4x1/4  | 33               | -3.853   | 17.962             | 21.5                        | Pass        |
| T3          | 200 - 180    | Diagonal              | L1 3/4x1 3/4x3/16 | 63               | -2.128   | 9.419              | 22.6                        | Pass        |
| T4          | 180 - 160    | Diagonal              | L1 3/4x1 3/4x3/16 | 90               | -2.349   | 6.448              | 36.4                        | Pass        |
| T5          | 160 - 140    | Diagonal              | L2 1/2x2 1/2x3/16 | 120              | -3.839   | 12.316             | 31.2                        | Pass        |
| T6          | 140 - 120    | Diagonal              | L2 1/2x2 1/2x3/16 | 141              | -4.003   | 9.582              | 41.8                        | Pass        |
| T7          | 120 - 100    | Diagonal              | L3x3x3/16         | 162              | -4.367   | 13.316             | 32.8                        | Pass        |
| T8          | 100 - 80     | Diagonal              | L3x3x1/4          | 183              | -5.217   | 11.740             | 44.4                        | Pass        |
| T9          | 80 - 60      | Diagonal              | L3x3 1/2x1/4      | 195              | -5.669   | 12.349             | 45.9                        | Pass        |
| T10         | 60 - 40      | Diagonal              | L3 1/2x3 1/2x1/4  | 210              | -6.170   | 13.694             | 45.1                        | Pass        |
| T11         | 40 - 20      | Diagonal              | L4x4x1/4          | 225              | -6.769   | 17.634             | 38.4                        | Pass        |
| T12         | 20 - 0       | Diagonal              | L3x3x1/4          | 246              | -8.989   | 10.749             | 83.6                        | Pass        |
| T12         | 20 - 0       | Horizontal            | L3 1/2x3 1/2x1/4  | 245              | -6.686   | 12.537             | 53.3                        | Pass        |
| T1          | 235 - 220    | Top Girt              | C4x5.4            | 4                | -0.386   | 22.727             | 1.7                         | Pass        |
| T2          | 220 - 200    | Top Girt              | L1 3/4x1 3/4x1/4  | 29               | -0.814   | 9.895              | 8.2                         | Pass        |
| T3          | 200 - 180    | Top Girt              | L1 3/4x1 3/4x3/16 | 59               | -1.136   | 7.838              | 14.5                        | Pass        |
| T12         | 20 - 0       | Redund Horz 1 Bracing | L3x3x1/4          | 250              | -3.718   | 32.056             | 11.6                        | Pass        |
| T12         | 20 - 0       | Redund Diag 1 Bracing | L3x3x1/4          | 255              | -2.361   | 20.631             | 11.4                        | Pass        |
| T12         | 20 - 0       | Inner Bracing         | L3x3x3/16         | 259              | -0.007   | 5.612              | 0.2                         | Pass        |
|             |              |                       |                   |                  |          |                    | Summary                     |             |
|             |              |                       |                   |                  |          |                    | Leg (T1)                    | 50.9        |
|             |              |                       |                   |                  |          |                    | Diagonal (T12)              | 83.6        |
|             |              |                       |                   |                  |          |                    | Horizontal (T12)            | 53.3        |
|             |              |                       |                   |                  |          |                    | Top Girt (T3)               | 14.5        |
|             |              |                       |                   |                  |          |                    | Redund Horz 1 Bracing (T12) | 11.6        |
|             |              |                       |                   |                  |          |                    | Redund Diag 1 Bracing (T12) | 11.4        |
|             |              |                       |                   |                  |          |                    | Inner Bracing (T12)         | 0.2         |
|             |              |                       |                   |                  |          |                    | Bolt Checks                 | 41.3        |
|             |              |                       |                   |                  |          |                    | <b>RATING =</b>             | <b>83.6</b> |

**APPENDIX B**  
**BASE LEVEL DRAWING**



BUSINESS UNIT:877744

**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

Self Support Anchor Rod Capacity



| Site Info |               |
|-----------|---------------|
| BU #      | 877744        |
| Site Name | WILBURN, FL   |
| Order #   | 661293 Rev. 0 |

