



**AMERICAN TOWER®**  
CORPORATION

This report was prepared for American Tower Corporation by



---

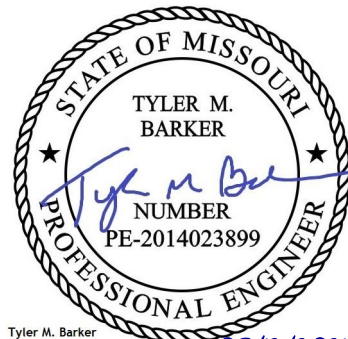
## Structural Analysis Report

**Structure** : 149 ft Monopole  
**ATC Site Name** : Lee's Summit 2, MO  
**ATC Site Number** : 209106  
**Engineering Number** : 13689205\_C3\_03  
**Proposed Carrier** : DISH WIRELESS L.L.C.  
**Carrier Site Name** : KCMCI00265C  
**Carrier Site Number** : KCMCI00265C  
**Site Location** : 900 Southwest Blue Parkway  
Lee's Summit, MO 64063  
38.91020005, -94.39127213  
**County** : Jackson  
**Date** : August 12, 2021  
**Max Usage** : 71%  
**Result** : Pass

Prepared By:

Anna Barber  
CLS

Reviewed By:



Tyler M. Barker  
CLS Group  
PE # PE-2014023899 Exp. 12/31/2022  
COA # 2010039825 Exp. 12/31/2022

08/12/2021

**Table of Contents**

|                                      |          |
|--------------------------------------|----------|
| Introduction .....                   | 3        |
| Supporting Documents .....           | 3        |
| Analysis .....                       | 3        |
| Conclusion .....                     | 3        |
| Existing and Reserved Equipment..... | 4        |
| Equipment to be Removed .....        | 4        |
| Proposed Equipment .....             | 4        |
| Structure Usages.....                | 5        |
| Foundations .....                    | 5        |
| Deflection and Sway* .....           | 5        |
| Standard Conditions .....            | 6        |
| Calculations .....                   | Attached |

## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft Monopole to reflect the change in loading by DISH WIRELESS L.L.C..

## Supporting Documents

|                            |                                                 |
|----------------------------|-------------------------------------------------|
| <b>Tower Drawings</b>      | Sabre Drawing #47711-MM, dated August 31, 2011  |
| <b>Foundation Drawing</b>  | Sabre Drawing #47711-F1, dated August 31, 2011  |
| <b>Geotechnical Report</b> | Terracon Project #02115104, dated July 11, 2011 |

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

|                                      |                                                       |
|--------------------------------------|-------------------------------------------------------|
| <b>Basic Wind Speed:</b>             | 109 mph (3-second gust)                               |
| <b>Basic Wind Speed w/ Ice:</b>      | 40 mph (3-second gust) w/ 1.5" radical ice concurrent |
| <b>Code:</b>                         | ANSI/TIA-222-H / 2018 IBC                             |
| <b>Exposure Category:</b>            | C                                                     |
| <b>Risk Category:</b>                | II                                                    |
| <b>Topographic Factor Procedure:</b> | Method 1                                              |
| <b>Topographic Category:</b>         | 1                                                     |
| <b>Crest Height (H):</b>             | 0 ft                                                  |
| <b>Spectral Response:</b>            | $S_s = 0.10$ , $S_i = 0.07$                           |
| <b>Site Class:</b>                   | D - Stiff Soil - Default                              |

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

### Existing and Reserved Equipment

| Elev. <sup>1</sup> (ft) | Qty | Equipment                                         | Mount Type                         | Lines                                                                                               | Carrier               |
|-------------------------|-----|---------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------|
| 150.0                   | 6   | Commscope NHH-65C-R2B                             | Triangular Low Profile Platform    | (1) 1 1/4" Hybriflex Cable<br>(12) 1 5/8" Coax<br>(1) 1 5/8" Hybriflex<br>(2) 1.25" (31.8mm) Hybrid | VERIZON WIRELESS      |
|                         | 3   | Andrew LNX-6515DS-A1M                             |                                    |                                                                                                     |                       |
|                         | 3   | Ericsson AIR 6449 B77D/C-Band                     |                                    |                                                                                                     |                       |
|                         | 1   | Raycap RRFDC-3315-PF-48                           |                                    |                                                                                                     |                       |
|                         | 1   | RFS DB-B1-6C-12AB-0Z                              |                                    |                                                                                                     |                       |
|                         | 3   | Ericsson 8843 Rev 2                               |                                    |                                                                                                     |                       |
|                         | 6   | ADC CG-1900DDBFBDTBP                              |                                    |                                                                                                     |                       |
|                         | 3   | Ericsson Radio 4449 - B13&B5                      |                                    |                                                                                                     |                       |
| 129.0                   | 1   | Generic 15" x 15" Panel                           | Side Arm                           | (2) 2" conduit<br>(2) 1/2" Coax<br>(4) 1/4" Coax                                                    | CLEARWIRE CORPORATION |
|                         | 1   | Generic 1' Std. Dish                              |                                    |                                                                                                     |                       |
|                         | 3   | Argus LLPX310R                                    |                                    |                                                                                                     |                       |
|                         | 1   | Motorola PTP 600                                  |                                    |                                                                                                     |                       |
|                         | 1   | Andrew Microwaves VHLP2-23                        |                                    |                                                                                                     |                       |
|                         | 1   | Andrew Microwaves VHLP800-11                      |                                    |                                                                                                     |                       |
|                         | 3   | Samsung RRH-P4A                                   |                                    |                                                                                                     |                       |
| 99.0                    | 1   | Raycap RNSNDC-7771-PF-48 (20.4" Width)            | Triangular Platform with Handrails | (14) 7/8" Coax<br>(2) 1.49" (37.8mm) Hybrid                                                         | T-MOBILE              |
|                         | 3   | Commscope FFHH-65C-R3                             |                                    |                                                                                                     |                       |
|                         | 4   | Andrew TMBXX-6517-A2M                             |                                    |                                                                                                     |                       |
|                         | 3   | Nokia AEHC                                        |                                    |                                                                                                     |                       |
|                         | 4   | Generic RRU (Model TBD)                           |                                    |                                                                                                     |                       |
|                         | 3   | Nokia AHFIG 70.55 lbs                             |                                    |                                                                                                     |                       |
|                         | 2   | Generic HCS2.0                                    |                                    |                                                                                                     |                       |
|                         | 3   | Andrew ETW190VS12UB                               |                                    |                                                                                                     |                       |
|                         | 2   | Commscope HELIAX FiberFeed 12 RRU Pendant Connect |                                    |                                                                                                     |                       |
| 85.0                    | 3   | Ericsson RRUS 11/61 w/ Solar Shield               | Triangular Platform with Handrails | (3) 1.25" (31.8mm) Hybrid                                                                           | SPRINT NEXTEL         |
|                         | 3   | Ericsson RRUS 31 B25 w/ Brackets                  |                                    |                                                                                                     |                       |
|                         | 3   | RFS APXV9ERR18-C-A20                              |                                    |                                                                                                     |                       |

### Equipment to be Removed

| Elev. <sup>1</sup> (ft)                                        | Qty | Equipment | Mount Type | Lines | Carrier |
|----------------------------------------------------------------|-----|-----------|------------|-------|---------|
| No loading was considered as removed as part of this analysis. |     |           |            |       |         |

### Proposed Equipment

| Elev. <sup>1</sup> (ft) | Qty | Equipment                  | Mount Type                         | Lines                     | Carrier              |
|-------------------------|-----|----------------------------|------------------------------------|---------------------------|----------------------|
| 134.0                   | 1   | Commscope RDIDC-9181-PF-48 | Triangular Platform with Handrails | (1) 1.60" (40.6mm) Hybrid | DISH WIRELESS L.L.C. |
|                         | 3   | Fujitsu TA08025-B604       |                                    |                           |                      |
|                         | 3   | Fujitsu TA08025-B605       |                                    |                           |                      |
|                         | 3   | JMA Wireless MX08FRO665-21 |                                    |                           |                      |

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines inside the pole shaft.

### Structure Usages

| Structural Component | Controlling Usage | Pass/Fail |
|----------------------|-------------------|-----------|
| Anchor Bolts         | 71%               | Pass      |
| Shaft                | 52%               | Pass      |
| Base Plate           | 68%               | Pass      |

### Foundations

| Reaction Component | Analysis Reactions | % of Usage |
|--------------------|--------------------|------------|
| Moment (Kips-Ft)   | 2,813.8            | 39%        |
| Shear (Kips)       | 27.8               | 42%        |

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

### Deflection and Sway\*

| Antenna Elevation (ft) | Antenna                      | Carrier               | Deflection (ft) | Sway (Rotation) (°) |
|------------------------|------------------------------|-----------------------|-----------------|---------------------|
| 134.0                  | Commscope RDIDC-9181-PF-48   | DISH WIRELESS L.L.C.  | 0.981           | 0.760               |
|                        | Fujitsu TA08025-B604         |                       |                 |                     |
|                        | Fujitsu TA08025-B605         |                       |                 |                     |
|                        | JMA Wireless MX08FRO665-21   |                       |                 |                     |
| 129.0                  | Generic 1' Std. Dish         | CLEARWIRE CORPORATION | 0.917           | 0.750               |
|                        | Andrew Microwaves VHLP2-23   |                       | 0.915           | 0.750               |
|                        | Andrew Microwaves VHLP800-11 |                       |                 |                     |

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H

### **Standard Conditions**

All engineering services performed by ATC Tower Services are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ATC Tower Services

It is the responsibility of the client to ensure that the information provided to ATC Tower Services and used in the performance of our engineering services is correct and complete.

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

Unless explicitly agreed by both the client and ATC Tower Services, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

# JOB INFORMATION

Asset : 209106, Lee's Summit 2  
 Client : DISH WIRELESS L.L.C.  
 Code : ANSI/TIA-222-H

Height : 149 ft  
 Base Width : 60.41  
 Shape : 18 Sides

## SITE PARAMETERS

Description : Sabre Monopole  
 Base Elev (ft): 0.00 Structure Class: II  
 Taper : 0.21500 (in/ft) Exposure : C  
 Topographic Category : 1 Topographic Feature:  
 Topo Method : Method 1

## SECTION PROPERTIES

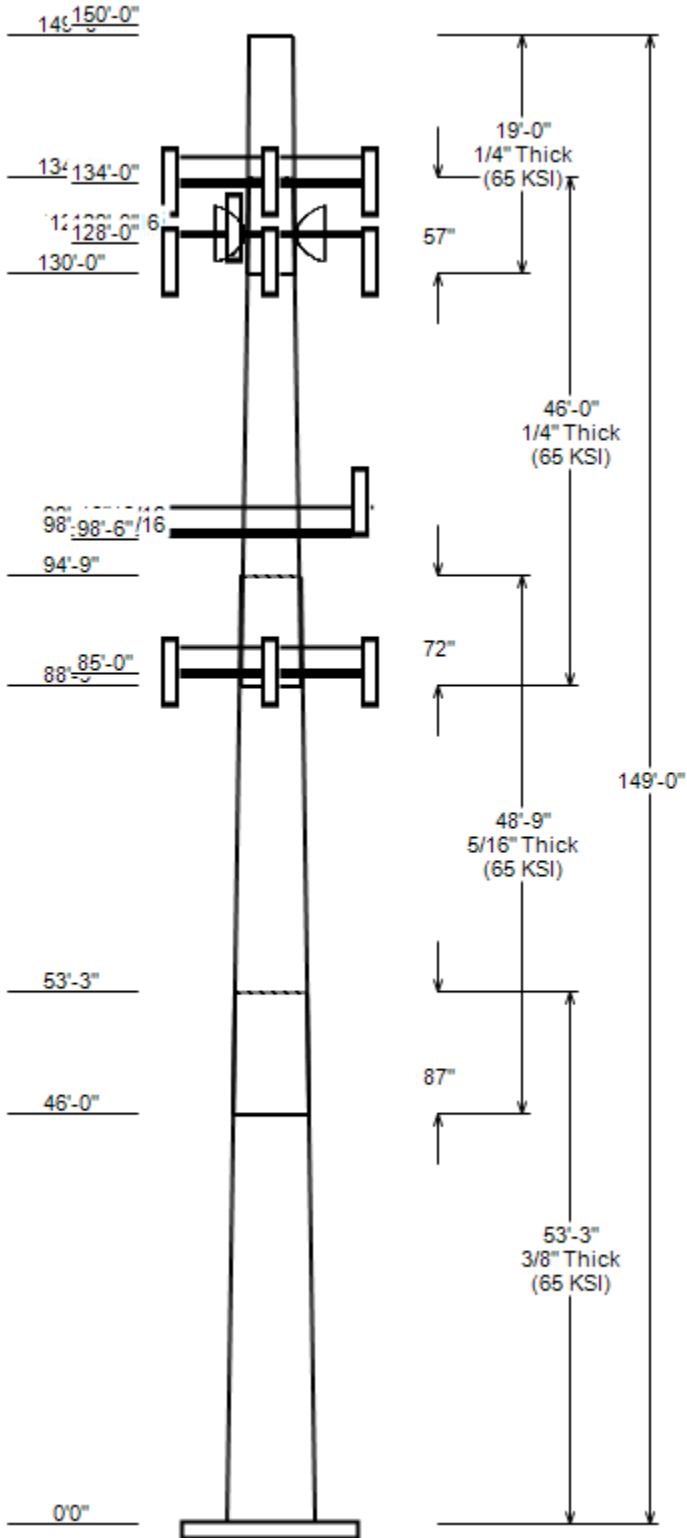
| Shaft Section | Length (ft) | Diameter (in) |            | Thick (in) | Joint Type | Overlap Length (in) | Shape    | Steel Grade (ksi) |
|---------------|-------------|---------------|------------|------------|------------|---------------------|----------|-------------------|
|               |             | Across Flats  | Top Bottom |            |            |                     |          |                   |
| 1             | 53.250      | 48.96         | 60.41      | 0.375      |            | 0.000               | 18 Sides | 65                |
| 2             | 48.750      | 40.66         | 51.14      | 0.312      | Slip Joint | 87.000              | 18 Sides | 65                |
| 3             | 46.000      | 32.56         | 42.45      | 0.250      | Slip Joint | 72.000              | 18 Sides | 65                |
| 4             | 19.000      | 30.00         | 34.08      | 0.250      | Slip Joint | 57.000              | 18 Sides | 65                |

## DISCRETE APPURTENANCE

| Attach Elev (ft) | Force Elev (ft) | Qty | Description                    |
|------------------|-----------------|-----|--------------------------------|
| 150.0            | 149.9           | 6   | ADC CG-1900DDBFBDTBP           |
| 150.0            | 150.0           | 3   | Ericsson 8843 Rev 2            |
| 150.0            | 150.0           | 3   | Ericsson Radio 4449 - B13&B5   |
| 150.0            | 146.2           | 1   | Raycap RRFDC-3315-PF-48        |
| 150.0            | 151.5           | 1   | RFS DB-B1-6C-12AB-0Z           |
| 150.0            | 150.0           | 3   | Ericsson AIR 6449 B77D/C-Band  |
| 150.0            | 150.0           | 6   | Commscope NHH-65C-R2B          |
| 150.0            | 148.4           | 3   | Andrew LNX-6515DS-A1M          |
| 150.0            | 150.0           | 1   | Generic Round Low Profile Plat |
| 134.0            | 134.0           | 1   | Commscope RDIDC-9181-PF-48     |
| 134.0            | 134.0           | 3   | Fujitsu TA08025-B605           |
| 134.0            | 134.0           | 3   | Fujitsu TA08025-B604           |
| 134.0            | 134.0           | 3   | JMA Wireless MX08FRO665-21     |
| 134.0            | 134.0           | 1   | Generic Flat Platform with Han |
| 129.4            | 129.4           | 1   | Generic 15" x 15" Panel        |
| 129.1            | 129.1           | 1   | Generic 1' Std. Dish           |
| 129.0            | 129.0           | 1   | Motorola PTP 600               |
| 129.0            | 128.0           | 3   | Argus LLPX310R                 |
| 129.0            | 129.0           | 1   | Andrew Microwaves VHLP2-23     |
| 129.0            | 129.0           | 3   | Generic Round Side Arm         |
| 129.0            | 129.0           | 1   | Andrew Microwaves VHLP800-11   |
| 128.0            | 128.0           | 3   | Samsung RRR-P4A                |
| 99.9             | 99.9            | 1   | Raycap RNSNDC-7771-PF-48 (20.4 |
| 99.0             | 99.0            | 2   | Generic HCS2.0                 |
| 99.0             | 99.0            | 3   | Nokia AHFIG 70.55 lbs          |
| 99.0             | 99.0            | 4   | Generic RRU (Model TBD)        |
| 99.0             | 100.6           | 3   | Nokia AEHC                     |
| 99.0             | 100.4           | 4   | Andrew TMBXX-6517-A2M          |
| 99.0             | 102.1           | 3   | Commscope FFHH-65C-R3          |
| 99.0             | 99.0            | 1   | Generic Round Platform with Ha |
| 98.9             | 98.9            | 3   | Andrew ETW190VS12UB            |
| 98.5             | 98.5            | 2   | Commscope HELIAX FiberFeed 12  |
| 85.0             | 85.0            | 3   | Ericsson RRUS 31 B25 w/ Bracke |
| 85.0             | 85.0            | 3   | Ericsson RRUS 11/61 w/ Solar S |
| 85.0             | 85.0            | 3   | RFS APXV9ERR18-C-A20           |
| 85.0             | 85.0            | 1   | Generic Round Platform with Ha |

## LINEAR APPURTENANCE

| Elev From (ft) | Elev To (ft) | Description           | Exp To Wind |
|----------------|--------------|-----------------------|-------------|
| 0.0            | 150.0        | 1.25" (31.8mm) Hybrid | Yes         |
| 0.0            | 150.0        | 1 5/8" Hybriflex      | Yes         |



**JOB INFORMATION**

Asset : 209106, Lee's Summit 2  
 Client : DISH WIRELESS L.L.C.  
 Code : ANSI/TIA-222-H

Height : 149 ft  
 Base Width : 60.41  
 Shape : 18 Sides

**LINEAR APPURTENANCE**

| Elev<br>From (ft) | Elev<br>To (ft) | Description            | Exp To<br>Wind |
|-------------------|-----------------|------------------------|----------------|
| 0.0               | 150.0           | 1 5/8" Coax            | No             |
| 0.0               | 150.0           | 1 1/4" Hybriflex Cable | No             |
| 0.0               | 134.0           | 1.60" (40.6mm) Hybrid  | No             |
| 0.0               | 130.0           | 2" conduit             | No             |
| 0.0               | 129.0           | 1/4" Coax              | No             |
| 0.0               | 129.0           | 1/2" Coax              | No             |
| 0.0               | 100.0           | 7/8" Coax              | No             |
| 0.0               | 99.0            | 1.49" (37.8mm) Hybrid  | No             |
| 0.0               | 85.0            | 1.25" (31.8mm) Hybrid  | No             |

**LOAD CASES**

|                          |                                  |
|--------------------------|----------------------------------|
| 1.2D + 1.0W Normal       | 109 mph wind with no ice         |
| 0.9D + 1.0W Normal       | 109 mph wind with no ice         |
| 1.2D + 1.0Di + 1.0Wi Nor | 40 mph wind with 1.5" radial ice |
| 1.2D + 1.0Ev + 1.0Eh Nor | Seismic                          |
| 0.9D - 1.0Ev + 1.0Eh Nor | Seismic (Reduced DL)             |
| 1.0D + 1.0W Service Norm | 60 mph Wind with No Ice          |

**REACTIONS**

| Load Case                   | Moment<br>(kip-ft) | Shear<br>(Kip) | Axial<br>(Kip) |
|-----------------------------|--------------------|----------------|----------------|
| 1.2D + 1.0W Normal          | 2813.81            | 27.84          | 53.23          |
| 0.9D + 1.0W Normal          | 2790.05            | 27.83          | 39.92          |
| 1.2D + 1.0Di + 1.0Wi Normal | 609.87             | 6.04           | 81.07          |
| 1.2D + 1.0Ev + 1.0Eh Normal | 186.84             | 1.60           | 52.51          |
| 0.9D - 1.0Ev + 1.0Eh Normal | 185.05             | 1.60           | 37.78          |
| 1.0D + 1.0W Service Normal  | 758.76             | 7.54           | 44.38          |

**DISH DEFLECTIONS**

| Load Case                     | Attach<br>Elev (ft) | Deflection<br>(in) | Rotation<br>(deg) |
|-------------------------------|---------------------|--------------------|-------------------|
| 1.0D + 1.0W<br>Service Normal | 129.00              | 10.985             | 0.748             |
| 1.0D + 1.0W<br>Service Normal | 129.00              | 10.985             | 0.748             |
| 1.0D + 1.0W<br>Service Normal | 129.10              | 11.000             | 0.748             |

ASSET: 209106, Lee's Summit 2  
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
ENG NO: 13689205\_C3\_03

#### ANALYSIS PARAMETERS

|                               |                   |                |              |
|-------------------------------|-------------------|----------------|--------------|
| Location:                     | Jackson County,MO | Height:        | 149 ft       |
| Type and Shape:               | Taper, 18 Sides   | Base Diameter: | 60.41 in     |
| Manufacturer:                 | Sabre             | Top Diameter:  | 30.00 in     |
| K <sub>d</sub> (non-service): | 0.95              | Taper:         | 0.2150 in/ft |
| K <sub>e</sub> :              | 0.96              | Rotation:      | 0.000°       |

#### ICE & WIND PARAMETERS

|                        |          |                            |            |
|------------------------|----------|----------------------------|------------|
| Exposure Category:     | C        | Design Wind Speed w/o Ice: | 109 mph    |
| Risk Category:         | II       | Design Wind Speed w/Ice:   | 40 mph     |
| Topo Factor Procedure: | Method 1 | Operational Wind Speed:    | 60 mph     |
| Topographic Category:  | 1        | Design Ice Thickness:      | 1.50 in    |
| Crest Height:          | 0 ft     | HMSL:                      | 1017.00 ft |

#### SEISMIC PARAMETERS

|                       |                                 |                                        |       |
|-----------------------|---------------------------------|----------------------------------------|-------|
| Analysis Method:      | Equivalent Lateral Force Method |                                        |       |
| Site Class:           | D - Stiff Soil                  | Period Based on Rayleigh Method (sec): | 2.01  |
| T <sub>L</sub> (sec): | 12                              | P:                                     | 1     |
| S <sub>S</sub> :      | 0.100                           | S <sub>1</sub> :                       | 0.068 |
| F <sub>a</sub> :      | 1.600                           | F <sub>v</sub> :                       | 2.400 |
| S <sub>ds</sub> :     | 0.107                           | S <sub>d1</sub> :                      | 0.109 |
|                       |                                 | C <sub>s</sub> :                       | 0.036 |
|                       |                                 | C <sub>s</sub> Max:                    | 0.036 |
|                       |                                 | C <sub>s</sub> Min:                    | 0.030 |

#### LOAD CASES

|                             |                                  |
|-----------------------------|----------------------------------|
| 1.2D + 1.0W Normal          | 109 mph wind with no ice         |
| 0.9D + 1.0W Normal          | 109 mph wind with no ice         |
| 1.2D + 1.0Di + 1.0Wi Normal | 40 mph wind with 1.5" radial ice |
| 1.2D + 1.0Ev + 1.0Eh Normal | Seismic                          |
| 0.9D - 1.0Ev + 1.0Eh Normal | Seismic (Reduced DL)             |
| 1.0D + 1.0W Service Normal  | 60 mph Wind with No Ice          |

ASSET: 209106, Lee's Summit 2  
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
 ENG NO: 13689205\_C3\_03

# SHAFT SECTION PROPERTIES

| Sect Info | Length (ft) | Thick (in) | Fy (ksi) | Joint Type | Slip Joint len (in) | Bottom      |          |           |                         |                       |           |           | Top      |           |                         |                       |           |           |               |
|-----------|-------------|------------|----------|------------|---------------------|-------------|----------|-----------|-------------------------|-----------------------|-----------|-----------|----------|-----------|-------------------------|-----------------------|-----------|-----------|---------------|
|           |             |            |          |            |                     | Weight (lb) | Dia (in) | Elev (ft) | Area (in <sup>2</sup> ) | Ix (in <sup>4</sup> ) | W/t Ratio | D/t Ratio | Dia (in) | Elev (in) | Area (in <sup>2</sup> ) | Ix (in <sup>4</sup> ) | W/t Ratio | D/t Ratio | Taper (in/ft) |
| 1-18      | 53.25       | 0.3750     | 65       |            | 0.00                | 11,713      | 60.41    | 0.000     | 71.45                   | 32,537.9              | 26.64     | 161.09    | 48.96    | 53.25     | 57.83                   | 17,247.1              | 21.26     | 130.56    | 0.2150        |
| 2-18      | 48.75       | 0.3125     | 65       | Slip       | 87.00               | 7,501       | 51.14    | 46.000    | 50.42                   | 16,459.6              | 27.10     | 163.66    | 40.66    | 94.75     | 40.02                   | 8,233.1               | 21.18     | 130.12    | 0.2150        |
| 3-18      | 46.00       | 0.2500     | 65       | Slip       | 72.00               | 4,628       | 42.45    | 88.750    | 33.49                   | 7,535.9               | 28.18     | 169.82    | 32.56    | 134.75    | 25.64                   | 3,382.6               | 21.20     | 130.26    | 0.2150        |
| 4-18      | 19.00       | 0.2500     | 65       | Slip       | 57.00               | 1,631       | 34.08    | 130.000   | 26.85                   | 3,883.1               | 22.28     | 136.34    | 30.00    | 149.00    | 23.61                   | 2,639.6               | 19.40     | 120.00    | 0.2150        |

Shaft Weight 25,473

# DISCRETE APPURTENANCE PROPERTIES

| Attach Elev (ft) | Description                    | Qty | Ka   | Vert Ecc (ft) | No Ice      |           |                    | Ice         |           |                    |
|------------------|--------------------------------|-----|------|---------------|-------------|-----------|--------------------|-------------|-----------|--------------------|
|                  |                                |     |      |               | Weight (lb) | EPAA (sf) | Orientation Factor | Weight (lb) | EPAA (sf) | Orientation Factor |
| 150.00           | Generic Round Low Profile Plat | 1   | 1.00 | 0.000         | 1875.00     | 21.700    | 1.00               | 2684.89     | 40.900    | 1.00               |
| 150.00           | Commscope NHH-65C-R2B          | 6   | 0.80 | 0.000         | 51.60       | 11.389    | 0.70               | 280.12      | 14.618    | 0.70               |
| 150.00           | Andrew LNX-6515DS-A1M          | 3   | 0.80 | -1.600        | 49.80       | 11.410    | 0.70               | 278.89      | 14.653    | 0.70               |
| 150.00           | Ericsson AIR 6449 B77D/C-Band  | 3   | 0.80 | 0.000         | 88.00       | 4.132     | 0.70               | 207.80      | 5.522     | 0.70               |
| 150.00           | Raycap RRFDC-3315-PF-48        | 1   | 0.80 | -3.800        | 26.90       | 2.512     | 1.00               | 106.57      | 3.553     | 1.00               |
| 150.00           | RFS DB-B1-6C-12AB-0Z           | 1   | 0.80 | 1.500         | 21.40       | 2.512     | 1.00               | 101.22      | 3.553     | 1.00               |
| 150.00           | Ericsson 8843 Rev 2            | 3   | 0.80 | 0.000         | 75.00       | 1.650     | 0.50               | 137.07      | 2.499     | 0.50               |
| 150.00           | Ericsson Radio 4449 - B13&B5   | 3   | 0.80 | 0.000         | 70.00       | 1.650     | 0.50               | 126.33      | 2.497     | 0.50               |
| 150.00           | ADC CG-1900DDBFBDTBP           | 6   | 0.80 | -0.100        | 12.10       | 1.390     | 0.50               | 71.15       | 2.232     | 0.50               |
| 134.00           | Commscope RDIDC-9181-PF-48     | 1   | 0.75 | 0.000         | 21.90       | 1.867     | 1.00               | 78.20       | 2.757     | 1.00               |
| 134.00           | Fujitsu TA08025-B604           | 3   | 0.75 | 0.000         | 63.90       | 1.962     | 0.50               | 121.59      | 2.872     | 0.50               |
| 134.00           | Fujitsu TA08025-B605           | 3   | 0.75 | 0.000         | 75.00       | 1.962     | 0.50               | 136.98      | 2.872     | 0.50               |
| 134.00           | JMA Wireless MX08FRO665-21     | 3   | 0.75 | 0.000         | 64.50       | 12.489    | 0.64               | 318.78      | 15.269    | 0.64               |
| 134.00           | Generic Flat Platform with Han | 1   | 1.00 | 0.000         | 2500.00     | 42.400    | 1.00               | 4257.51     | 63.148    | 1.00               |
| 129.40           | Generic 15" x 15" Panel        | 1   | 0.80 | 0.000         | 10.00       | 1.875     | 1.00               | 47.17       | 2.764     | 1.00               |
| 129.10           | Generic 1' Std. Dish           | 1   | 0.80 | 0.000         | 6.00        | 1.307     | 1.00               | 20.79       | 2.087     | 1.00               |
| 129.00           | Andrew Microwaves VHLP800-11   | 1   | 0.80 | 0.000         | 48.00       | 8.430     | 1.00               | 219.47      | 10.110    | 1.00               |
| 129.00           | Generic Round Side Arm         | 3   | 1.00 | 0.000         | 187.50      | 5.200     | 0.67               | 277.72      | 7.881     | 0.67               |
| 129.00           | Andrew Microwaves VHLP2-23     | 1   | 0.80 | 0.000         | 27.00       | 4.688     | 1.00               | 116.38      | 5.945     | 1.00               |
| 129.00           | Argus LLPX310R                 | 3   | 0.80 | -1.000        | 28.60       | 4.292     | 0.63               | 117.52      | 5.923     | 0.63               |
| 129.00           | Motorola PTP 600               | 1   | 0.80 | 0.000         | 9.10        | 1.240     | 1.00               | 40.11       | 1.967     | 1.00               |
| 128.00           | Samsung RRH-P4A                | 3   | 0.80 | 0.000         | 59.50       | 2.737     | 0.50               | 138.76      | 3.841     | 0.50               |
| 99.90            | Raycap RNSNDC-7771-PF-48 (20.4 | 1   | 0.75 | 0.000         | 14.90       | 3.213     | 1.00               | 86.71       | 4.339     | 1.00               |
| 99.00            | Commscope FFHH-65C-R3          | 3   | 0.75 | 3.100         | 125.70      | 21.138    | 0.63               | 524.77      | 24.719    | 0.63               |
| 99.00            | Andrew TMBXX-6517-A2M          | 4   | 0.75 | 1.400         | 43.40       | 8.528     | 0.68               | 212.46      | 11.321    | 0.68               |
| 99.00            | Nokia AEHC                     | 3   | 0.75 | 1.600         | 103.60      | 6.844     | 0.62               | 252.20      | 8.540     | 0.62               |
| 99.00            | Generic RRU (Model TBD)        | 4   | 0.75 | 0.000         | 55.00       | 4.563     | 0.50               | 158.05      | 5.898     | 0.50               |
| 99.00            | Nokia AHFIG 70.55 lbs          | 3   | 0.75 | 0.000         | 70.60       | 2.763     | 0.50               | 133.67      | 3.892     | 0.50               |
| 99.00            | Generic Round Platform with Ha | 1   | 1.00 | 0.000         | 2500.00     | 27.200    | 1.00               | 4056.91     | 50.696    | 1.00               |
| 99.00            | Generic HCS2.0                 | 2   | 0.75 | 0.000         | 8.80        | 1.155     | 0.50               | 42.47       | 1.859     | 0.50               |
| 98.90            | Andrew ETW190VS12UB            | 3   | 0.75 | 0.000         | 11.00       | 0.654     | 0.50               | 28.75       | 1.181     | 0.50               |
| 98.50            | Commscope HELIAX FiberFeed 12  | 2   | 0.75 | 0.000         | 20.00       | 0.944     | 0.50               | 47.43       | 1.629     | 0.50               |
| 85.00            | Generic Round Platform with Ha | 1   | 1.00 | 0.000         | 2500.00     | 27.200    | 1.00               | 4028.86     | 50.273    | 1.00               |
| 85.00            | RFS APXV9ERR18-C-A20           | 3   | 0.75 | 0.000         | 62.00       | 8.024     | 0.71               | 232.95      | 10.657    | 0.71               |
| 85.00            | Ericsson RRUS 11/61 w/ Solar S | 3   | 0.75 | 0.000         | 98.30       | 2.791     | 0.50               | 195.71      | 3.826     | 0.50               |
| 85.00            | Ericsson RRUS 31 B25 w/ Bracke | 3   | 0.75 | 0.000         | 59.50       | 2.016     | 0.50               | 126.09      | 2.928     | 0.50               |

Totals Num Loadings: 36

88

14,271.10

29,680.99

# LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 90.00\_

| Elev From (ft) | Elev To (ft) | Qty | Description           | Coax Dia (in) | Coax Wt (lb/ft) | Flat | Max Coax/ Row | Dist Between Rows(in) | Dist Between Cols(in) | Azimuth (deg) | Dist From Face (in) | Exposed To Wind | Carrier       |
|----------------|--------------|-----|-----------------------|---------------|-----------------|------|---------------|-----------------------|-----------------------|---------------|---------------------|-----------------|---------------|
| 0.00           | 150.00       | 12  | 1 5/8" Coax           | 1.98          | 0.82            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | VERIZON WIREL |
| 0.00           | 150.00       | 2   | 1.25" (31.8mm) Hybrid | 1.25          | 1.21            | N    | 2             | 0                     | 0                     | 0             | 0                   | Y               | VERIZON WIREL |
| 0.00           | 150.00       | 1   | 1 5/8" Hybriflex      | 1.98          | 1.3             | N    | 1             | 0                     | 0                     | 5             | 1                   | Y               | VERIZON WIREL |
| 0.00           | 150.00       | 1   | 1 1/4" Hybriflex Cabl | 1.54          | 1               | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | VERIZON WIREL |
| 0.00           | 134.00       | 1   | 1.60" (40.6mm) Hybrid | 1.6           | 2.34            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | DISH WIRELESS |
| 0.00           | 130.00       | 2   | 2" conduit            | 2.38          | 3.65            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | CLEARWIRE COR |
| 0.00           | 129.00       | 4   | 1/4" Coax             | 0.34          | 0.06            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | CLEARWIRE COR |
| 0.00           | 129.00       | 2   | 1/2" Coax             | 0.63          | 0.15            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | CLEARWIRE COR |
| 0.00           | 100.00       | 14  | 7/8" Coax             | 1.09          | 0.33            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | T-MOBILE      |
| 0.00           | 99.00        | 2   | 1.49" (37.8mm) Hybrid | 1.49          | 1.87            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | T-MOBILE      |

| Elev From (ft) | Elev To (ft) | Qty | Description           | Coax Dia (in) | Coax Wt (lb/ft) | Flat | Max Coax/ Row | Dist Between Rows(in) | Dist Between Cols(in) | Azimuth (deg) | Dist From Face (in) | Exposed To Wind | Carrier       |
|----------------|--------------|-----|-----------------------|---------------|-----------------|------|---------------|-----------------------|-----------------------|---------------|---------------------|-----------------|---------------|
| 0.00           | 85.00        | 3   | 1.25" (31.8mm) Hybrid | 1.25          | 1.21            | N    | 0             | 0                     | 0                     | 0             | 0                   | N               | SPRINT NEXTEL |

ASSET: 209106, Lee's Summit 2  
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
 ENG NO: 13689205\_C3\_03