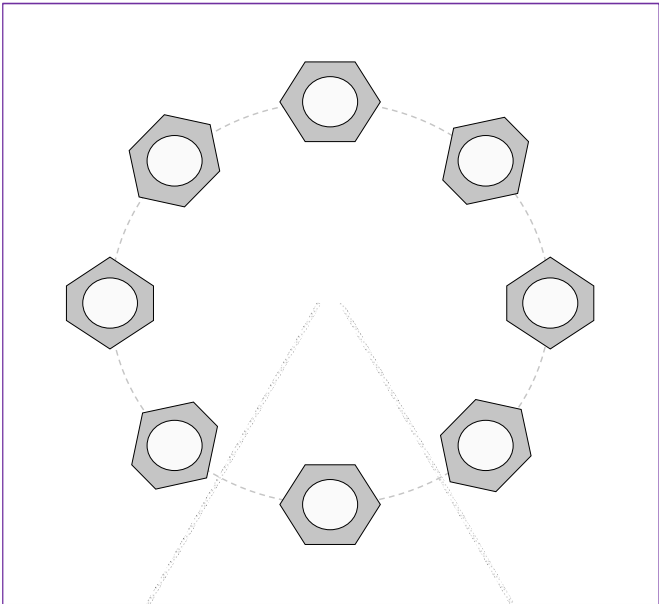
| Analysis Considerations |     |
|-------------------------|-----|
| TIA-222 Revision        | H   |
| Grout Considered:       | Yes |
| $l_{ar}$ (in)           | 0   |

| Applied Loads      |        |        |
|--------------------|--------|--------|
|                    | Comp.  | Uplift |
| Axial Force (kips) | 224.00 | 177.00 |
| Shear Force (kips) | 22.00  | 18.00  |

\*TIA-222-H Section 15.5 Applied

| Considered Eccentricity   |       |
|---------------------------|-------|
| Leg Mod Eccentricity (in) | 0.000 |
| Anchor Rod N.A Shift (in) | 0.000 |
| Total Eccentricity (in)   | 0.000 |

\*Anchor Rod Eccentricity Applied



| Connection Properties                                     | Analysis Results                                               |                         |                      |
|-----------------------------------------------------------|----------------------------------------------------------------|-------------------------|----------------------|
| <b>Anchor Rod Data</b>                                    | <b>Anchor Rod Summary</b> <span>(units of kips, kip-in)</span> |                         |                      |
| (8) 1-1/2" $\phi$ bolts (A572-50 N; Fy=50 ksi, Fu=65 ksi) | $P_{u\_t}$ = 22.13                                             | $\phi P_{n\_t}$ = 68.74 | <b>Stress Rating</b> |
| $l_{ar}$ (in): 0                                          | $V_u$ = 2.25                                                   | $\phi V_n$ = 43.07      | <b>30.7%</b>         |
|                                                           | $M_u$ = n/a                                                    | $\phi M_n$ = n/a        | <b>Pass</b>          |

## Drilled Pier Foundation

|                   |               |
|-------------------|---------------|
| BU # :            | 877744        |
| Site Name:        | WILBURN, FL   |
| Order Number:     | 661293 Rev. 0 |
| TIA-222 Revision: | H             |
| Tower Type:       | Self Support  |



| Applied Loads      |       |        |
|--------------------|-------|--------|
|                    | Comp. | Uplift |
| Moment (kip-ft)    | 0     | 0      |
| Axial Force (kips) | 224   | 177    |
| Shear Force (kips) | 22    | 18     |

| Material Properties      |    |     |
|--------------------------|----|-----|
| Concrete Strength, f'c:  | 3  | ksi |
| Rebar Strength, Fy:      | 60 | ksi |
| Tie Yield Strength, Fyt: | 60 | ksi |

| Pier Design Data                         |     |    |
|------------------------------------------|-----|----|
| Depth                                    | 34  | ft |
| Ext. Above Grade                         | 0.5 | ft |
| Pier Section 1                           |     |    |
| From 0.5' above grade to 34' below grade |     |    |
| Pier Diameter                            | 5.5 | ft |
| Rebar Quantity                           | 18  |    |
| Rebar Size                               | 9   |    |
| Clear Cover to Ties                      | 3   | in |
| Tie Size                                 | 4   |    |
| Tie Spacing                              | 12  | in |

[Rebar & Pier Options](#)

[Embedded Pole Inputs](#)

[Belled Pier Inputs](#)