SEGMENT PROPERTIES

(Max Len: 5.ft)

| Seg Top<br>Elev (ft) | Description     | Thick<br>(in) | Flat Dia<br>(in) | Area<br>(in <sup>2</sup> ) | Ix<br>(in <sup>4</sup> ) | W/t<br>Ratio | D/t<br>Ratio | F'y<br>(ksi) | S<br>(in <sup>3</sup> ) | Z<br>(in <sup>3</sup> ) | Weight<br>(lb) |
|----------------------|-----------------|---------------|------------------|----------------------------|--------------------------|--------------|--------------|--------------|-------------------------|-------------------------|----------------|
| 0.00                 |                 | 0.3750        | 60.410           | 71.454                     | 32,537.90                | 26.64        | 161.09       | 70.1         | 1060.9                  | 0.0                     | 0.0            |
| 5.00                 |                 | 0.3750        | 59.335           | 70.175                     | 30,821.10                | 26.14        | 158.23       | 70.7         | 1023.1                  | 0.0                     | 1,204.8        |
| 10.00                |                 | 0.3750        | 58.260           | 68.895                     | 29,165.80                | 25.63        | 155.36       | 71.3         | 986.0                   | 0.0                     | 1,183.1        |
| 15.00                |                 | 0.3750        | 57.185           | 67.616                     | 27,570.80                | 25.13        | 152.49       | 71.8         | 949.6                   | 0.0                     | 1,161.3        |
| 20.00                |                 | 0.3750        | 56.110           | 66.336                     | 26,035.10                | 24.62        | 149.63       | 72.4         | 913.9                   | 0.0                     | 1,139.5        |
| 25.00                |                 | 0.3750        | 55.035           | 65.057                     | 24,557.50                | 24.11        | 146.76       | 73           | 878.9                   | 0.0                     | 1,117.8        |
| 30.00                |                 | 0.3750        | 53.960           | 63.777                     | 23,136.90                | 23.61        | 143.89       | 73.6         | 844.5                   | 0.0                     | 1,096.0        |
| 35.00                |                 | 0.3750        | 52.885           | 62.498                     | 21,772.20                | 23.10        | 141.03       | 74.2         | 810.9                   | 0.0                     | 1,074.2        |
| 40.00                |                 | 0.3750        | 51.810           | 61.218                     | 20,462.20                | 22.60        | 138.16       | 74.8         | 777.9                   | 0.0                     | 1,052.4        |
| 45.00                |                 | 0.3750        | 50.735           | 59.939                     | 19,205.80                | 22.09        | 135.29       | 75.4         | 745.6                   | 0.0                     | 1,030.7        |
| 46.00                | Bot - Section 2 | 0.3750        | 50.520           | 59.683                     | 18,960.90                | 21.99        | 134.72       | 75.5         | 739.2                   | 0.0                     | 203.5          |
| 50.00                |                 | 0.3750        | 49.660           | 58.659                     | 18,002.00                | 21.59        | 132.43       | 76           | 714.0                   | 0.0                     | 1,485.8        |
| 53.25                | Top - Section 1 | 0.3125        | 49.586           | 48.872                     | 14,991.40                | 26.22        | 158.68       | 70.6         | 595.5                   | 0.0                     | 1,188.4        |
| 55.00                |                 | 0.3125        | 49.210           | 48.498                     | 14,650.60                | 26.00        | 157.47       | 70.8         | 586.4                   | 0.0                     | 289.9          |
| 60.00                |                 | 0.3125        | 48.135           | 47.432                     | 13,705.40                | 25.40        | 154.03       | 71.5         | 560.8                   | 0.0                     | 816.1          |
| 65.00                |                 | 0.3125        | 47.060           | 46.366                     | 12,801.80                | 24.79        | 150.59       | 72.2         | 535.8                   | 0.0                     | 797.9          |
| 70.00                |                 | 0.3125        | 45.985           | 45.300                     | 11,938.70                | 24.18        | 147.15       | 73           | 511.4                   | 0.0                     | 779.8          |
| 75.00                |                 | 0.3125        | 44.910           | 44.234                     | 11,115.40                | 23.58        | 143.71       | 73.7         | 487.5                   | 0.0                     | 761.7          |
| 80.00                |                 | 0.3125        | 43.835           | 43.167                     | 10,330.80                | 22.97        | 140.27       | 74.4         | 464.2                   | 0.0                     | 743.5          |
| 85.00                |                 | 0.3125        | 42.760           | 42.101                     | 9,584.10                 | 22.36        | 136.83       | 75.1         | 441.5                   | 0.0                     | 725.4          |
| 88.75                | Bot - Section 3 | 0.3125        | 41.954           | 41.301                     | 9,048.30                 | 21.91        | 134.25       | 75.6         | 424.8                   | 0.0                     | 532.1          |
| 90.00                |                 | 0.3125        | 41.685           | 41.035                     | 8,874.20                 | 21.76        | 133.39       | 75.8         | 419.3                   | 0.0                     | 317.1          |
| 94.75                | Top - Section 2 | 0.2500        | 41.164           | 32.464                     | 6,865.80                 | 27.27        | 164.66       | 69.3         | 328.5                   | 0.0                     | 1,186.3        |
| 95.00                |                 | 0.2500        | 41.110           | 32.421                     | 6,838.80                 | 27.23        | 164.44       | 69.4         | 327.7                   | 0.0                     | 27.6           |
| 98.50                |                 | 0.2500        | 40.358           | 31.824                     | 6,467.90                 | 26.70        | 161.43       | 70           | 315.7                   | 0.0                     | 382.6          |
| 98.90                |                 | 0.2500        | 40.272           | 31.756                     | 6,426.40                 | 26.64        | 161.09       | 70.1         | 314.3                   | 0.0                     | 43.3           |
| 99.00                |                 | 0.2500        | 40.250           | 31.739                     | 6,416.00                 | 26.63        | 161.00       | 70.1         | 314.0                   | 0.0                     | 10.8           |
| 99.90                |                 | 0.2500        | 40.057           | 31.585                     | 6,323.30                 | 26.49        | 160.23       | 70.2         | 310.9                   | 0.0                     | 97.0           |
| 100.00               |                 | 0.2500        | 40.035           | 31.568                     | 6,313.10                 | 26.47        | 160.14       | 70.3         | 310.6                   | 0.0                     | 10.7           |
| 105.00               |                 | 0.2500        | 38.960           | 30.715                     | 5,815.10                 | 25.72        | 155.84       | 71.2         | 294.0                   | 0.0                     | 529.8          |
| 110.00               |                 | 0.2500        | 37.885           | 29.862                     | 5,343.90                 | 24.96        | 151.54       | 72           | 277.8                   | 0.0                     | 515.3          |
| 115.00               |                 | 0.2500        | 36.810           | 29.009                     | 4,898.90                 | 24.20        | 147.24       | 72.9         | 262.1                   | 0.0                     | 500.8          |
| 120.00               |                 | 0.2500        | 35.735           | 28.156                     | 4,479.40                 | 23.44        | 142.94       | 73.8         | 246.9                   | 0.0                     | 486.3          |
| 125.00               |                 | 0.2500        | 34.660           | 27.303                     | 4,084.50                 | 22.68        | 138.64       | 74.7         | 232.1                   | 0.0                     | 471.8          |
| 128.00               |                 | 0.2500        | 34.015           | 26.792                     | 3,859.10                 | 22.23        | 136.06       | 75.3         | 223.5                   | 0.0                     | 276.1          |
| 129.00               |                 | 0.2500        | 33.800           | 26.621                     | 3,785.80                 | 22.08        | 135.20       | 75.4         | 220.6                   | 0.0                     | 90.9           |
| 129.10               |                 | 0.2500        | 33.779           | 26.604                     | 3,778.60                 | 22.06        | 135.11       | 75.5         | 220.3                   | 0.0                     | 9.1            |
| 129.40               |                 | 0.2500        | 33.714           | 26.553                     | 3,756.80                 | 22.02        | 134.86       | 75.5         | 219.5                   | 0.0                     | 27.1           |
| 130.00               | Bot - Section 4 | 0.2500        | 33.585           | 26.450                     | 3,713.50                 | 21.92        | 134.34       | 75.6         | 217.8                   | 0.0                     | 54.1           |
| 134.00               |                 | 0.2500        | 32.725           | 25.768                     | 3,433.50                 | 21.32        | 130.90       | 76.3         | 206.6                   | 0.0                     | 716.1          |
| 134.75               | Top - Section 3 | 0.2500        | 33.064           | 26.037                     | 3,542.00                 | 21.56        | 132.26       | 76           | 211.0                   | 0.0                     | 132.2          |
| 135.00               |                 | 0.2500        | 33.010           | 25.994                     | 3,524.70                 | 21.52        | 132.04       | 76.1         | 210.3                   | 0.0                     | 22.1           |
| 140.00               |                 | 0.2500        | 31.935           | 25.141                     | 3,188.90                 | 20.76        | 127.74       | 77           | 196.7                   | 0.0                     | 435.0          |
| 145.00               |                 | 0.2500        | 30.860           | 24.288                     | 2,875.20                 | 20.00        | 123.44       | 77.9         | 183.5                   | 0.0                     | 420.5          |
| 149.00               |                 | 0.2500        | 30.000           | 23.606                     | 2,639.60                 | 19.40        | 120.00       | 78.6         | 173.3                   | 0.0                     | 325.9          |

Totals: 25,472.4

ASSET: 209106, Lee's Summit 2  
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
 ENG NO: 13689205\_C3\_03

|                               |                          |               |
|-------------------------------|--------------------------|---------------|
| Load Case: 1.2D + 1.0W Normal | 109 mph wind with no ice | 23 Iterations |
| Gust Response Factor: 1.10    |                          |               |
| Dead load Factor: 1.20        |                          |               |
| Wind Load Factor: 1.00        |                          |               |

# CALCULATED FORCES

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(ft-kips) | Phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -53.23                 | -27.84                 | 0.00                  | -2,813.8              | 0.00                  | 2,813.81                         | 4,505.81            | 1,254.02            | 6,799.61               | 5,574.76               | 0.00                     | 0                 | 0.517 |
| 5.00                | -51.51                 | -27.47                 | 0.00                  | -2,674.6              | 0.00                  | 2,674.62                         | 4,462.67            | 1,231.56            | 6,558.30               | 5,421.91               | 0.06                     | -0.12             | 0.505 |
| 10.00               | -49.81                 | -27.10                 | 0.00                  | -2,537.3              | 0.00                  | 2,537.28                         | 4,418.17            | 1,209.11            | 6,321.35               | 5,269.35               | 0.26                     | -0.24             | 0.493 |
| 15.00               | -48.15                 | -26.73                 | 0.00                  | -2,401.8              | 0.00                  | 2,401.78                         | 4,372.29            | 1,186.65            | 6,088.76               | 5,117.17               | 0.57                     | -0.36             | 0.481 |
| 20.00               | -46.51                 | -26.33                 | 0.00                  | -2,268.2              | 0.00                  | 2,268.15                         | 4,325.05            | 1,164.20            | 5,860.53               | 4,965.47               | 1.02                     | -0.48             | 0.468 |
| 25.00               | -44.90                 | -25.92                 | 0.00                  | -2,136.5              | 0.00                  | 2,136.49                         | 4,276.44            | 1,141.75            | 5,636.66               | 4,814.33               | 1.58                     | -0.6              | 0.455 |
| 30.00               | -43.31                 | -25.49                 | 0.00                  | -2,006.9              | 0.00                  | 2,006.89                         | 4,226.46            | 1,119.29            | 5,417.15               | 4,663.85               | 2.28                     | -0.72             | 0.441 |
| 35.00               | -41.76                 | -25.05                 | 0.00                  | -1,879.4              | 0.00                  | 1,879.42                         | 4,175.11            | 1,096.84            | 5,202.00               | 4,514.12               | 3.10                     | -0.84             | 0.427 |
| 40.00               | -40.23                 | -24.60                 | 0.00                  | -1,754.2              | 0.00                  | 1,754.17                         | 4,122.39            | 1,074.38            | 4,991.21               | 4,365.22               | 4.05                     | -0.96             | 0.412 |
| 45.00               | -38.75                 | -24.31                 | 0.00                  | -1,631.2              | 0.00                  | 1,631.17                         | 4,068.30            | 1,051.93            | 4,784.78               | 4,217.26               | 5.11                     | -1.08             | 0.397 |
| 46.00               | -38.44                 | -24.09                 | 0.00                  | -1,606.8              | 0.00                  | 1,606.85                         | 4,057.32            | 1,047.44            | 4,744.02               | 4,187.79               | 5.34                     | -1.1              | 0.394 |
| 50.00               | -36.46                 | -23.73                 | 0.00                  | -1,510.5              | 0.00                  | 1,510.50                         | 4,012.85            | 1,029.47            | 4,582.71               | 4,070.32               | 6.31                     | -1.19             | 0.381 |
| 53.25               | -34.87                 | -23.47                 | 0.00                  | -1,433.4              | 0.00                  | 1,433.39                         | 3,103.84            | 857.70              | 3,817.03               | 3,151.53               | 7.15                     | -1.27             | 0.467 |
| 55.00               | -34.42                 | -23.16                 | 0.00                  | -1,392.3              | 0.00                  | 1,392.32                         | 3,091.03            | 851.15              | 3,758.97               | 3,114.42               | 7.62                     | -1.31             | 0.459 |
| 60.00               | -33.18                 | -22.69                 | 0.00                  | -1,276.5              | 0.00                  | 1,276.53                         | 3,053.53            | 832.44              | 3,595.52               | 3,008.57               | 9.06                     | -1.44             | 0.436 |
| 65.00               | -31.97                 | -22.21                 | 0.00                  | -1,163.1              | 0.00                  | 1,163.09                         | 3,014.66            | 813.72              | 3,435.71               | 2,903.07               | 10.64                    | -1.57             | 0.412 |
| 70.00               | -30.78                 | -21.73                 | 0.00                  | -1,052.0              | 0.00                  | 1,052.03                         | 2,974.42            | 795.01              | 3,279.53               | 2,798.01               | 12.35                    | -1.69             | 0.387 |
| 75.00               | -29.62                 | -21.25                 | 0.00                  | -943.4                | 0.00                  | 943.37                           | 2,932.81            | 776.30              | 3,126.98               | 2,693.49               | 14.19                    | -1.81             | 0.361 |
| 80.00               | -28.48                 | -20.77                 | 0.00                  | -837.1                | 0.00                  | 837.10                           | 2,889.84            | 757.59              | 2,978.06               | 2,589.60               | 16.14                    | -1.92             | 0.334 |
| 85.00               | -23.65                 | -18.51                 | 0.00                  | -733.2                | 0.00                  | 733.24                           | 2,845.49            | 738.87              | 2,832.78               | 2,486.43               | 18.22                    | -2.03             | 0.304 |
| 88.75               | -22.86                 | -18.25                 | 0.00                  | -663.8                | 0.00                  | 663.84                           | 2,811.33            | 724.84              | 2,726.20               | 2,409.58               | 19.84                    | -2.11             | 0.284 |
| 90.00               | -22.42                 | -17.97                 | 0.00                  | -641.0                | 0.00                  | 641.03                           | 2,799.77            | 720.16              | 2,691.13               | 2,384.08               | 20.40                    | -2.13             | 0.278 |
| 94.75               | -20.80                 | -17.68                 | 0.00                  | -555.7                | 0.00                  | 555.70                           | 2,025.55            | 569.74              | 2,105.33               | 1,708.13               | 22.57                    | -2.23             | 0.337 |
| 95.00               | -20.75                 | -17.51                 | 0.00                  | -551.3                | 0.00                  | 551.28                           | 2,024.19            | 568.99              | 2,099.80               | 1,704.72               | 22.69                    | -2.23             | 0.335 |
| 98.50               | -20.10                 | -17.28                 | 0.00                  | -490.0                | 0.00                  | 490.00                           | 2,004.79            | 558.51              | 2,023.18               | 1,657.10               | 24.35                    | -2.31             | 0.307 |
| 98.90               | -20.00                 | -17.23                 | 0.00                  | -483.1                | 0.00                  | 483.09                           | 2,002.53            | 557.32              | 2,014.51               | 1,651.66               | 24.55                    | -2.32             | 0.303 |
| 99.00               | -15.56                 | -13.31                 | 0.00                  | -476.2                | 0.00                  | 476.21                           | 2,001.97            | 557.02              | 2,012.35               | 1,650.30               | 24.59                    | -2.32             | 0.297 |
| 99.90               | -15.40                 | -13.17                 | 0.00                  | -464.2                | 0.00                  | 464.23                           | 1,996.84            | 554.32              | 1,992.93               | 1,638.07               | 25.03                    | -2.34             | 0.292 |
| 100.00              | -15.38                 | -12.94                 | 0.00                  | -462.9                | 0.00                  | 462.92                           | 1,996.27            | 554.02              | 1,990.78               | 1,636.71               | 25.08                    | -2.34             | 0.291 |
| 105.00              | -14.59                 | -12.46                 | 0.00                  | -398.2                | 0.00                  | 398.22                           | 1,966.98            | 539.05              | 1,884.66               | 1,568.85               | 27.58                    | -2.44             | 0.262 |
| 110.00              | -13.83                 | -11.98                 | 0.00                  | -335.9                | 0.00                  | 335.92                           | 1,936.33            | 524.08              | 1,781.45               | 1,501.23               | 30.18                    | -2.52             | 0.231 |
| 115.00              | -13.09                 | -11.52                 | 0.00                  | -276.0                | 0.00                  | 276.00                           | 1,904.30            | 509.11              | 1,681.14               | 1,433.95               | 32.87                    | -2.61             | 0.200 |
| 120.00              | -12.36                 | -11.05                 | 0.00                  | -218.4                | 0.00                  | 218.43                           | 1,870.90            | 494.14              | 1,583.74               | 1,367.10               | 35.64                    | -2.68             | 0.167 |
| 125.00              | -11.66                 | -10.68                 | 0.00                  | -163.2                | 0.00                  | 163.17                           | 1,836.14            | 479.17              | 1,489.25               | 1,300.77               | 38.48                    | -2.74             | 0.132 |
| 128.00              | -11.03                 | -10.34                 | 0.00                  | -131.1                | 0.00                  | 131.14                           | 1,814.62            | 470.19              | 1,433.94               | 1,261.26               | 40.21                    | -2.77             | 0.111 |
| 129.00              | -10.08                 | -9.09                  | 0.00                  | -120.8                | 0.00                  | 120.80                           | 1,807.34            | 467.20              | 1,415.74               | 1,248.14               | 40.79                    | -2.78             | 0.103 |
| 129.10              | -10.06                 | -9.03                  | 0.00                  | -119.9                | 0.00                  | 119.89                           | 1,806.61            | 466.90              | 1,413.93               | 1,246.83               | 40.85                    | -2.78             | 0.102 |
| 129.40              | -10.01                 | -8.93                  | 0.00                  | -117.2                | 0.00                  | 117.18                           | 1,804.41            | 466.00              | 1,408.50               | 1,242.90               | 41.02                    | -2.78             | 0.100 |
| 130.00              | -9.93                  | -8.73                  | 0.00                  | -111.8                | 0.00                  | 111.82                           | 1,800.01            | 464.20              | 1,397.66               | 1,235.05               | 41.37                    | -2.79             | 0.096 |
| 134.00              | -5.38                  | -5.57                  | 0.00                  | -76.9                 | 0.00                  | 76.91                            | 1,770.11            | 452.23              | 1,326.48               | 1,182.97               | 43.72                    | -2.82             | 0.068 |
| 134.75              | -5.21                  | -5.52                  | 0.00                  | -72.7                 | 0.00                  | 72.73                            | 1,781.99            | 456.95              | 1,354.30               | 1,203.42               | 44.17                    | -2.82             | 0.064 |
| 135.00              | -5.19                  | -5.30                  | 0.00                  | -71.4                 | 0.00                  | 71.35                            | 1,780.12            | 456.20              | 1,349.86               | 1,200.17               | 44.31                    | -2.82             | 0.063 |
| 140.00              | -4.60                  | -4.86                  | 0.00                  | -44.8                 | 0.00                  | 44.83                            | 1,741.88            | 441.23              | 1,262.74               | 1,135.57               | 47.28                    | -2.85             | 0.042 |
| 145.00              | -4.03                  | -4.48                  | 0.00                  | -20.5                 | 0.00                  | 20.51                            | 1,702.28            | 426.26              | 1,178.52               | 1,071.80               | 50.27                    | -2.86             | 0.022 |
| 149.00              | 0.00                   | -4.27                  | 0.00                  | -2.6                  | 0.00                  | 2.61                             | 1,669.61            | 414.28              | 1,113.23               | 1,021.46               | 52.67                    | -2.87             | 0.003 |

ASSET: 209106, Lee's Summit 2  
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
ENG NO: 13689205\_C3\_03

|                               |                          |               |
|-------------------------------|--------------------------|---------------|
| Load Case: 0.9D + 1.0W Normal | 109 mph wind with no ice | 23 Iterations |
| Gust Response Factor: 1.10    |                          |               |
| Dead load Factor: 0.90        |                          |               |
| Wind Load Factor: 1.00        |                          |               |

#### CALCULATED FORCES

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(ft-kips) | Phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -39.92                 | -27.83                 | 0.00                  | -2,790.0              | 0.00                  | 2,790.05                         | 4,505.81            | 1,254.02            | 6,799.61               | 5,574.76               | 0.00                     | 0                 | 0.510 |
| 5.00                | -38.61                 | -27.43                 | 0.00                  | -2,650.9              | 0.00                  | 2,650.92                         | 4,462.67            | 1,231.56            | 6,558.30               | 5,421.91               | 0.06                     | -0.12             | 0.498 |
| 10.00               | -37.33                 | -27.03                 | 0.00                  | -2,513.8              | 0.00                  | 2,513.79                         | 4,418.17            | 1,209.11            | 6,321.35               | 5,269.35               | 0.25                     | -0.24             | 0.486 |
| 15.00               | -36.06                 | -26.63                 | 0.00                  | -2,378.6              | 0.00                  | 2,378.63                         | 4,372.29            | 1,186.65            | 6,088.76               | 5,117.17               | 0.57                     | -0.36             | 0.474 |
| 20.00               | -34.82                 | -26.22                 | 0.00                  | -2,245.5              | 0.00                  | 2,245.47                         | 4,325.05            | 1,164.20            | 5,860.53               | 4,965.47               | 1.01                     | -0.48             | 0.461 |
| 25.00               | -33.60                 | -25.79                 | 0.00                  | -2,114.4              | 0.00                  | 2,114.37                         | 4,276.44            | 1,141.75            | 5,636.66               | 4,814.33               | 1.57                     | -0.6              | 0.448 |
| 30.00               | -32.40                 | -25.34                 | 0.00                  | -1,985.4              | 0.00                  | 1,985.44                         | 4,226.46            | 1,119.29            | 5,417.15               | 4,663.85               | 2.26                     | -0.71             | 0.434 |
| 35.00               | -31.23                 | -24.88                 | 0.00                  | -1,858.7              | 0.00                  | 1,858.74                         | 4,175.11            | 1,096.84            | 5,202.00               | 4,514.12               | 3.07                     | -0.83             | 0.420 |
| 40.00               | -30.07                 | -24.41                 | 0.00                  | -1,734.3              | 0.00                  | 1,734.34                         | 4,122.39            | 1,074.38            | 4,991.21               | 4,365.22               | 4.01                     | -0.95             | 0.405 |
| 45.00               | -28.96                 | -24.12                 | 0.00                  | -1,612.3              | 0.00                  | 1,612.27                         | 4,068.30            | 1,051.93            | 4,784.78               | 4,217.26               | 5.07                     | -1.07             | 0.390 |
| 46.00               | -28.72                 | -23.89                 | 0.00                  | -1,588.2              | 0.00                  | 1,588.15                         | 4,057.32            | 1,047.44            | 4,744.02               | 4,187.79               | 5.29                     | -1.09             | 0.387 |
| 50.00               | -27.23                 | -23.52                 | 0.00                  | -1,492.6              | 0.00                  | 1,492.60                         | 4,012.85            | 1,029.47            | 4,582.71               | 4,070.32               | 6.25                     | -1.18             | 0.374 |
| 53.25               | -26.03                 | -23.26                 | 0.00                  | -1,416.2              | 0.00                  | 1,416.15                         | 3,103.84            | 857.70              | 3,817.03               | 3,151.53               | 7.08                     | -1.26             | 0.458 |
| 55.00               | -25.69                 | -22.94                 | 0.00                  | -1,375.4              | 0.00                  | 1,375.45                         | 3,091.03            | 851.15              | 3,758.97               | 3,114.42               | 7.55                     | -1.3              | 0.451 |
| 60.00               | -24.75                 | -22.46                 | 0.00                  | -1,260.7              | 0.00                  | 1,260.73                         | 3,053.53            | 832.44              | 3,595.52               | 3,008.57               | 8.97                     | -1.43             | 0.428 |
| 65.00               | -23.83                 | -21.97                 | 0.00                  | -1,148.4              | 0.00                  | 1,148.44                         | 3,014.66            | 813.72              | 3,435.71               | 2,903.07               | 10.54                    | -1.55             | 0.404 |
| 70.00               | -22.93                 | -21.49                 | 0.00                  | -1,038.6              | 0.00                  | 1,038.58                         | 2,974.42            | 795.01              | 3,279.53               | 2,798.01               | 12.23                    | -1.67             | 0.380 |
| 75.00               | -22.06                 | -21.00                 | 0.00                  | -931.2                | 0.00                  | 931.15                           | 2,932.81            | 776.30              | 3,126.98               | 2,693.49               | 14.04                    | -1.79             | 0.354 |
| 80.00               | -21.20                 | -20.51                 | 0.00                  | -826.2                | 0.00                  | 826.16                           | 2,889.84            | 757.59              | 2,978.06               | 2,589.60               | 15.98                    | -1.9              | 0.327 |
| 85.00               | -17.59                 | -18.28                 | 0.00                  | -723.6                | 0.00                  | 723.61                           | 2,845.49            | 738.87              | 2,832.78               | 2,486.43               | 18.03                    | -2.01             | 0.298 |
| 88.75               | -16.99                 | -18.03                 | 0.00                  | -655.1                | 0.00                  | 655.06                           | 2,811.33            | 724.84              | 2,726.20               | 2,409.58               | 19.64                    | -2.09             | 0.279 |
| 90.00               | -16.66                 | -17.74                 | 0.00                  | -632.5                | 0.00                  | 632.52                           | 2,799.77            | 720.16              | 2,691.13               | 2,384.08               | 20.19                    | -2.11             | 0.272 |
| 94.75               | -15.44                 | -17.46                 | 0.00                  | -548.3                | 0.00                  | 548.27                           | 2,025.55            | 569.74              | 2,105.33               | 1,708.13               | 22.33                    | -2.2              | 0.330 |
| 95.00               | -15.41                 | -17.29                 | 0.00                  | -543.9                | 0.00                  | 543.90                           | 2,024.19            | 568.99              | 2,099.80               | 1,704.72               | 22.45                    | -2.21             | 0.328 |
| 98.50               | -14.92                 | -17.06                 | 0.00                  | -483.4                | 0.00                  | 483.40                           | 2,004.79            | 558.51              | 2,023.18               | 1,657.10               | 24.09                    | -2.28             | 0.300 |
| 98.90               | -14.84                 | -17.01                 | 0.00                  | -476.6                | 0.00                  | 476.57                           | 2,002.53            | 557.32              | 2,014.51               | 1,651.66               | 24.28                    | -2.29             | 0.297 |
| 99.00               | -11.55                 | -13.15                 | 0.00                  | -469.7                | 0.00                  | 469.72                           | 2,001.97            | 557.02              | 2,012.35               | 1,650.30               | 24.33                    | -2.29             | 0.291 |
| 99.90               | -11.43                 | -13.00                 | 0.00                  | -457.9                | 0.00                  | 457.89                           | 1,996.84            | 554.32              | 1,992.93               | 1,638.07               | 24.77                    | -2.31             | 0.286 |
| 100.00              | -11.41                 | -12.77                 | 0.00                  | -456.6                | 0.00                  | 456.59                           | 1,996.27            | 554.02              | 1,990.78               | 1,636.71               | 24.81                    | -2.31             | 0.285 |
| 105.00              | -10.82                 | -12.29                 | 0.00                  | -392.8                | 0.00                  | 392.75                           | 1,966.98            | 539.05              | 1,884.66               | 1,568.85               | 27.29                    | -2.41             | 0.256 |
| 110.00              | -10.25                 | -11.82                 | 0.00                  | -331.3                | 0.00                  | 331.30                           | 1,936.33            | 524.08              | 1,781.45               | 1,501.23               | 29.86                    | -2.5              | 0.226 |
| 115.00              | -9.70                  | -11.35                 | 0.00                  | -272.2                | 0.00                  | 272.20                           | 1,904.30            | 509.11              | 1,681.14               | 1,433.95               | 32.51                    | -2.58             | 0.195 |
| 120.00              | -9.15                  | -10.89                 | 0.00                  | -215.4                | 0.00                  | 215.44                           | 1,870.90            | 494.14              | 1,583.74               | 1,367.10               | 35.25                    | -2.65             | 0.163 |
| 125.00              | -8.63                  | -10.53                 | 0.00                  | -161.0                | 0.00                  | 160.97                           | 1,836.14            | 479.17              | 1,489.25               | 1,300.77               | 38.05                    | -2.71             | 0.129 |
| 128.00              | -8.16                  | -10.20                 | 0.00                  | -129.4                | 0.00                  | 129.39                           | 1,814.62            | 470.19              | 1,433.94               | 1,261.26               | 39.77                    | -2.74             | 0.108 |
| 129.00              | -7.46                  | -8.96                  | 0.00                  | -119.2                | 0.00                  | 119.19                           | 1,807.34            | 467.20              | 1,415.74               | 1,248.14               | 40.34                    | -2.75             | 0.100 |
| 129.10              | -7.45                  | -8.90                  | 0.00                  | -118.3                | 0.00                  | 118.30                           | 1,806.61            | 466.90              | 1,413.93               | 1,246.83               | 40.40                    | -2.75             | 0.099 |
| 129.40              | -7.41                  | -8.80                  | 0.00                  | -115.6                | 0.00                  | 115.63                           | 1,804.41            | 466.00              | 1,408.50               | 1,242.90               | 40.57                    | -2.75             | 0.097 |
| 130.00              | -7.35                  | -8.60                  | 0.00                  | -110.4                | 0.00                  | 110.35                           | 1,800.01            | 464.20              | 1,397.66               | 1,235.05               | 40.92                    | -2.75             | 0.094 |
| 134.00              | -3.97                  | -5.50                  | 0.00                  | -76.0                 | 0.00                  | 75.96                            | 1,770.11            | 452.23              | 1,326.48               | 1,182.97               | 43.24                    | -2.78             | 0.067 |
| 134.75              | -3.85                  | -5.45                  | 0.00                  | -71.8                 | 0.00                  | 71.83                            | 1,781.99            | 456.95              | 1,354.30               | 1,203.42               | 43.67                    | -2.79             | 0.062 |
| 135.00              | -3.83                  | -5.23                  | 0.00                  | -70.5                 | 0.00                  | 70.47                            | 1,780.12            | 456.20              | 1,349.86               | 1,200.17               | 43.82                    | -2.79             | 0.061 |
| 140.00              | -3.40                  | -4.80                  | 0.00                  | -44.3                 | 0.00                  | 44.30                            | 1,741.88            | 441.23              | 1,262.74               | 1,135.57               | 46.75                    | -2.81             | 0.041 |
| 145.00              | -2.97                  | -4.42                  | 0.00                  | -20.3                 | 0.00                  | 20.29                            | 1,702.28            | 426.26              | 1,178.52               | 1,071.80               | 49.71                    | -2.83             | 0.021 |
| 149.00              | 0.00                   | -4.27                  | 0.00                  | -2.6                  | 0.00                  | 2.61                             | 1,669.61            | 414.28              | 1,113.23               | 1,021.46               | 52.08                    | -2.83             | 0.003 |

ASSET: 209106, Lee's Summit 2  
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
 ENG NO: 13689205\_C3\_03

|                                        |  |                           |  |                                  |  |  |  |                       |  |      |  |
|----------------------------------------|--|---------------------------|--|----------------------------------|--|--|--|-----------------------|--|------|--|
| Load Case: 1.2D + 1.0Di + 1.0Wi Normal |  |                           |  | 40 mph wind with 1.5" radial ice |  |  |  | 22 Iterations         |  |      |  |
| Gust Response Factor: 1.10             |  | Ice Dead Load Factor 1.00 |  |                                  |  |  |  |                       |  |      |  |
| Dead load Factor: 1.20                 |  |                           |  |                                  |  |  |  | Ice Importance Factor |  | 1.00 |  |
| Wind Load Factor: 1.00                 |  |                           |  |                                  |  |  |  |                       |  |      |  |

# CALCULATED FORCES

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(ft-kips) | Phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -81.07                 | -6.04                  | 0.00                  | -609.9                | 0.00                  | 609.87                           | 4,505.81            | 1,254.02            | 6,799.61               | 5,574.76               | 0.00                     | 0                 | 0.127 |
| 5.00                | -78.94                 | -5.97                  | 0.00                  | -579.6                | 0.00                  | 579.65                           | 4,462.67            | 1,231.56            | 6,558.30               | 5,421.91               | 0.01                     | -0.03             | 0.125 |
| 10.00               | -76.78                 | -5.89                  | 0.00                  | -549.8                | 0.00                  | 549.80                           | 4,418.17            | 1,209.11            | 6,321.35               | 5,269.35               | 0.06                     | -0.05             | 0.122 |
| 15.00               | -74.63                 | -5.82                  | 0.00                  | -520.3                | 0.00                  | 520.33                           | 4,372.29            | 1,186.65            | 6,088.76               | 5,117.17               | 0.12                     | -0.08             | 0.119 |
| 20.00               | -72.50                 | -5.74                  | 0.00                  | -491.2                | 0.00                  | 491.25                           | 4,325.05            | 1,164.20            | 5,860.53               | 4,965.47               | 0.22                     | -0.1              | 0.116 |
| 25.00               | -70.39                 | -5.65                  | 0.00                  | -462.6                | 0.00                  | 462.57                           | 4,276.44            | 1,141.75            | 5,636.66               | 4,814.33               | 0.34                     | -0.13             | 0.113 |
| 30.00               | -68.30                 | -5.56                  | 0.00                  | -434.3                | 0.00                  | 434.32                           | 4,226.46            | 1,119.29            | 5,417.15               | 4,663.85               | 0.49                     | -0.16             | 0.109 |
| 35.00               | -66.25                 | -5.46                  | 0.00                  | -406.5                | 0.00                  | 406.53                           | 4,175.11            | 1,096.84            | 5,202.00               | 4,514.12               | 0.67                     | -0.18             | 0.106 |
| 40.00               | -64.22                 | -5.36                  | 0.00                  | -379.2                | 0.00                  | 379.22                           | 4,122.39            | 1,074.38            | 4,991.21               | 4,365.22               | 0.88                     | -0.21             | 0.102 |
| 45.00               | -62.22                 | -5.30                  | 0.00                  | -352.4                | 0.00                  | 352.40                           | 4,068.30            | 1,051.93            | 4,784.78               | 4,217.26               | 1.11                     | -0.23             | 0.099 |
| 46.00               | -61.82                 | -5.25                  | 0.00                  | -347.1                | 0.00                  | 347.10                           | 4,057.32            | 1,047.44            | 4,744.02               | 4,187.79               | 1.16                     | -0.24             | 0.098 |
| 50.00               | -59.42                 | -5.17                  | 0.00                  | -326.1                | 0.00                  | 326.09                           | 4,012.85            | 1,029.47            | 4,582.71               | 4,070.32               | 1.37                     | -0.26             | 0.095 |
| 53.25               | -57.50                 | -5.12                  | 0.00                  | -309.3                | 0.00                  | 309.27                           | 3,103.84            | 857.70              | 3,817.03               | 3,151.53               | 1.55                     | -0.27             | 0.117 |
| 55.00               | -56.88                 | -5.05                  | 0.00                  | -300.3                | 0.00                  | 300.32                           | 3,091.03            | 851.15              | 3,758.97               | 3,114.42               | 1.65                     | -0.28             | 0.115 |
| 60.00               | -55.15                 | -4.94                  | 0.00                  | -275.1                | 0.00                  | 275.08                           | 3,053.53            | 832.44              | 3,595.52               | 3,008.57               | 1.96                     | -0.31             | 0.110 |
| 65.00               | -53.44                 | -4.84                  | 0.00                  | -250.4                | 0.00                  | 250.37                           | 3,014.66            | 813.72              | 3,435.71               | 2,903.07               | 2.30                     | -0.34             | 0.104 |
| 70.00               | -51.76                 | -4.73                  | 0.00                  | -226.2                | 0.00                  | 226.18                           | 2,974.42            | 795.01              | 3,279.53               | 2,798.01               | 2.67                     | -0.37             | 0.098 |
| 75.00               | -50.11                 | -4.62                  | 0.00                  | -202.5                | 0.00                  | 202.53                           | 2,932.81            | 776.30              | 3,126.98               | 2,693.49               | 3.07                     | -0.39             | 0.092 |
| 80.00               | -48.49                 | -4.51                  | 0.00                  | -179.4                | 0.00                  | 179.43                           | 2,889.84            | 757.59              | 2,978.06               | 2,589.60               | 3.49                     | -0.42             | 0.086 |
| 85.00               | -40.96                 | -3.99                  | 0.00                  | -156.9                | 0.00                  | 156.88                           | 2,845.49            | 738.87              | 2,832.78               | 2,486.43               | 3.94                     | -0.44             | 0.078 |
| 88.75               | -39.81                 | -3.93                  | 0.00                  | -141.9                | 0.00                  | 141.93                           | 2,811.33            | 724.84              | 2,726.20               | 2,409.58               | 4.29                     | -0.46             | 0.073 |
| 90.00               | -39.25                 | -3.86                  | 0.00                  | -137.0                | 0.00                  | 137.02                           | 2,799.77            | 720.16              | 2,691.13               | 2,384.08               | 4.41                     | -0.46             | 0.072 |
| 94.75               | -37.18                 | -3.79                  | 0.00                  | -118.7                | 0.00                  | 118.68                           | 2,025.55            | 569.74              | 2,105.33               | 1,708.13               | 4.88                     | -0.48             | 0.088 |
| 95.00               | -37.11                 | -3.75                  | 0.00                  | -117.7                | 0.00                  | 117.74                           | 2,024.19            | 568.99              | 2,099.80               | 1,704.72               | 4.91                     | -0.48             | 0.087 |
| 98.50               | -36.08                 | -3.70                  | 0.00                  | -104.6                | 0.00                  | 104.60                           | 2,004.79            | 558.51              | 2,023.18               | 1,657.10               | 5.26                     | -0.5              | 0.081 |
| 98.90               | -35.89                 | -3.68                  | 0.00                  | -103.1                | 0.00                  | 103.12                           | 2,002.53            | 557.32              | 2,014.51               | 1,651.66               | 5.31                     | -0.5              | 0.080 |
| 99.00               | -27.43                 | -2.89                  | 0.00                  | -101.9                | 0.00                  | 101.91                           | 2,001.97            | 557.02              | 2,012.35               | 1,650.30               | 5.32                     | -0.5              | 0.075 |
| 99.90               | -27.11                 | -2.86                  | 0.00                  | -99.3                 | 0.00                  | 99.31                            | 1,996.84            | 554.32              | 1,992.93               | 1,638.07               | 5.41                     | -0.5              | 0.074 |
| 100.00              | -27.09                 | -2.81                  | 0.00                  | -99.0                 | 0.00                  | 99.02                            | 1,996.27            | 554.02              | 1,990.78               | 1,636.71               | 5.42                     | -0.5              | 0.074 |
| 105.00              | -25.83                 | -2.69                  | 0.00                  | -85.0                 | 0.00                  | 84.97                            | 1,966.98            | 539.05              | 1,884.66               | 1,568.85               | 5.96                     | -0.52             | 0.067 |
| 110.00              | -24.60                 | -2.58                  | 0.00                  | -71.5                 | 0.00                  | 71.50                            | 1,936.33            | 524.08              | 1,781.45               | 1,501.23               | 6.52                     | -0.54             | 0.060 |
| 115.00              | -23.40                 | -2.47                  | 0.00                  | -58.6                 | 0.00                  | 58.60                            | 1,904.30            | 509.11              | 1,681.14               | 1,433.95               | 7.10                     | -0.56             | 0.053 |
| 120.00              | -22.23                 | -2.35                  | 0.00                  | -46.3                 | 0.00                  | 46.28                            | 1,870.90            | 494.14              | 1,583.74               | 1,367.10               | 7.70                     | -0.58             | 0.046 |
| 125.00              | -21.08                 | -2.26                  | 0.00                  | -34.5                 | 0.00                  | 34.52                            | 1,836.14            | 479.17              | 1,489.25               | 1,300.77               | 8.31                     | -0.59             | 0.038 |
| 128.00              | -19.99                 | -2.18                  | 0.00                  | -27.8                 | 0.00                  | 27.75                            | 1,814.62            | 470.19              | 1,433.94               | 1,261.26               | 8.68                     | -0.6              | 0.033 |
| 129.00              | -18.18                 | -1.94                  | 0.00                  | -25.6                 | 0.00                  | 25.57                            | 1,807.34            | 467.20              | 1,415.74               | 1,248.14               | 8.81                     | -0.6              | 0.031 |
| 129.10              | -18.14                 | -1.92                  | 0.00                  | -25.4                 | 0.00                  | 25.37                            | 1,806.61            | 466.90              | 1,413.93               | 1,246.83               | 8.82                     | -0.6              | 0.030 |
| 129.40              | -18.02                 | -1.90                  | 0.00                  | -24.8                 | 0.00                  | 24.80                            | 1,804.41            | 466.00              | 1,408.50               | 1,242.90               | 8.86                     | -0.6              | 0.030 |
| 130.00              | -17.89                 | -1.85                  | 0.00                  | -23.7                 | 0.00                  | 23.66                            | 1,800.01            | 464.20              | 1,397.66               | 1,235.05               | 8.93                     | -0.6              | 0.029 |
| 134.00              | -10.35                 | -1.20                  | 0.00                  | -16.2                 | 0.00                  | 16.25                            | 1,770.11            | 452.23              | 1,326.48               | 1,182.97               | 9.44                     | -0.61             | 0.020 |
| 134.75              | -10.12                 | -1.19                  | 0.00                  | -15.4                 | 0.00                  | 15.35                            | 1,781.99            | 456.95              | 1,354.30               | 1,203.42               | 9.53                     | -0.61             | 0.018 |
| 135.00              | -10.07                 | -1.14                  | 0.00                  | -15.1                 | 0.00                  | 15.06                            | 1,780.12            | 456.20              | 1,349.86               | 1,200.17               | 9.56                     | -0.61             | 0.018 |
| 140.00              | -9.05                  | -1.03                  | 0.00                  | -9.4                  | 0.00                  | 9.37                             | 1,741.88            | 441.23              | 1,262.74               | 1,135.57               | 10.20                    | -0.61             | 0.013 |
| 145.00              | -8.06                  | -0.93                  | 0.00                  | -4.2                  | 0.00                  | 4.24                             | 1,702.28            | 426.26              | 1,178.52               | 1,071.80               | 10.85                    | -0.62             | 0.009 |
| 149.00              | 0.00                   | -0.84                  | 0.00                  | -0.5                  | 0.00                  | 0.54                             | 1,669.61            | 414.28              | 1,113.23               | 1,021.46               | 11.36                    | -0.62             | 0.001 |