### Analysis Results

| Soil Lateral Check             |             |        |
|--------------------------------|-------------|--------|
|                                | Compression | Uplift |
| D <sub>v=0</sub> (ft from TOC) | 13.27       | 13.27  |
| Soil Safety Factor             | 22.86       | 27.94  |
| Max Moment (kip-ft)            | 223.24      | 182.65 |
| Rating*                        | 5.5%        | 4.5%   |

| Soil Vertical Check       |             |        |
|---------------------------|-------------|--------|
|                           | Compression | Uplift |
| Skin Friction (kips)      | 203.46      | 203.46 |
| End Bearing (kips)        | 267.28      | -      |
| Weight of Concrete (kips) | 93.25       | 69.94  |
| Total Capacity (kips)     | 470.74      | 273.40 |
| Axial (kips)              | 317.25      | 177.00 |
| Rating*                   | 64.2%       | 61.7%  |

| Reinforced Concrete Flexure  |             |         |
|------------------------------|-------------|---------|
|                              | Compression | Uplift  |
| Critical Depth (ft from TOC) | 13.51       | 12.70   |
| Critical Moment (kip-ft)     | 223.13      | 182.14  |
| Critical Moment Capacity     | 2532.78     | 2039.32 |
| Rating*                      | 8.4%        | 8.5%    |

| Reinforced Concrete Shear    |             |        |
|------------------------------|-------------|--------|
|                              | Compression | Uplift |
| Critical Depth (ft from TOC) | 26.25       | 26.25  |
| Critical Shear (kip)         | 31.58       | 25.84  |
| Critical Shear Capacity      | 525.39      | 313.22 |
| Rating*                      | 5.7%        | 7.9%   |

|                               |       |
|-------------------------------|-------|
| Structural Foundation Rating* | 8.5%  |
| Soil Interaction Rating*      | 64.2% |

\*Rating per TIA-222-H Section 15.5

| Check Limitation                      |                                     |
|---------------------------------------|-------------------------------------|
| Apply TIA-222-H Section 15.5:         | <input checked="" type="checkbox"/> |
| N/A                                   | <input type="checkbox"/>            |
| Design Options                        |                                     |
| Input Effective Depths (else Actual): | <input type="checkbox"/>            |
| Consider non-tapered moment capacity: | <input type="checkbox"/>            |
| Check Shear along Depth of Pier:      | <input checked="" type="checkbox"/> |
| Utilize Shear-Friction Methodology:   | <input type="checkbox"/>            |
| Override Critical Depth:              | <input type="checkbox"/>            |

[Go to Soil Calculations](#)

| Soil Profile      |     |             |   |  |  |  |  |  |  |  |  |  |  |
|-------------------|-----|-------------|---|--|--|--|--|--|--|--|--|--|--|
| Groundwater Depth | 3.5 | # of Layers | 7 |  |  |  |  |  |  |  |  |  |  |

| Layer | Top (ft) | Bottom (ft) | Thickness (ft) | Y <sub>soil</sub> (pcf) | Y <sub>concrete</sub> (pcf) | Cohesion (ksf) | Angle of Friction (degrees) | Calculated Ultimate Skin Friction Comp (ksf) | Calculated Ultimate Skin Friction Uplift (ksf) | Ultimate Skin Friction Comp Override (ksf) | Ultimate Skin Friction Uplift Override (ksf) | Ult. Gross Bearing Capacity (ksf) | SPT Blow Count | Soil Type    |
|-------|----------|-------------|----------------|-------------------------|-----------------------------|----------------|-----------------------------|----------------------------------------------|------------------------------------------------|--------------------------------------------|----------------------------------------------|-----------------------------------|----------------|--------------|
| 1     | 0        | 3.5         | 3.5            | 105                     | 150                         | 0              | 0                           | 0.000                                        | 0.000                                          | 0.00                                       | 0.00                                         |                                   |                | Cohesionless |
| 2     | 3.5      | 5           | 1.5            | 42.6                    | 87.6                        | 0              | 0                           | 0.000                                        | 0.000                                          | 0.00                                       | 0.00                                         |                                   |                | Cohesionless |
| 3     | 5        | 8           | 3              | 52.6                    | 87.6                        | 0              | 32                          | 0.000                                        | 0.000                                          | 0.70                                       | 0.70                                         |                                   |                | Cohesionless |
| 4     | 8        | 13          | 5              | 52.6                    | 87.6                        | 2              | 0                           | 1.100                                        | 1.100                                          | 1.10                                       | 1.10                                         |                                   |                | Cohesive     |
| 5     | 13       | 21          | 8              | 42.6                    | 87.6                        | 0.25           | 0                           | 0.138                                        | 0.138                                          | 0.10                                       | 0.10                                         |                                   |                | Cohesive     |
| 6     | 21       | 27          | 6              | 62.6                    | 87.6                        | 0              | 45                          | 0.000                                        | 0.000                                          | 0.05                                       | 0.05                                         |                                   |                | Cohesionless |
| 7     | 27       | 34          | 7              | 52.6                    | 87.6                        | 1.75           | 0                           | 0.96                                         | 0.96                                           | 1.00                                       | 1.00                                         | 15                                |                | Cohesive     |