ASSET: 209106, Lee's Summit 2  
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
ENG NO: 13689205\_C3\_03

|                                       |                         |               |
|---------------------------------------|-------------------------|---------------|
| Load Case: 1.0D + 1.0W Service Normal | 60 mph Wind with No Ice | 22 Iterations |
| Gust Response Factor: 1.10            |                         |               |
| Dead load Factor: 1.00                |                         |               |
| Wind Load Factor: 1.00                |                         |               |

#### CALCULATED FORCES

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>MX<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(ft-kips) | Phi<br>Mn<br>(ft-kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|------------------------|------------------------|--------------------------|-------------------|-------|
| 0.00                | -44.38                 | -7.54                  | 0.00                  | -758.8                | 0.00                  | 758.76                           | 4,505.81            | 1,254.02            | 6,799.61               | 5,574.76               | 0.00                     | 0                 | 0.146 |
| 5.00                | -42.99                 | -7.44                  | 0.00                  | -721.0                | 0.00                  | 721.03                           | 4,462.67            | 1,231.56            | 6,558.30               | 5,421.91               | 0.02                     | -0.03             | 0.143 |
| 10.00               | -41.62                 | -7.33                  | 0.00                  | -683.8                | 0.00                  | 683.84                           | 4,418.17            | 1,209.11            | 6,321.35               | 5,269.35               | 0.07                     | -0.06             | 0.139 |
| 15.00               | -40.27                 | -7.23                  | 0.00                  | -647.2                | 0.00                  | 647.17                           | 4,372.29            | 1,186.65            | 6,088.76               | 5,117.17               | 0.15                     | -0.1              | 0.136 |
| 20.00               | -38.94                 | -7.12                  | 0.00                  | -611.0                | 0.00                  | 611.03                           | 4,325.05            | 1,164.20            | 5,860.53               | 4,965.47               | 0.27                     | -0.13             | 0.132 |
| 25.00               | -37.64                 | -7.00                  | 0.00                  | -575.4                | 0.00                  | 575.43                           | 4,276.44            | 1,141.75            | 5,636.66               | 4,814.33               | 0.43                     | -0.16             | 0.128 |
| 30.00               | -36.36                 | -6.88                  | 0.00                  | -540.4                | 0.00                  | 540.42                           | 4,226.46            | 1,119.29            | 5,417.15               | 4,663.85               | 0.61                     | -0.19             | 0.125 |
| 35.00               | -35.10                 | -6.76                  | 0.00                  | -506.0                | 0.00                  | 506.00                           | 4,175.11            | 1,096.84            | 5,202.00               | 4,514.12               | 0.84                     | -0.23             | 0.121 |
| 40.00               | -33.86                 | -6.64                  | 0.00                  | -472.2                | 0.00                  | 472.20                           | 4,122.39            | 1,074.38            | 4,991.21               | 4,365.22               | 1.09                     | -0.26             | 0.116 |
| 45.00               | -32.64                 | -6.56                  | 0.00                  | -439.0                | 0.00                  | 439.02                           | 4,068.30            | 1,051.93            | 4,784.78               | 4,217.26               | 1.38                     | -0.29             | 0.112 |
| 46.00               | -32.40                 | -6.50                  | 0.00                  | -432.5                | 0.00                  | 432.46                           | 4,057.32            | 1,047.44            | 4,744.02               | 4,187.79               | 1.44                     | -0.3              | 0.111 |
| 50.00               | -30.76                 | -6.40                  | 0.00                  | -406.5                | 0.00                  | 406.48                           | 4,012.85            | 1,029.47            | 4,582.71               | 4,070.32               | 1.70                     | -0.32             | 0.108 |
| 53.25               | -29.45                 | -6.33                  | 0.00                  | -385.7                | 0.00                  | 385.69                           | 3,103.84            | 857.70              | 3,817.03               | 3,151.53               | 1.93                     | -0.34             | 0.132 |
| 55.00               | -29.10                 | -6.24                  | 0.00                  | -374.6                | 0.00                  | 374.62                           | 3,091.03            | 851.15              | 3,758.97               | 3,114.42               | 2.05                     | -0.35             | 0.130 |
| 60.00               | -28.10                 | -6.11                  | 0.00                  | -343.4                | 0.00                  | 343.42                           | 3,053.53            | 832.44              | 3,595.52               | 3,008.57               | 2.44                     | -0.39             | 0.123 |
| 65.00               | -27.11                 | -5.98                  | 0.00                  | -312.9                | 0.00                  | 312.86                           | 3,014.66            | 813.72              | 3,435.71               | 2,903.07               | 2.87                     | -0.42             | 0.117 |
| 70.00               | -26.15                 | -5.85                  | 0.00                  | -283.0                | 0.00                  | 282.96                           | 2,974.42            | 795.01              | 3,279.53               | 2,798.01               | 3.33                     | -0.46             | 0.110 |
| 75.00               | -25.20                 | -5.72                  | 0.00                  | -253.7                | 0.00                  | 253.72                           | 2,932.81            | 776.30              | 3,126.98               | 2,693.49               | 3.82                     | -0.49             | 0.103 |
| 80.00               | -24.27                 | -5.59                  | 0.00                  | -225.1                | 0.00                  | 225.13                           | 2,889.84            | 757.59              | 2,978.06               | 2,589.60               | 4.35                     | -0.52             | 0.095 |
| 85.00               | -20.21                 | -4.98                  | 0.00                  | -197.2                | 0.00                  | 197.19                           | 2,845.49            | 738.87              | 2,832.78               | 2,486.43               | 4.91                     | -0.55             | 0.086 |
| 88.75               | -19.55                 | -4.91                  | 0.00                  | -178.5                | 0.00                  | 178.52                           | 2,811.33            | 724.84              | 2,726.20               | 2,409.58               | 5.34                     | -0.57             | 0.081 |
| 90.00               | -19.19                 | -4.83                  | 0.00                  | -172.4                | 0.00                  | 172.38                           | 2,799.77            | 720.16              | 2,691.13               | 2,384.08               | 5.49                     | -0.57             | 0.079 |
| 94.75               | -17.85                 | -4.76                  | 0.00                  | -149.4                | 0.00                  | 149.43                           | 2,025.55            | 569.74              | 2,105.33               | 1,708.13               | 6.08                     | -0.6              | 0.096 |
| 95.00               | -17.81                 | -4.71                  | 0.00                  | -148.2                | 0.00                  | 148.24                           | 2,024.19            | 568.99              | 2,099.80               | 1,704.72               | 6.11                     | -0.6              | 0.096 |
| 98.50               | -17.27                 | -4.65                  | 0.00                  | -131.8                | 0.00                  | 131.76                           | 2,004.79            | 558.51              | 2,023.18               | 1,657.10               | 6.56                     | -0.62             | 0.088 |
| 98.90               | -17.18                 | -4.63                  | 0.00                  | -129.9                | 0.00                  | 129.90                           | 2,002.53            | 557.32              | 2,014.51               | 1,651.66               | 6.61                     | -0.62             | 0.087 |
| 99.00               | -13.37                 | -3.58                  | 0.00                  | -128.0                | 0.00                  | 128.04                           | 2,001.97            | 557.02              | 2,012.35               | 1,650.30               | 6.62                     | -0.62             | 0.084 |
| 99.90               | -13.23                 | -3.54                  | 0.00                  | -124.8                | 0.00                  | 124.82                           | 1,996.84            | 554.32              | 1,992.93               | 1,638.07               | 6.74                     | -0.63             | 0.083 |
| 100.00              | -13.22                 | -3.48                  | 0.00                  | -124.5                | 0.00                  | 124.46                           | 1,996.27            | 554.02              | 1,990.78               | 1,636.71               | 6.76                     | -0.63             | 0.083 |
| 105.00              | -12.56                 | -3.35                  | 0.00                  | -107.1                | 0.00                  | 107.07                           | 1,966.98            | 539.05              | 1,884.66               | 1,568.85               | 7.43                     | -0.66             | 0.075 |
| 110.00              | -11.92                 | -3.22                  | 0.00                  | -90.3                 | 0.00                  | 90.32                            | 1,936.33            | 524.08              | 1,781.45               | 1,501.23               | 8.13                     | -0.68             | 0.066 |
| 115.00              | -11.30                 | -3.10                  | 0.00                  | -74.2                 | 0.00                  | 74.21                            | 1,904.30            | 509.11              | 1,681.14               | 1,433.95               | 8.85                     | -0.7              | 0.058 |
| 120.00              | -10.69                 | -2.97                  | 0.00                  | -58.7                 | 0.00                  | 58.73                            | 1,870.90            | 494.14              | 1,583.74               | 1,367.10               | 9.60                     | -0.72             | 0.049 |
| 125.00              | -10.09                 | -2.87                  | 0.00                  | -43.9                 | 0.00                  | 43.88                            | 1,836.14            | 479.17              | 1,489.25               | 1,300.77               | 10.36                    | -0.74             | 0.039 |
| 128.00              | -9.57                  | -2.78                  | 0.00                  | -35.3                 | 0.00                  | 35.27                            | 1,814.62            | 470.19              | 1,433.94               | 1,261.26               | 10.83                    | -0.75             | 0.033 |
| 129.00              | -8.72                  | -2.44                  | 0.00                  | -32.5                 | 0.00                  | 32.49                            | 1,807.34            | 467.20              | 1,415.74               | 1,248.14               | 10.98                    | -0.75             | 0.031 |
| 129.10              | -8.71                  | -2.43                  | 0.00                  | -32.2                 | 0.00                  | 32.25                            | 1,806.61            | 466.90              | 1,413.93               | 1,246.83               | 11.00                    | -0.75             | 0.031 |
| 129.40              | -8.66                  | -2.40                  | 0.00                  | -31.5                 | 0.00                  | 31.52                            | 1,804.41            | 466.00              | 1,408.50               | 1,242.90               | 11.05                    | -0.75             | 0.030 |
| 130.00              | -8.59                  | -2.35                  | 0.00                  | -30.1                 | 0.00                  | 30.08                            | 1,800.01            | 464.20              | 1,397.66               | 1,235.05               | 11.14                    | -0.75             | 0.029 |
| 134.00              | -4.69                  | -1.50                  | 0.00                  | -20.7                 | 0.00                  | 20.70                            | 1,770.11            | 452.23              | 1,326.48               | 1,182.97               | 11.77                    | -0.76             | 0.020 |
| 134.75              | -4.55                  | -1.49                  | 0.00                  | -19.6                 | 0.00                  | 19.58                            | 1,781.99            | 456.95              | 1,354.30               | 1,203.42               | 11.89                    | -0.76             | 0.019 |
| 135.00              | -4.52                  | -1.43                  | 0.00                  | -19.2                 | 0.00                  | 19.20                            | 1,780.12            | 456.20              | 1,349.86               | 1,200.17               | 11.93                    | -0.76             | 0.019 |
| 140.00              | -4.01                  | -1.31                  | 0.00                  | -12.1                 | 0.00                  | 12.07                            | 1,741.88            | 441.23              | 1,262.74               | 1,135.57               | 12.73                    | -0.77             | 0.013 |
| 145.00              | -3.52                  | -1.20                  | 0.00                  | -5.5                  | 0.00                  | 5.53                             | 1,702.28            | 426.26              | 1,178.52               | 1,071.80               | 13.54                    | -0.77             | 0.007 |
| 149.00              | 0.00                   | -1.16                  | 0.00                  | -0.7                  | 0.00                  | 0.71                             | 1,669.61            | 414.28              | 1,113.23               | 1,021.46               | 14.18                    | -0.77             | 0.001 |

**EQUIVALENT LATERAL FORCES METHOD ANALYSIS**  
*(Based on ASCE7-16 Chapters 11, 12 and 15)*

|                                                                          |          |
|--------------------------------------------------------------------------|----------|
| Spectral Response Acceleration for Short Period ( $S_s$ ):               | 0.100    |
| Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):           | 0.068    |
| Long-Period Transition Period ( $T_L$ – Seconds):                        | 12       |
| Importance Factor ( $I_e$ ):                                             | 1.000    |
| Site Coefficient $F_a$ :                                                 | 1.600    |
| Site Coefficient $F_v$ :                                                 | 2.400    |
| Response Modification Coefficient (R):                                   | 1.500    |
| Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):      | 0.107    |
| Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ): | 0.109    |
| Seismic Response Coefficient ( $C_s$ ):                                  | 0.036    |
| Upper Limit $C_s$ :                                                      | 0.036    |
| Lower Limit $C_s$ :                                                      | 0.030    |
| Period based on Rayleigh Method (sec):                                   | 2.010    |
| Redundancy Factor (p):                                                   | 1.000    |
| Seismic Force Distribution Exponent (k):                                 | 1.750    |
| Total Unfactored Dead Load:                                              | 44.390 k |
| Seismic Base Shear (E):                                                  | 1.600 k  |