# ASCE Hazards Report

**Address:**

No Address at This Location

**Standard:**

ASCE/SEI 7-16

**Risk Category:** II**Soil Class:**

D - Default (see  
Section 11.4.3)

**Latitude:**

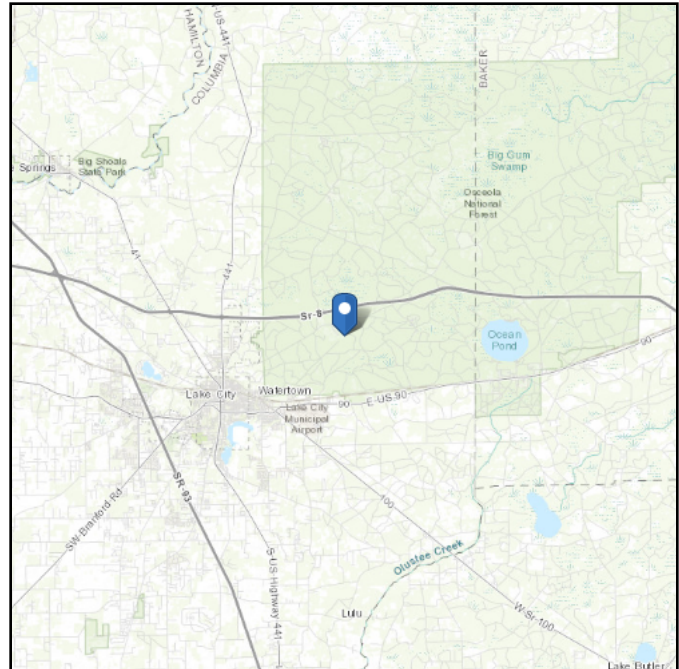
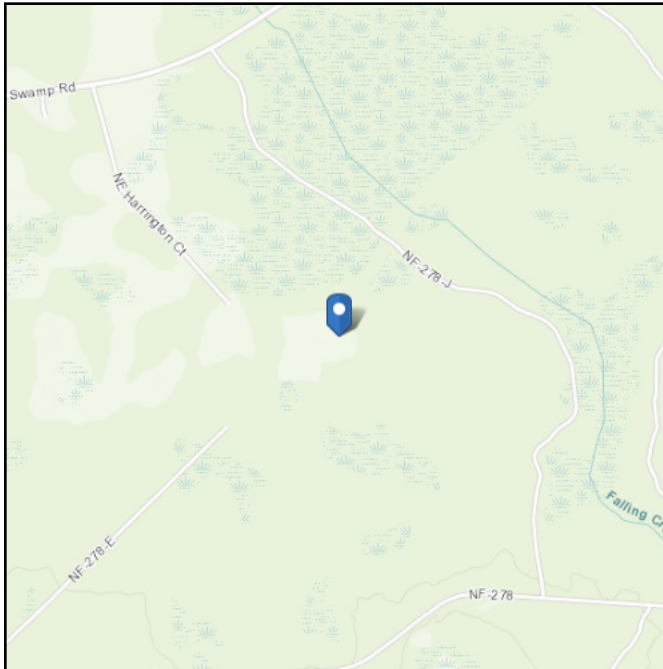
30.229611

**Longitude:**

-82.551444

**Elevation:**

151.01602241453355 ft  
(NAVD 88)



## Wind

**Results:**

|              |          |
|--------------|----------|
| Wind Speed   | 118 Vmph |
| 10-year MRI  | 75 Vmph  |
| 25-year MRI  | 84 Vmph  |
| 50-year MRI  | 90 Vmph  |
| 100-year MRI | 97 Vmph  |

**Data Source:**

ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

**Date Accessed:**

Fri Feb 23 2024

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

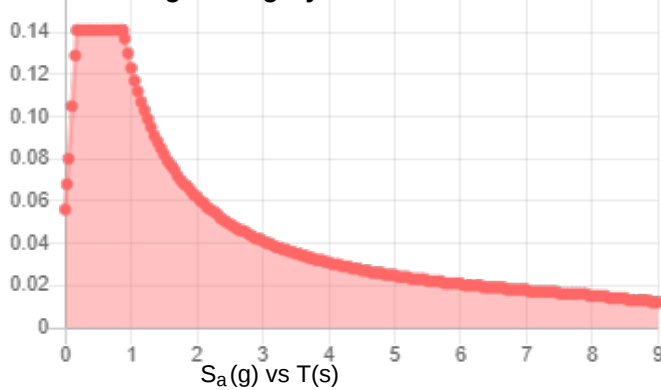
Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