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

| Segment | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | $W_z$<br>(lb-ft) | $C_{vx}$ | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------|---------------------------------|----------------|------------------|----------|-----------------------------|---------------------------|
| 44      | 147                             | 384            | 2,437            | 0.021    | 34                          | 469                       |
| 43      | 142.5                           | 493            | 2,963            | 0.026    | 41                          | 602                       |
| 42      | 137.5                           | 508            | 2,865            | 0.025    | 40                          | 620                       |
| 41      | 134.875                         | 26             | 141              | 0.001    | 2                           | 31                        |
| 40      | 134.375                         | 143            | 776              | 0.007    | 11                          | 175                       |
| 39      | 132                             | 784            | 4,116            | 0.036    | 57                          | 957                       |
| 38      | 129.7                           | 69             | 349              | 0.003    | 5                           | 84                        |
| 37      | 129.25                          | 34             | 174              | 0.002    | 2                           | 42                        |
| 36      | 129.05                          | 11             | 58               | 0.000    | 1                           | 14                        |
| 35      | 128.5                           | 116            | 579              | 0.005    | 8                           | 141                       |
| 34      | 126.5                           | 350            | 1,707            | 0.015    | 24                          | 428                       |
| 33      | 122.5                           | 595            | 2,743            | 0.024    | 38                          | 727                       |
| 32      | 117.5                           | 610            | 2,612            | 0.023    | 36                          | 745                       |
| 31      | 112.5                           | 625            | 2,478            | 0.021    | 34                          | 763                       |
| 30      | 107.5                           | 639            | 2,341            | 0.020    | 32                          | 780                       |
| 29      | 102.5                           | 654            | 2,202            | 0.019    | 30                          | 798                       |
| 28      | 99.95                           | 14             | 44               | 0.000    | 1                           | 17                        |
| 27      | 99.45                           | 123            | 394              | 0.003    | 5                           | 151                       |
| 26      | 98.95                           | 14             | 45               | 0.000    | 1                           | 17                        |
| 25      | 98.7                            | 57             | 178              | 0.002    | 2                           | 69                        |
| 24      | 96.75                           | 498            | 1,518            | 0.013    | 21                          | 609                       |
| 23      | 94.875                          | 36             | 106              | 0.001    | 1                           | 44                        |
| 22      | 92.375                          | 1,344          | 3,772            | 0.033    | 52                          | 1,641                     |
| 21      | 89.375                          | 358            | 950              | 0.008    | 13                          | 438                       |
| 20      | 86.875                          | 656            | 1,654            | 0.014    | 23                          | 802                       |
| 19      | 82.5                            | 909            | 2,093            | 0.018    | 29                          | 1,110                     |
| 18      | 77.5                            | 927            | 1,913            | 0.016    | 26                          | 1,132                     |
| 17      | 72.5                            | 945            | 1,735            | 0.015    | 24                          | 1,155                     |
| 16      | 67.5                            | 963            | 1,560            | 0.014    | 22                          | 1,177                     |
| 15      | 62.5                            | 982            | 1,389            | 0.012    | 19                          | 1,199                     |
| 14      | 57.5                            | 1,000          | 1,222            | 0.011    | 17                          | 1,221                     |
| 13      | 54.125                          | 354            | 389              | 0.003    | 5                           | 433                       |
| 12      | 51.625                          | 1,308          | 1,323            | 0.011    | 18                          | 1,597                     |
| 11      | 48                              | 1,633          | 1,454            | 0.013    | 20                          | 1,994                     |

ASSET: 209106, Lee's Summit 2  
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
 ENG NO: 13689205\_C3\_03

| Segment                                           | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | W <sub>z</sub><br>(lb-ft) | C <sub>vx</sub> | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------------------------------------------------|---------------------------------|----------------|---------------------------|-----------------|-----------------------------|---------------------------|
| 10                                                | 45.5                            | 240            | 195                       | 0.002           | 3                           | 293                       |
| 9                                                 | 42.5                            | 1,214          | 873                       | 0.008           | 12                          | 1,483                     |
| 8                                                 | 37.5                            | 1,236          | 714                       | 0.006           | 10                          | 1,510                     |
| 7                                                 | 32.5                            | 1,258          | 565                       | 0.005           | 8                           | 1,536                     |
| 6                                                 | 27.5                            | 1,280          | 429                       | 0.004           | 6                           | 1,563                     |
| 5                                                 | 22.5                            | 1,301          | 307                       | 0.003           | 4                           | 1,589                     |
| 4                                                 | 17.5                            | 1,323          | 201                       | 0.002           | 3                           | 1,616                     |
| 3                                                 | 12.5                            | 1,345          | 113                       | 0.001           | 2                           | 1,643                     |
| 2                                                 | 7.5                             | 1,367          | 47                        | 0.000           | 1                           | 1,669                     |
| 1                                                 | 2.5                             | 1,388          | 7                         | 0.000           | 0                           | 1,696                     |
| ADC CG-1900DDBFBDTBP                              | 149                             | 73             | 472                       | 0.004           | 7                           | 89                        |
| Ericsson Radio 4449 - B13&B5                      | 149                             | 210            | 1,364                     | 0.012           | 19                          | 256                       |
| Ericsson 8843 Rev 2                               | 149                             | 225            | 1,461                     | 0.013           | 20                          | 275                       |
| RFS DB-B1-6C-12AB-0Z                              | 149                             | 21             | 139                       | 0.001           | 2                           | 26                        |
| Raycap RRFDC-3315-PF-48                           | 149                             | 27             | 175                       | 0.002           | 2                           | 33                        |
| Ericsson AIR 6449 B77D/C-Band                     | 149                             | 264            | 1,715                     | 0.015           | 24                          | 322                       |
| Commscope NHH-65C-R2B                             | 149                             | 310            | 2,011                     | 0.017           | 28                          | 378                       |
| Andrew LNX-6515DS-A1M                             | 149                             | 149            | 970                       | 0.008           | 13                          | 182                       |
| Generic Round Low Profile Platform                | 149                             | 1,875          | 12,178                    | 0.105           | 169                         | 2,290                     |
| Commscope RDIDC-9181-PF-48                        | 134                             | 22             | 118                       | 0.001           | 2                           | 27                        |
| Fujitsu TA08025-B604                              | 134                             | 192            | 1,034                     | 0.009           | 14                          | 234                       |
| Fujitsu TA08025-B605                              | 134                             | 225            | 1,213                     | 0.010           | 17                          | 275                       |
| JMA Wireless MX08FRO665-21                        | 134                             | 194            | 1,043                     | 0.009           | 14                          | 236                       |
| Generic Flat Platform with Handrails              | 134                             | 2,500          | 13,480                    | 0.116           | 187                         | 3,053                     |
| Generic 15" x 15" Panel                           | 129.4                           | 10             | 51                        | 0.000           | 1                           | 12                        |
| Generic 1' Std. Dish                              | 129.1                           | 6              | 30                        | 0.000           | 0                           | 7                         |
| Motorola PTP 600                                  | 129                             | 9              | 46                        | 0.000           | 1                           | 11                        |
| Argus LLPX310R                                    | 129                             | 86             | 433                       | 0.004           | 6                           | 105                       |
| Andrew Microwaves VHLP2-23                        | 129                             | 27             | 136                       | 0.001           | 2                           | 33                        |
| Generic Round Side Arm                            | 129                             | 562            | 2,837                     | 0.024           | 39                          | 687                       |
| Andrew Microwaves VHLP800-11                      | 129                             | 48             | 242                       | 0.002           | 3                           | 59                        |
| Samsung RRH-P4A                                   | 128                             | 178            | 888                       | 0.008           | 12                          | 218                       |
| Raycap RNSNDC-7771-PF-48 (20.4" Width)            | 99.9                            | 15             | 48                        | 0.000           | 1                           | 18                        |
| Generic HCS2.0                                    | 99                              | 18             | 56                        | 0.000           | 1                           | 21                        |
| Nokia AHFIG 70.55 lbs                             | 99                              | 212            | 671                       | 0.006           | 9                           | 259                       |
| Generic RRU (Model TBD)                           | 99                              | 220            | 697                       | 0.006           | 10                          | 269                       |
| Nokia AEHC                                        | 99                              | 311            | 985                       | 0.008           | 14                          | 380                       |
| Andrew TMBXX-6517-A2M                             | 99                              | 174            | 550                       | 0.005           | 8                           | 212                       |
| Commscope FFHH-65C-R3                             | 99                              | 377            | 1,196                     | 0.010           | 17                          | 461                       |
| Generic Round Platform with Handrails             | 99                              | 2,500          | 7,926                     | 0.068           | 110                         | 3,053                     |
| Generic Round Platform with Handrails             | 85                              | 2,500          | 6,066                     | 0.052           | 84                          | 3,053                     |
| Andrew ETW190VS12UB                               | 98.9                            | 33             | 104                       | 0.001           | 1                           | 40                        |
| Commscope HELIAX FiberFeed 12 RRU Pendant Connect | 98.5                            | 40             | 126                       | 0.001           | 2                           | 49                        |
| Ericsson RRUS 31 B25 w/ Brackets                  | 85                              | 178            | 433                       | 0.004           | 6                           | 218                       |
| Ericsson RRUS 11/61 w/ Solar Shield               | 85                              | 295            | 715                       | 0.006           | 10                          | 360                       |
| RFS APXV9ERR18-C-A20                              | 85                              | 186            | 451                       | 0.004           | 6                           | 227                       |
|                                                   |                                 | 44,386         | 115,790                   | 1.000           | 1,603                       | 54,210                    |

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

| Segment | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | W <sub>z</sub><br>(lb-ft) | C <sub>vx</sub> | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------|---------------------------------|----------------|---------------------------|-----------------|-----------------------------|---------------------------|
| 44      | 147                             | 384            | 2,437                     | 0.021           | 34                          | 338                       |
| 43      | 142.5                           | 493            | 2,963                     | 0.026           | 41                          | 433                       |
| 42      | 137.5                           | 508            | 2,865                     | 0.025           | 40                          | 446                       |
| 41      | 134.875                         | 26             | 141                       | 0.001           | 2                           | 23                        |
| 40      | 134.375                         | 143            | 776                       | 0.007           | 11                          | 126                       |
| 39      | 132                             | 784            | 4,116                     | 0.036           | 57                          | 689                       |
| 38      | 129.7                           | 69             | 349                       | 0.003           | 5                           | 60                        |
| 37      | 129.25                          | 34             | 174                       | 0.002           | 2                           | 30                        |
| 36      | 129.05                          | 11             | 58                        | 0.000           | 1                           | 10                        |
| 35      | 128.5                           | 116            | 579                       | 0.005           | 8                           | 102                       |

ASSET: 209106, Lee's Summit 2  
 CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
 ENG NO: 13689205\_C3\_03

| Segment                                           | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | W <sub>z</sub><br>(lb-ft) | C <sub>vx</sub> | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|---------------------------------------------------|---------------------------------|----------------|---------------------------|-----------------|-----------------------------|---------------------------|
| 34                                                | 126.5                           | 350            | 1,707                     | 0.015           | 24                          | 308                       |
| 33                                                | 122.5                           | 595            | 2,743                     | 0.024           | 38                          | 523                       |
| 32                                                | 117.5                           | 610            | 2,612                     | 0.023           | 36                          | 536                       |
| 31                                                | 112.5                           | 625            | 2,478                     | 0.021           | 34                          | 549                       |
| 30                                                | 107.5                           | 639            | 2,341                     | 0.020           | 32                          | 561                       |
| 29                                                | 102.5                           | 654            | 2,202                     | 0.019           | 30                          | 574                       |
| 28                                                | 99.95                           | 14             | 44                        | 0.000           | 1                           | 12                        |
| 27                                                | 99.45                           | 123            | 394                       | 0.003           | 5                           | 108                       |
| 26                                                | 98.95                           | 14             | 45                        | 0.000           | 1                           | 12                        |
| 25                                                | 98.7                            | 57             | 178                       | 0.002           | 2                           | 50                        |
| 24                                                | 96.75                           | 498            | 1,518                     | 0.013           | 21                          | 438                       |
| 23                                                | 94.875                          | 36             | 106                       | 0.001           | 1                           | 32                        |
| 22                                                | 92.375                          | 1,344          | 3,772                     | 0.033           | 52                          | 1,181                     |
| 21                                                | 89.375                          | 358            | 950                       | 0.008           | 13                          | 315                       |
| 20                                                | 86.875                          | 656            | 1,654                     | 0.014           | 23                          | 577                       |
| 19                                                | 82.5                            | 909            | 2,093                     | 0.018           | 29                          | 799                       |
| 18                                                | 77.5                            | 927            | 1,913                     | 0.016           | 26                          | 815                       |
| 17                                                | 72.5                            | 945            | 1,735                     | 0.015           | 24                          | 831                       |
| 16                                                | 67.5                            | 963            | 1,560                     | 0.014           | 22                          | 847                       |
| 15                                                | 62.5                            | 982            | 1,389                     | 0.012           | 19                          | 862                       |
| 14                                                | 57.5                            | 1,000          | 1,222                     | 0.011           | 17                          | 878                       |
| 13                                                | 54.125                          | 354            | 389                       | 0.003           | 5                           | 311                       |
| 12                                                | 51.625                          | 1,308          | 1,323                     | 0.011           | 18                          | 1,149                     |
| 11                                                | 48                              | 1,633          | 1,454                     | 0.013           | 20                          | 1,435                     |
| 10                                                | 45.5                            | 240            | 195                       | 0.002           | 3                           | 211                       |
| 9                                                 | 42.5                            | 1,214          | 873                       | 0.008           | 12                          | 1,067                     |
| 8                                                 | 37.5                            | 1,236          | 714                       | 0.006           | 10                          | 1,086                     |
| 7                                                 | 32.5                            | 1,258          | 565                       | 0.005           | 8                           | 1,105                     |
| 6                                                 | 27.5                            | 1,280          | 429                       | 0.004           | 6                           | 1,124                     |
| 5                                                 | 22.5                            | 1,301          | 307                       | 0.003           | 4                           | 1,143                     |
| 4                                                 | 17.5                            | 1,323          | 201                       | 0.002           | 3                           | 1,163                     |
| 3                                                 | 12.5                            | 1,345          | 113                       | 0.001           | 2                           | 1,182                     |
| 2                                                 | 7.5                             | 1,367          | 47                        | 0.000           | 1                           | 1,201                     |
| 1                                                 | 2.5                             | 1,388          | 7                         | 0.000           | 0                           | 1,220                     |
| ADC CG-1900DDBFBDTBP                              | 149                             | 73             | 472                       | 0.004           | 7                           | 64                        |
| Ericsson Radio 4449 - B13&B5                      | 149                             | 210            | 1,364                     | 0.012           | 19                          | 185                       |
| Ericsson 8843 Rev 2                               | 149                             | 225            | 1,461                     | 0.013           | 20                          | 198                       |
| RFS DB-B1-6C-12AB-0Z                              | 149                             | 21             | 139                       | 0.001           | 2                           | 19                        |
| Raycap RRFDC-3315-PF-48                           | 149                             | 27             | 175                       | 0.002           | 2                           | 24                        |
| Ericsson AIR 6449 B77D/C-Band                     | 149                             | 264            | 1,715                     | 0.015           | 24                          | 232                       |
| Commscope NHH-65C-R2B                             | 149                             | 310            | 2,011                     | 0.017           | 28                          | 272                       |
| Andrew LNX-6515DS-A1M                             | 149                             | 149            | 970                       | 0.008           | 13                          | 131                       |
| Generic Round Low Profile Platform                | 149                             | 1,875          | 12,178                    | 0.105           | 169                         | 1,648                     |
| Commscope RDIDC-9181-PF-48                        | 134                             | 22             | 118                       | 0.001           | 2                           | 19                        |
| Fujitsu TA08025-B604                              | 134                             | 192            | 1,034                     | 0.009           | 14                          | 168                       |
| Fujitsu TA08025-B605                              | 134                             | 225            | 1,213                     | 0.010           | 17                          | 198                       |
| JMA Wireless MX08FRO665-21                        | 134                             | 194            | 1,043                     | 0.009           | 14                          | 170                       |
| Generic Flat Platform with Handrails              | 134                             | 2,500          | 13,480                    | 0.116           | 187                         | 2,197                     |
| Generic 15" x 15" Panel                           | 129.4                           | 10             | 51                        | 0.000           | 1                           | 9                         |
| Generic 1' Std. Dish                              | 129.1                           | 6              | 30                        | 0.000           | 0                           | 5                         |
| Motorola PTP 600                                  | 129                             | 9              | 46                        | 0.000           | 1                           | 8                         |
| Argus LLPX310R                                    | 129                             | 86             | 433                       | 0.004           | 6                           | 75                        |
| Andrew Microwaves VHLP2-23                        | 129                             | 27             | 136                       | 0.001           | 2                           | 24                        |
| Generic Round Side Arm                            | 129                             | 562            | 2,837                     | 0.024           | 39                          | 494                       |
| Andrew Microwaves VHLP800-11                      | 129                             | 48             | 242                       | 0.002           | 3                           | 42                        |
| Samsung RRH-P4A                                   | 128                             | 178            | 888                       | 0.008           | 12                          | 157                       |
| Raycap RNSNDC-7771-PF-48 (20.4" Width)            | 99.9                            | 15             | 48                        | 0.000           | 1                           | 13                        |
| Generic HCS2.0                                    | 99                              | 18             | 56                        | 0.000           | 1                           | 15                        |
| Nokia AHFIG 70.55 lbs                             | 99                              | 212            | 671                       | 0.006           | 9                           | 186                       |
| Generic RRU (Model TBD)                           | 99                              | 220            | 697                       | 0.006           | 10                          | 193                       |
| Nokia AEHC                                        | 99                              | 311            | 985                       | 0.008           | 14                          | 273                       |
| Andrew TMBXX-6517-A2M                             | 99                              | 174            | 550                       | 0.005           | 8                           | 153                       |
| Commscope FFHH-65C-R3                             | 99                              | 377            | 1,196                     | 0.010           | 17                          | 331                       |
| Generic Round Platform with Handrails             | 99                              | 2,500          | 7,926                     | 0.068           | 110                         | 2,197                     |
| Generic Round Platform with Handrails             | 85                              | 2,500          | 6,066                     | 0.052           | 84                          | 2,197                     |
| Andrew ETW190VS12UB                               | 98.9                            | 33             | 104                       | 0.001           | 1                           | 29                        |
| Commscope HELIAX FiberFeed 12 RRU Pendant Connect | 98.5                            | 40             | 126                       | 0.001           | 2                           | 35                        |
| Ericsson RRUS 31 B25 w/ Brackets                  | 85                              | 178            | 433                       | 0.004           | 6                           | 157                       |
| Ericsson RRUS 11/61 w/ Solar Shield               | 85                              | 295            | 715                       | 0.006           | 10                          | 259                       |

ASSET: 209106, Lee's Summit 2  
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
ENG NO: 13689205\_C3\_03

| Segment              | Height<br>Above<br>Base<br>(ft) | Weight<br>(lb) | W <sub>z</sub><br>(lb-ft) | C <sub>vx</sub> | Horizontal<br>Force<br>(lb) | Vertical<br>Force<br>(lb) |
|----------------------|---------------------------------|----------------|---------------------------|-----------------|-----------------------------|---------------------------|
| RFS APXV9ERR18-C-A20 | 85                              | 186            | 451                       | 0.004           | 6                           | 163                       |
|                      |                                 | 44,386         | 115,790                   | 1.000           | 1,603                       | 39,001                    |

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

**CALCULATED FORCES**

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(fr-kips) | Mu<br>Mx<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(kips) | Phi<br>Mn<br>(kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|---------------------|---------------------|--------------------------|-------------------|-------|
| 0.00                | -52.51                 | -1.60                  | 0.00                  | -186.84               | 0.00                  | 186.84                           | 4,505.81            | 1,254.02            | 6,800               | 5,574.76            | 0.00                     | 0.00              | 0.05  |
| 5.00                | -50.84                 | -1.61                  | 0.00                  | -178.82               | 0.00                  | 178.82                           | 4,462.67            | 1,231.56            | 6,558               | 5,421.91            | 0.00                     | -0.01             | 0.04  |
| 10.00               | -49.20                 | -1.62                  | 0.00                  | -170.76               | 0.00                  | 170.76                           | 4,418.17            | 1,209.11            | 6,321               | 5,269.35            | 0.02                     | -0.02             | 0.04  |
| 15.00               | -47.59                 | -1.62                  | 0.00                  | -162.68               | 0.00                  | 162.68                           | 4,372.29            | 1,186.65            | 6,089               | 5,117.17            | 0.04                     | -0.02             | 0.04  |
| 20.00               | -46.00                 | -1.62                  | 0.00                  | -154.59               | 0.00                  | 154.59                           | 4,325.05            | 1,164.20            | 5,861               | 4,965.47            | 0.07                     | -0.03             | 0.04  |
| 25.00               | -44.43                 | -1.62                  | 0.00                  | -146.48               | 0.00                  | 146.48                           | 4,276.44            | 1,141.75            | 5,637               | 4,814.33            | 0.11                     | -0.04             | 0.04  |
| 30.00               | -42.90                 | -1.62                  | 0.00                  | -138.38               | 0.00                  | 138.38                           | 4,226.46            | 1,119.29            | 5,417               | 4,663.85            | 0.15                     | -0.05             | 0.04  |
| 35.00               | -41.39                 | -1.61                  | 0.00                  | -130.29               | 0.00                  | 130.29                           | 4,175.11            | 1,096.84            | 5,202               | 4,514.12            | 0.21                     | -0.06             | 0.04  |
| 40.00               | -39.90                 | -1.60                  | 0.00                  | -122.23               | 0.00                  | 122.23                           | 4,122.39            | 1,074.38            | 4,991               | 4,365.22            | 0.27                     | -0.07             | 0.04  |
| 45.00               | -39.61                 | -1.60                  | 0.00                  | -114.21               | 0.00                  | 114.21                           | 4,068.30            | 1,051.93            | 4,785               | 4,217.26            | 0.35                     | -0.07             | 0.04  |
| 46.00               | -37.62                 | -1.58                  | 0.00                  | -112.60               | 0.00                  | 112.60                           | 4,057.32            | 1,047.44            | 4,744               | 4,187.79            | 0.36                     | -0.08             | 0.04  |
| 50.00               | -36.02                 | -1.57                  | 0.00                  | -106.27               | 0.00                  | 106.27                           | 4,012.85            | 1,029.47            | 4,583               | 4,070.32            | 0.43                     | -0.08             | 0.04  |
| 53.25               | -35.59                 | -1.56                  | 0.00                  | -101.17               | 0.00                  | 101.17                           | 3,103.84            | 857.70              | 3,817               | 3,151.53            | 0.49                     | -0.09             | 0.04  |
| 55.00               | -34.36                 | -1.55                  | 0.00                  | -98.43                | 0.00                  | 98.43                            | 3,091.03            | 851.15              | 3,759               | 3,114.42            | 0.52                     | -0.09             | 0.04  |
| 60.00               | -33.17                 | -1.53                  | 0.00                  | -90.69                | 0.00                  | 90.69                            | 3,053.53            | 832.44              | 3,596               | 3,008.57            | 0.62                     | -0.10             | 0.04  |
| 65.00               | -31.99                 | -1.51                  | 0.00                  | -83.02                | 0.00                  | 83.02                            | 3,014.66            | 813.72              | 3,436               | 2,903.07            | 0.73                     | -0.11             | 0.04  |
| 70.00               | -30.83                 | -1.49                  | 0.00                  | -75.45                | 0.00                  | 75.45                            | 2,974.42            | 795.01              | 3,280               | 2,798.01            | 0.84                     | -0.12             | 0.04  |
| 75.00               | -29.70                 | -1.47                  | 0.00                  | -67.98                | 0.00                  | 67.98                            | 2,932.81            | 776.30              | 3,127               | 2,693.49            | 0.97                     | -0.13             | 0.04  |
| 80.00               | -28.59                 | -1.44                  | 0.00                  | -60.64                | 0.00                  | 60.64                            | 2,889.84            | 757.59              | 2,978               | 2,589.60            | 1.11                     | -0.13             | 0.03  |
| 85.00               | -23.93                 | -1.30                  | 0.00                  | -53.43                | 0.00                  | 53.43                            | 2,845.49            | 738.87              | 2,833               | 2,486.43            | 1.25                     | -0.14             | 0.03  |
| 88.75               | -23.49                 | -1.29                  | 0.00                  | -48.54                | 0.00                  | 48.54                            | 2,811.33            | 724.84              | 2,726               | 2,409.58            | 1.37                     | -0.15             | 0.03  |
| 90.00               | -21.85                 | -1.24                  | 0.00                  | -46.93                | 0.00                  | 46.93                            | 2,799.77            | 720.16              | 2,691               | 2,384.08            | 1.40                     | -0.15             | 0.03  |
| 94.75               | -21.81                 | -1.24                  | 0.00                  | -41.06                | 0.00                  | 41.06                            | 2,025.55            | 569.74              | 2,105               | 1,708.13            | 1.56                     | -0.16             | 0.04  |
| 95.00               | -21.20                 | -1.21                  | 0.00                  | -40.75                | 0.00                  | 40.75                            | 2,024.19            | 568.99              | 2,100               | 1,704.72            | 1.56                     | -0.16             | 0.03  |
| 98.50               | -21.08                 | -1.21                  | 0.00                  | -36.50                | 0.00                  | 36.50                            | 2,004.79            | 558.51              | 2,023               | 1,657.10            | 1.68                     | -0.16             | 0.03  |
| 98.90               | -21.02                 | -1.21                  | 0.00                  | -36.01                | 0.00                  | 36.01                            | 2,002.53            | 557.32              | 2,015               | 1,651.66            | 1.69                     | -0.16             | 0.03  |
| 99.00               | -16.22                 | -1.02                  | 0.00                  | -35.89                | 0.00                  | 35.89                            | 2,001.97            | 557.02              | 2,012               | 1,650.30            | 1.70                     | -0.16             | 0.03  |
| 99.90               | -16.18                 | -1.02                  | 0.00                  | -34.97                | 0.00                  | 34.97                            | 1,996.84            | 554.32              | 1,993               | 1,638.07            | 1.73                     | -0.16             | 0.03  |
| 100.00              | -15.39                 | -0.99                  | 0.00                  | -34.87                | 0.00                  | 34.87                            | 1,996.27            | 554.02              | 1,991               | 1,636.71            | 1.73                     | -0.16             | 0.03  |
| 105.00              | -14.61                 | -0.96                  | 0.00                  | -29.92                | 0.00                  | 29.92                            | 1,966.98            | 539.05              | 1,885               | 1,568.85            | 1.91                     | -0.17             | 0.03  |
| 110.00              | -13.84                 | -0.92                  | 0.00                  | -25.13                | 0.00                  | 25.13                            | 1,936.33            | 524.08              | 1,781               | 1,501.23            | 2.09                     | -0.18             | 0.02  |
| 115.00              | -13.10                 | -0.89                  | 0.00                  | -20.52                | 0.00                  | 20.52                            | 1,904.30            | 509.11              | 1,681               | 1,433.95            | 2.28                     | -0.18             | 0.02  |
| 120.00              | -12.37                 | -0.85                  | 0.00                  | -16.09                | 0.00                  | 16.09                            | 1,870.90            | 494.14              | 1,584               | 1,367.10            | 2.48                     | -0.19             | 0.02  |
| 125.00              | -11.94                 | -0.82                  | 0.00                  | -11.86                | 0.00                  | 11.86                            | 1,836.14            | 479.17              | 1,489               | 1,300.77            | 2.68                     | -0.19             | 0.02  |
| 128.00              | -11.58                 | -0.80                  | 0.00                  | -9.39                 | 0.00                  | 9.39                             | 1,814.62            | 470.19              | 1,434               | 1,261.26            | 2.80                     | -0.20             | 0.01  |
| 129.00              | -10.68                 | -0.75                  | 0.00                  | -8.59                 | 0.00                  | 8.59                             | 1,807.34            | 467.20              | 1,416               | 1,248.14            | 2.84                     | -0.20             | 0.01  |
| 129.10              | -10.63                 | -0.74                  | 0.00                  | -8.52                 | 0.00                  | 8.52                             | 1,806.61            | 466.90              | 1,414               | 1,246.83            | 2.85                     | -0.20             | 0.01  |
| 129.40              | -10.53                 | -0.74                  | 0.00                  | -8.30                 | 0.00                  | 8.30                             | 1,804.41            | 466.00              | 1,408               | 1,242.90            | 2.86                     | -0.20             | 0.01  |
| 130.00              | -9.57                  | -0.68                  | 0.00                  | -7.85                 | 0.00                  | 7.85                             | 1,800.01            | 464.20              | 1,398               | 1,235.05            | 2.88                     | -0.20             | 0.01  |
| 134.00              | -5.57                  | -0.42                  | 0.00                  | -5.14                 | 0.00                  | 5.14                             | 1,770.11            | 452.23              | 1,326               | 1,182.97            | 3.05                     | -0.20             | 0.01  |
| 134.75              | -5.54                  | -0.42                  | 0.00                  | -4.83                 | 0.00                  | 4.83                             | 1,781.99            | 456.95              | 1,354               | 1,203.42            | 3.08                     | -0.20             | 0.01  |
| 135.00              | -4.92                  | -0.38                  | 0.00                  | -4.73                 | 0.00                  | 4.73                             | 1,780.12            | 456.20              | 1,350               | 1,200.17            | 3.09                     | -0.20             | 0.01  |
| 140.00              | -4.32                  | -0.33                  | 0.00                  | -2.85                 | 0.00                  | 2.85                             | 1,741.88            | 441.23              | 1,263               | 1,135.57            | 3.30                     | -0.20             | 0.01  |
| 145.00              | -3.85                  | -0.30                  | 0.00                  | -1.19                 | 0.00                  | 1.19                             | 1,702.28            | 426.26              | 1,179               | 1,071.80            | 3.52                     | -0.20             | 0.00  |
| 149.00              | 0.00                   | -0.28                  | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,669.61            | 414.28              | 1,113               | 1,021.46            | 3.68                     | -0.20             | 0.00  |

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

**CALCULATED FORCES**

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(fr-kips) | Mu<br>Mx<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(kips) | Phi<br>Mn<br>(kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|---------------------|---------------------|--------------------------|-------------------|-------|
| 0.00                | -37.78                 | -1.60                  | 0.00                  | -185.05               | 0.00                  | 185.05                           | 4,505.81            | 1,254.02            | 6,800               | 5,574.76            | 0.00                     | 0.00              | 0.04  |
| 5.00                | -36.58                 | -1.61                  | 0.00                  | -177.03               | 0.00                  | 177.03                           | 4,462.67            | 1,231.56            | 6,558               | 5,421.91            | 0.00                     | -0.01             | 0.04  |

ASSET: 209106, Lee's Summit 2  
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
ENG NO: 13689205\_C3\_03

| Seg<br>Elev<br>(ft) | Pu<br>FY (-)<br>(kips) | Vu<br>FX (-)<br>(kips) | Tu<br>MY<br>(ft-kips) | Mu<br>MZ<br>(ft-kips) | Mu<br>Mx<br>(ft-kips) | Resultant<br>Moment<br>(ft-kips) | Phi<br>Pn<br>(kips) | Phi<br>Vn<br>(kips) | Phi<br>Tn<br>(kips) | Phi<br>Mn<br>(kips) | Total<br>Deflect<br>(in) | Rotation<br>(deg) | Ratio |
|---------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------------------|---------------------|---------------------|---------------------|---------------------|--------------------------|-------------------|-------|
| 10.00               | -35.40                 | -1.61                  | 0.00                  | -168.99               | 0.00                  | 168.99                           | 4,418.17            | 1,209.11            | 6,321               | 5,269.35            | 0.02                     | -0.02             | 0.04  |
| 15.00               | -34.23                 | -1.61                  | 0.00                  | -160.94               | 0.00                  | 160.94                           | 4,372.29            | 1,186.65            | 6,089               | 5,117.17            | 0.04                     | -0.02             | 0.04  |
| 20.00               | -33.09                 | -1.61                  | 0.00                  | -152.88               | 0.00                  | 152.88                           | 4,325.05            | 1,164.20            | 5,861               | 4,965.47            | 0.07                     | -0.03             | 0.04  |
| 25.00               | -31.97                 | -1.61                  | 0.00                  | -144.81               | 0.00                  | 144.81                           | 4,276.44            | 1,141.75            | 5,637               | 4,814.33            | 0.11                     | -0.04             | 0.04  |
| 30.00               | -30.86                 | -1.61                  | 0.00                  | -136.76               | 0.00                  | 136.76                           | 4,226.46            | 1,119.29            | 5,417               | 4,663.85            | 0.15                     | -0.05             | 0.04  |
| 35.00               | -29.77                 | -1.60                  | 0.00                  | -128.73               | 0.00                  | 128.73                           | 4,175.11            | 1,096.84            | 5,202               | 4,514.12            | 0.21                     | -0.06             | 0.04  |
| 40.00               | -28.71                 | -1.59                  | 0.00                  | -120.73               | 0.00                  | 120.73                           | 4,122.39            | 1,074.38            | 4,991               | 4,365.22            | 0.27                     | -0.06             | 0.04  |
| 45.00               | -28.50                 | -1.59                  | 0.00                  | -112.78               | 0.00                  | 112.78                           | 4,068.30            | 1,051.93            | 4,785               | 4,217.26            | 0.34                     | -0.07             | 0.03  |
| 46.00               | -27.06                 | -1.57                  | 0.00                  | -111.19               | 0.00                  | 111.19                           | 4,057.32            | 1,047.44            | 4,744               | 4,187.79            | 0.36                     | -0.07             | 0.03  |
| 50.00               | -25.91                 | -1.55                  | 0.00                  | -104.91               | 0.00                  | 104.91                           | 4,012.85            | 1,029.47            | 4,583               | 4,070.32            | 0.42                     | -0.08             | 0.03  |
| 53.25               | -25.60                 | -1.55                  | 0.00                  | -99.86                | 0.00                  | 99.86                            | 3,103.84            | 857.70              | 3,817               | 3,151.53            | 0.48                     | -0.09             | 0.04  |
| 55.00               | -24.72                 | -1.53                  | 0.00                  | -97.15                | 0.00                  | 97.15                            | 3,091.03            | 851.15              | 3,759               | 3,114.42            | 0.51                     | -0.09             | 0.04  |
| 60.00               | -23.86                 | -1.52                  | 0.00                  | -89.49                | 0.00                  | 89.49                            | 3,053.53            | 832.44              | 3,596               | 3,008.57            | 0.61                     | -0.10             | 0.04  |
| 65.00               | -23.01                 | -1.50                  | 0.00                  | -81.91                | 0.00                  | 81.91                            | 3,014.66            | 813.72              | 3,436               | 2,903.07            | 0.72                     | -0.11             | 0.04  |
| 70.00               | -22.18                 | -1.47                  | 0.00                  | -74.42                | 0.00                  | 74.42                            | 2,974.42            | 795.01              | 3,280               | 2,798.01            | 0.83                     | -0.12             | 0.03  |
| 75.00               | -21.37                 | -1.45                  | 0.00                  | -67.05                | 0.00                  | 67.05                            | 2,932.81            | 776.30              | 3,127               | 2,693.49            | 0.96                     | -0.12             | 0.03  |
| 80.00               | -20.57                 | -1.42                  | 0.00                  | -59.81                | 0.00                  | 59.81                            | 2,889.84            | 757.59              | 2,978               | 2,589.60            | 1.09                     | -0.13             | 0.03  |
| 85.00               | -17.22                 | -1.29                  | 0.00                  | -52.70                | 0.00                  | 52.70                            | 2,845.49            | 738.87              | 2,833               | 2,486.43            | 1.24                     | -0.14             | 0.03  |
| 88.75               | -16.90                 | -1.27                  | 0.00                  | -47.88                | 0.00                  | 47.88                            | 2,811.33            | 724.84              | 2,726               | 2,409.58            | 1.35                     | -0.15             | 0.03  |
| 90.00               | -15.72                 | -1.22                  | 0.00                  | -46.29                | 0.00                  | 46.29                            | 2,799.77            | 720.16              | 2,691               | 2,384.08            | 1.39                     | -0.15             | 0.03  |
| 94.75               | -15.69                 | -1.22                  | 0.00                  | -40.49                | 0.00                  | 40.49                            | 2,025.55            | 569.74              | 2,105               | 1,708.13            | 1.54                     | -0.15             | 0.03  |
| 95.00               | -15.25                 | -1.20                  | 0.00                  | -40.19                | 0.00                  | 40.19                            | 2,024.19            | 568.99              | 2,100               | 1,704.72            | 1.55                     | -0.15             | 0.03  |
| 98.50               | -15.17                 | -1.19                  | 0.00                  | -36.00                | 0.00                  | 36.00                            | 2,004.79            | 558.51              | 2,023               | 1,657.10            | 1.66                     | -0.16             | 0.03  |
| 98.90               | -15.12                 | -1.19                  | 0.00                  | -35.52                | 0.00                  | 35.52                            | 2,002.53            | 557.32              | 2,015               | 1,651.66            | 1.67                     | -0.16             | 0.03  |
| 99.00               | -11.67                 | -1.01                  | 0.00                  | -35.40                | 0.00                  | 35.40                            | 2,001.97            | 557.02              | 2,012               | 1,650.30            | 1.68                     | -0.16             | 0.03  |
| 99.90               | -11.64                 | -1.01                  | 0.00                  | -34.49                | 0.00                  | 34.49                            | 1,996.84            | 554.32              | 1,993               | 1,638.07            | 1.71                     | -0.16             | 0.03  |
| 100.00              | -11.07                 | -0.98                  | 0.00                  | -34.39                | 0.00                  | 34.39                            | 1,996.27            | 554.02              | 1,991               | 1,636.71            | 1.71                     | -0.16             | 0.03  |
| 105.00              | -10.51                 | -0.94                  | 0.00                  | -29.50                | 0.00                  | 29.50                            | 1,966.98            | 539.05              | 1,885               | 1,568.85            | 1.89                     | -0.17             | 0.02  |
| 110.00              | -9.96                  | -0.91                  | 0.00                  | -24.78                | 0.00                  | 24.78                            | 1,936.33            | 524.08              | 1,781               | 1,501.23            | 2.07                     | -0.18             | 0.02  |
| 115.00              | -9.42                  | -0.87                  | 0.00                  | -20.23                | 0.00                  | 20.23                            | 1,904.30            | 509.11              | 1,681               | 1,433.95            | 2.25                     | -0.18             | 0.02  |
| 120.00              | -8.90                  | -0.83                  | 0.00                  | -15.87                | 0.00                  | 15.87                            | 1,870.90            | 494.14              | 1,584               | 1,367.10            | 2.45                     | -0.19             | 0.02  |
| 125.00              | -8.59                  | -0.81                  | 0.00                  | -11.69                | 0.00                  | 11.69                            | 1,836.14            | 479.17              | 1,489               | 1,300.77            | 2.65                     | -0.19             | 0.01  |
| 128.00              | -8.33                  | -0.79                  | 0.00                  | -9.26                 | 0.00                  | 9.26                             | 1,814.62            | 470.19              | 1,434               | 1,261.26            | 2.77                     | -0.19             | 0.01  |
| 129.00              | -7.68                  | -0.74                  | 0.00                  | -8.48                 | 0.00                  | 8.48                             | 1,807.34            | 467.20              | 1,416               | 1,248.14            | 2.81                     | -0.19             | 0.01  |
| 129.10              | -7.64                  | -0.73                  | 0.00                  | -8.40                 | 0.00                  | 8.40                             | 1,806.61            | 466.90              | 1,414               | 1,246.83            | 2.81                     | -0.19             | 0.01  |
| 129.40              | -7.58                  | -0.73                  | 0.00                  | -8.18                 | 0.00                  | 8.18                             | 1,804.41            | 466.00              | 1,408               | 1,242.90            | 2.83                     | -0.19             | 0.01  |
| 130.00              | -6.89                  | -0.67                  | 0.00                  | -7.75                 | 0.00                  | 7.75                             | 1,800.01            | 464.20              | 1,398               | 1,235.05            | 2.85                     | -0.20             | 0.01  |
| 134.00              | -4.01                  | -0.41                  | 0.00                  | -5.08                 | 0.00                  | 5.08                             | 1,770.11            | 452.23              | 1,326               | 1,182.97            | 3.01                     | -0.20             | 0.01  |
| 134.75              | -3.99                  | -0.41                  | 0.00                  | -4.77                 | 0.00                  | 4.77                             | 1,781.99            | 456.95              | 1,354               | 1,203.42            | 3.05                     | -0.20             | 0.01  |
| 135.00              | -3.54                  | -0.37                  | 0.00                  | -4.66                 | 0.00                  | 4.66                             | 1,780.12            | 456.20              | 1,350               | 1,200.17            | 3.06                     | -0.20             | 0.01  |
| 140.00              | -3.11                  | -0.33                  | 0.00                  | -2.81                 | 0.00                  | 2.81                             | 1,741.88            | 441.23              | 1,263               | 1,135.57            | 3.26                     | -0.20             | 0.00  |
| 145.00              | -2.77                  | -0.29                  | 0.00                  | -1.17                 | 0.00                  | 1.17                             | 1,702.28            | 426.26              | 1,179               | 1,071.80            | 3.47                     | -0.20             | 0.00  |
| 149.00              | 0.00                   | -0.28                  | 0.00                  | 0.00                  | 0.00                  | 0.00                             | 1,669.61            | 414.28              | 1,113               | 1,021.46            | 3.64                     | -0.20             | 0.00  |