**Site Soil Class:** D - Default (see Section 11.4.3)

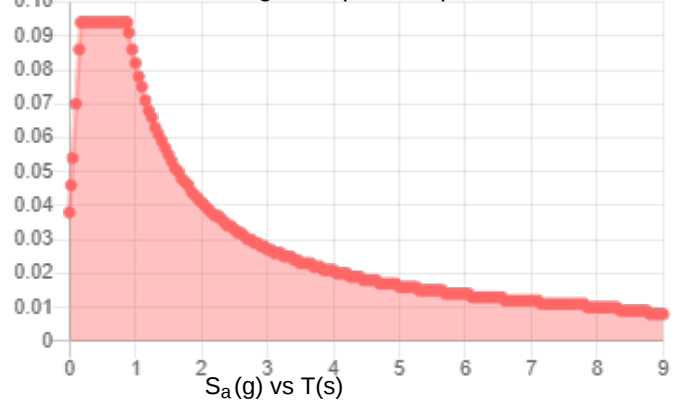
**Results:**

|            |       |                    |       |
|------------|-------|--------------------|-------|
| $S_S$ :    | 0.088 | $S_{D1}$ :         | 0.082 |
| $S_1$ :    | 0.051 | $T_L$ :            | 8     |
| $F_a$ :    | 1.6   | PGA :              | 0.042 |
| $F_v$ :    | 2.4   | PGA <sub>M</sub> : | 0.067 |
| $S_{MS}$ : | 0.141 | $F_{PGA}$ :        | 1.6   |
| $S_{M1}$ : | 0.123 | $I_e$ :            | 1     |
| $S_{DS}$ : | 0.094 | $C_v$ :            | 0.7   |

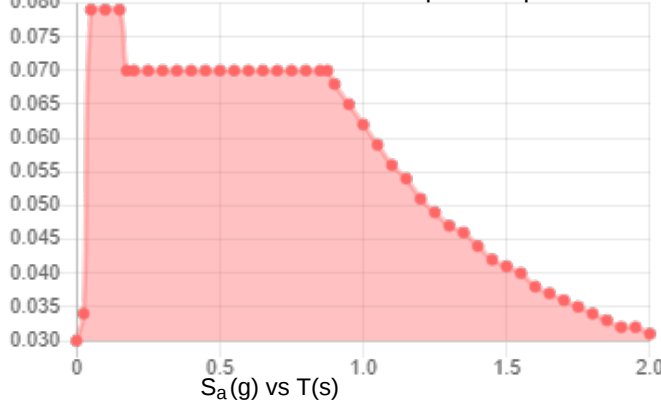
**Seismic Design Category: B** MCE<sub>R</sub> Response Spectrum



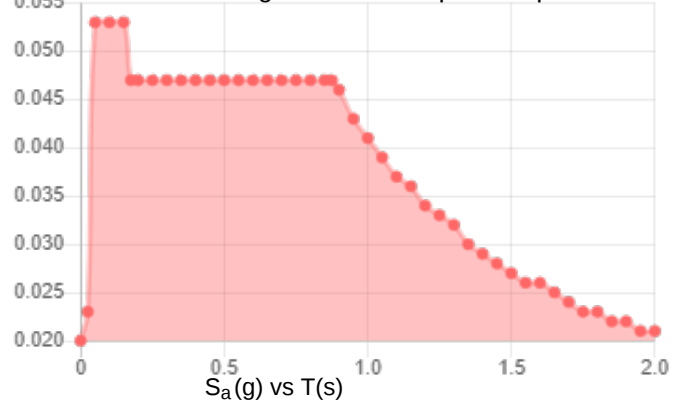
Design Response Spectrum



MCE<sub>R</sub> Vertical Response Spectrum



Design Vertical Response Spectrum



**Data Accessed:** Fri Feb 23 2024

**Date Source:**

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

## Ice

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### Results:

Ice Thickness: 0.25 in.  
Concurrent Temperature: 25 F  
Gust Speed 30 mph

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Fri Feb 23 2024

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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