ASSET: 209106, Lee's Summit 2  
CUSTOMER: DISH WIRELESS L.L.C.

CODE: ANSI/TIA-222-H  
ENG NO: 13689205\_C3\_03

# ANALYSIS SUMMARY

| Load Case                   | Reactions             |                       |                       |                           |                           |                           | Max Usage    |                      |
|-----------------------------|-----------------------|-----------------------|-----------------------|---------------------------|---------------------------|---------------------------|--------------|----------------------|
|                             | Shear<br>FX<br>(kips) | Shear<br>FZ<br>(kips) | Axial<br>FY<br>(kips) | Moment<br>MX<br>(ft-kips) | Moment<br>MY<br>(ft-kips) | Moment<br>MZ<br>(ft-kips) | Elev<br>(ft) | Interaction<br>Ratio |
| 1.2D + 1.0W Normal          | 27.84                 | 0.00                  | 53.23                 | 0.00                      | 0.00                      | 2813.81                   | 0.00         | 0.52                 |
| 0.9D + 1.0W Normal          | 27.83                 | 0.00                  | 39.92                 | 0.00                      | 0.00                      | 2790.05                   | 0.00         | 0.51                 |
| 1.2D + 1.0Di + 1.0Wi Normal | 6.04                  | 0.00                  | 81.07                 | 0.00                      | 0.00                      | 609.87                    | 0.00         | 0.13                 |
| 1.2D + 1.0Ev + 1.0Eh Normal | 1.62                  | 0.00                  | 52.51                 | 0.00                      | 0.00                      | 186.84                    | 0.00         | 0.05                 |
| 0.9D - 1.0Ev + 1.0Eh Normal | 1.61                  | 0.00                  | 37.78                 | 0.00                      | 0.00                      | 185.05                    | 0.00         | 0.04                 |
| 1.0D + 1.0W Service Normal  | 7.54                  | 0.00                  | 44.38                 | 0.00                      | 0.00                      | 758.76                    | 0.00         | 0.15                 |



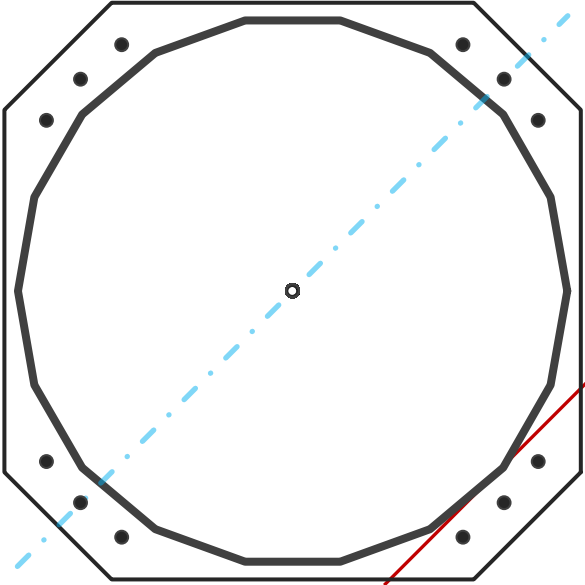
Base Plate & Anchor Rod Analysis

| Pole Dimensions    |       |    |
|--------------------|-------|----|
| Number of Sides    | 18    | -  |
| Diameter           | 60.41 | in |
| Thickness          | 3/8   | in |
| Orientation Offset | 0     | °  |

| Base Reactions |         |      |
|----------------|---------|------|
| Moment, Mu     | 2,813.8 | k-ft |
| Axial, Pu      | 53.2    | k    |
| Shear, Vu      | 27.8    | k    |
| Neutral Axis   | 225     | °    |

| Report Capacities |          |        |
|-------------------|----------|--------|
| Component         | Capacity | Result |
| Base Plate        | 68%      | Pass   |
| Anchor Rods       | 71%      | Pass   |
| Dwyidag           | -        | -      |

| Base Plate           |         |       |
|----------------------|---------|-------|
| Shape                | Square  | -     |
| Width                | 64.5    | in    |
| Thickness            | 2 1/2   | in    |
| Grade                | A572-50 |       |
| Yield Strength, Fy   | 50      | ksi   |
| Tensile Strength, Fu | 65      | ksi   |
| Clip                 | 12      | in    |
| Orientation Offset   | 0       | °     |
| Anchor Rod Detail    | d       | η=0.5 |
| Clear Distance       | 3 3/4   | in    |
| Applied Moment, Mu   | 1472.1  | k     |
| Bending Stress, φMn  | 2157.3  | k     |



| Original Anchor Rods |         |     |
|----------------------|---------|-----|
| Arrangement          | Cluster | -   |
| Quantity             | 12      | -   |
| Diameter, ø          | 2 1/4   | in  |
| Bolt Circle          | 67      | in  |
| Grade                | A615-75 |     |
| Yield Strength, Fy   | 75      | ksi |
| Tensile Strength, Fu | 100     | ksi |
| Spacing              | 6.0     | in  |
| Orientation Offset   | 0       | °   |
| Applied Force, Pu    | 172.3   | k   |
| Anchor Rods, φPn     | 243.6   | k   |

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

| Reaction                      | Shear<br>Vu | Moment<br>Mu | Factor |
|-------------------------------|-------------|--------------|--------|
| -                             | k           | k-ft         | -      |
| Base Forces                   | 27.8        | 2813.8       | 1.00   |
| Anchor Rod Forces             | 27.8        | 2813.8       | 1.00   |
| Additional Bolt (Grp1) Forces | 0.0         | 0.0          | 0.00   |
| Additional Bolt (Grp2) Forces | 0.0         | 0.0          | 0.00   |
| Dywidag Forces                | 0.0         | 0.0          | 0.00   |
| Stiffener Forces              | 0.0         | 0.0          | 0.00   |

## Geometric Properties

| Section   | Gross<br>Area   | Net Area        | Individual<br>Inertia | Threads<br>per Inch | Moment<br>of Inertia |
|-----------|-----------------|-----------------|-----------------------|---------------------|----------------------|
| -         | in <sup>2</sup> | in <sup>2</sup> | in <sup>4</sup>       | #                   | in <sup>4</sup>      |
| Pole      | 70.3685         | 3.9094          | 0.1838                |                     | 31706.10             |
| Bolt      | 3.9761          | 3.2477          | 0.8393                | 4.5                 | 21878.39             |
| Bolt1     | 0.0000          | 0.0000          | 0.0000                | 0                   | 0.00                 |
| Bolt2     | 0.0000          | 0.0000          | 0.0000                | 0                   | 0.00                 |
| Dywidag   | 0.0000          | 0.0000          | 0.0000                |                     | 0.00                 |
| Stiffener | 0.0000          | 0.0000          | 0.0000                |                     | 0.00                 |

| Base Plate           |        |     |
|----------------------|--------|-----|
| Shape                | Square | -   |
| Width, W             | 64.5   | in  |
| Thickness, t         | 2.5    | in  |
| Yield Strength, Fy   | 50     | ksi |
| Tensile Strength, Fu | 65     | ksi |
| Base Plate Chord     | 22.603 | in  |
| Detail Type          | d      | -   |
| Detail Factor        | 0.50   | -   |
| Clear Distance       | 3.75   | -   |

| Anchor Rods                      |       |     |
|----------------------------------|-------|-----|
| Anchor Rod Quantity, N           | 12    | -   |
| Rod Diameter, d                  | 2.25  | in  |
| Bolt Circle, BC                  | 67    | in  |
| Yield Strength, Fy               | 75    | ksi |
| Tensile Strength, Fu             | 100   | ksi |
| Applied Axial, Pu                | 172.3 | k   |
| Applied Shear, Vu                | 0.7   | k   |
| Compressive Capacity, $\phi P_n$ | 243.6 | k   |
| Tensile Capacity, $\phi R_n$     | 0.708 | OK  |
| Interaction Capacity             | 0.714 | OK  |

| External Base Plate          |        |                 |
|------------------------------|--------|-----------------|
| Chord Length AA              | 30.682 | in              |
| Additional AA                | 0.000  | in              |
| Section Modulus, Z           | 47.940 | in <sup>3</sup> |
| Applied Moment, Mu           | 1472.1 | k-ft            |
| Bending Capacity, $\phi M_n$ | 2157.3 | k-ft            |
| Capacity, Mu/ $\phi M_n$     | 0.682  | OK              |
| Chord Length AB              | 29.748 | in              |
| Additional AB                | 0.000  | in              |
| Section Modulus, Z           | 46.481 | in <sup>3</sup> |
| Applied Moment, Mu           | 1233.2 | k-ft            |
| Bending Capacity, $\phi M_n$ | 2091.7 | k-ft            |
| Capacity, Mu/ $\phi M_n$     | 0.590  | OK              |
| Bend Line Length             | 0.000  | in              |
| Additional Bend Line         | 0.000  | in              |
| Section Modulus, Z           | 0.000  | in <sup>3</sup> |
| Applied Moment, Mu           | 0.0    | k-ft            |
| Bending Capacity, $\phi M_n$ | 0.0    | k-ft            |
| Capacity, Mu/ $\phi M_n$     |        |                 |

| Internal Base Plate          |       |                 |
|------------------------------|-------|-----------------|
| Arc Length                   | 0.000 | in              |
| Section Modulus, Z           | 0.000 | in <sup>3</sup> |
| Moment Arm                   | 0.000 | in              |
| Applied Moment, Mu           | 0.0   | k-ft            |
| Bending Capacity, $\phi M_n$ | 0.0   | k-ft            |
| Capacity, Mu/ $\phi M_n$     |       |                 |

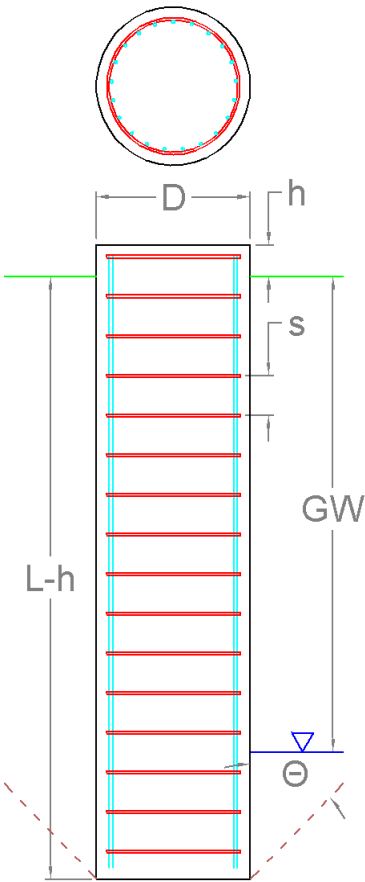
Pier Foundation Analysis (ANSI/TIA-222-H)

| Foundation Analysis Parameters |          |       |     |  |
|--------------------------------|----------|-------|-----|--|
| Pier Diameter                  | $D$      | 8.00  | ft  |  |
| Pier Embedment                 | $L-h$    | 24.0  | ft  |  |
| Pier Height above Ground       | $H$      | 0.50  | ft  |  |
| Water Table Depth [BGL]        | $GW$     | 14    | ft  |  |
| Pullout Angle                  | $\Theta$ | 30    | °   |  |
| Unit Weight of Concrete        |          | 150   | pcf |  |
| Uplift Skin Friction Factor    |          | 1.000 |     |  |

| Reactions     |         |      |
|---------------|---------|------|
| Moment, $M_u$ | 2,813.8 | k-ft |
| Shear, $V_u$  | 27.8    | k    |
| Axial, $P_u$  | 53.2    | k    |
| Uplift, $T_u$ | 0.0     | k    |

| Soil Properties  |      |             |          |                |                        |                           |
|------------------|------|-------------|----------|----------------|------------------------|---------------------------|
| Layer Depth (ft) |      | Unit Weight | Cohesion | Friction Angle | Ultimate Skin Friction | Ultimate Bearing Pressure |
| TOP              | BTM  | pcf         | psf      | °              | psf                    | psf                       |
| 0.0              | 3.0  | 120         | 0        | 0              | 0                      | 0                         |
| 3.0              | 8.5  | 125         | 2,000    | 0              | 1,000                  | 0                         |
| 8.5              | 14.5 | 125         | 0        | 35             | 4,000                  | 0                         |
| 14.5             | 25.0 | 130         | 8,000    | 0              | 2,000                  | 20,000                    |

| Soil Strength Capacities                   |          |      |
|--------------------------------------------|----------|------|
| Volume of Concrete                         | 1,231.5  | ft³  |
| Weight of Concrete [Buoyancy Considered]   | 153.4    | k    |
| Average Soil Unit Weight                   | 100.4    | pcf  |
| Skin Friction Resistance                   | 1,218.9  | k    |
| Compressive Bearing Resistance             | 1,005.3  | k    |
| Pullout Weight [Minus Concrete Weight]     | 903.6    | k    |
| Compressive Force, $P_u$                   | 87.5     | k    |
| Nominal Compressive Capacity, $\phi_s P_n$ | 1,668.2  | k    |
| $P_u / \phi_s P_n$                         | 5.2%     |      |
| Total Lateral Resistance                   | 5,747.1  | k    |
| Inflection Point [BGL]                     | 18.0     | ft   |
| Moment at Inflection Point, $M_D$          | 3,329.9  | k-ft |
| Nominal Moment Capacity, $\phi_s M_n$      | 17,839.4 | k-ft |
| $M_D / \phi_s M_n$                         | 18.7%    |      |



| Pier Strength Capacities                            |          |                 |
|-----------------------------------------------------|----------|-----------------|
| Concrete Compressive Strength, $f'_c$               | 4,000    | psi             |
| Rebar Size #                                        | 9        |                 |
| Rebar Area (Single)                                 | 1.00     | in <sup>2</sup> |
| Rebar Quantity                                      | 38       |                 |
| Rebar Yield Strength, $F_y$                         | 60       | ksi             |
| Vertical Rebar Clear Cover                          | 3        | in              |
| Tie Rebar Size #                                    | 4        |                 |
| Tie Rebar Area (Single)                             | 0.20     | in <sup>2</sup> |
| Tie Rebar Spacing                                   | 12.0     | in              |
| Tie Rebar Yield Strength, $F_y$                     | 60       | ksi             |
| Rebar Cage Diameter                                 | 87.87    | in              |
| Strength Bending/Tension Reduction Factor, $\phi_B$ | 0.90     |                 |
| Strength Shear Reduction Factor, $\phi_V$           | 0.75     |                 |
| Strength Compression Reduction Factor, $\phi_C$     | 0.65     |                 |
| Steel Elastic Modulus                               | 29,000   | ksi             |
| Design Moment, $M_u$                                | 2,829.3  | k-ft            |
| Moment Capacity, $\phi_B M_n$                       | 7,350.9  | k-ft            |
| $M_u / \phi_B M_n$                                  | 38.5%    |                 |
| Design Shear, $V_u$                                 | 336.4    | k               |
| Shear Capacity, $\phi_V V_n$                        | 804.4    | k               |
| $V_u / \phi_V V_n$                                  | 41.8%    |                 |
| Design Compression, $P_u$                           | 87.5     | k               |
| Compression Capacity, $\phi_P P_n$                  | 13,915.6 | k               |
| $P_u / \phi_P P_n$                                  | 0.6%     |                 |
| Bending Reinforcement Ratio                         | 0.005    |                 |

